RIDA

Department of
Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

July 9, 1997

Certified Mail - Return Receipt Requested

Mr. Rich Piper, Chair
Florida Power Coordinating Group, Inc.
405, Reo Street, Suite 100
Tampa, Florida 33609-1004

Dear Mr. Piper:

Enclosed is a copy of a Scrivener's Order correcting an error in the Order concerning particulate matter testing of natural gas fired boilers.

If you have any questions concerning the above, please call Yogesh Manocha at 904/488-6140, or write to me.

Sincerely,

M. D. Harley, P.E., DEE
P.E. Administrator
Emissions Monitoring Section
Bureau of Air Monitoring and
Mobile Sources

MDH:ym

cc: Dotty Diltz, FDEP
Pat Comer, FDEP

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

In the matter of:	)	
	)	
Florida Electric Power Coordinating Group, Inc.,	)	ASP No. 97-B-01
	)	
Petitioner.	)	

ORDER CORRECTING SCRIVENER'S ERROR

The Order which authorizes owners of natural gas fired fossil fuel steam generators to forgo particulate matter compliance testing on an annual basis and prior to renewal of an operation permit entered on the 17th day of March, 1997, is hereby corrected on page 4, paragraph number 4, by deleting the words "pursuant to Rule 62-210.300(2)(a)3.b., c., or d., F.A.C.":

4. In renewing an air operation permit ~~pursuant to Rule 62-210.300(2)(a)3.b., c., or d., F.A.C.,~~ the Department shall not require submission of particulate matter emission compliance test results for any fossil fuel steam generator emissions unit that burned liquid and/or solid fuel for a total of no more than 400 hours during the year prior to renewal.

DONE AND ORDERED this 2 day of July, 1997 in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Howard L. Rhodes

HOWARD L. RHODES, Director
Division of Air Resources Management
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
(904) 488-0114

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that a copy of the foregoing was mailed to Rich Piper, Chair, Florida Power Coordinating Group, Inc., 405 Reo Street, Suite 100, Tampa, Florida 33609-1004, on this 10th day of July 1997.

Clerk Stamp

FILING AND ACKNOWLEDGMENT
FILED, on this date, pursuant to §120.52(7), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Martha Caswell Wise 7/10/97
Clerk Date

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

In the matter of:	)	
	)	
Florida Electric Power Coordinating Group, Inc.,	)	ASP No. 97-B-01
	)	
Petitioner.	)	

ORDER ON REQUEST FOR ALTERNATE PROCEDURES AND REQUIREMENTS

Pursuant to Rule 62-297.620, Florida Administrative Code (F.A.C.), the Florida Electric Coordinating Group, Incorporated, (FCG) petitioned for approval to: (1) Exempt fossil fuel steam generators which burn liquid and/or solid fuel for less than 400 hours during the federal fiscal year from the requirement to conduct an annual particulate matter compliance test; and, (2) Exempt fossil fuel steam generators which burn liquid and/or solid fuel for less than 400 hours during the federal fiscal year from the requirement to conduct an annual particulate matter compliance test during the year prior to renewal of an operation permit. This Order is intended to clarify particulate testing requirements for those fossil fuel steam generators which primarily burn gaseous fuels including, but not necessarily limited to natural gas.

Having considered the provisions of Rule 62-296.405(1), F.A.C., Rule 62-297.310(7), F.A.C., and all supporting documentation, the following Findings of Fact, Conclusions of Law, and Order are entered:

FINDINGS OF FACT

1. The Florida Electric Power Coordinating Group, Incorporated, petitioned the Department to exempt those fossil fuel steam generators which have a heat input of more than 250 million Btu per hour and burn solid and/or liquid fuel less than 400 hours during the year from the requirement to conduct an annual particulate matter compliance test. [Exhibit 1]

2. Rule 62-296.405(1)(a), F.A.C., applies to those fossil fuel steam generators that are not subject to the federal standards of performance for new stationary sources (NSPS) in 40 CFR 60 and which have a heat input of more than 250 million Btu per hour.

3. Rule 62-296.405(1)(a), F.A.C., limits visible emissions from affected fossil fuel steam generators to, "20 percent opacity except for either one six-minute period per hour during which

not exceed 40 percent. The option selected shall be specified in the emissions unit's construction and operation permits. Emissions units governed by this visible emission limit shall test for particulate emission compliance annually and as otherwise required by Rule 62-297, F.A.C."

4. Rule 62-296.405(1)(a), F.A.C., further states, "Emissions units electing to test for particulate matter emission compliance quarterly shall be allowed visible emissions of 40 percent opacity. The results of such tests shall be submitted to the Department. Upon demonstration that the particulate standard has been regularly complied with, the Secretary, upon petition by the applicant, shall reduce the frequency of particulate testing to no less than once annually.

5. Rule 297.310(7)(a)1., F.A.C., states, "The owner or operator of a new or modified emissions unit that is subject to an emission limiting standard shall conduct a compliance test that demonstrates compliance with the applicable emission limiting standard prior to obtaining an operation permit for such emissions unit."

6. Rule 297.310(7)(a)2., F.A.C., states, "The owner or operator of an emissions unit that is subject to any emission limiting standard shall conduct a compliance test that demonstrates compliance with the applicable emission limiting standard prior to obtaining a renewed operation permit. Emissions units that are required to conduct an annual compliance test may submit the most recent annual compliance test to satisfy the requirements of this provision.

7. Rule 297.310(7)(a)3., F.A.C., further states, "In renewing an air operation permit pursuant to Rule 62-210.300(2)(a)3.b., c., or d., F.A.C., the Department shall not require submission of emission compliance test results for any emissions unit that, during the year prior to renewal: a. Did not operate; or, b. In the case of a fuel burning emissions unit, burned liquid and/or solid fuel for a total of no more than 400 hours."

8. Rule 297.310(7)(a)4., F.A.C., states, "During each federal fiscal year (October 1 -- September 30), unless otherwise specified by rule, order, or permit, the owner or operator of each emissions unit shall have a formal compliance test conducted for: a. Visible emissions, if there is an applicable standard; b. Each of the following pollutants, if there is an applicable standard, and if the emissions unit emits or has the potential to emit: 5 tons per year or more of lead or lead compounds measured as elemental lead; 30 tons per year or more of acrylonitrile; or 100 tons per year or more of any other regulated air pollutant..."

9. Rule 297.310(7)(a)5., F.A.C., states. "An annual compliance test for particulate matter emissions shall not be required for any fuel burning emissions unit that, in a federal fiscal year, does not burn liquid and/or solid fuel, other than during startup, for a total of more than 400 hours."

10. Rule 297.310(7)(a)6., F.A.C., states, "For fossil fuel steam generators on a semi-annual particulate matter emission compliance testing schedule, a compliance test shall not be

required for any six-month period in which liquid and/or solid fuel is not burned for more than 200 hours other than during startup."

11. Rule 297.310(7)(a)7., F.A.C., states, "For emissions units electing to conduct particulate matter emission compliance testing quarterly pursuant to Rule 62-296.405(2)(a), F.A.C., a compliance test shall not be required for any quarter in which liquid and/or solid fuel is not burned for more than 100 hours other than during startup." [Note: The reference should be to Rule 62-296.405(1)(a), F.A.C., rather than Rule 62-296.405(2)(a), F.A.C.]

12. The fifth edition of the U. S. Environmental Protection Agency's Compilation of Air Pollutant Emission Factors, AP-42, that emissions of filterable particulate from gas-fired fossil fuel steam generators with a heat input of more than about 10 million Btu per hour may be expected to range from 0.001 to 0.006 pound per million Btu. [Exhibit 2]

13. Rule 62-296.405(1)(b), F.A.C. and the federal standards of performance for new stationary sources in 40 CFR 60.42, Subpart D, limit particulate emissions from uncontrolled fossil fuel fired steam generators with a heat input of more than 250 million Btu to 0.1 pound per million Btu.

CONCLUSIONS OF LAW

1. The Department has jurisdiction to consider the matter pursuant to Section 403.061, Florida Statutes (F.S.), and Rule 62-297.620, F.A.C.

2. Pursuant to Rule 62-297.310(7), F.A.C., the Department may require Petitioner to conduct compliance tests that identify the nature and quantity of pollutant emissions, if, after investigation, it is believed that any applicable emission standard or condition of the applicable permits is being violated.

3. There is reason to believe that a fossil fuel steam generator which does not burn liquid and/or solid fuel (other than during startup) for a total of more than 400 hours in a federal fiscal year and complies with all other applicable limits and permit conditions is in compliance with the applicable particulate mass emission limiting standard.

ORDER

Having considered the requirements of Rule 62-296.405, F.A.C., Rule 62-297.310, F.A.C., and supporting documentation, it is hereby ordered that:

1. An annual compliance test for particulate matter emissions shall not be required for any fuel burning emissions unit that, in a federal fiscal year, does not burn liquid and/or solid fuel, other than during startup, for a total of more than 400 hours;

2. For fossil fuel steam generators on a semi-annual particulate matter emission compliance testing schedule, a compliance test shall not be required for any six-month period in which liquid and/or solid fuel is not burned for more than 200 hours other than during startup;

3. For emissions units electing to conduct particulate matter emission compliance testing quarterly pursuant to Rule 62-296.405(1)(a), F.A.C., a compliance test shall not be required for any quarter in which liquid and/or solid fuel is not burned for more than 100 hours other than during startup;

4. In renewing an air operation permit pursuant to Rule 62-210.300(2)(a)3.b., c., or d., F.A.C., the Department shall not require submission of particulate matter emission compliance test results for any fossil fuel steam generator emissions unit that burned liquid and/or solid fuel for a total of no more than 400 hours during the year prior to renewal.

5. Pursuant to Rule 62-297.310(7), F.A.C., owners of affected fossil fuel steam generators may be required to conduct compliance tests that identify the nature and quantity of pollutant emissions, if, after investigation, it is believed that any applicable emission standard or condition of the applicable permits is being violated.

6. Pursuant to Rule 62-297.310(8), F.A.C., owners of affected fossil fuel steam generators shall submit the compliance test report to the District Director of the Department district office having jurisdiction over the emissions unit and, where applicable, the Air Program Administrator of the appropriate Department-approved local air program within 45 days of completion of the test.

PETITION FOR ADMINISTRATIVE REVIEW

The Department will take the action described in this Order unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 of the Florida Statutes, or a party requests mediation as an alternative remedy under section 120.573 before the deadline for filing a petition. Choosing mediation will not adversely affect the right to a hearing if mediation does not result in a settlement. The procedures for petitioning for a hearing are set forth below, followed by the procedures for requesting mediation.

A person whose substantial interests are affected by the Department's proposed decision may petition for an administrative hearing in accordance with sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000. Petitions must be filed within 21 days of receipt of this Order. A petitioner must mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition (or a request for mediation, as discussed below) within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 of the Florida Statutes, or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-5.207 of the Florida Administrative Code.

A petition must contain the following information:

(a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department File Number, and the county in which the project is proposed;

(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;

(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;

(d) A statement of the material facts disputed by each petitioner, if any;

(e) A statement of facts that the petitioner contends warrant reversal or modification of the Department's action or proposed action;

(f) A statement identifying the rules or statutes each petitioner contends require reversal or modification of the Department's action or proposed action; and,

(g) A statement of the relief sought by each petitioner, stating precisely the action each petitioner wants the Department to take with respect to the Department's action or proposed action in the notice of intent.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this Order. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A person whose substantial interests are affected by the Department's proposed decision, may elect to pursue mediation by asking all parties to the proceeding to agree to such mediation and by filing with the Department a request for mediation and the written agreement of all such parties to mediate the dispute. The request and agreement must be filed in (received by) the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, by the same deadline as set forth above for the filing of a petition.

A request for mediation must contain the following information:

(a) The name, address, and telephone number of the person requesting mediation and that person's representative, if any;

(b) A statement of the preliminary agency action;

(c) A statement of the relief sought; and

(d) Either an explanation of how the requester's substantial interests will be affected by the action or proposed action addressed in this notice of intent or a statement clearly identifying the petition for hearing that the requester has already filed, and incorporating it by reference.

The agreement to mediate must include the following:

(a) The names, addresses, and telephone numbers of any persons who may attend the mediation;

(b) The name, address, and telephone number of the mediator selected by the parties, or a provision for selecting a mediator within a specified time;

(c) The agreed allocation of the costs and fees associated with the mediation;

(d) The agreement of the parties on the confidentiality of discussions and documents introduced during mediation;

(e) The date, time, and place of the first mediation session, or a deadline for holding the first session, if no mediator has yet been chosen;

(f) The name of each party's representative who shall have authority to settle or recommend settlement; and

(g) The signatures of all parties or their authorized representatives.

As provided in section 120.573 of the Florida Statutes, the timely agreement of all parties to mediate will toll the time limitations imposed by sections 120.569 and 120.57 for requesting and holding an administrative hearing. Unless otherwise agreed by the parties, the mediation must be concluded within sixty days of the execution of the agreement. If mediation results in settlement of the administrative dispute, the Department must enter a final order incorporating the agreement of the parties. Persons whose substantial interests will be affected by such a modified final decision of the Department have a right to petition for a hearing only in accordance with the requirements for such petitions set forth above. If mediation terminates without settlement of the dispute, the Department shall notify all parties in writing that the administrative hearing processes under sections 120.569 and 120.57 remain available for disposition of the dispute, and the notice will specify the deadlines that then will apply for challenging the agency action and electing remedies under those two statutes.

In addition to the above, a person subject to regulation has a right to apply for a variance from or waiver of the requirements of particular rules, on certain conditions, under section 120.542 of the Florida Statutes. The relief provided by this state statute applies only to state rules, not statutes, and not to any federal regulatory requirements. Applying for a variance or waiver does not substitute or extend the time for filing a petition for an administrative hearing or exercising any other right that a person may have in relation to the action proposed in this notice of intent.

The application for a variance or waiver is made by filing a petition with the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000.

The petition must specify the following information:

(a) The name, address, and telephone number of the petitioner;

(b) The name, address, and telephone number of the attorney or qualified representative of the petitioner, if any;

(c) Each rule or portion of a rule from which a variance or waiver is requested;

(d) The citation to the statute underlying (implemented by) the rule identified in (c) above;

(e) The type of action requested;

(f) The specific facts that would justify a variance or waiver for the petitioner;

(g) The reason why the variance or waiver would serve the purposes of the underlying statute (implemented by the rule); and

(h) A statement whether the variance or waiver is permanent or temporary and, if temporary, a statement of the dates showing the duration of the variance or waiver requested.

The Department will grant a variance or waiver, when the petition demonstrates both that the application of the rule would create a substantial hardship or violate principles of fairness, as each of those terms is defined in section 120.542(2) of the Florida Statutes, and that the purpose of the underlying statute will be or has been achieved by other means by the petitioner. Persons subject to regulation pursuant to any federally delegated or approved air program should be aware that Florida is specifically not authorized to issue variances or waivers from any requirements of any such federally delegated or approved program. The requirements of the program remain fully each of those terms is defined in section 120.542(2) of the Florida Statutes, and that the purpose of the underlying statute will be or has been achieved by other means by the petitioner. Persons subject to regulation pursuant to any federally delegated or approved air program should be aware that Florida is specifically not authorized to issue variances or waivers from any requirements of any such federally delegated or approved program. The requirements of the program remain fully enforceable by the Administrator of the EPA and by any person under the Clean Air Act unless and until the Administrator separately approves any variance or waiver in accordance with the procedures of the federal program.

This Order constitutes final agency action unless a petition is filed in accordance with the above paragraphs. Upon timely filing of a petition, this Order will not be effective until further Order of the Department.

RIGHT TO APPEAL

Any party to this Order has the right to seek judicial review of the Order pursuant to Section 120.68, F.S., by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000; and, by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date the Notice of Agency Action is filed with the Clerk of the Department.

DONE AND ORDERED this 17 day of March, 1997 in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Howard L. Rhodes

HOWARD L. RHODES, Director
Division of Air Resources Management
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
(904) 488-0114

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that a copy of the foregoing was mailed to Rich Piper, Chair, Florida Power Coordinating Group, Inc., 405 Reo Street, Suite 100, Tampa, Florida 33609-1004, on this 18th day of March 1997.

Clerk Stamp

FILING AND ACKNOWLEDGMENT
FILED, on this date, pursuant to §120.52(7), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

[signature] 3-18-97
Clerk Date

BEST AVAILABLE COPY

FLORIDA ELECTRIC POWER COORDINATING GROUP, INC. (FCG)
?? REO STREET, SUITE 100 • (813) 289-5644 • FAX (813) 289-5646
TAMPA, FLORIDA 33609-1004

January 28, 1997

Clair H. Fancy, P.E.
Chief, Bureau of Air Regulation
Florida Department of Environmental Protection
2600 Blair Stone Road, MS 5505
Tallahassee, FL 32301

RECEIVED
JAN 28 1997
BUREAU OF
AIR REGULATION

RE: Comments Regarding Draft Title V Permits

Dear Mr. Fancy:

The Florida Electric Power Coordinating Group, Inc. (FCG), which is made up of 36 utilities owned by investors, municipalities, and cooperatives, has been following the implementation of Title V in Florida and recently submitted comments to you on draft Title V permit conditions by letter dated December 4, 1996. As indicated in that letter, representatives from the FCG would like to meet with you and other members of your air permitting staff to discuss some significant concerns that FCG member companies have regarding conditions that may be included in Title V permits issued by your office. While we will be discussing these issues with you and your staff in greater detail at that meeting, we would like to explain some of our concerns in this letter.

Primarily, the FCG members are concerned that the Title V permits may contain conditions that are much different in important respects than those conditions currently included in existing air permits. During the rulemaking workshops and seminars conducted by the Department to discuss the rules implementing the Title V permitting program, representations were made on several occasions that industry could expect to see permit conditions that were substantively similar to existing permit conditions and that primarily the format was changing. Representations were also made to industry that Title V did not impose additional substantive requirements beyond what was already required under the Department's rules. Based on the first draft Title V permit that we have reviewed, we are concerned that there may be some attempt to change the substantive requirements on existing facilities through the Title V permitting process, and we would like to discuss this with you at the meeting we have scheduled for January 30, 1997.

1. Federal Enforceability--The FCG has long been concerned about the designation of non-federally enforceable permit terms and conditions. We are concerned about this issue because the Department's first draft Title V permits have included language stating that *all* terms and conditions would become federally enforceable once the permit is issued. This approach is consistent with the Department's guidance memorandum dated September 13, 1996 (DARM-PER/V-18), but we understand that the Department may now intend to remove all references to

the federal enforceability of permit terms and conditions. We are also concerned about this approach because a Title V permit is generally federally enforceable and, without any designation of non-federally enforceable terms and conditions, the entire permit could be interpreted to be federally enforceable. As we stated in the December 4 letter as well as our letter dated October 11, 1996, all terms and conditions in a Title V permit do *not* become enforceable by the U.S. Environmental Protection Agency and citizens under the Clean Air Act simply by inclusion in a Title V permit. To make it clear which provisions in a Title V permit are not federally enforceable (which are being included because of state or local requirements only), it is very important to specifically designate those conditions as having no federally enforceable basis. Such a designation is actually required under the federal Title V rules, which provide that permitting agencies are to "specifically designate as not being federally enforceable under the Act any terms and conditions included in the permit that are not required under the Act or under any of its applicable requirements." 40 CFR § 70.6(b). We would like to discuss with you our concerns about this issue and to again specifically request that when Title V permits are issued by the Department, conditions having no federally enforceable basis clearly be identified as such.

