Department of Environmental Protection

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MAY 27 2005

BUREAU OF AIR REGULATION

Division of Air Resource Management

APPLICATION FOR AIR PERMIT - LONG FORM

I. APPLICATION INFORMATION

Air Construction Permit – Use this form to apply for an air construction permit for a proposed project:

- subject to prevention of significant deterioration (PSD) review, nonattainment area (NAA) new source review, or maximum achievable control technology (MACT) review; or
- where the applicant proposes to assume a restriction on the potential emissions of one or more pollutants to escape a federal program requirement such as PSD review, NAA new source review, Title V, or MACT; or
- at an existing federally enforceable state air operation permit (FESOP) or Title V permitted facility.

Air Operation Permit – Use this form to apply for:

- an initial federally enforceable state air operation permit (FESOP); or
- an initial/revised/renewal Title V air operation permit.

Air Construction Permit & Revised/Renewal Title V Air Operation Permit (Concurrent Processing Option) – Use this form to apply for both an air construction permit and a revised or renewal Title V air operation permit incorporating the proposed project.

To ensure accuracy, please see form instructions.

Identification of Facility

1. Facility Owner/Company Name: **Florida Mining Corporation**	
2. Site Name: **Mabel Cement Plant**	
3. Facility Identification Number: **No facility ID: New air program facility**	
4. Facility Location... Street Address or Other Locator: **7620 SR 50** City: **Mabel** County: **Sumter** Zip Code: **33597**	
5. Relocatable Facility? ☐ Yes ☒ No	6. Existing Title V Permitted Facility? ☐ Yes ☒ No

Application Contact

1. Application Contact Name: **Steven C. Cullen, P.E.**
2. Application Contact Mailing Address... Organization/Firm: **Koogler & Associates, Inc.** Street Address: **4014 NW 13th Street** City: **Gainesville** State: **Florida** Zip Code: **32609**
3. Application Contact Telephone Numbers... Telephone: **(352) 377-5822** ext. **19** Fax: **(352) 377-7158**
4. Application Contact Email Address: sculen@kooglerassociates.com

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	
2. Project Number(s):	
3. PSD Number (if applicable):	
4. Siting Number (if applicable):	

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Application Processing Information (DEP Use)

1. Date of Receipt of Application:	5/27/05
2. Project Number(s):	1190040-001-AC
3. PSD Number (if applicable):	PSD-FL-356
4. Siting Number (if applicable):	

June 24, 2005

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Paul Mazak, President
Florida Mining Corporation
7000 SR 50
Webster, Florida 33597

Re: Request for Additional Information
DEP File No. 1190040-001-AC (PSD-FL-356)
Proposed Portland Cement Plant in Sumter County, Florida

Dear Mr. Mazak:

On May 27 we received from Koogler and Associates your application for an air construction permit for a portland cement plant in the vicinity of State Road 50, Mabel, Sumter County.

Pursuant to Rules 62-4.055, and 62-4.070 F.A.C., Permit Processing, the Department requests submittal of the additional information prior to processing the application. Should your response to any of the below items require new calculations, please submit the new calculations, assumptions, reference material and appropriate revised pages of the application form.

1. There does not appear to be any preliminary and original engineering of the kind typically associated with a cement project that has progressed to the stage where an air permit application is submitted. Typically at this point in cement project development, there is preliminary work by an engineering and design firm if not by the actual potential suppliers such as Polysius, F.L. Smidth, KHD Humboldt Wedag, CLE, etc. Please provide design information and engineering drawings.
2. The proposed project is virtually identical in layout, production capacity, and emission characteristics to another proposed project in Florida. Please confirm that the same emissions and assumed design make sense for the area and raw materials available where the project is planned.
3. The requested PM limits are 0.23 lb/ton of clinker and 0.1 lb/ton of clinker from the kiln and clinker cooler respectively. This equates to 0.33 lb/ton of clinker or roughly 0.2 lb/ton of feed. For reference, F.L. Smidth guaranteed combined kiln and cooler emissions of 0.125 lb/ton of feed through a single baghouse for the new Titan America kiln in Medley, Florida. Titan has requested lowering the limit to 0.09 lb/ton of feed. This equates to roughly 0.15 lb/ton of clinker for kiln and cooler PM emissions combined. This is less than half of the value proposed by Florida Mining Corporation. Please provide any comments regarding this issue.
4. It is possible to design the plant with a single stack and avoid some particulate emissions. Is such a configuration an option for this project? If not, please explain.
5. Will any raw materials, fuels, or products be shipped in or out by railroad? What efforts will be made to minimize truck traffic, dust emissions from vehicular traffic, and emissions from vehicular

fuel combustion associated with the proposed project? Please provide a detailed discussion regarding truck traffic that will be generated from the construction and operation of the new facility.

6. Describe the primary fuel firing scenarios and describe the ratio of heat input at various fuel mixtures. Detail why heat input ratios might change under normal operating conditions and emissions. Provide an estimate of pollutant emissions under each scenario.

7. Typical fuel specifications were provided for the proposed fuels with the exception of used oil. Provide a description and expected analysis of the used oil to be combusted.