2. PM Testing on Gas--The FCG understands that the Department may attempt to require annual particulate matter compliance testing while firing natural gas to determine compliance with the 0.1 lb/mmBtu emission limit established under Rule 62-296.405(1)(b), F.A.C. The FCG member companies feel strongly that compliance testing for particulate matter should not be required while firing natural gas. The Department has not historically required particulate matter compliance testing while firing natural gas, it is not required under the current permits for these units, and it should not be necessary since natural gas is such a clean fuel. Typically only *de minimis* amounts of particulate matter would be expected from the firing of natural gas, so compliance testing would not provide meaningful information to the Department, and the expense to conduct such tests is not justified. We understand that Department representatives suggested that industry could pursue an alternative test procedure under Rule 62-297.620, F.A.C., to allow a visible emissions test to be used in lieu of a stack test for determining compliance with the particulate matter limit. While certainly a visible emissions test would be preferable over a stack test, neither of these tests should be needed to demonstrate compliance with the particulate matter limit of 0.1 lb/mmBtu while burning natural gas. The FCG strongly urges that the Department reconsider its position on this issue and clarify that compliance testing for particulate matter while firing natural gas is not required.

3. Excess Emissions--By letter dated December 5, 1996, the U.S. Environmental Protection Agency (EPA) submitted a letter commenting on a draft Title V permit that had been issued by the Department and indicated some concern regarding excess emission provisions included in conditions that were quoted from Rule 62-210.700, F.A.C. Because the permit conditions cited simply quote the applicable provisions of the Department's rules regarding

excess emissions and because these rules have been approved as part of Florida's State Implementation Plan, the permit conditions are appropriate to be included in the permit. We understand that the Department intends to include as applicable requirements in Title V permit conditions the provisions of Rule 62-210.700, F.A.C. If the Department receives any further adverse comments regarding the excess emissions rule under 62-210.700, F.A.C., we would appreciate your contacting us. Because this issue is so important to us, we would like to discuss it with you in greater detail at our meeting on January 30.

4. Compliance Testing for Combustion Turbines--While the Department's November 22, 1995, guidance regarding the compliance testing requirements for combustion turbines clearly states that the use of heat input curves based on ambient temperatures and humidities is to be included as a permit condition *only* if requested by a permittee, we understand that the Department may intend to include this requirement in Title V permits for all combustion turbines. As we are sure you recall, the FCG worked over a period of several months with the Department on the development of the guidance memorandum and it was clearly understood by FCG members that the heat input curves would not be mandated but would remain voluntary for any existing combustion turbine. It was also understood by FCG members that the requirement to conduct testing at 95 to 100 percent of capacity would be required only if the permit applicant requested the use of heat input curves. We understand that the Department may be interpreting the requirement to use heat input curves and to test at 95 to 100 percent of permitted capacity to be mandatory for all combustion turbines. We would like to clarify this with you during our meeting. Also, we would like to confirm that, regardless of whether a combustion turbine uses heat input curves or tests at 95 to 100 percent of permitted capacity, it is necessary to test at four load points and correct to ISO *only* to determine compliance with the nitrogen oxides (NOx) standard under New Source Performance Standard Subpart GG under 40 CFR § 60.332 and not annually thereafter.

5. Test Methods--The FCG is concerned about the possibility of the Department requiring a full permit revision to authorize the use of an approved test method not specifically identified in a Title V permit, even though the Department may have separately approved the use of the particular test method for a unit (i.e., through a compliance test protocol). It is the FCG's position that language should be included in all Title V permits indicating that other test methods approved by the Department may be used. Further, a full permit revision (including public notice) should *not* be necessary when a test method not previously identified in the permit is approved for use by a unit. The Department's subsequent approval of test methods should simply be included in the next permit renewal cycle. The FCG understands that the Department planned to confirm this approach with the U.S. Environmental Protection Agency Region IV, and we would like to discuss this issue with you at the January 30 meeting to learn of the agency's response.

6. Quarterly Reports--The FCG understands that the Department may be interpreting the quarterly reporting requirements under Rule 62-296.405(1)(g), F.A.C., to apply regardless of whether continuous emissions monitors were required under the preceding Rule 62-296.405(1)(f), F.A.C. It is the FCG's position that quarterly reports are required under Rule 62-296.405(1)(g) only when continuous emissions monitors are required under the preceding paragraph (f). While this may not be entirely clear from the language of the rules, paragraphs (f) and (g) were originally included in a separate rule on "continuous emission monitoring requirements" where it was very clear that the requirements of paragraph (g) applied *only* if continuous emission monitoring was required under paragraph (f). Research indicates that Rule 17-2.710, F.A.C. (copy attached), where these provisions were originally located, was first transferred to Rule 17-297.500, F.A.C. (which later became Rule 62-297.500), later repealed in November of 1994, and ultimately replaced with what is now Rule 62-296.405(1)(f) and (g), F.A.C. To the extent that an emissions unit is not subject to Rule 62-296.405(1)(f) and is not required to install and operate continuous emissions monitors (e.g., oil- and gas-fired units), the quarterly reporting requirements of paragraph (g) should not apply.

7. Trivial Activities--As you may recall, in May of 1996, the FCG submitted to the Department a list of small, *de minimis* emissions units and activities that it considered to be "trivial," consistent with the list developed by EPA as part of the Title V "White Paper" and incorporated by reference by the Department in its March 15, 1996, guidance memorandum (DARM-PER/V-15-Revised). We never received a response from the Department and now understand that the Department may not have made a determination as to whether any of the emission units or activities on the list should qualify as "trivial." This is an important issue to the FCG because only "trivial" activities can be omitted from the Title V permit application and permit, and ultimately omitted from emission estimates in the annual air operation reports under Rule 62-210.370(3), F.A.C. The FCG remains hopeful that the Department will consider its request to determine that most, if not all, of the emission units and activities on the May, 1996, list to be "trivial." We would like to discuss a possible resolution of this issue with you and your staff at the January 30 meeting.

8. Permit Shield--The FCG continues to be concerned about the language in Conditions 5 and 20 of Appendix TV-1, Title V Conditions, which circumvents the permit shield provisions under Section 403.0872(15), Florida Statutes, and Rule 62-213.460, F.A.C. The FCG believes that these conditions should be deleted in their entirety. To the extent that the Department attempt to caveat the applicability of those conditions, the FCG believes that it is important to cite to not only the regulatory citation for the permit shield but the statutory citation as well.

Thank you again for considering the FCG's comments on the draft Title V permits. We very much appreciate the cooperation we have received from the Department throughout the

Title V implementation process, and we look forward to our meeting later this week. If you have any questions in the meantime, please call me at 561-625-7661.

Sincerely,

Rich Piper

Rich Piper, Chair
FCG Air Subcommittee

Enclosures

cc: Howard L. Rhodes, DEP
John Brown, DEP
Pat Comer, DEP OGC
Scott M. Sheplak, DEP
Edward Svec, DEP
FCG Air Subcommittee
Angela Morrison, HGSS

52501

AP-42
FIFTH EDITION
JANUARY 1995

COMPILATION OF AIR POLLUTANT EMISSION FACTORS

VOLUME I: STATIONARY POINT AND AREA SOURCES

Office Of Air Quality Planning And Standards
Office Of Air And Radiation
U. S. Environmental Protection Agency
Research Triangle Park, NC 27711

January 1995

Exhibit 2

1.4 Natural Gas Combustion

1.4.1 General[1-2]

Natural gas is one of the major fuels used throughout the country. It is used mainly for industrial process steam and heat production; for residential and commercial space heating; and for electric power generation. Natural gas consists of a high percentage of methane (generally above 80 percent) and varying amounts of ethane, propane, butane, and inerts (typically nitrogen, carbon dioxide, and helium). Gas processing plants are required for the recovery of liquefiable constituents and removal of hydrogen sulfide before the gas is used (see Section 5.3, Natural Gas Processing). The average gross heating value of natural gas is approximately 8900 kilocalories per standard cubic meter (1000 British thermal units per standard cubic foot), usually varying from 8000 to 9800 kcal/scm (900 to 1100 Btu/scf).

1.4.2 Emissions And Controls[3-5]

Even though natural gas is considered to be a relatively clean-burning fuel, some emissions can result from combustion. For example, improper operating conditions, including poor air/fuel mixing, insufficient air, etc., may cause large amounts of smoke, carbon monoxide (CO), and organic compound emissions. Moreover, because a sulfur-containing mercaptan is added to natural gas to permit leak detection, small amounts of sulfur oxides will be produced in the combustion process.

Nitrogen oxides (NO_x) are the major pollutants of concern when burning natural gas. Nitrogen oxide emissions depend primarily on the peak temperature within the combustion chamber as well as the furnace-zone oxygen concentration, nitrogen concentration, and time of exposure at peak temperatures. Emission levels vary considerably with the type and size of combustor and with operating conditions (particularly combustion air temperature, load, and excess air level in boilers).

Currently, the two most prevalent NO_x control techniques being applied to natural gas-fired boilers (which result in characteristic changes in emission rates) are low NO_x burners and flue gas recirculation. Low NO_x burners reduce NO_x by accomplishing the combustion process in stages. Staging partially delays the combustion process, resulting in a cooler flame which suppresses NO_x formation. The three most common types of low NO_x burners being applied to natural gas-fired boilers are staged air burners, staged fuel burners, and radiant fiber burners. Nitrogen oxide emission reductions of 40 to 85 percent (relative to uncontrolled emission levels) have been observed with low NO_x burners. Other combustion staging techniques which have been applied to natural gas-fired boilers include low excess air, reduced air preheat, and staged combustion (e. g., burners-out-of-service and overfire air). The degree of staging is a key operating parameter influencing NO_x emission rates for these systems.

In a flue gas recirculation (FGR) system, a portion of the flue gas is recycled from the stack to the burner windbox. Upon entering the windbox, the gas is mixed with combustion air prior to being fed to the burner. The FGR system reduces NO_x emissions by two mechanisms. The recycled flue gas is made up of combustion products which act as inerts during combustion of the fuel/air mixture. This additional mass is heated in the combustion zone, thereby lowering the peak flame temperature and reducing the amount of NO_x formed. To a lesser extent, FGR also reduces NO_x formation by lowering the oxygen concentration in the primary flame zone. The amount of flue gas recirculated is a key operating parameter influencing NO_x emission rates for these systems. Flue gas recirculation is normally used in combination with low NO_x burners. When used in combination, these techniques are capable of reducing uncontrolled NO_x emissions by 60 to 90 percent.

Two post-combustion technologies that may be applied to natural gas-fired boilers to reduce NO_x emissions by further amounts are selective noncatalytic reduction and selective catalytic reduction. These systems inject ammonia (or urea) into combustion flue gases to reduce inlet NO_x emission rates by 40 to 70 percent.

Although not measured, all particulate matter (PM) from natural gas combustion has been estimated to be less than 1 micrometer in size. Particulate matter is composed of filterable and condensable fractions, based on the EPA sampling method. Filterable and condensable emission rates are of the same order of magnitude for boilers; for residential furnaces, most of the PM is in the form of condensable material.

The rates of CO and trace organic emissions from boilers and furnaces depend on the efficiency of natural gas combustion. These emissions are minimized by combustion practices that promote high combustion temperatures, long residence times at those temperatures, and turbulent mixing of fuel and combustion air. In some cases, the addition of NO_x control systems such as FGR and low NO_x burners reduces combustion efficiency (due to lower combustion temperatures), resulting in higher CO and organic emissions relative to uncontrolled boilers.

Emission factors for natural gas combustion in boilers and furnaces are presented in Tables 1.4-1, 1.4-2, and 1.4-3.[6] For the purposes of developing emission factors, natural gas combustors have been organized into four general categories: utility/large industrial boilers, small industrial boilers, commercial boilers, and residential furnaces. Boilers and furnaces within these categories share the same general design and operating characteristics and hence have similar emission characteristics when combusting natural gas. The primary factor used to demarcate the individual combustor categories is heat input.

Table 1.4-1 (Metric And English Units). EMISSION FACTORS FOR PARTICULATE MATTER (PM) FROM NATURAL GAS COMBUSTION[a]

Combustor Type (Size, 10^6 Btu/hr Heat Input) (SCC)[b]	Filterable PM[c]			Condensable PM[d]		
	$kg/10^6\ m^3$	$lb/10^6\ ft^3$	RATING	$kg/10^6\ m^3$	$lb/10^6\ ft^3$	RATING
Utility/large industrial boilers (> 100) (1-01-006-01, 1-01-006-04)	16 - 80	1 - 5	B	ND	ND	NA
Small industrial boilers (10 - 100) (1-02-006-02)	99	6.2	B	120	7.5	D
Commercial boilers (0.3 - < 10) (1-03-006-03)	72	4.5	C	120	7.5	C
Residential furnaces (< 0.3) (No SCC)	2.8	0.18	C	180	11	D

[a] References 9-14. All factors represent uncontrolled emissions. Units are kg of pollutant/10^6 cubic meters natural gas fired and lb of pollutant/10^6 cubic feet natural gas fired. Based on an average natural gas higher heating value of 8270 kcal/m^3 (1000 Btu/scf). The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value. ND = no data. NA = not applicable.

[b] SCC = Source Classification Code.

[c] Filterable PM is that particulate matter collected on or prior to the filter of an EPA Method 5 (or equivalent) sampling train.

[d] Condensable PM is that particulate matter collected using EPA Method 202, (or equivalent). Total PM is the sum of the filterable PM and condensable PM. All PM emissions can be assumed to be less than 10 micrometers in aerodynamic equivalent diameter (PM-10).

Table 1.4-2 (Metric And English Units). EMISSION FACTORS FOR SULFUR DIOXIDE (SO_2), NITROGEN OXIDES (NO_x), AND CARBON MONOXIDE (CO) FROM NATURAL GAS COMBUSTION[a]

Combustor Type (Size, 10^6 Btu/hr Heat Input) (SCC)[b]	SO_2[c]			NO_x[d]			CO[e]		
	kg/10^6 m^3	lb/10^6 ft^3	RATING	kg/10^6 m^3	lb/10^6 ft^3	RATING	kg/10^6 m^3	lb/10^6 ft^3	RATING
Utility/large Industrial Boilers (> 100) (1-01-006-01, 1-01-006-04)									
Uncontrolled	9.6	0.6	A	8800	550[f]	A	640	40	A
Controlled - Low NO_x burners	9.6	0.6	A	1300	81[f]	D	ND	ND	NA
Controlled - Flue gas recirculation	9.6	0.6	A	850	53[f]	D	ND	ND	NA
Small Industrial Boilers (10 - 100) (1-02-006-02)									
Uncontrolled	9.6	0.6	A	2240	140	A	560	35	A
Controlled - Low NO_x burners	9.6	0.6	A	1300	81[f]	D	980	61	D
Controlled - Flue gas recirculation	9.6	0.6	A	480	30	C	590	37	C
Commercial Boilers (0.3 - < 10) (1-03-006-03)									
Uncontrolled	9.6	0.6	A	1600	100	B	330	21	C
Controlled - Low NO_x burners	9.6	0.6	A	270	17	C	425	27	C
Controlled - Flue gas recirculation	9.6	0.6	A	580	36	D	ND	ND	NA
Residential Furnaces (< 0.3) (No SCC)									
Uncontrolled	9.6	0.6	A	1500	94	B	640	40	B

[a] Units are kg of pollutant/10^6 cubic meters natural gas fired and lb of pollutant/10^6 cubic feet natural gas fired. Based on an average natural gas fired higher heating value of 8270 kcal/m^3 (1000 Btu/scf). The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value. ND = no data. NA = not applicable.

[b] SCC = Source Classification Code.

[c] Reference 7. Based on average sulfur content of natural gas, 4600 g/10^6 Nm^3 (2000 gr/10^6 scf).

Table 1.4-2 (cont.).

[d] References 10,15-19. Expressed as NO_2. For tangentially fired units, use 4400 kg/10^6 m^3 (275 lb/10^6 ft^3). At reduced loads, multiply factor by load reduction coefficient in Figure 1.4-1. Note that NO_x emissions from controlled boilers will be reduced at low load conditions.

[e] References 9-10,16-18,20-21.

[f] Emission factors apply to packaged boilers only.

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Table 1.4-3 (Metric And English Units). EMISSION FACTORS FOR CARBON DIOXIDE (CO_2) AND TOTAL ORGANIC COMPOUNDS (TOC) FROM NATURAL GAS COMBUSTION[a]

Combustor Type (Size, 10^6 Btu/hr Heat Input) (SCC)[b]	CO_2[c]			TOC[d]		
	kg/10^6 m^3	lb/10^6 ft^3	RATING	kg/10^6 m^3	lb/10^6 ft^3	RATING
Utility/large industrial boilers (> 100) (1-01-006-01, 1-01-006-04)	ND[e]	ND	NA	28[f]	1.7[f]	C
Small industrial boilers (10 - 100) (1-02-006-02)	1.9 E+06	1.2 E+05	D	92[g]	5.8[g]	C
Commercial boilers (0.3 - < 10) (1-03-006-03)	1.9 E+06	1.2 E+05	C	128[h]	8.0[h]	C
Residential furnaces (No SCC)	2.0 E+06	1.3 E+05	D	180[h]	11[h]	D

[a] All factors represent uncontrolled emissions. Units are kg of pollutant/10^6 cubic meters and lb of pollutant/10^6 cubic feet. Based on an average natural gas higher heating value of 8270 kcal/m^3 (1000 Btu/scf). The emission factors in this table may be converted to other natural gas heating values by multiplying the given factor by the ratio of the specified heating value to this average heating value. NA = not applicable.

[b] SCC = Source Classification Code.

[c] References 10,22-23.

[d] References 9-10,18.

[e] ND = no data.

[f] Reference 8: methane comprises 17% of organic compounds.

[g] Reference 8: methane comprises 52% of organic compounds.

[h] Reference 8: methane comprises 34% of organic compounds.

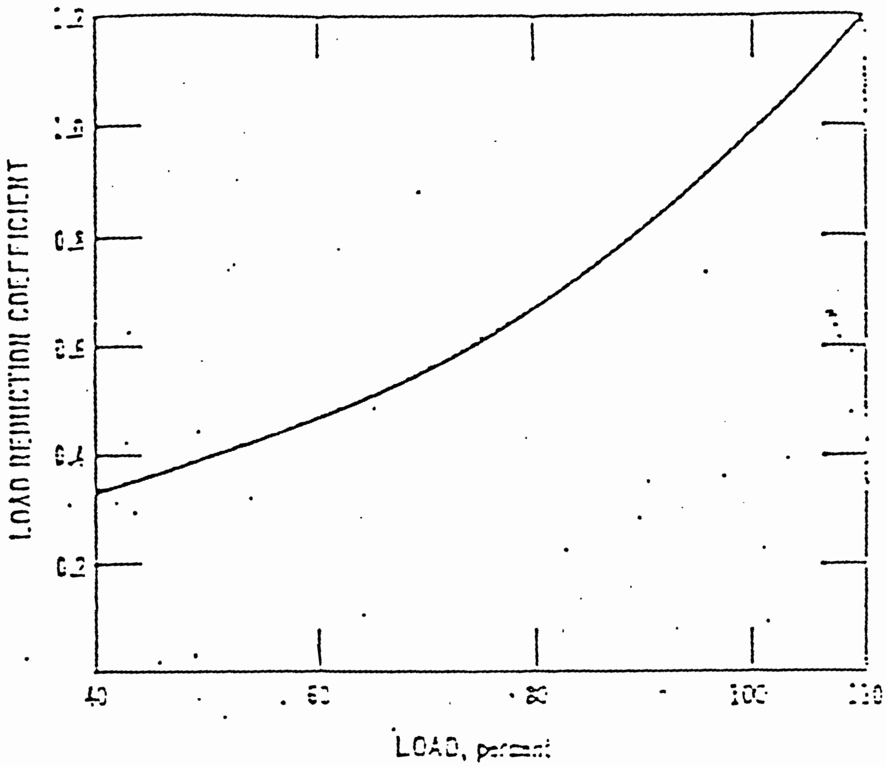

Figure 1.4-1. Load reduction coefficient as a function of boiler load.
(Used to determine NO_x reductions at reduced loads in large boilers.)

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Appendix O & M

Operation & Maintenance Plan

Initial Preparation Date: 07/03/03
Revision Date: 07/03/03

FCS FLORIDA CRUSHED STONE COMPANY

BROOKSVILLE CEMENT PLANT

OPERATION & MAINTENANCE PLAN
STARTUP, SHUTDOWN & MALFUNCTION PLAN

INITIAL PLAN PREPARATION DATE: July 3, 2003
PLAN REVISION NUMBER & DATE: REV. 0, July 3, 2003

Table of Contents

Attachments

This plan provides Standard Operating Procedures (SOP), maintenance schedules, maintenance checklists, monitoring procedures, monitoring schedules, and corrective actions in attachments to the plan.

Introduction

The National Emission Standards for Hazardous Air Pollutants From the Portland Cement Manufacturing Industry (40 CFR 63, Subpart LLL) require the owner or operator of each Portland cement plant to prepare for each affected source a written operations and maintenance plan. The plan must include the following information:

(1) Procedures for proper operation and maintenance of the affected source and air pollution control devices in order to meet the emission limits and operating limits of 40 CFR 63.1343 through 63.1348;

(2) Corrective actions to be taken when required by paragraph 40 CFR 63.1350(e);

(3) Procedures to be used during an inspection of the components of the combustion system of each in-line kiln and raw mill located at the facility at least once per year; and

(4) Procedures to be used to periodically monitor affected sources subject to opacity standards under 40 CFR 63.1346 and 63.1348.

The affected sources covered by this plan are designated by 40 CFR 63.1340:

(1) Each in-line kiln/raw mill
(2) Each clinker cooler
(3) Each raw mill
(4) Each finish mill
(5) Each raw material dryer
(6) Each raw material, clinker, or finished product storage bin
(7) Each conveying system transfer point
(8) Each bagging system; and
(9) Each bulk loading or unloading system.

The affected sources and air pollution control devices are specifically described by the Florida Department of Environmental Protection Title V Air Permit No. 0530021-002-AV.

Brooksville Cement Plant I	
E.U. ID No./Facility ID No.	Brief Description
-001/D-75	Filter Dust Bin with Baghouse
-002/D-67	Fly Ash/Equilibrium Catalyst Bin with Baghouse
-004/F-14	Raw Meal Transfer with Baghouse
-006/G-12A & B	Two Blend Silos with Baghouse
-007/H-15	Kiln Feed Surge Bin with Baghouse
-008/S-04	Clinker Receiving/Handling System
-010/L-06 & L-07	Clinker Storage Silo and Finish Mill Storage Silo with Baghouse
-011/L-08	Gypsum and Limestone Bins with Baghouse
-012/M-08	Silo Discharge with Baghouse
No ID/L-03	Clinker Cooler Discharge with Baghouse
-013/N-13	Finish Mill with Baghouse
-014/Q-17	Cement Storage Silos #1 & #2 Discharge System with Baghouse
-015/Q-15	Cement Storage Silos #1 & #2 with Baghouse
-017/D-63	Iron Ore Bin with Baghouse
-019/M-05	Finish Mill Feed Belt with Baghouse
-020/	In-Line Kiln I/Raw Mill and Clinker Cooler I with Baghouse
-021/Z-17	Cement Storage Silo #3 Discharge System with Baghouse
-022/Z-15	Cement Storage Silo #3 with Baghouse
-023/	Cement Storage Silo #4 and Truck Loadout System with Baghouse
-024/Z-18	Cement Storage Silo and Railcar Loadout System with Baghouses

This plan provides Standard Operating Procedures (SOP), maintenance schedules, maintenance checklists, monitoring procedures, monitoring schedules, and corrective actions. This plan also provides a Startup, Shutdown and Malfunction plan, as required by 40 CFR 63.6.

Procedures for Proper Operation and Maintenance of the Affected Source and Air Pollution Control Devices

This section provides procedures for proper operation and maintenance of the affected sources and air pollution control devices in order to meet the emission limits and operating limits of 40 CFR 63.1343 through 63.1348.

At all times, including periods of startup, shutdown, and malfunction, owners or operators shall operate and maintain any affected source, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions at least to the levels required by all relevant standards.

Appropriate parameters of processing or materials handling systems provide a measure of the rate of operations. The operation and maintenance plan includes performance parameters which indicate the rate of operation, process weight throughput, the fuel or other energy source, the materials being processed or other physical or chemical characteristics, as applicable.

The plan includes schedules for the maintenance and inspection of each control device and collection system and a schedule for recording performance parameters of the control devices, collection systems and auxiliary equipment. The performance parameters include such physical, chemical or electrical characteristics as are applicable to the particular emissions unit and which are indicators of the condition, operating rates and efficiencies. The plan contains inspection and maintenance schedules including periodic assessments of the condition of manholes, ducting, breaching, hoods, conveyor and elevator housings, loading sheds and other equipment. Records of inspections, maintenance and performance data of control devices and auxiliary equipment shall be retained by the emissions unit for a minimum of five years and shall be made available to the Department upon request.

Safety is a critical component of plant operation and maintenance, and is not specifically addressed in this plan. Existing site-specific safety procedures supersede any general guidance within this plan.

EU 001/D-75 Filter Dust Bin with Baghouse

Emission Limits and Operating Limits

The owner or operator shall not cause to be discharged any gases from this affected source which exhibit opacity in excess of ten percent.
[40 CFR 63.1348]

Operation of Affected Source

This emissions unit is a storage bin for fines (dust). Dust from the kiln is collected and either:

1. recycled into the kiln to produce clinker,
2. used as an additive in the production of special cement products, or
3. sold to third parties as a waste stabilizer.

OPERATIONAL PARAMETERS FOR EMISSIONS UNIT

Weight per unit time of raw materials input	45 TPH
Process temperature or pressure	475 deg. F (max)
Chemical or physical data on product or raw materials	Filter dust

The material is transferred to the elevated storage bin pneumatically. From the elevated bin, the material is fed by gravity or screw conveyor. The loading, unloading, handling, transfer and storage of materials is in a totally enclosed system. All dust-laden air generated by the process operations is extracted and vented to the fabric filtering system to meet the emission limits stipulated above.

The level of the material in the bin is measured daily to prevent overfilling. When the bin level approaches full, filling is stopped by the control room operator.

Maintenance of Affected Source

Bins are prone to internal buildup of material, particularly if material is wet or if aeration is inadequate. Periodic inspection (every 1-2 years) and maintenance are necessary.

In order to use a bin for material storage, it must be structurally sound, with no evidence of major deterioration or over stressing. Bins with supports and/or walls that show any signs of having been over-stressed during previous use, or that have been badly deteriorated by corrosion, should be repaired before further use. Deteriorated doors and door frames shall be repaired to prevent possible air leakage during aeration. Regular maintenance will help extend the bin's life. At least annually, a thorough inspection of the entire structure is performed, and repairs are made where necessary.

Operation of Air Pollution Control Device

The filter equipment will be operated and maintained according to the manufacturer's recommendations. An adequate inventory of spare parts shall be kept. The particulate matter (PM) emissions from the materials being transferred are controlled by a low temperature baghouse fabric filter system. The baghouse is put in operation prior to the start of source operation, and remains in operation while the source is in operation.

Operators are familiar with startup and shutdown procedures of dust control systems. All dust control systems should be in operation before any processing equipment is started. Certain units are equipped with an alarm to sound when a dust collector stops operating.

OPERATIONAL PARAMETERS FOR BAGHOUSE

Identification of control device	D-75
Type of control device	Baghouse
Stack height	125 feet
Exit diameter	2.0 feet
Bag pressure drop	2-6" H_2O
Actual volumetric flow rate	6800 acfm
Maximum dry standard flow rate	6686 dscfm
Gas temperature	77° F
Percent water vapor	Ambient
Bag cleaning method	Pulsed air
Bag cleaning cycle:	Periodic

Maintenance of Air Pollution Control Device

See Attachment 1 – Baghouse Maintenance.

EU 002/D-67 Fly Ash/Equilibrium Catalyst Bin with Baghouse

Emission Limits and Operating Limits

The owner or operator shall not cause to be discharged any gases from this affected source which exhibit opacity in excess of ten percent.
[40 CFR 63.1348]

Operation of Affected Source

This emissions unit is a storage bin for fly ash/equilibrium catalyst.

OPERATIONAL PARAMETERS FOR EMISSIONS UNIT

Weight per unit time of raw materials input	25 TPH
Process temperature or pressure	Ambient
Chemical or physical data on product or raw materials	Fly ash/Equilibrium catalyst

The material is transferred to the elevated storage bin pneumatically. From the elevated bin, the material is fed by gravity or screw conveyor. The loading, unloading, handling, transfer and storage of materials is in a totally enclosed system. All dust-laden air generated by the process operations is extracted and vented to the fabric filtering system to meet the emission limits stipulated above.

The level of the material in the bin is measured at least daily to prevent overfilling. When the level of the material in the bin approaches full, filling is stopped by the control room operator.

Maintenance of Affected Source

Bins are prone to internal buildup of material, particularly if material is wet or if aeration is inadequate. Periodic inspection (every 1-2 years) and maintenance are necessary.

In order to use a bin for material storage, it must be structurally sound, with no evidence of major deterioration or over stressing. Bins with supports and/or walls that show any signs of having been over-stressed during previous use, or that have been badly deteriorated by corrosion, should be repaired before further use. Deteriorated doors and door frames shall be repaired to prevent possible air leakage during aeration. Regular maintenance will help extend the bin's life. At least annually, a thorough inspection of the entire structure is performed, and repairs are made where necessary.

Operation of Air Pollution Control Device

The filter equipment will be operated and maintained according to the manufacturer's recommendations. An adequate inventory of spare parts shall be kept. The particulate matter (PM) emissions from the materials being transferred are controlled by a low temperature baghouse fabric filter system. The baghouse is put in operation prior to the start of source operation, and remains in operation while the source is in operation.

Operators are familiar with startup and shutdown procedures of dust control systems. All dust control systems should be in operation before any processing equipment is started. Certain units are equipped with an alarm to sound when a dust collector stops operating.

OPERATIONAL PARAMETERS FOR BAGHOUSE

Identification of control device	D-67
Type of control device	Baghouse
Stack height	125 feet
Exit diameter	2.0 feet
Bag pressure drop	2-6" H_2O
Actual volumetric flow rate	4200 acfm
Maximum dry standard flow rate	4130 dscfm
Gas temperature	77° F
Percent water vapor	Ambient
Bag cleaning method	Pulsed air
Bag cleaning cycle:	Periodic

Maintenance of Air Pollution Control Device

See Attachment 1 – Baghouse Maintenance.

EU 004/F-14 Raw Meal Transfer with Baghouse

Emission Limits and Operating Limits

The owner or operator shall not cause to be discharged any gases from this affected source which exhibit opacity in excess of ten percent.
[40 CFR 63.1348]

Operation of Affected Source

This emissions unit is an activity of raw meal being transferred from the raw mill collection cyclones, to an air lift system.

OPERATIONAL PARAMETERS FOR EMISSIONS UNIT

Weight per unit time of raw materials input	138 TPH
Process temperature or pressure	>Ambient
Chemical or physical data on product or raw materials	Raw materials

From the raw mill cyclones, the material is fed by air gravity conveyor to an air lift system, which in turn lifts the material to the top of and into the blend silos. This baghouse provides ventilation and dust collection for the air gravity conveyors. The loading, unloading, handling, transfer and storage of materials is in a totally enclosed system. All dust-laden air generated by the process operations is extracted and vented to the fabric filtering system to meet the emission limits stipulated above.

All conveyor transfer points are totally enclosed. All dust-laden air generated by the material transfer process shall be totally vented to fabric filtering system to meet the emission limits stipulated above.

Maintenance of Affected Source

- ☐ Inspect and repair air gravity conveyor housings to prevent leakage.
- ☐ Inspect and repair vent ducts to dust collector to prevent leakage.

Operation of Air Pollution Control Device

The filter equipment will be operated and maintained according to the manufacturer's recommendations. An adequate inventory of spare parts shall be kept. The particulate matter (PM) emissions from the materials being transferred are controlled by a low temperature baghouse fabric filter system. The baghouse is put in operation prior to the start of source operation, and remains in operation while the source is in operation.

Operators are familiar with startup and shutdown procedures of dust control systems. All dust control systems should be in operation before any processing equipment is started. Certain units are equipped with an alarm to sound when a dust collector stops operating.

OPERATIONAL PARAMETERS FOR BAGHOUSE

Identification of control device	F-14
Type of control device	Baghouse
Stack height	70 feet
Exit diameter	1.0 feet
Bag pressure drop	2-6" H_2O
Actual volumetric flow rate	1200 acfm
Maximum dry standard flow rate	970 dscfm
Gas temperature	180° F
Percent water vapor	Ambient
Bag cleaning method	Pulsed air
Bag cleaning cycle:	Periodic

Maintenance of Air Pollution Control Device

See Attachment 1 – Baghouse Maintenance.

EU 006/G-12A & B Two Blend Silos with Baghouse

Emission Limits and Operating Limits

The owner or operator shall not cause to be discharged any gases from this affected source which exhibit opacity in excess of ten percent.
[40 CFR 63.1348]

Operation of Affected Source

This emissions unit is two blending silos for the raw meal being transferred from the raw mill.

OPERATIONAL PARAMETERS FOR EMISSIONS UNIT

Weight per unit time of raw materials input	138 TPH
Process temperature or pressure	>Ambient
Chemical or physical data on product or raw materials	Raw meal

The material is transferred to the silos pneumatically. From the silos, the material is fed by air gravity conveyors. The loading, unloading, handling, transfer and storage of materials is in a totally enclosed system. All dust-laden air generated by the process operations is extracted and vented to the fabric filtering system to meet the emission limits stipulated above.

The silos are equipped with high level probes and associated alarms to warn of overfilling. The high-level indicators are interlocked with the material filling system such that in the event of a silo approaching an overfilling condition, the material filling system will be automatically shut down.

Maintenance of Affected Source

Silos are prone to internal buildup of material, particularly if material is wet or if aeration is inadequate. Periodic inspection (every 1-2 years) and maintenance are necessary.

In order to use a silo for material storage, it must be structurally sound, with no evidence of major deterioration or over stressing. Deteriorated doors and door frames should be repaired to prevent possible air leakage during aeration. Regular maintenance will help extend the silo's life. Silos need periodic inspection and maintenance, such as cleaning. At least annually, a thorough inspection of the entire structure is performed, and repairs are made where necessary.

Storage silos allow cement plants to stockpile inventory until needed. Buildup on the vessel walls, however, can rob plants of the storage capacity in which they have invested. Buildups slow material flow and decrease the "live" capacity of the vessel. Overcoming these flow problems and recovering storage capacity may require silo cleaning.

Several types of equipment can be used for silo cleaning. One of these operates like an industrial-strength "weed whip," rotating a set of "flails" against the material in the

vessel. The cleaning head is typically inserted through the access port down into the vessel on a pivoting arm.

Any clean-out activity must be carefully controlled to avoid damage to the inner wall, which can reduce flow and cause continuing problems. Steel chain is commonly used for Portland cement or any compacted material where there is no risk of explosion. Nonsparking brass chain is effective for compacted materials where the risk of fire or explosion is present.

Before the cleaning process is initiated, a path for loosened material to leave the vessel must be secured, and the discharge opening must be clear. A transport mechanism at the bottom — a conveyor, a truck, or a loader — is required to avoid buildup below the discharge and blockage of the opening as large quantities of material are removed. In cleaning a plugged silo, the operator starts at the bottom and progresses upward. Wall accumulations are undercut until they fall by their own weight.

Operation of Air Pollution Control Device

The filter equipment will be operated and maintained according to the manufacturer's recommendations. An adequate inventory of spare parts shall be kept. The particulate matter (PM) emissions from the materials being transferred are controlled by a low temperature baghouse fabric filter system. The baghouse is put in operation prior to the start of source operation, and remains in operation while the source is in operation.

Operators are familiar with startup and shutdown procedures of dust control systems. All dust control systems should be in operation before any processing equipment is started. Certain units are equipped with an alarm to sound when a dust collector stops operating.

OPERATIONAL PARAMETERS FOR BAGHOUSE

Identification of control device	G-12
Type of control device	Baghouse
Stack height	240 feet
Exit diameter	3.5 feet
Bag pressure drop	2-6" H_2O
Actual volumetric flow rate	17,000 acfm
Maximum dry standard flow rate	13,745 dscfm
Gas temperature	180° F
Percent water vapor	Ambient
Bag cleaning method	Pulsed air
Bag cleaning cycle:	Periodic

Maintenance of Air Pollution Control Device

See Attachment 1 – Baghouse Maintenance.

EU 007/H-15 Kiln Feed Surge Bin with Baghouse

Emission Limits and Operating Limits

The owner or operator shall not cause to be discharged any gases from this affected source which exhibit opacity in excess of ten percent.
[40 CFR 63.1348]

Operation of Affected Source

This emissions unit is an activity of raw meal being transferred from the kiln feed storage silos to the kiln feed surge bin, and then on to the kiln preheater.

OPERATIONAL PARAMETERS FOR EMISSIONS UNIT

Weight per unit time of raw materials input	138 TPH
Process temperature or pressure	Ambient
Chemical or physical data on product or raw materials	Kiln feed

The material is transferred to the elevated kiln feed surge bin by air gravity conveyor and bucket elevator. From the elevated bin, the material is fed by air gravity conveyor, to an air lift system, which lifts the material pneumatically to the kiln preheater. The loading, unloading, handling, transfer and storage of materials is in a totally enclosed system. All dust-laden air generated by the process operations is extracted and vented to the fabric filtering system to meet the emission limits stipulated above.

The bin is equipped with load cells that continually weigh the bin and its contents. If the bin reaches a high level, an alarm flashes and the filling control valves close automatically. This prevents overfilling.

Maintenance of Affected Source

Bins are prone to internal buildup of material, particularly if material is wet or if aeration is inadequate. Periodic inspection (every 1-2 years) and maintenance are necessary.

In order to use a bin for material storage, it must be structurally sound, with no evidence of major deterioration or over stressing. Bins with supports and/or walls that show any signs of having been over-stressed during previous use, or that have been badly deteriorated by corrosion, shall be repaired before further use. Deteriorated doors and door frames shall be repaired to prevent possible air leakage during aeration. Regular maintenance will help extend the bin's life. At least annually, a thorough inspection of the entire structure is to be performed, and repairs are to be made where necessary.

Operation of Air Pollution Control Device

The filter equipment will be operated and maintained according to the manufacturer's recommendations. An adequate inventory of spare parts shall be kept. The particulate matter (PM) emissions from the materials being transferred are controlled by a medium temperature baghouse fabric filter system. The baghouse is put in operation prior to the start of source operation, and remains in operation while the source is in operation.

Operators are familiar with startup and shutdown procedures of dust control systems. All dust control systems should be in operation before any processing equipment is started. Certain units are equipped with an alarm to sound when a dust collector stops operating.

OPERATIONAL PARAMETERS FOR BAGHOUSE

Identification of control device	H-15
Type of control device	Baghouse
Stack height	50 feet
Exit diameter	2.0 feet
Bag pressure drop	2-6" H_2O
Actual volumetric flow rate	6000 acfm
Maximum dry standard flow rate	4704 dscfm
Gas temperature	200° F
Percent water vapor	Ambient
Bag cleaning method	Pulsed air
Bag cleaning cycle:	Periodic

Maintenance of Air Pollution Control Device

See Attachment 1 – Baghouse Maintenance.

EU 008/S-04 Clinker Receiving/Handling System

Emission Limits and Operating Limits

The owner or operator shall not cause to be discharged any gases from this affected source which exhibit opacity in excess of ten percent.
[40 CFR 63.1348]

Operation of Affected Source

This emissions unit is an integrated system for handling clinker that includes a below-grade truck unloading hopper, a belt conveyor, and a deep-bucket conveyor. The fugitive particulate matter emissions generated from the transfer of clinker from the receiving hopper to the belt conveyor are controlled using a Johnson-Marsh Dust Suppressant system, which uses a non-ionic wetting agent or water, as necessary, to enhance the wettability of the clinker.

OPERATIONAL PARAMETERS FOR EMISSIONS UNIT

Weight per unit time of raw materials input	100 TPH
Process temperature or pressure	Ambient
Chemical or physical data on product or raw materials	Clinker

The loading, unloading, handling, transfer or storage of clinker, which may generate airborne dust emissions, will be carried out in such a manner to prevent or minimize dust emissions. The materials mentioned above shall be adequately wetted prior to and during the loading, unloading and handling operations. Manual or automatic water spraying system shall be provided at all unloading areas, stock piles and material discharge points.

Openings for the passage of conveyors are fitted with adequate flexible seals. Scrapers shall be provided at the turning points of all conveyors to remove dust adhered to the belt surface. Conveyors are arranged to minimize free fall as far as practicable. All receiving hoppers for unloading materials shall be enclosed on three sides above the unloading point. The belt conveyors for handling materials shall be enclosed on top and 2 sides with to eliminate any dust emission due to wind erosion.

Maintenance of Affected Source

- ☐ Inspect and adjust all belt conveyors and their skirting rubber and dust seals
- ☐ Inspect belt covers and repair or replace as required
- ☐ Replace torn or defective conveyor belts to prevent leakage
- ☐ Inspect belt scrapers on belt conveyors and adjust, replace worn-out components

Operation of Air Pollution Control Device

An adequate inventory of spare parts shall be kept. The particulate matter (PM) emissions from the materials being transferred are controlled by a wet suppression system. The system is put in operation prior to the start of source operation, and remains in operation while the source is in operation.

Operators are familiar with startup and shutdown procedures of dust control systems. All dust control systems should be in operation before any processing equipment is started.

The spray discharge should be proportional with dust emission. The Dust Suppression System is meant to suppress the dust generated during transfer at feed/discharge points of conveyors. Wetting Agents are chemicals that are added to water to improve the rate at which spray droplets wet dust particles.

This system consists of three main parts.
1. Proportioner units.
2. Spray headers with pipe lines & pumping system.
3. Control units with electrical systems.

Proportioner units include a feed water pump, metering pump, feed water tank, and solutions tanks. The water required for the system is supplied by a feed water pump. The wetting agent, which is in liquid form, is dosed by metering pump as per requirement. Spray headers with pipe lines are provided. The pumping system includes solution pumps, isolating valves, spray nozzles, and pipe lines. The solution pumps are used to supply pressurized water to spray headers. The required quantities of nozzles are used to spray water. Control units with electrical systems consist of sensing units and control panels. The control panels consist of various relays and transformers.

Auto control or manual control governs the system. The water is pumped and at the same time the metering pump doses the proper quantity of chemical. Its inherent design features also make it extremely reliable from a maintenance standpoint. The nozzles have no moving parts.

OPERATIONAL PARAMETERS FOR WET SUPPRESSION

Identification of control device	S-04
Type of control device	Wet suppression
Manufacturer	Johnson-Marsh
Type of chemical used	Water or dust suppressant
Frequency of application	Continuous when operating
Schedule for maintenance and inspection	Semiannually

Maintenance of Air Pollution Control Device

- ☐ Check proportioner units.
- ☐ Check spray headers with pipe lines & pumping system.
- ☐ Check control units with electrical systems.
- ☐ Check solutions tanks.
- ☐ Check feed water supply.
- ☐ Check spray nozzles
- ☐ Check nozzles and system components for wear and corrosion.

EU 010/L-06 & L-07 Clinker Storage Silo and Finish Mill Storage Silo with Baghouse

Emission Limits and Operating Limits

The owner or operator shall not cause to be discharged any gases from this affected source which exhibit opacity in excess of ten percent.
[40 CFR 63.1348]

Operation of Affected Source

This emissions unit is an activity of clinker being transferred into the clinker storage silos.

OPERATIONAL PARAMETERS FOR EMISSIONS UNIT

Weight per unit time of raw materials input	83 TPH
Process temperature or pressure	>Ambient
Chemical or physical data on product or raw materials	Clinker

The material is transferred to the silos by a deep bucket conveyor. From the silos, the material is fed by gravity to belt conveyors. The loading, unloading, handling, transfer and storage of materials is in a totally enclosed system. All dust-laden air generated by the process operations is extracted and vented to a fabric filtering system to meet the emission limits stipulated above.

The silos are measured at least daily to prevent overfilling. If the manual measurements indicate overfilling is imminent, measures are taken by the operations group to prevent overfilling.

Maintenance of Affected Source

Silos are prone to internal buildup of material, particularly if material is wet or if aeration is inadequate. Periodic inspection (every 1-2 years) and maintenance are necessary.

In order to use a silo for material storage, it must be structurally sound, with no evidence of major deterioration or over stressing. Deteriorated doors and door frames shall be repaired to prevent possible air leakage. Regular maintenance will help extend the silo's life. Silos need periodic inspection and maintenance, such as cleaning. At least annually, a thorough inspection of the entire structure is performed, and repairs are made where necessary.

Storage silos allow cement plants to stockpile inventory until needed. Buildup on the vessel walls, however, can rob plants of the storage capacity in which they have invested. Buildups slow material flow and decrease the "live" capacity of the vessel. Overcoming these flow problems and recovering storage capacity may require silo cleaning.

Several types of equipment can be used for silo cleaning. One of these operates like an industrial-strength "weed whip," rotating a set of "flails" against the material in the

vessel. The cleaning head is typically inserted through the access port down into the vessel on a pivoting arm.

Any clean-out activity must be carefully controlled to avoid damage to the inner wall, which can reduce flow and cause continuing problems. Steel chain is commonly used for cement or any compacted material where there is no risk of explosion. Nonsparking brass chain is effective for compacted materials where the risk of fire or explosion is present.

Before the cleaning process is initiated, a path for loosened material to leave the vessel must be secured, and the discharge opening must be clear. A transport mechanism at the bottom — a conveyor, a truck, or a loader — is required to avoid buildup below the discharge and blockage of the opening as large quantities of material are removed. In cleaning, the operator starts at the bottom and progresses upward. Wall accumulations are undercut until they fall by their own weight.

Operation of Air Pollution Control Device

The filter equipment will be operated and maintained according to the manufacturer's recommendations. An adequate inventory of spare parts shall be kept. The particulate matter (PM) emissions from the materials being transferred are controlled by a medium temperature baghouse fabric filter system. The baghouse is put in operation prior to the start of source operation, and remains in operation while the source is in operation.

Operators are familiar with startup and shutdown procedures of dust control systems. All dust control systems should be in operation before any processing equipment is started. Certain units are equipped with an alarm to sound when a dust collector stops operating.

OPERATIONAL PARAMETERS FOR BAGHOUSE

Identification of control device	L-06/L-07
Type of control device	Baghouse
Stack height	200 feet
Exit diameter	1.5 feet
Bag pressure drop	2-6" H_2O
Actual volumetric flow rate	2600 acfm
Maximum dry standard flow rate	2038 dscfm
Gas temperature	200° F
Percent water vapor	Ambient
Bag cleaning method	Pulsed air
Bag cleaning cycle:	Periodic

Maintenance of Air Pollution Control Device

See Attachment 1 – Baghouse Maintenance.

EU 011/L-08 Gypsum and Limestone Bins with Baghouse

Emission Limits and Operating Limits

The owner or operator shall not cause to be discharged any gases from this affected source which exhibit opacity in excess of ten percent.
[40 CFR 63.1348]

Operation of Affected Source

This emissions unit is an activity of gypsum and limestone being stored and transferred.

OPERATIONAL PARAMETERS FOR EMISSIONS UNIT

Weight per unit time of raw materials input	75 TPH
Process temperature or pressure	Ambient
Chemical or physical data on product or raw materials	Gypsum & limestone

The material is transferred to the elevated storage bins mechanically by bucket elevator and belt conveyor. From the elevated bin, the material is fed by gravity onto belt feeders. The loading, unloading, handling, transfer and storage of materials is in a totally enclosed system. All dust-laden air generated by the process operations is extracted and vented to the fabric filtering system to meet the emission limits stipulated above.

The bins are measured at least daily and the inventory levels controlled by the control room operator to prevent overfilling.

Maintenance of Affected Source

Bins are prone to internal buildup of material, particularly if material is wet or if aeration is inadequate. Periodic inspection (every 1-2 years) and maintenance are necessary.

In order to use a bin for material storage, it must be structurally sound, with no evidence of major deterioration or over stressing. Bins with supports and/or walls that show any signs of having been over-stressed during previous use, or that have been badly deteriorated by corrosion, should be repaired before further use. Deteriorated doors and door frames shall be repaired to prevent possible air leakage during aeration. Regular maintenance will help extend the bin's life. At least annually, a thorough inspection of the entire structure is performed, and repairs are made where necessary.

Operation of Air Pollution Control Device

The filter equipment will be operated and maintained according to the manufacturer's recommendations. An adequate inventory of spare parts shall be kept. The particulate matter (PM) emissions from the materials being transferred are controlled by a medium temperature baghouse fabric filter system. The baghouse is put in operation prior to the start of source operation, and remains in operation while the source is in operation.

Operators are familiar with startup and shutdown procedures of dust control systems. All dust control systems should be in operation before any processing equipment is started. Certain units are equipped with an alarm to sound when a dust collector stops operating.

OPERATIONAL PARAMETERS FOR BAGHOUSE

Identification of control device	L-08
Type of control device	Baghouse
Stack height	135 feet
Exit diameter	1.5 feet
Bag pressure drop	2-6" H_2O
Actual volumetric flow rate	5000 acfm
Maximum dry standard flow rate	3920 dscfm
Gas temperature	200° F
Percent water vapor	Ambient
Bag cleaning method	Pulsed air
Bag cleaning cycle:	Periodic

Maintenance of Air Pollution Control Device

See Attachment 1 – Baghouse Maintenance.

EU 012/M-08 Silo Discharge with Baghouse

Emission Limits and Operating Limits

The owner or operator shall not cause to be discharged any gases from this affected source which exhibit opacity in excess of ten percent.
[40 CFR 63.1348]

Operation of Affected Source

This emissions unit is an activity of clinker, gypsum or limestone being transferred from their silos, to the finish mill feed belt.

OPERATIONAL PARAMETERS FOR EMISSIONS UNIT

Weight per unit time of raw materials input	122 TPH
Process temperature or pressure	Ambient
Chemical or physical data on product or raw materials	Clinker, gypsum, & limestone

From the silos, the material is fed by gravity onto belt feeders. The loading, unloading, handling, transfer and storage of materials is in a totally enclosed system. All dust-laden air generated by the process operations is extracted and vented to the fabric filtering system to meet the emission limits stipulated above.

All conveyor transfer points are totally enclosed. Openings for the passage of conveyors are fitted with adequate flexible seals. Scrapers shall be provided at the turning points of all conveyors to remove dust adhered to the belt surface. Conveyors are arranged to minimize free fall as far as practicable. The opening between the silos and weigh belt of the materials is fully enclosed. All dust-laden air generated by the material transfer process shall be totally vented to fabric filtering system to meet the emission limits stipulated above.

Maintenance of Affected Source

- ☐ Inspect and adjust all belt conveyors and their skirting rubber and dust seals
- ☐ Replace torn or defective conveyor belts to prevent leakage
- ☐ Inspect and repair belt covers and enclosures as required to prevent leakage
- ☐ Inspect belt scrapers on belt conveyors and adjust, replace worn-out components

Operation of Air Pollution Control Device

The filter equipment will be operated and maintained according to the manufacturer's recommendations. An adequate inventory of spare parts shall be kept. The particulate matter (PM) emissions from the materials being transferred are controlled by a low temperature baghouse fabric filter system. The baghouse is put in operation prior to the start of source operation, and remains in operation while the source is in operation.

Operators are familiar with startup and shutdown procedures of dust control systems. All dust control systems should be in operation before any processing equipment is started. Certain units are equipped with an alarm to sound when a dust collector stops operating.

OPERATIONAL PARAMETERS FOR BAGHOUSE

Identification of control device	M-08
Type of control device	Baghouse
Stack height	135 feet
Exit diameter	2.5 feet
Bag pressure drop	2-6" H_2O
Actual volumetric flow rate	9000 acfm
Maximum dry standard flow rate	8316 dscfm
Gas temperature	100° F
Percent water vapor	Ambient
Bag cleaning method	Pulsed air
Bag cleaning cycle:	Periodic

Maintenance of Air Pollution Control Device

See Attachment 1 – Baghouse Maintenance.

EU TBA/L-03 Clinker Cooler Discharge with Baghouse

Emission Limits and Operating Limits

The owner or operator shall not cause to be discharged any gases from this affected source which exhibit opacity in excess of ten percent.
[40 CFR 63.1348]

Operation of Affected Source

This emissions unit is an activity of clinker being transferred from the clinker cooler.

From the clinker cooler, the clinker is transported by gravity or drag chain conveyor to a deep bucket conveyor. The loading, unloading, handling, transfer and storage of materials is in a totally enclosed system. All dust-laden air generated by the process operations is extracted and vented to the fabric filtering system to meet the emission limits stipulated above.

All conveyor transfer points are totally enclosed. Openings for the passage of conveyors are fitted with adequate flexible seals. Conveyors are arranged to minimize free fall as far as practicable. All dust-laden air generated by the material transfer process shall be totally vented to fabric filtering system to meet the emission limits stipulated above.

OPERATIONAL PARAMETERS FOR EMISSIONS UNIT

Weight per unit time of raw materials input	83 TPH
Process temperature or pressure	>Ambient
Chemical or physical data on product or raw materials	Clinker

Maintenance of Affected Source

- ☐ Inspect drag chain housing and deep bucket conveyor covers and repair as required to prevent leakage
- ☐ Inspect material transfer chutes and repair as required to prevent leakage
- ☐ Inspect dust collector vent ducts and repair as required
- ☐ Inspect deep bucket conveyor buckets for holes and repair as required

Operation of Air Pollution Control Device

The filter equipment will be operated and maintained according to the manufacturer's recommendations. An adequate inventory of spare parts shall be kept. The particulate matter (PM) emissions from the materials being transferred are controlled by a high temperature baghouse fabric filter system. The baghouse is put in operation prior to the start of source operation, and remains in operation while the source is in operation.

Operators are familiar with startup and shutdown procedures of dust control systems. All dust control systems should be in operation before any processing equipment is started. Certain units are equipped with an alarm to sound when a dust collector stops operating.

OPERATIONAL PARAMETERS FOR BAGHOUSE

Identification of control device	L-03
Type of control device	Baghouse
Stack height	10 feet
Exit diameter	1.0 feet
Bag pressure drop	2-6" H_2O
Actual volumetric flow rate	5100 acfm
Maximum dry standard flow rate	3717 dscfm
Gas temperature	250° F
Percent water vapor	Ambient
Bag cleaning method	Pulsed air
Bag cleaning cycle:	Periodic

Maintenance of Air Pollution Control Device

See Attachment 1 – Baghouse Maintenance.

EU 013/N-13 Finish Mill with Baghouse

Emission Limits and Operating Limits

The owner or operator of each new or existing raw mill or finish mill shall not cause to be discharged from the mill sweep or air separator air pollution control devices of these affected sources any gases which exhibit opacity in excess of ten percent.
[40 CFR 63.1347]

Operation of Affected Source

The final process stage includes grinding the clinker and gypsum to produce cement. Grinding mills are equipped with alloy steel grinding balls. The ball mill grinds the clinker into the final product, for distribution and packaging. The mill works in a closed circuit with a dynamic separator which separates cement of the required fineness from that which needs further grinding. The coarse fraction is returned to the mill.

The accuracy and reliability of metering and proportioning of the mill feed components by weight is critical for maintaining product quality and the high energy efficiency of a grinding system. The metering and proportioning equipment for the material feed to the mill is belt weigh feeders.

The plant uses a pulse-jet fabric filter with a high-efficiency separator. The cement dust collected by the fabric filter is restored to the system.

OPERATIONAL PARAMETERS FOR EMISSIONS UNIT

Weight per unit time of raw materials input	125 TPH
Process temperature or pressure	>Ambient
Chemical or physical data on product or raw materials	Clinker, gypsum & limestone

Maintenance of Affected Source

Preventive maintenance provides for more productivity through increased uptime. The mill maintenance program reflects the fact that long lead times are required to procure and deliver materials to the site. A target is to maintain a three-month inventory of wear parts and common failure components on-site, to carry a large inventory of spare parts, and to stock two years of certain mechanical, electrical and instrumentation spares.

The inspection and maintenance program includes periodic assessments of the condition of ducting, hoods, conveyors, elevator housings, and other equipment.

Operation of Air Pollution Control Device

The filter equipment will be operated and maintained according to the manufacturer's recommendations. An adequate inventory of spare parts shall be kept. The particulate matter (PM) emissions from the materials being transferred are controlled by a high temperature baghouse fabric filter system. The baghouse is put in operation prior to the start of source operation, and remains in operation while the source is in operation.

Operators are familiar with startup and shutdown procedures of dust control systems. All dust control systems should be in operation before any processing equipment is started. Certain units are equipped with an alarm to sound when a dust collector stops operating.

OPERATIONAL PARAMETERS FOR BAGHOUSE

Identification of control device	N-13
Type of control device	Baghouse
Stack height	70 feet
Exit diameter	5.0 feet
Bag pressure drop	2-6" H_2O
Actual volumetric flow rate	40000 acfm
Maximum dry standard flow rate	30892 dscfm
Gas temperature	210° F
Percent water vapor	Ambient
Bag cleaning method	Pulsed air
Bag cleaning cycle:	Periodic

Maintenance of Air Pollution Control Device

See Attachment 1 – Baghouse Maintenance.

EU 014/Q-17 Cement Storage Silos #1 & #2 Discharge System with Baghouses

Emission Limits and Operating Limits

The owner or operator shall not cause to be discharged any gases from this affected source which exhibit opacity in excess of ten percent.
[40 CFR 63.1348]

Operation of Affected Source

This emissions unit is an activity of cement being transferred from silos. This emissions unit includes systems for in-plant distribution to loading areas and to packaging systems.

OPERATIONAL PARAMETERS FOR EMISSIONS UNIT

Weight per unit time of raw materials input	300 TPH
Process temperature or pressure	Ambient
Chemical or physical data on product or raw materials	Cement

From the silos, the material is fed by gravity and air gravity conveyors. The loading, unloading, handling, transfer and storage of materials is in a totally enclosed system. All dust-laden air generated by the process operations is extracted and vented to the fabric filtering system to meet the emission limits stipulated above.

All conveyor transfer points are totally enclosed. All dust-laden air generated by the material transfer process shall be totally vented to fabric filtering system to meet the emission limits stipulated above.

Maintenance of Affected Source

- ☐ Inspect air gravity conveyor housings and repair as required to prevent leakage
- ☐ Inspect loading spouts for holes and repair as required
- ☐ Inspect material transfer chutes for holes and repair as required to prevent leakage
- ☐ Inspect dust collector ducting for holes and repair as required
- ☐ Inspect control valves for holes and seal deterioration and repair as required to prevent leakage
- ☐ Inspect all pneumatic lines for cracks

Operation of Air Pollution Control Device

The filter equipment will be operated and maintained according to the manufacturer's recommendations. An adequate inventory of spare parts shall be kept. The particulate matter (PM) emissions from the materials being transferred are controlled by a low temperature baghouse fabric filter system. The baghouse is put in operation prior to the start of source operation, and remains in operation while the source is in operation.

Operators are familiar with startup and shutdown procedures of dust control systems. All dust control systems should be in operation before any processing equipment is started. Certain units are equipped with an alarm to sound when a dust collector stops operating.

OPERATIONAL PARAMETERS FOR BAGHOUSE

Identification of control device	Q-17
Type of control device	Baghouse
Stack height	50 feet
Exit diameter	1.5 feet
Bag pressure drop	2-6" H_2O
Actual volumetric flow rate	3200 acfm
Maximum dry standard flow rate	2671 dscfm
Gas temperature	160° F
Percent water vapor	Ambient
Bag cleaning method	Pulsed air
Bag cleaning cycle:	Periodic

Maintenance of Air Pollution Control Device

See Attachment 1 – Baghouse Maintenance.

EU 015/Q-15 Cement Storage Silos #1 & #2 with Baghouse

Emission Limits and Operating Limits

The owner or operator shall not cause to be discharged any gases from this affected source which exhibit opacity in excess of ten percent.
[40 CFR 63.1348]

Operation of Affected Source

This emissions unit is an activity of cement being pneumatically transferred to two storage silos from the finish mill.

OPERATIONAL PARAMETERS FOR EMISSIONS UNIT

Weight per unit time of raw materials input	125 TPH each
Process temperature or pressure	>Ambient
Chemical or physical data on product or raw materials	Cement

The material is transferred to the silos pneumatically. From the silos, the material is fed by gravity to trucks, or pneumatically to railcar loading or to bagging. The loading, unloading, handling, transfer and storage of materials is in a totally enclosed system. All dust-laden air generated by the process operations is extracted and vented to the fabric filtering system to meet the emission limits stipulated above.

The silos are measured at least daily. The control room operator controls the inventory levels to prevent overfilling.

Maintenance of Affected Source

Silos are prone to internal buildup of material, particularly if material is wet or if aeration is inadequate. Periodic inspection (every 1-2 years) and maintenance are necessary.

In order to use a silo for material storage, it must be structurally sound, with no evidence of major deterioration or over stressing. Deteriorated doors and door frames shall be repaired to prevent possible air leakage during aeration. Regular maintenance will help extend the silo's life. Silos need periodic inspection and maintenance, such as cleaning. At least annually, a thorough inspection of the entire structure is performed, and repairs are made where necessary.

Storage silos allow cement plants to stockpile inventory until needed. Buildup on the vessel walls, however, can rob plants of the storage capacity in which they have invested. Buildups slow material flow and decrease the "live" capacity of the vessel. Overcoming these flow problems and recovering storage capacity may require silo cleaning.

Several types of equipment can be used for silo cleaning. One of these operates like an industrial-strength "weed whip," rotating a set of "flails" against the material in the vessel. The cleaning head is typically inserted through the access port down into the vessel on a pivoting arm.

Any clean-out activity must be carefully controlled to avoid damage to the inner wall, which can reduce flow and cause continuing problems. Steel chain is commonly used for cement or any compacted material where there is no risk of explosion. Nonsparking brass chain is effective for compacted materials where the risk of fire or explosion is present.

Before the cleaning process is initiated, a path for loosened material to leave the vessel must be secured, and the discharge opening must be clear. A transport mechanism at the bottom — a conveyor, a truck, or a loader — is required to avoid buildup below the discharge and blockage of the opening as large quantities of material are removed. In cleaning, the operator starts at the bottom and progresses upward. Wall accumulations are undercut until they fall by their own weight.

Operation of Air Pollution Control Device

The filter equipment will be operated and maintained according to the manufacturer's recommendations. An adequate inventory of spare parts shall be kept. The particulate matter (PM) emissions from the materials being transferred are controlled by a medium temperature baghouse fabric filter system. The baghouse is put in operation prior to the start of source operation, and remains in operation while the source is in operation.

Operators are familiar with startup and shutdown procedures of dust control systems. All dust control systems should be in operation before any processing equipment is started. Certain units are equipped with an alarm to sound when a dust collector stops operating.

OPERATIONAL PARAMETERS FOR BAGHOUSE

Identification of control device	Q-15
Type of control device	Baghouse
Stack height	200 feet
Exit diameter	2.0 feet
Bag pressure drop	2-6" H_2O
Actual volumetric flow rate	7400 acfm
Maximum dry standard flow rate	5983 dscfm
Gas temperature	180° F
Percent water vapor	Ambient
Bag cleaning method	Pulsed air
Bag cleaning cycle:	Periodic

Maintenance of Air Pollution Control Device

See Attachment 1 – Baghouse Maintenance.

EU 017/D-63 Iron Ore Bin with Baghouse

Emission Limits and Operating Limits

The owner or operator shall not cause to be discharged any gases from this affected source which exhibit opacity in excess of ten percent.
[40 CFR 63.1348]

Operation of Affected Source

This emissions unit is an activity of iron ore being stored in a bin.

OPERATIONAL PARAMETERS FOR EMISSIONS UNIT

Weight per unit time of raw materials input	100 TPH
Process temperature or pressure	Ambient
Chemical or physical data on product or raw materials	Iron ore

The material is transferred to the elevated storage bin by bucket elevator. From the elevated bin, the material is fed by a belt feeder. The loading, unloading, handling, transfer and storage of materials is in a totally enclosed system. All dust-laden air generated by the process operations is extracted and vented to the fabric filtering system to meet the emission limits stipulated above.

The bin is equipped with a high level probe and a flashing alarm to warn of overfilling. The high-level alarm indicators are interlocked with the material filling line such that in the event of the bin approaching an overfilling condition, an alarm will operate, and the material filling feeder will be stopped.

Maintenance of Affected Source

Bins are prone to internal buildup of material, particularly if material is wet or if aeration is inadequate. Periodic inspection (every 1-2 years) and maintenance are necessary.

In order to use a bin for material storage, it must be structurally sound, with no evidence of major deterioration or over stressing. Bins with supports and/or walls that show any signs of having been over-stressed during previous use, or that have been badly deteriorated by corrosion, shall be repaired before further use. Deteriorated doors and door frames shall be repaired to prevent possible air leakage during aeration. Regular maintenance will help extend the bin's life. At least annually, a thorough inspection of the entire structure is performed, and repairs are made where necessary.

Operation of Air Pollution Control Device

The filter equipment will be operated and maintained according to the manufacturer's recommendations. An adequate inventory of spare parts shall be kept. The particulate matter (PM) emissions from the materials being transferred are controlled by a low temperature baghouse fabric filter system. The baghouse is put in operation prior to the start of source operation, and remains in operation while the source is in operation.

Operators are familiar with startup and shutdown procedures of dust control systems. All dust control systems should be in operation before any processing equipment is started. Certain units are equipped with an alarm to sound when a dust collector stops operating.

OPERATIONAL PARAMETERS FOR BAGHOUSE

Identification of control device	D-63
Type of control device	Baghouse
Stack height	51 feet
Exit diameter	1.5 feet
Bag pressure drop	2-6" H_2O
Actual volumetric flow rate	3600 acfm
Maximum dry standard flow rate	2911 dscfm
Gas temperature	180° F
Percent water vapor	Ambient
Bag cleaning method	Pulsed air
Bag cleaning cycle:	Periodic

Maintenance of Air Pollution Control Device

See Attachment 1 – Baghouse Maintenance.

EU 019/M-05 Finish Mill Feed Belt with Baghouse

Emission Limits and Operating Limits

The owner or operator shall not cause to be discharged any gases from this affected source which exhibit opacity in excess of ten percent.
[40 CFR 63.1348]

Operation of Affected Source

This emissions unit is an activity of transferring clinker, gypsum and limestone to the finish mill.

The loading, unloading, handling, transfer and storage of materials is in a totally enclosed system. All dust-laden air generated by the process operations is extracted and vented to the fabric filtering system to meet the emission limits stipulated above.

All conveyor transfer points are totally enclosed. Openings for the passage of conveyors are fitted with adequate flexible seals. Scrapers shall be provided at the turning points of all conveyors to remove dust adhered to the belt surface. Conveyors are arranged to minimize free fall as far as practicable. All dust-laden air generated by the material transfer process shall be totally vented to fabric filtering system to meet the emission limits stipulated above.

OPERATIONAL PARAMETERS FOR EMISSIONS UNIT

Weight per unit time of raw materials input	120 TPH
Process temperature or pressure	>Ambient
Chemical or physical data on product or raw materials	Clinker

Maintenance of Affected Source

- ☐ Inspect and adjust all belt conveyors and their skirting rubber and dust seals
- ☐ Inspect belt conveyor covers and repair as required
- ☐ Replace torn or defective conveyor belts to prevent spillage
- ☐ Inspect material transfer chutes for holes and repair as required to prevent leakage
- ☐ Inspect dust collector vent ducts for holes
- ☐ Inspect belt scrapers on belt conveyors and adjust, replace worn-out components

Operation of Air Pollution Control Device

The filter equipment will be operated and maintained according to the manufacturer's recommendations. An adequate inventory of spare parts shall be kept. The particulate matter (PM) emissions from the materials being transferred are controlled by a low temperature baghouse fabric filter system. The baghouse is put in operation prior to the start of source operation, and remains in operation while the source is in operation.

Operators are familiar with startup and shutdown procedures of dust control systems. All dust control systems should be in operation before any processing equipment is started. Certain units are equipped with an alarm to sound when a dust collector stops operating.

OPERATIONAL PARAMETERS FOR BAGHOUSE

Identification of control device	M-05
Type of control device	Baghouse
Stack height	29 feet
Exit diameter	2.0 feet
Bag pressure drop	2-6" H_2O
Actual volumetric flow rate	9000 acfm
Maximum dry standard flow rate	8820 dscfm
Gas temperature	85° F
Percent water vapor	Ambient
Bag cleaning method	Pulsed air
Bag cleaning cycle:	Periodic

Maintenance of Air Pollution Control Device

See Attachment 1 – Baghouse Maintenance.

EU 020/ In-Line Kiln I/Raw Mill and Clinker Cooler I with Baghouse

Emission Limits and Operating Limits

40 CFR 63.1343 Standards for kilns and in-line kiln/raw mills.

(a) *General.* The provisions in this section apply to each kiln, each in-line kiln/raw mill, and any alkali bypass associated with that kiln or in-line kiln/raw mill.

(b) *Existing, reconstructed, or new brownfield/major sources.* No owner or operator of an existing, reconstructed or new brownfield kiln or an existing, reconstructed or new brownfield in-line kiln/raw mill at a facility that is a major source subject to the provisions of this subpart shall cause to be discharged into the atmosphere from these affected sources, any gases which:

(1) Contain particulate matter (PM) in excess of 0.15 kg per Mg (0.30 lb per ton) of feed (dry basis) to the kiln. When there is an alkali bypass associated with a kiln or in-line kiln/raw mill, the combined particulate matter emissions from the kiln or in-line kiln/raw mill and the alkali bypass are subject to this emission limit.

(2) Exhibit opacity greater than 20 percent.

(3) Contain D/F in excess of:

(i) 0.20 ng per dscm (8.7×10^{-11} gr per dscf) (TEQ) corrected to seven percent oxygen; or

(ii) 0.40 ng per dscm (1.7×10^{-10} gr per dscf) (TEQ) corrected to seven percent oxygen, when the average of the performance test run average temperatures at the inlet to the particulate matter control device is 204 deg.C (400 deg.F) or less.

(c) *Greenfield/major sources.* Not applicable at time of initial O&M Plan preparation.

(d) *Existing, reconstructed, or new brownfield/area sources.* Not applicable at time of initial O&M Plan preparation.

(e) *Greenfield/area sources.* Not applicable at time of initial O&M Plan preparation.

40 CFR 63.1344 Operating limits for kilns and in-line kiln/raw mills.

(a) The owner or operator of a kiln subject to a D/F emission limitation under 40 CFR 63.1343 must operate the kiln such that the temperature of the gas at the inlet to the kiln particulate matter control device (PMCD) and alkali bypass PMCD, if applicable, does not exceed the applicable temperature limit specified in paragraph (b) of this section. The owner or operator of an in-line kiln/raw mill subject to a D/F emission limitation under 40 CFR 63.1343 must operate the in-line kiln/raw mill, such that:

(1) When the raw mill of the in-line kiln/raw mill is operating, the applicable temperature limit for the main in-line kiln/raw mill exhaust, specified in paragraph (b) of this section and established during the performance test when the raw mill was operating is not exceeded.

(2) When the raw mill of the in-line kiln/raw mill is not operating, the applicable temperature limit for the main in-line kiln/raw mill exhaust, specified in paragraph (b) of this section and established during the performance test when the raw mill was not operating, is not exceeded.

(3) If the in-line kiln/raw mill is equipped with an alkali bypass, the applicable temperature limit for the alkali bypass, specified in paragraph (b) of this section and established during the performance test when the raw mill was operating, is not exceeded.

(b) The temperature limit for affected sources meeting the limits of paragraph (a) of this section or paragraphs (a)(1) through (a)(3) of this section is determined in accordance with 40 CFR 63.1349(b)(3)(iv).

(c) Carbon injection – Not applicable at time of initial O&M Plan preparation.
(d) Carbon injection – Not applicable at time of initial O&M Plan preparation.
(e) Carbon injection – Not applicable at time of initial O&M Plan preparation.

40 CFR 63.1345 Standards for clinker coolers.
(a) No owner or operator of a new or existing clinker cooler at a facility which is a major source subject to the provisions of this subpart shall cause to be discharged into the atmosphere from the clinker cooler any gases which:
(1) Contain particulate matter in excess of 0.050 kg per Mg (0.10 lb per ton) of feed (dry basis) to the kiln.
(2) Exhibit opacity greater than ten percent.
(b) [Reserved].

40 CFR 63.1347 Standards for raw and finish mills.
The owner or operator of each new or existing raw mill or finish mill at a facility which is a major source subject to the provisions of this subpart shall not cause to be discharged from the mill sweep or air separator air pollution control devices of these affected sources any gases which exhibit opacity in excess of ten percent.

Operation of Affected Source
The cement plant is designed for 1800 tons/day of cement clinker product. The cement kiln I, in-line kiln/raw mill and clinker cooler I share a common baghouse fabric filter system (for particulate matter emissions control) and stack with the power plant. Waste heat from the kiln is used to provide heat to the raw mill and the kiln preheater, which is used to drive off moisture from the materials used for making clinker. The movement of raw materials, recycled materials, and product will be through enclosed transfer systems. All gas streams from the various transfer systems will vent through a single baghouse system into the ambient air. The existing site is zoned for mining, so limestone and clay used in the production of cement will be supplied on site. The kiln is allowed to fire bituminous coal, distillate and residual fuel oil, on-specification used oil, and shredded and whole tires. Continuous monitors are operated for opacity, NOx, SO_2, and O_2.

In addition to meeting environmental standards, kiln burning stability increases such things as the kiln brick life, refractory life, requires less frequent warm-up times and lowers fuel consumption.

The kiln product (clinker) discharges from the kiln into the clinker cooler. Cooled clinker is then discharged into a conveyor system and carried to storage.

OPERATIONAL PARAMETERS FOR EMISSIONS UNIT

Weight per unit time of raw materials input	138 TPH: Raw mill 127 TPH: Kiln preheater 83 TPH: Clinker cooler
Process temperature or pressure	>Ambient
Fuel or fuel mixture	bituminous coal, distillate and residual fuel oil, on-specification used oil, and shredded and whole tires
Chemical or physical data on product	Clinker

Maintenance of Affected Source

The kiln is the main machine in the cement manufacturing process. Kiln repair and maintenance are critical components in assuring the efficiency of the cement manufacturing plant. If not maintained properly, kiln run-time will be reduced, causing substantial economic losses. Maintenance procedures performed according to prescribed instructions will significantly improve the performance of the kiln and increase plant efficiency.

Proper kiln maintenance techniques ensure desirable operating efficiency. Alignment and ovality measurements can help prevent breakdowns. Inspection and maintenance of the clinker cooler are also important.

Plant availability is critical in a continuous process such as cement production, and an important part is implementing maintenance based on predictive maintenance information. High kiln availability can impact the stability of auxiliary equipment – shutdowns can have a "domino effect" on auxiliary equipment.

Vibration analysis and monitoring is a part of the preventive maintenance program. Unplanned maintenance on a continuous process line can result in higher costs per ton of clinker. The use of predictive maintenance techniques allows one planned shutdown per year, with four or five minor stops and starts. Vibration analysis identifies potential problems and corrective actions can be initiated to eliminate the influence on the component from other sources, such as imbalance or misalignment.

Mechanical personnel are aware of the importance of setting up a machine within certain criteria to enable a long, trouble-free mechanical life. When setting up a machine after repairs or installation, ensure that imbalance or pulley wobbles are eliminated. Evaluate clinker cooler fans, simple, inexpensive adjustments can lower the overall vibration levels.

Predictive maintenance can reduce the systematic replacement of components, regardless of their condition. Individual job requests are initiated when there is evidence that a component is deteriorating. This information is used to determine a plan of action to carry out repairs at the most convenient time, allowing lead time for planning and ordering of parts, labor resources.

An effective predictive maintenance program looks at the rate of change over a period of time with a set of machinery components, using specific criteria to asses the various individual components that make up a particular machine. Another benefit of predictive maintenance is inventory stock control of mechanical components.

- ☐ Inspect preheater system
- ☐ Inspect kiln shell
- ☐ Inspect kiln supports
- ☐ Inspect kiln drive
- ☐ Evaluate alignment and mechanical balance of kiln
- ☐ Inspect clinker cooler
- ☐ Inspect kiln lining at regular intervals
- ☐ Check the kiln shell temperature. Special attention must be focused on the covered areas in the burning zone where high surface temperatures may occur
- ☐ The clearance between the kiln shell and kiln riding-rings must be checked at regular intervals

Operation of Air Pollution Control Device

The filter equipment will be operated and maintained according to the manufacturer's recommendations. An adequate inventory of spare parts shall be kept. The particulate matter (PM) emissions are controlled by a high temperature baghouse fabric filter system. The baghouse is put in operation prior to the start of source operation, and remains in operation while the source is in operation.

Operators are familiar with startup and shutdown procedures of dust control systems. All dust control systems should be in operation before any processing equipment is started. Certain units are equipped with an alarm to sound when a dust collector stops operating.

OPERATIONAL PARAMETERS FOR BAGHOUSE

Type of control device	Baghouse
Stack height	300 feet
Exit diameter	16.0 feet
Bag pressure drop	2-6" H_2O
Actual volumetric flow rate	577,700 acfm
Maximum dry standard flow rate	376,796 dscfm
Gas temperature	220° F
Percent water vapor	Ambient
Bag cleaning method	Reverse air
Bag cleaning cycle:	Periodic

Maintenance of Air Pollution Control Device

See Attachment 1 – Baghouse Maintenance.

EU 021/Z-17 Cement Storage Silo #3 Discharge System with Baghouse

Emission Limits and Operating Limits

The owner or operator shall not cause to be discharged any gases from this affected source which exhibit opacity in excess of ten percent.
[40 CFR 63.1348]

Operation of Affected Source

This emissions unit is an activity of cement being transferred from silos. This emissions unit includes systems for in-plant distribution to loading areas and to packaging systems.

OPERATIONAL PARAMETERS FOR EMISSIONS UNIT

Weight per unit time of raw materials input	300 TPH
Process temperature or pressure	Ambient
Chemical or physical data on product or raw materials	Cement

From the silos, the material is fed by gravity. The loading, unloading, handling, transfer and storage of materials is in a totally enclosed system. All dust-laden air generated by the process operations is extracted and vented to the fabric filtering system to meet the emission limits stipulated above.

All conveyor transfer points are totally enclosed. Openings for the passage of conveyors are fitted with adequate flexible seals. Scrapers shall be provided at the turning points of all conveyors to remove dust adhered to the belt surface. Conveyors are arranged to minimize free fall as far as practicable. The opening between the silos and weigh belt of the materials is fully enclosed. Loading to trucks and railcars is through a flexible rubber boot. All dust-laden air generated by the material transfer process shall be totally vented to fabric filtering system to meet the emission limits stipulated above.

Maintenance of Affected Source

- ☐ Inspect and adjust all belt conveyors and their skirting rubber and dust seals
- ☐ Check the speed of belt conveyors and slow then down, if possible, to reduce dust circulation and spillage
- ☐ Replace torn or defective conveyor belts
- ☐ Inspect belt conveyor idlers and nonmoving idlers
- ☐ Remove and replace missing or broken idlers
- ☐ Inspect all belt conveyor training idlers, adjust as necessary so the conveyor belt does not travel laterally
- ☐ Inspect belt scrapers on belt conveyors and adjust, replace worn-out components
- ☐ Inspect all pneumatic lines and pumps for cracks
- ☐ Inspect rubber boots for cracks and tears

Operation of Air Pollution Control Device

The filter equipment will be operated and maintained according to the manufacturer's recommendations. An adequate inventory of spare parts shall be kept. The particulate matter (PM) emissions from the materials being transferred are controlled by a low temperature baghouse fabric filter system. The baghouse is put in operation prior to the start of source operation, and remains in operation while the source is in operation.

Operators are familiar with startup and shutdown procedures of dust control systems. All dust control systems should be in operation before any processing equipment is started. Certain units are equipped with an alarm to sound when a dust collector stops operating.

OPERATIONAL PARAMETERS FOR BAGHOUSE

Identification of control device	Z-17
Type of control device	Baghouse
Stack height	50 feet
Exit diameter	1.5 feet
Bag pressure drop	2-6" H_2O
Actual volumetric flow rate	10000 acfm
Maximum dry standard flow rate	8346 dscfm
Gas temperature	160° F
Percent water vapor	Ambient
Bag cleaning method	Pulsed air
Bag cleaning cycle:	Periodic

Maintenance of Air Pollution Control Device

See Attachment 1 – Baghouse Maintenance.

EU 022/Z-15 Cement Storage Silo #3 with Baghouse

Emission Limits and Operating Limits

The owner or operator shall not cause to be discharged any gases from this affected source which exhibit opacity in excess of ten percent.
[40 CFR 63.1348]

Operation of Affected Source

This emissions unit is an activity of cement being pneumatically transferred to the storage silo from the finish mill.

OPERATIONAL PARAMETERS FOR EMISSIONS UNIT

Weight per unit time of raw materials input	125 TPH
Process temperature or pressure	>Ambient
Chemical or physical data on product or raw materials	Cement

The material is transferred to the silos pneumatically. From the silo, the material is fed by gravity to trucks or railcars, or pneumatically to bagging. The loading, unloading, handling, transfer and storage of materials is in a totally enclosed system. All dust-laden air generated by the process operations is extracted and vented to the fabric filtering system to meet the emission limits stipulated above.

The silo is equipped with audible high level alarms to warn of overfilling. The high-level alarm indicators are interlocked with the material filling line such that in the event of a silo approaching an overfilling condition, an audible alarm will operate, and the material filling line will be closed.

Maintenance of Affected Source

Silos are prone to internal buildup of material, particularly if material is wet or if aeration is inadequate. Periodic inspection (every 1-2 years) and maintenance are necessary.

In order to use a silo for material storage, it must be structurally sound, with no evidence of major deterioration or over stressing. Deteriorated doors and door frames should be repaired to prevent possible air leakage during aeration. Regular maintenance will help extend the silo's life. Silos need periodic inspection and maintenance, such as cleaning. Each year, preferably when the silo is empty, a thorough inspection of the entire structure is to be performed, and repairs are to be made where necessary.

Storage silos allow cement plants to stockpile inventory until needed. Buildup on the vessel walls, however, can rob plants of the storage systems in which they have invested. Buildups slow material flow and decrease the "live" capacity of the vessel. Overcoming these flow problems and recovering storage capacity may require silo cleaning.

Several types of equipment can be used for silo cleaning. One of these operates like an industrial-strength "weed whip," rotating a set of "flails" against the material in the

vessel. The cleaning head is typically inserted through the access port down into the vessel on a pivoting arm.

Any clean-out activity must be carefully controlled to avoid damage to the inner wall, which can reduce flow and cause continuing problems. Steel chain is commonly used for cement or any compacted material where there is no risk of explosion. Nonsparking brass chain is effective for compacted materials where the risk of fire or explosion is present.

Before the cleaning process is initiated, a path for loosened material to leave the vessel must be secured, and the discharge opening must be clear. A transport mechanism at the bottom — a conveyor, a truck, or a loader — is required to avoid buildup below the discharge and blockage of the opening as large quantities of material are removed. In cleaning, the operator starts at the bottom and progresses upward. Wall accumulations are undercut until they fall by their own weight. Cleaning from the top would cause the removed material to fall on top of the lower accumulation with no place to go until the entire mass is cut away; when the entire section falls, then, the risk of damage to the bottom of the vessel or discharge is considerable.

If a vessel is choked, that is, still running but nearly closed down, it will most likely get worse. As material falls through the vessel, it will build up on the accumulations, gradually restricting the flow path until blockage is total. Consequently, as soon as a partial blockage is noticed, scheduling a cleaning from a service is recommended. Time is then available to work the cleaning into the schedule of the plant and the cleaning contractor. Hung up, clogged, or slow running silos will interfere with the efficiency and profitability of a plant. Remove buildup from silo walls regularly, effectively, and safely.

Operation of Air Pollution Control Device

The filter equipment will be operated and maintained according to the manufacturer's recommendations. An adequate inventory of spare parts shall be kept. The particulate matter (PM) emissions from the materials being transferred are controlled by a medium temperature baghouse fabric filter system. The baghouse is put in operation prior to the start of source operation, and remains in operation while the source is in operation.

Operators are familiar with startup and shutdown procedures of dust control systems. All dust control systems should be in operation before any processing equipment is started. Certain units are equipped with an alarm to sound when a dust collector stops operating.

OPERATIONAL PARAMETERS FOR BAGHOUSE

Identification of control device	Z-15
Type of control device	Baghouse
Stack height	200 feet
Exit diameter	2.0 feet
Bag pressure drop	2-6" H_2O
Actual volumetric flow rate	5300 acfm
Maximum dry standard flow rate	4285 dscfm
Gas temperature	180° F
Percent water vapor	Ambient
Bag cleaning method	Pulsed air
Bag cleaning cycle:	Periodic

Maintenance of Air Pollution Control Device

See Attachment 1 – Baghouse Maintenance.

EU 023 Cement Storage Silo #4 and Truck Loadout System with Baghouse

Emission Limits and Operating Limits

The owner or operator shall not cause to be discharged any gases from this affected source which exhibit opacity in excess of ten percent.
[40 CFR 63.1348]

Operation of Affected Source

This emissions unit is an activity of cement being pneumatically transferred to the storage silo from the finish mill and an activity of cement being transferred from the silo. This emissions unit includes systems for in-plant distribution to loading areas and to packaging systems.

OPERATIONAL PARAMETERS FOR EMISSIONS UNIT

Weight per unit time of raw materials input	47 TPH: silo, 390 TPH: trucks
Process temperature or pressure	>Ambient
Chemical or physical data on product or raw materials	Cement

The material is transferred to the silos pneumatically. From the silo, the material is fed by gravity to trucks or railcars, or pneumatically to bagging. The loading, unloading, handling, transfer and storage of materials is in a totally enclosed system. All dust-laden air generated by the process operations is extracted and vented to the fabric filtering system to meet the emission limits stipulated above.

The silo is equipped with audible high level alarms to warn of overfilling. The high-level alarm indicators are interlocked with the material filling line such that in the event of a silo approaching an overfilling condition, an audible alarm will operate, and the material filling line will be closed.

All conveyor transfer points are totally enclosed. Openings for the passage of conveyors are fitted with adequate flexible seals. Scrapers shall be provided at the turning points of all conveyors to remove dust adhered to the belt surface. Conveyors are arranged to minimize free fall as far as practicable. The opening between the silos and weigh belt of the materials is fully enclosed. Loading to trucks and railcars is through a flexible rubber boot. All dust-laden air generated by the material transfer process shall be totally vented to fabric filtering system to meet the emission limits stipulated above.

Maintenance of Affected Source

Silos are prone to internal buildup of material, particularly if material is wet or if aeration is inadequate. Periodic inspection (every 1-2 years) and maintenance are necessary.

In order to use a silo for material storage, it must be structurally sound, with no evidence of major deterioration or over stressing. Deteriorated doors and door frames should be repaired to prevent possible air leakage during aeration. Regular maintenance will help extend the silo's life. Silos need periodic inspection and maintenance, such as cleaning.

Each year, preferably when the silo is empty, a thorough inspection of the entire structure is to be performed, and repairs are to be made where necessary.

Storage silos allow cement plants to stockpile inventory until needed. Buildup on the vessel walls, however, can rob plants of the storage systems in which they have invested. Buildups slow material flow and decrease the "live" capacity of the vessel. Overcoming these flow problems and recovering storage capacity may require silo cleaning. Do not try to clean a vessel from below. To protect both plant personnel and the structure, the safest method is to clean down from the access opening(s) at the top of the vessel. That opening, however, is not to be used for putting people down into the silo, which likely would constitute a violation of the confined space entry rules.

Several types of equipment can be used for silo cleaning. One of these operates like an industrial-strength "weed whip," rotating a set of "flails" against the material in the vessel. The cleaning head is typically inserted through the access port down into the vessel on a pivoting arm.

Any clean-out activity must be carefully controlled to avoid damage to the inner wall, which can reduce flow and cause continuing problems. Steel chain is commonly used for cement or any compacted material where there is no risk of explosion. Nonsparking brass chain is effective for compacted materials where the risk of fire or explosion is present.

Before the cleaning process is initiated, a path for loosened material to leave the vessel must be secured, and the discharge opening must be clear. A transport mechanism at the bottom — a conveyor, a truck, or a loader — is required to avoid buildup below the discharge and blockage of the opening as large quantities of material are removed. In cleaning, the operator starts at the bottom and progresses upward. Wall accumulations are undercut until they fall by their own weight. Cleaning from the top would cause the removed material to fall on top of the lower accumulation with no place to go until the entire mass is cut away; when the entire section falls, then, the risk of damage to the bottom of the vessel or discharge is considerable.

If a vessel is choked, that is, still running but nearly closed down, it will most likely get worse. As material falls through the vessel, it will build up on the accumulations, gradually restricting the flow path until blockage is total. Consequently, as soon as a partial blockage is noticed, scheduling a cleaning from a service is recommended. Time is then available to work the cleaning into the schedule of the plant and the cleaning contractor. Hung up, clogged, or slow running silos will interfere with the efficiency and profitability of a plant. Remove buildup from silo walls regularly, effectively, and safely.

- ☐ Inspect and adjust all belt conveyors and their skirting rubber and dust seals
- ☐ Check the speed of belt conveyors and slow then down, if possible, to reduce dust circulation and spillage
- ☐ Replace torn or defective conveyor belts
- ☐ Inspect belt conveyor idlers and nonmoving idlers
- ☐ Remove and replace missing or broken idlers

- ☐ Inspect all belt conveyor training idlers, adjust as necessary so the conveyor belt does not travel laterally
- ☐ Inspect belt scrapers on belt conveyors and adjust, replace worn-out components
- ☐ Inspect all pneumatic lines and pumps for cracks
- ☐ Inspect rubber boots for cracks and tears

Operation of Air Pollution Control Device

The filter equipment will be operated and maintained according to the manufacturer's recommendations. An adequate inventory of spare parts shall be kept. The particulate matter (PM) emissions from the materials being transferred are controlled by a low temperature baghouse fabric filter system. The baghouse is put in operation prior to the start of source operation, and remains in operation while the source is in operation.

Operators are familiar with startup and shutdown procedures of dust control systems. All dust control systems should be in operation before any processing equipment is started. Certain units are equipped with an alarm to sound when a dust collector stops operating.

OPERATIONAL PARAMETERS FOR BAGHOUSE

Type of control device	Baghouse
Stack height	75 feet
Exit diameter	0.8 feet
Bag pressure drop	2-6" H_2O
Actual volumetric flow rate	860 acfm
Maximum dry standard flow rate	829 dscfm
Air to cloth ratio	
Bag weave	
Bag material	
Gas temperature	Ambient
Percent water vapor	Ambient
Bag cleaning method	Pulsed air
Bag cleaning cycle:	Periodic

Maintenance of Air Pollution Control Device

See Attachment 1 – Baghouse Maintenance.

EU 024/Z-18 Cement Storage Silo and Railcar Loadout System with Baghouses

Emission Limits and Operating Limits

The owner or operator shall not cause to be discharged any gases from this affected source which exhibit opacity in excess of ten percent.
[40 CFR 63.1348]

Operation of Affected Source

This emissions unit is an activity of cement being pneumatically transferred to the storage silo from the finish mill and an activity of cement being transferred from the silo. This emissions unit includes systems for in-plant distribution to loading areas.

OPERATIONAL PARAMETERS FOR EMISSIONS UNIT

Weight per unit time of raw materials input	30 TPH: silo, 100 TPH: trucks
Process temperature or pressure	>Ambient
Chemical or physical data on product or raw materials	Cement

The material is transferred to the silos pneumatically. From the silo, the material is fed by gravity to trucks or railcars. The loading, unloading, handling, transfer and storage of materials is in a totally enclosed system. All dust-laden air generated by the process operations is extracted and vented to the fabric filtering system to meet the emission limits stipulated above.

The silo is equipped with audible high level alarms to warn of overfilling. The high-level alarm indicators are interlocked with the material filling line such that in the event of a silo approaching an overfilling condition, an audible alarm will operate, and the material filling line will be closed.

All conveyor transfer points are totally enclosed. Openings for the passage of conveyors are fitted with adequate flexible seals. Scrapers shall be provided at the turning points of all conveyors to remove dust adhered to the belt surface. Conveyors are arranged to minimize free fall as far as practicable. The opening between the silos and weigh belt of the materials is fully enclosed. Loading to trucks and railcars is through a flexible rubber boot. All dust-laden air generated by the material transfer process shall be totally vented to fabric filtering system to meet the emission limits stipulated above.

Maintenance of Affected Source

Silos are prone to internal buildup of material, particularly if material is wet or if aeration is inadequate. Periodic inspection (every 1-2 years) and maintenance are necessary.

In order to use a silo for material storage, it must be structurally sound, with no evidence of major deterioration or over stressing. Deteriorated doors and door frames should be repaired to prevent possible air leakage during aeration. Regular maintenance will help extend the silo's life. Silos need periodic inspection and maintenance, such as cleaning.

Each year, preferably when the silo is empty, a thorough inspection of the entire structure is to be performed, and repairs are to be made where necessary.

Storage silos allow cement plants to stockpile inventory until needed. Buildup on the vessel walls, however, can rob plants of the storage systems in which they have invested. Buildups slow material flow and decrease the "live" capacity of the vessel. Overcoming these flow problems and recovering storage capacity may require silo cleaning.

Several types of equipment can be used for silo cleaning. One of these operates like an industrial-strength "weed whip," rotating a set of "flails" against the material in the vessel. The cleaning head is typically inserted through the access port down into the vessel on a pivoting arm.

Any clean-out activity must be carefully controlled to avoid damage to the inner wall, which can reduce flow and cause continuing problems. Steel chain is commonly used for cement or any compacted material where there is no risk of explosion. Nonsparking brass chain is effective for compacted materials where the risk of fire or explosion is present.

Before the cleaning process is initiated, a path for loosened material to leave the vessel must be secured, and the discharge opening must be clear. A transport mechanism at the bottom — a conveyor, a truck, or a loader — is required to avoid buildup below the discharge and blockage of the opening as large quantities of material are removed. In cleaning, the operator starts at the bottom and progresses upward. Wall accumulations are undercut until they fall by their own weight. Cleaning from the top would cause the removed material to fall on top of the lower accumulation with no place to go until the entire mass is cut away; when the entire section falls, then, the risk of damage to the bottom of the vessel or discharge is considerable.

If a vessel is choked, that is, still running but nearly closed down, it will most likely get worse. As material falls through the vessel, it will build up on the accumulations, gradually restricting the flow path until blockage is total. Consequently, as soon as a partial blockage is noticed, scheduling a cleaning from a service is recommended. Time is then available to work the cleaning into the schedule of the plant and the cleaning contractor. Hung up, clogged, or slow running silos will interfere with the efficiency and profitability of a plant. Remove buildup from silo walls regularly, effectively, and safely.

- ☐ Inspect and adjust all belt conveyors and their skirting rubber and dust seals
- ☐ Check the speed of belt conveyors and slow then down, if possible, to reduce dust circulation and spillage
- ☐ Replace torn or defective conveyor belts
- ☐ Inspect belt conveyor idlers and nonmoving idlers
- ☐ Remove and replace missing or broken idlers
- ☐ Inspect all belt conveyor training idlers, adjust as necessary so the conveyor belt does not travel laterally
- ☐ Inspect belt scrapers on belt conveyors and adjust, replace worn-out components
- ☐ Inspect all pneumatic lines and pumps for cracks

☐ Inspect rubber boots for cracks and tears

Operation of Air Pollution Control Device

The filter equipment will be operated and maintained according to the manufacturer's recommendations. An adequate inventory of spare parts shall be kept. The particulate matter (PM) emissions from the materials being transferred are controlled by a low temperature baghouse fabric filter system. The baghouse is put in operation prior to the start of source operation, and remains in operation while the source is in operation.

Operators are familiar with startup and shutdown procedures of dust control systems. All dust control systems should be in operation before any processing equipment is started. Certain units are equipped with an alarm to sound when a dust collector stops operating.

OPERATIONAL PARAMETERS FOR BAGHOUSE

Identification of control device	Z-18
Type of control device	Baghouse
Stack height	80 feet
Exit diameter	1.5 feet
Bag pressure drop	2-6" H_2O
Actual volumetric flow rate	500 acfm
Maximum dry standard flow rate	490 dscfm
Gas temperature	Ambient
Percent water vapor	Ambient
Bag cleaning method	Pulsed air
Bag cleaning cycle:	Periodic

Maintenance of Air Pollution Control Device

See Attachment 1 – Baghouse Maintenance.

Corrective Actions

The owner or operator of a raw mill or finish mill shall monitor opacity by conducting daily visual emissions observations of the mill sweep and air separator PMCDs of these affected sources, in accordance with the procedures of Method 22 of appendix A of 40 CFR 60. The Method 22 test shall be conducted while the affected source is operating at the highest load or capacity level reasonably expected to occur within the day. The duration of the Method 22 test shall be six minutes.

If visible emissions are observed during any Method 22 visible emissions test, the owner or operator must:

(1) Initiate, within one-hour, the corrective actions specified in this site specific operating and maintenance plan; and

(2) Within 24 hours of the end of the Method 22 test in which visible emissions were observed, conduct a visual opacity test of each stack from which visible emissions were observed in accordance with Method 9 of appendix A of 40 CFR 60. The duration of the Method 9 test shall be thirty minutes.

Applicability of Corrective Actions

The requirement for site-specific corrective actions applies to:

☐ EU 013/N-13 Finish Mill with Baghouse

Description of Corrective Actions

- Notify control room that finish mill will be going off-line
- Determine availability of clinker storage volume
- Take kiln off-line only as necessary
- Gradually reduce milling rate and cease milling operation
- Perform complete baghouse and ductwork inspection
- Perform necessary repairs
- Put baghouse in operation
- Resume milling
- If any new bags have been installed, allow bags to form a filter cake before conducting the Method 9 test specified above

Annual Combustion System Inspection

An inspection of the components of the combustion system of the in-line kiln raw mill shall be conducted at least once per year. Optimum combustion conditions in cement kiln systems occur when kiln exit gas oxygen and carbon monoxide emissions are as low as possible. Stated another way, optimum combustion conditions occur when excess air is as low as possible and complete combustion still occurs. A kiln operating with low excess air may cause partial combustion of fuel. A kiln system operating with high excess air increases the heat loss in the kiln system exit gases. In either case, the net effects are higher specific fuel consumption and lower clinker production.

At a minimum, an inspection shall include the following:
1) Inspect all burners, pilot assemblies, and pilot sensing devices for proper operation; clean pilot flame sensor, as necessary;
2) Ensure proper adjustment of primary and secondary combustion air, and adjust as necessary;
3) Inspect hinges and door latches, and lubricate as necessary;
4) Inspect dampers, fans, and blowers for proper operation;
5) Inspect door and door gaskets for proper sealing;
6) Inspect motors for proper operation;
7) Inspect refractory lining; clean and repair/replace lining as necessary;
8) Inspect kiln shell for corrosion and/or hot spots;
9) Inspect kiln, preheater and stack, clean as necessary;
10) Inspect fuel supply systems, for proper operation;
11) For the burning that follows the inspection, document that the combustion system is operating properly and make any necessary adjustments;
12) Inspect air pollution control device(s) for proper operation;
13) Inspect gas conditioning systems to ensure proper operation;
14) Ensure proper calibration of thermocouples, sorbent feed systems and any other monitoring equipment; and
15) Generally observe that the equipment is maintained in good operating condition.

Within 10 operating days following an equipment inspection all necessary repairs shall be completed unless the owner or operator obtains written approval from the State agency establishing a date whereby all necessary repairs of the designated facility shall be completed.

Periodic Monitoring

This section provides procedures to be used to periodically monitor affected sources subject to opacity standards under 40 CFR 63.1346 and 63.1348.

Applicability of Periodic Monitoring

☐	EU 001/D-75	Filter Dust Bin
☐	EU 002/D-67	Fly Ash/Equilibrium Catalyst Bin
☐	EU 004/F-14	Raw Meal Transfer
☐	EU 006/G-12A & B	Two Blend Silos
☐	EU 007/H-15	Kiln Feed Surge Bin
☐	EU 008/S-04	Clinker Receiving/Handling System
☐	EU 010/L-06 & L-07	Clinker Storage Silo & Finish Mill Storage Silo
☐	EU 011/L-08	Gypsum and Limestone Bins
☐	EU 012/M-08	Silo Discharge
☐	EU 014/Q-17	Cement Storage Silos #1 & #2 Discharge System
☐	EU 015/Q-15	Cement Storage Silos #1 & #2

☐	EU 017/D-63	Iron Ore Bin
☐	EU 019/M-05	Finish Mill Feed Belt
☐	EU 021/Z-17	Cement Storage Silo #3 Discharge System
☐	EU 022/Z-15	Cement Storage Silo #3
☐	EU 023	Cement Storage Silo #4 and Truck Loadout System
☐	EU 024/Z-18	Cement Storage Silo and Railcar Loadout System

Procedures for Periodic Monitoring

The owner or operator must conduct a monthly 1-minute visible emissions test of each affected source in accordance with Method 22 of Appendix A to 40 CFR 60. The test must be conducted while the affected source is in operation.

If no visible emissions are observed in six consecutive monthly tests for any affected source, the owner or operator may decrease the frequency of testing from monthly to semi-annually for that affected source. If visible emissions are observed during any semi-annual test, the owner or operator must resume testing of that affected source on a monthly basis and maintain that schedule until no visible emissions are observed in six consecutive monthly tests.

If no visible emissions are observed during the semi-annual test for any affected source, the owner or operator may decrease the frequency of testing from semi-annually to annually for that affected source. If visible emissions are observed during any annual test, the owner or operator must resume testing of that affected source on a monthly basis and maintain that schedule until no visible emissions are observed in six consecutive monthly tests.

If visible emissions are observed during any Method 22 test, the owner or operator must conduct a 6-minute test of opacity in accordance with Method 9 of appendix A to 40 CFR 60. The Method 9 test must begin within one hour of any observation of visible emissions.

Reporting Requirements

The O&M Plan includes procedures for an annual inspection of the combustion system. Results of this inspection are to be included with annual reporting.

Maintenance and inspection records will be kept for five years and provided upon request.

Startup, Shutdown, and Malfunction Plan

The purpose of the startup, shutdown, and malfunction plan is to—

(A) Ensure that, at all times, owners or operators operate and maintain affected sources, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions at least to the levels required by all relevant standards;

(B) Ensure that owners or operators are prepared to correct malfunctions as soon as practicable after their occurrence in order to minimize excess emissions of hazardous air pollutants; and

(C) Reduce the reporting burden associated with periods of startup, shutdown, and malfunction (including corrective action taken to restore malfunctioning process and air pollution control equipment to its normal or usual manner of operation).

Procedures for Malfunctions

Malfunctions shall be corrected as soon as practicable after their occurrence in accordance with the startup, shutdown, and malfunction plan of this section.

The equipment subject to the MACT standards includes equipment such as process equipment (e.g., kiln, raw and finish mills), storage silos, control devices (e.g., baghouses), and continuous monitoring systems (CMS; i.e., monitoring systems used to demonstrate compliance with the MACT standards during normal operation).

Potential malfunctions of the applicable equipment were evaluated to determine whether a particular malfunction could result in excess HAP emissions. Potential malfunctions that may result in excess HAP emissions include:

- broken bags in baghouses
- excess or inadequate combustion air
- high level in a storage vessel
- excessive temperature at inlet of control device

Corrective actions are identified for all malfunctions that have the potential for excess HAP emissions. The standards do not necessarily require facilities to control HAP emissions resulting from malfunctions to the level established in the standard, but to do their best to minimize emissions. The corrective actions are documented in the SSM plan. Operations personnel have reviewed the proposed corrective actions to validate that each will effectively mitigate the malfunction and the resulting excess HAP emissions, while also providing sufficient operational flexibility.

The malfunction scenarios have been identified in the SSM plan and corrective actions have been specified.

broken bags in baghouses	Repair bags as necessary
excess or inadequate combustion air	Adjust combustion O2
high level in a storage vessel	Cease filling, reduce level
excessive temperature at inlet of control device	Repair gas conditioning equipment

The corrective actions allow operators to react to the malfunction to minimize excess HAP emissions, achieve compliance with the standard, and maintain operational flexibility.

Where two (or more) corrective actions are available, both are included in the SSM plan. This prevents the facility from deviating from the plan (and having to report the deviation to the regulatory agency) if one of the alternatives is not available or is not feasible when a malfunction occurs.

Part of an effective SSM plan implementation is to record the time and duration of each malfunction event identified. Compliance management tools, such as monitoring and recordkeeping systems, are essential in order to demonstrate continued compliance with the SSM requirements. Included in the SSM plan are the monitoring instruments (e.g., oxygen sensors, vessel high level alarms) that will be used to record SSM events for each piece of equipment subject to the standard. Where no instrumentation is available, visual inspections of certain equipment will be performed and documented at regular intervals to demonstrate that SSM events are not occurring.

This SSM plan includes startup and shutdown procedures for the equipment subject to the MACT standards. These procedures were discussed with operations personnel to determine whether a particular routine startup or shutdown activity potentially results in excess HAP emissions. Any that do are documented in the SSM plan.

Specific maintenance procedures for the air pollution control devices and the continuous monitoring systems were developed and documented in the O&M plan or the SSM plan, including the frequency of implementation. The plan identifies all routine or otherwise predictable continuous monitoring systems malfunctions. Routine calibration of the continuous monitoring systems is required. An onsite inventory of critical spare parts is maintained. Routine maintenance of all monitoring equipment is documented.

Procedures for Startup and Shutdown

Specific procedures for startup and shutdown are included with this plan as attachments.

Reporting

When actions taken by the owner or operator during a startup, shutdown, or malfunction (including actions taken to correct a malfunction) are consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, the owner or operator shall keep records for that event that demonstrate that the procedures specified in the plan were followed. These records may take the form of a ''checklist,'' or other effective form of recordkeeping, that confirms conformance with the startup, shutdown, and malfunction plan for that event.

In addition, the owner or operator shall keep records of these events as specified in 40 CFR 63.10(b) (and elsewhere in this part), including records of the occurrence and duration of each startup, shutdown, or malfunction of operation and each malfunction of the air pollution control equipment. Furthermore, the owner or operator shall confirm that actions taken during the relevant reporting period during periods of startup, shutdown, and malfunction were consistent with the affected source's startup, shutdown and malfunction plan in the semiannual (or more frequent) startup, shutdown, and malfunction report required in 40 CFR 63.10(d)(5).

If an action taken by the owner or operator during a startup, shutdown, or malfunction (including an action taken to correct a malfunction) is not consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, the owner or operator shall record the actions taken for that event and shall report such actions within 2 working days after commencing actions inconsistent with the plan, followed by a letter within 7 working days after the end of the event, in accordance with 40 CFR 63.10(d)(5) (unless the owner or operator makes alternative reporting arrangements, in advance, with the Administrator.

Two kinds of reports are required: the immediate SSM deviation report, and the semi-annual SSM report. A deviation report is sent to the regulatory agency each time an SSM event occurs and the facility deviates from its SSM plan. This notification must be made within two days by phone or facsimile, followed by a written letter within seven days.

The semi-annual report summarizes all of the deviations in the six-month reporting period. Customized reports can be designed and incorporated into the SSM CMT to provide both immediate and periodic reports.

The owner or operator shall keep the written startup, shutdown, and malfunction plan on record after it is developed to be made available for inspection, upon request, by the Administrator for the life of the affected source or until the affected source is no longer subject to the provisions of this part. In addition, if the startup, shutdown, and malfunction plan is revised, the owner or operator shall keep previous (i.e., superseded) versions of the startup, shutdown, and malfunction plan on record, to be made available for inspection, upon request, by the Administrator, for a period of 5 years after each revision to the plan.

Definitions

Alkali bypass means a duct between the feed end of the kiln and the preheater tower through which a portion of the kiln exit gas stream is withdrawn and quickly cooled by air or water to avoid excessive buildup of alkali, chloride and/or sulfur on the raw feed. This may also be referred to as the ``kiln exhaust gas bypass".

Bagging system means the equipment which fills bags with Portland cement.

Clinker cooler means equipment into which clinker product leaving the kiln is placed to be cooled by air supplied by a forced draft or natural draft supply system.

Continuous monitor means a device which continuously samples the regulated parameter specified in 40 CFR 63.1350 of this subpart without interruption, evaluates the detector response at least once every 15 seconds, and computes and records the average value at least every 60 seconds, except during allowable periods of calibration and except as defined otherwise by the continuous emission monitoring system performance specifications in appendix B to part 60 of this chapter.

Conveying system means a device for transporting materials from one piece of equipment or location to another location within a facility. Conveying systems include but are not limited to the following: feeders, belt conveyors, bucket elevators and pneumatic systems.

Conveying system transfer point means a point where any material including but not limited to feed material, fuel, clinker or product, is transferred to or from a conveying system, or between separate parts of a conveying system.

Dioxins and furans (D/F) means tetra-, penta-, hexa-, hepta-, and octa-chlorinated dibenzo dioxins and furans.

Excess HAP Emissions — emissions in excess of those that would have occurred if there were no startup, shutdown or malfunction and the owner or operator complied with the relevant provisions of the regulation.

Facility means all contiguous or adjoining property that is under common ownership or control, including properties that are separated only by a road or other public right-of-way.

Feed means the prepared and mixed materials, which include but are not limited to materials such as limestone, clay, shale, sand, iron ore, mill scale, cement kiln dust and flyash, that are fed to the kiln. Feed does not include the fuels used in the kiln to produce heat to form the clinker product.

Finish mill means a roll crusher, ball and tube mill or other size reduction equipment used to grind clinker to a fine powder. Gypsum and other materials may be added to and blended with clinker in a finish mill. The finish mill also includes the air separator associated with the finish mill.

Greenfield kiln, in-line kiln/raw mill, or raw material dryer means a kiln, in-line kiln/raw mill, or raw material dryer for which construction is commenced at a plant site (where no kilns and no in-line kiln/raw mills were in operation at any time prior to March 24, 1998) after March 24, 1998.

Hazardous waste is defined in 40 CFR 261.3 of this chapter.

In-line kiln/raw mill means a system in a Portland cement production process where a dry kiln system is integrated with the raw mill so that all or a portion of the kiln exhaust gases are used to perform the drying operation of the raw mill, with no auxiliary heat source used. In this system the kiln is capable of operating without the raw mill operating, but the raw mill cannot operate without the kiln gases, and consequently, the raw mill does not generate a separate exhaust gas stream.

Kiln means a device, including any associated preheater or precalciner devices, that produces clinker by heating limestone and other materials for subsequent production of Portland cement.

Kiln exhaust gas bypass means alkali bypass.

Malfunction — any sudden, infrequent, and not reasonably preventable failure of air-pollution control equipment, process equipment, or a process to operate in a normal or usual manner.

Monovent means an exhaust configuration of a building or emission control device (e. g. positive pressure fabric filter) that extends the length of the structure and has a width very small in relation to its length (i. e., length to width ratio is typically greater than 5:1). The exhaust may be an open vent with or without a roof, louvered vents, or a combination of such features.

New brownfield kiln, in-line kiln raw mill, or raw material dryer means a kiln, in-line kiln/raw mill or raw material dryer for which construction is commenced at a plant site (where kilns and/or in-line kiln/raw mills were in operation prior to March 24, 1998) after March 24, 1998.

One-minute average means the average of thermocouple or other sensor responses calculated at least every 60 seconds from responses obtained at least once during each consecutive 15 second period.

Portland cement plant means any facility manufacturing Portland cement.

Raw material dryer means an impact dryer, drum dryer, paddle-equipped rapid dryer, air separator, or other equipment used to reduce the moisture content of feed materials.

Raw mill means a ball and tube mill, vertical roller mill or other size reduction equipment, that is not part of an in-line kiln/raw mill, used to grind feed to the appropriate size. Moisture may be added or removed from the feed during the grinding operation. If the raw mill is used to remove moisture from feed materials, it is also, by definition, a raw material dryer. The raw mill also includes the air separator associated with the raw mill.

Rolling average means the average of all one-minute averages over the averaging period.

Run average means the average of the one-minute parameter values for a run.

Shutdown — the cessation/stopping of operation of an affected source.

Startup — the setting into operation of an affected source.

TEQ means the international method of expressing toxicity equivalents for dioxins and furans as defined in U.S. EPA, Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-dioxins and -dibenzofurans (CDDs and CDFs) and 1989 Update, March 1989.

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Attachment 1: Baghouse Maintenance for Affected Sources other than In-line Kiln/Raw Mill/Clinker Cooler

Daily

- Maintain a written record of the observation and any action resulting from the inspection.

Weekly

- Check and document the baghouse pressure drop. If the pressure drop falls out of the normal operating range, specified by the manufacturer, corrective action will be taken to return the pressure drop to normal.
- Check drive components on fan.
- Maintain a written record of the observation and any action resulting from the inspection.

Monthly

- Visible emissions shall be observed on a monthly basis to ensure no visible emissions during the material handling operation of the unit. If weather conditions prevent the observer from conducting an opacity observation, the observer shall note such conditions on the data observation sheet. If unsuccessful that day due to weather, an observation shall be made the following day.
- Check the cleaning sequence of the baghouse.
- Pulse jet baghouse - check the air delivery system.
- Check compressed air lines including oilers and filters.
- Check the hopper functions and performance.
- Check all moving parts on the discharge system and screw-conveyor bearings.
- If leaks or abnormal conditions are detected the appropriate measures for repair will be implemented within eight (8) hours.
- Maintain a written record of the inspection and any action resulting from the inspection.

Quarterly

- Thoroughly inspect bags for leaks and wear. (Look for obvious holes or tears in the bags.) If leaks or abnormal conditions are detected the appropriate measures for repair will be implemented within eight (8) hours. Bag replacement should be documented by identifying the date, time and location of the bag in relationship to the other bags. The location should be identified on an overhead drawing of the bag layout in the baghouse.
- Check fan for corrosion and blade wear.
- Inspect baghouse housing for corrosion.
- Maintain a written record of the inspection and any action resulting from the inspection.

Semiannual

- Inspect every 6 months all components that are not subject to wear or plugging, including structural components, housing, ducts and hoods.

- Check duct for dust buildup.
- Check gaskets on all doors.
- Inspect paint on baghouse.
- Maintain a written record of the inspection and any action resulting from the inspection.

Annual

- Check all welds and bolts.
- Check hopper for wear.
- Replace high-wear parts on cleaning system.
- Maintain a written record of the observation and any action resulting from the inspection.

Inspection of rotary valves

Inspect the condition of the following:

- ☐ check for wear on bearings and shaft
- ☐ check hopper and chute for holes and leaks
- ☐ check sprocket and chain for wear
- ☐ check chain for tightness
- ☐ spray a thin film of oil on chain
- ☐ check the alignment of the sprockets
- ☐ check oil in gear box
- ☐ check bolts for tightness
- ☐ check gear box for oil leaks
- ☐ are all guards in place and bolted down?

Service of separator duct

- ☐ clean the draft duct from the separator to the dust collector
- ☐ open bottom of dust collector
- ☐ clean all hard build-up inside hopper
- ☐ clean and remove all lumps from grates
- ☐ check that all draft pipes are clear, and clean if necessary
- ☐ lightly tap on all duct work to ensure that pipes are open
- ☐ check partition and walls for cracks
- ☐ seal cracks found in partitions
- ☐ check operation of purge valves
- ☐ check dust pipes and air pipes for leaks
- ☐ check door gaskets for leaks
- ☐ replace broken bags
- ☐ tighten all loose bags
- ☐ remove any dust build up from bags
- ☐ check bag clamps, and replace them if defective
- ☐ clean and remove any dust build up from all compartments

Record number of new bags used: ____________________________

Record in the space below any condition that will require major repairs:_______________

____

Service of pressurizing unit

Cleaning of bottom hopper:

- ☐ place dumpster under hopper
- ☐ inspect bottom of hopper slide gate
- ☐ open bottom of dust collector slide gate
- ☐ lightly tap on hopper to insure that all dust is out of hopper.
- ☐ open bottom hopper inspection.
- ☐ clean all hard build-up inside hopper.
- ☐ clean and remove all lumps from grates.
- ☐ inspect operation of hopper door and seal
- ☐ close hopper inspection door

Record in the space below any condition that will require major repairs:______________

____

Safety note!!! Respirators must be worn when working inside dust collector.

Attachment 2: Baghouse Maintenance for In-line Kiln/Raw Mill/Clinker Cooler

Daily

- Maintain a written record of the observation and any action resulting from the inspection.

Weekly

- Check and document the baghouse pressure drop. If the pressure drop falls out of the normal operating range, specified by the manufacturer, corrective action will be taken to return the pressure drop to normal.
- Check drive components on fan.
- Maintain a written record of the observation and any action resulting from the inspection.

Monthly

- Visible emissions shall be observed on a monthly basis to ensure no visible emissions during the material handling operation of the unit. If weather conditions prevent the observer from conducting an opacity observation, the observer shall note such conditions on the data observation sheet. If unsuccessful that day due to weather, an observation shall be made the following day.
- Check the cleaning sequence of the baghouse.
- Pulse jet baghouse - check the air delivery system.
- Check compressed air lines including oilers and filters.
- Check the hopper functions and performance.
- Check all moving parts on the discharge system and screw-conveyor bearings.
- If leaks or abnormal conditions are detected the appropriate measures for repair will be implemented within eight (8) hours.
- Maintain a written record of the inspection and any action resulting from the inspection.

Quarterly

- Thoroughly inspect bags for leaks and wear. (Look for obvious holes or tears in the bags.) If leaks or abnormal conditions are detected the appropriate measures for repair will be implemented within eight (8) hours. Bag replacement should be documented by identifying the date, time and location of the bag in relationship to the other bags. The location should be identified on an overhead drawing of the bag layout in the baghouse.
- Check fan for corrosion and blade wear.
- Inspect baghouse housing for corrosion.
- Maintain a written record of the inspection and any action resulting from the inspection.

Semiannual

- Inspect every 6 months all components that are not subject to wear or plugging, including structural components, housing, ducts and hoods.
- Check duct for dust buildup.
- Check gaskets on all doors.
- Inspect paint on baghouse.
- Maintain a written record of the inspection and any action resulting from the inspection.

Annual

- Check all welds and bolts.
- Check hopper for wear.
- Replace high-wear parts on cleaning system.
- Maintain a written record of the observation and any action resulting from the inspection.

Attachment 3: Baghouse Startup Procedures

Proper start-up procedures will help extend the life of new filter media in a dust collector. What is generally accepted as start-up procedures is the process designed to intentionally develop a dust cake on the bags. This is referred to as seasoning, or conditioning, the filter media. In a fabric filter dust collector, the filter media is used to support a dust cake. A dust cake is the porous layer of collected particulate that develops during the conditioning period of new collector bags and following each cleaning cycle. The process can be accelerated in many installations by introducing a precoat material, such as agricultural lime, into the system. Commercial precoats also are available. Following installation of the filter bags and inspection of the related auxiliary equipment, the exhaust fan can be started. However, it is extremely important that the new filter bags are not exposed to the full volume (ACFM) of the fan.

First, close the fan damper (or inlet dampers) to one-half open until the monitoring gauge reads about 50% to 65% of the manufacturer's recommended maximum flange-to-flange differential drop. At roughly 75% of the manufacturer's recommended differential pressure, the cleaning system can be initiated. Normal operation and periodic cleaning will bring the pressure drop to a calculable and historically stable level.

Depending on the application, development of this differential pressure may take a number of hours or even days. This is necessary to ensure that the new filter media is exposed to low filtering velocities of dust-laden air. Reducing the volume decreases the airstream's velocity (air-to-cloth ratio), thus protecting the virgin bags from a high velocity impingement of dust. Should the bags be exposed to the fan's full volume, fine particles may embed themselves into the inner fibers of the bags and create a blinding condition. This also can damage the fibers of the media, reducing the life of the bags.

Attachment 4: In-line Kiln/Raw Mill/Clinker Cooler Startup Procedures

Kiln Startup Procedures

It is important that ignition be achieved as soon as fuel is injected and, if the flame fails during warm-up, the kiln should be purged with 5 times the volume of kiln, preheater, ducting, and dust collector before re-ignition is attempted. Volatile hydrocarbons accumulate rapidly in the kiln and, if then re-ignited, will potentially explode.

Warm-up follows agreement by production and maintenance management that all work is completed, that all tools and materials have been removed and that all doors are closed. Work may, with discretion, continue in the cooler during warm-up but no workers should remain in the cooler at the time of ignition.

Commonly, warm-up from cold takes 24 hours from ignition to feed-on, but may be increased if extensive refractory work requires curing. The introduction of feed (usually 50% of full rate), and the increase of fuel, speed and feed to normal operation can take another 8 hours from feed-on. The ID fan should be operated at approximately 10% 0_2 at the back of the kiln to feed-on whereupon the normal 0_2 target is adopted.

For coal fired kilns, warm-up uses gas or oil with switch-over to coal at the time of feed-on. If the coal mill uses hot gas from the cooler, there may be a delay before heat is available from clinker.

Prior to beginning to bring the kiln on-line, the kiln/raw mill I.D. fan and baghouse are powered to normal operating conditions. The kiln is then preheated with unused No. 2 fuel oil for a period of up to 24-36 hours; depending upon how long the kiln has been shut down.

Once the kiln is sufficiently hot and while still firing unused No. 2 fuel oil, raw meal feed is fed to the preheater at about 30-40 percent of normal feed rate. This material will coat the kiln and will produce clinker that is discharged to the clinker cooler. When there is heat in the clinker cooler, the coal mill is brought on-line and coal firing to the kiln main burner is initiated. At this point, raw meal feed to the preheater is incrementally increased. As the kiln stabilizes, the raw meal feed is incrementally increased until the system is operating at full capacity. Typically, the time from feed-on to full capacity is 3-4 hours.

During the startup of the kiln/raw mill, there could be periods when emissions are higher than normal (pounds per ton of clinker) due to imbalances of feed and fuel. These periods will be minimized through good operating practices. The emissions of particulate matter (PM and PM10), are not expected to exceed permit limits (pounds per ton of clinker) during startup.

This start-up procedure assumes the kiln system has been preheated for desired refractory dry-out but the system is cold. In connection with the normal startup procedure where the linings have been dried out, the heat procedure can be reduced from the stated 72 hours to 24 hours. All fans, conveyors, air purging system, and associated equipment should be run for a minimum of eight hours and all necessary adjustments made prior to start-up.

Kiln Heat-Up

1. Start the main dust collector fan with damper closed.
2. Open the main dust collector fan damper gradually so that a negative pressure is generated at the dust collector inlet.
3. Open the damper of the preheater I.D. fan 10%.
4. Start the primary air fan and open the associated damper 10%.
5. Start the kiln burner.
6. Check that the fuel is ignited and if necessary, adjust primary air, fuel rate and draft through kiln so that a stable flame is obtained.
7. Increase the fuel volume gradually and slowly.
8. Adjust the draft level in kiln by means of the preheater I.D. fan damper, and main baghouse fan.
9. CAUTION: The flame must not cause sooting. Quite often, this will require that the 02 content indicated by the kiln back end analyzer is 6-8%.
10. It will normally be necessary to start clinker cooler fans to provide adequate combustion air.
11. Start the preheater I.D. fan, if necessary to maintain proper combustion.
12. Start rotating the kiln in accordance with the manufacturer's rotation schedule.
13. Check the supporting roller lubrication – the journals must not become dry.
14. Continuous rotation on the auxiliary drive is required if the kiln is exposed to cooling, e.g. heavy rain showers.
15. After 16 hours of preheating the temperature of the kiln lining should be sufficiently high to ensure ignition of the coal from the operation nozzle, which is put into operation as follows:

    A. Turn off the oil flow to the oil burner.
    B. Retract the oil burner completely.
    C. Replace the oil burner by a burner with an operating nozzle that is ready for operation.

16. After 18 - 20 hours when the kiln gets very hot, raw feed should be introduced to the preheater. A raw feed weight equal to 0.1% of the daily clinker output is a good estimate. When this material gets into the kiln it will help protect the refractory by coating the bricks and filling voids.
17. At the end of the kiln heat-up the remaining clinker cooler fans should be started to protect the grate plates.
18. Start the cooler vent fan to maintain the firing hood pressure by automatic control.
19. Regulate the draft (by adjusting the preheater I.D. fan damper) and the fuel flow to attain an oxygen content of 4 – 6% in the kiln inlet.

Kiln Startup

1. Recirculate kiln feed at the desired starting feed rate. It should be a minimum of 50% of feed rate at full production.
2. Start kiln shell cooling fans.
3. Start cooler drives on minimum speed. Increase the air flows on the front fans to normal operating values and put into automatic control. This will provide sufficient combustion air at startup.
4. Start main kiln drive on minimum speed.
5. Perform the following operations in rapid, but correct, sequence:

   A. Start the I.D. fan if not yet started.
   B. Start the feed to the preheater.
   C. Increase the draft when the feed enters the preheater.
   D. Increase the kiln speed to 1 rpm.
   E. Open the primary air fan damper to 40% (approximately).
   F. Gradually increase the fuel to the kiln and simultaneously adjust the draft to obtain proper oxygen level at the inlet to the kiln.
   G. Open the tertiary air damper.
   H. Adjust the draft and tertiary air to balance the oxygen levels at preheater exit and kiln inlet.

6. Personnel must be stationed in the preheater tower in order to monitor the passage of raw meal. If there is any indication of blocking, the control room must be informed immediately and the kiln operation stopped until the blockage is cleared.
7. Increase the feed and speed of kiln as soon as possible. The preheater is more efficient at high feed rates.
8. Increase the cooler undergrate air flow rates.
9. When the material arrives at the burning zone it may be necessary to reduce the kiln speed to prevent the material from passing the burning zone too quickly. It is very important that the initial material charge is well burned so that the visibility in kiln is not lost due to dust formations. The clinker must be well burnt all the time. If not, increase the raw meal temperature by increasing the draft and fuel quantity.
10. Increase the kiln speed and feed gradually so that the exit gas temperature after the preheater does not exceed safe levels.
11. The maximum production rate can generallly be achieved within a few hours after the startup.

Raw Mill Startup

Typically, the raw mill is brought on-line during the preheat of the kiln once there is sufficient heat for the raw mill to operate.

The kiln and raw mill usually operate together in what is referred to as the compound mode of operation. This operating mode occurs approximately 90 percent of the time. The remaining 10 percent of the time, the kiln operates alone in what is referred to as the direct operating mode. The raw mill is a source of particulate matter and a source of combustion products when the raw mill heater operates. The raw mill exhaust gases are discharged through the kiln baghouse.

With the kiln in the direct operating mode, the raw mill is brought on-line by opening the dampers isolating the raw mill; and as quickly and simultaneously as possible starting the raw mill fan, the raw mill and the raw mill feed.

During the startup of the raw mill while the kiln is operating, there can be a brief imbalance in the airflow through the kiln system resulting in short-term spikes in emissions from the kiln. These short-term emission spikes will be minimized by best operating practices. The raw mill startup is not expected to affect particulate matter (PM or PM10) emissions.

Clinker Cooler Startup

The clinker cooler I.D. fan and baghouse are powered prior to clinker being discharged From the kiln into the clinker cooler. The air flow and clinker flow through The cooler during startup will be controlled to optimize heat recovery. The time to bring the cooler on-line and to full capacity is dependent upon the time required To bring the kiln/raw mill to full capacity. Typically, this time period will be 3-4 hours. Emissions from the cooler are limited to PM and PM10. During the startup period, no excess emissions are expected from the clinker cooler.

It may, from time to time, be necessary to start the grate cooler and the clinker conveying system in order to transport away the materials. In order not to fill up the cooler, the grates should be moved for about 10 minutes every hour at minimum speed. To ensure effective cooling at the cooler inlet, it may at the same time be necessary to start the first fans of the cooler to ensure that there is sufficient air for combustion.

The clinker cooler startup should occur around the same time as the kiln feed startup.

1. Start clinker pan conveyors.
2. Start clinker crusher.
3. Start timer and operation of tipping valves.
4. Start cooler vent fan and adjust draft to maintain a negative pressure in the kiln firing hood.
5. Progressively, start cooler undergrate fans to provide enough combustion air to the kiln, and keep grate plate temperatures down.
6. As clinker begins to discharge into the cooler, the grates should be started to prevent any buildups.
7. Progressively, as the clinker production increases, the fan volumes should be increased, and the grates operated more frequently.

Attachment 5: In-line Kiln/Raw Mill/Clinker Cooler Shutdown Procedures

The kiln/raw mill, clinker cooler and coal mill have normal and emergency shutdown procedures. The emergency procedures will shutdown entire systems immediately and close dampers isolating the systems.

Shut-down may be either:

- Emergency, in which case all equipment upstream of the failure must be stopped immediately, or
- Controlled, in which case the feed bin and coal system should be emptied, the kiln load run out as far as possible, and the cooler emptied. The burner pipe is withdrawn, or cooling air is continued through the burner, and the kiln is rotated on a standard schedule for about 12 hours with the ID fan running at reduced speed.

Suggested inching is as follows:

Duration of Shutdown	Kiln Turning
0 - 2 hours	continuous
2 - 4 hours	1/4 turn every 15 minutes
4 - 12 hours	1/4 turn every hour

If the shut-down is for less than 24 hours and does not involve entering the kiln or preheater, then heat should be retained either by stopping the ID fan immediately and shutting the preheater dampers after 2 hours, or shutting down the fan after 2 hours.

The following procedures are followed for normal (controlled) shutdowns.

Normal Kiln/Raw Mill Shutdown

Shutdown of the kiln and raw mill, while operating in the compound operating mode, is accomplished by first shutting down the raw mill and then shutting down the kiln. The raw mill is shutdown by stopping raw meal feed, stopping the raw mill and stopping the raw mill fan quickly and as simultaneously as possible. The dampers isolating the raw mill are then quickly closed.

The kiln is shutdown by shutting off the kiln feed and cutting back on the fuel to the main kiln burner. The kiln exhaust fan is also cut back. The kiln continues turning as the fuel in the main burner is continually cut back and finally cut off. The kiln continues turning at a prescribed rate until cool. At this time, the kiln can stop being turned. The kiln baghouse remains powered as long as air is drafted through the kiln.

There are no excess emissions expected during kiln shutdown.

Shutdown Sequence

1. Stop the preheater I.D. fan. The following should happen automatically:

A. The kiln feed will stop
B. The kiln and calciner firing will stop
C. The preheater fan damper will close
D. The last two cooler fans will stop and the air flows to all other cooler fans will reduce to preset minimum

2. Stop the kiln drive.
3. Reduce the cooler grate speeds to minimum.
4. Reduce the primary air fan damper.
5. Stop the shell cooling fans.
6. Close the tertiary air damper.
7. Start kiln rotation operation as outlined above.
8. Stop the cooler grates and operate for 5 minutes every 30 minutes.

Extended Shutdowns

Where shutdown of kiln extends over a prolonged period of time, all machinery not required for rotation of kiln and cooling of burner pipe must be stopped

1. Stop the dust conveyance system when the system is empty.
2. Stop the compressors.
3. Prepare plans for subsequent clean-up operation in kiln, preheater, cooler, and baghouse.
4. After the kiln has cooled off, stop the primary air fan.
5. Stop the clinker conveying system.
6. Plan for maintenance and repair work prior to startup.

Normal Raw Mill Shutdown

The shutdown of the raw mill while the kiln continues to operate is accomplished by stopping the raw meal feed, the raw mill fan and the raw mill quickly and as simultaneously as possible. The dampers isolating the raw mill are then quickly closed. The shutdown of the raw mill can create a slight imbalance in the kiln system causing short-term spikes in emissions. The excess emissions will be minimized by good operating practices.

Normal Clinker Cooler Shutdown

The clinker cooler is shutdown following the shutdown of the kiln by cutting back on the airflow through the clinker cooler until any residual clinker in the cooler is sufficiently cool. At that time, the clinker cooler fan can be shut off. The clinker cooler baghouse operates at normal conditions during the entire time the clinker cooler fan operates.

There are no excess emissions associated with the shutdown of the clinker cooler.

Attachment 6: Startup Procedures for other Affected Facilities

Coal Mill Startup

The coal mill is required to operate when the kiln is operating. The coal mill is a source of PM and PM10 emissions and discharges through a baghouse. The coal mill is started as soon as sufficient heat is available from the clinker cooler to dry the coal. The coal is mill is started by opening the dampers isolating the coal mill; and quickly and as simultaneously as possible starting the coal mill fan, the coal mill and the coal mill feed.

No excess emissions are expected as a result of the coal mill startup.

Material Handling Systems Startup

There are fabric filter dust collectors (baghouses) used to control particulate matter (PM and PM10) emissions from emission points associated with the raw mill, clinker handling, the finish mill, cement handling and coal handling. Startup of these systems involves powering the system I.D. exhaust fans and the baghouse cleaning systems prior to commencing process operations. No excess emissions are anticipated during the startup of any of these systems.

Attachment 7: Shutdown Procedures for other Affected Facilities

Normal Coal Mill Shutdown

The shutdown of the coal mill is associated with the shutdown of the kiln. The coal mill is shutdown by shutting off the coal mill feed, the coal mill and the coal mill fan quickly and as simultaneously as possible. The dampers isolating the coal mill are then quickly shut.

There are no excess emissions associated with the shutdown of the coal mill.

Material Handling Systems Shutdown

The dust collectors associated with the material handling emission points are operated until the associated processes are shutdown. Once no material is being processed, the dust collectors are shutdown by turning off power to the I.D. fans and the baghouse cleaning systems.

No excess PM or PM10 emissions are associated with the shutdown of these dust collectors.