8. Recent testing conducted at other cement plants in Florida indicated that lower NO_X emissions are possible by selective non-catalytic reduction (SNCR) than proposed. According to the application, the cost-effectiveness to achieve 1.95 lb NO_X/ton was estimated at a little more than $1,000 per ton of NO_X removed. An application was recently received by the State of Arizona proposing a limit of 1.15 lb/ton based on modeling results. An existing Heidelberger (SCANCEM) facility in Sweden achieves 0.9 lb NO_X/ton by SNCR. Please develop and submit a cost-effectiveness analysis to achieve 1.5 and 1.0 lb NO_X/ton of clinker.

9. With reference to Pages 77 and 78, Has Florida Mining Corporation inquired of catalyst manufacturers whether or not catalyst poisoning is a given if a selective catalytic reduction (SCR) system is located prior to the baghouse? Note that the dust loading in the area (parallel to downcomer from the preheater) where an SCR system is located is much lower than in the preheater and much lower than after the raw mill. There is much experience now at coal fired power plants operating SCR systems prior to electrostatic precipitators.

10. With respect to Section 6.4.3, please explain how SCR would operate in a cement plant in tandem with overfire air (OFA) and Low NO_X burners (LNB) described by Florida Mining Corporation as the "Top" control technique.

11. With reference to Page 75, reburn is actually incorporated into various staged combustion calciner designs. The procedure involves burning some or all of the calciner fuel in an aggressive reducing atmosphere. Arguably the F.L. Smidth Low NO_X calciner, the Polysius Multistaged Combustion (MSC) calciner at Florida Rock, and the KHD Humboldt Wedag Pyroclon all incorporate reburn to some degree. Does the reburn design described operate within the kiln, the calciner, or after the calciner?

12. NO_X control described in the application appears to rely on destroying thermal NO_X after it is formed in the kiln, prevention of fuel NO_X formation in the calciner, and/or destruction by reagent injection after the calciner. What consideration has been given to minimizing thermal NO_X formation by flame cooling, Low NO_X kiln burners, or "intelligent" automated expert control systems like Linkman or Polexpert?

13. The BACT proposal for CO is 3.6 lb/ton of clinker. For reference, F.L. Smidth guaranteed a value of 1.77 lb CO/ton for the Titan project in Medley. Titan has requested a lower value of approximately 1.33 lb CO/ton while achieving 2.1 lb NO_X/ton of clinker. The Department's observation is that some designs provide insufficient residence time following introduction of tertiary burnout air to adequately reduce CO. Please evaluate (under your "Good Combustion Practices" proposal) the possibility of increasing the length of the ductwork from the top of the calciner to the bottom cyclone. The cost per ton of CO removed can be estimated from the construction and operational considerations associated with the residence time to complete burnout.

14. VOC control to achieve 0.12 lb/ton of clinker is given as "Good Combustion Practices". Regardless of combustion practices, VOC emissions can be high unless raw materials (especially additives) are selected that will not evolve VOC in the preheater. Please describe the raw material procurement

practices for mill scale, fly ash, etc. that can influence both VOC and CO emissions. The proposed value appears to be adequate.

15. SO_2 control to achieve 0.28 lb/ton of clinker is given as "dry scrubbing (hydrated lime injection)" as necessary when the raw mill is not operating and inherent "limestone scrubbing" when the raw mill is operating. Please address the nature of the raw materials and include this in the Top Down analysis.

16. The SO_2 limit for Florida Rock Kiln 1 is 0.16 lb/ton of clinker on a 24-hour basis. They do not practice hydrated lime injection. Please provide a rationale for the greater emission limit request given that hydrated lime injection is available if needed. Please provide data on sulfur in the raw material from the property.

17. What additives will be used to insure the correct alkali to sulfur ratio is maintained when using petroleum coke? Florida limestone is low in alkali. Use of high sulfur petroleum coke can upset the balance between alkali and sulfur that is needed to insure fuel sulfur is incorporated into the clinker rather than deposited within the internal cycle (calciner/bottom cyclone/kiln inlet). Submit a projected chemical analysis of the additives likely to be used at this plant.

18. Please provide a diagram showing the introduction points of mercury into the process and its fate including the internal cycle (calciner/kiln) and the external cycle (raw mill/preheater/dust control equipment). What measures have been considered to minimize emissions of mercury entering the process or emitted from the kiln stack?

19. Please provide the protocol for the mercury material balance to be relied upon to insure emissions are no greater than 122 lb/year. Include proposed process testing locations, frequency of testing, and methods. Please review the availability and capability of continuous mercury monitoring equipment in lieu of, or in addition to the material balance.

20. Has Florida Mining Corporation or affiliates had any violations (or warning letters) related to any Department regulations at any of their facilities? Have officers of Florida Mining Corporation also been officers of other companies that have had violations (or warning letters) of Department regulations at any facilities? Please provide all documentation in relation to any such violations.

21. Please list experience of company officers owning or operating industrial enterprises requiring air permits in the State of Florida or in other states.

22. Please provide information as to the experience of the operator/s of the proposed site. If the position of plant operator is still to be determined, please describe the minimum requirements for this position established by your company including, but not limited to, total years experience in the cement industry, total years experience as plant operator, educational background, etc.

23. Please provide information as to the experience of the plant manager of the proposed site. If the position of plant manager is still to be determined, please describe the minimum requirements for this position established by your company including, but not limited to, total years experience in the cement industry, total years experience as plant manager, educational background, etc.

24. A very cursory assessment was provided pursuant to Paragraph 62-212.400(h)5., F.A.C. The rule requires information relating to the air quality impacts of, and the nature and extent of, all general commercial, residential, industrial and other growth which has occurred since August 7, 1977, in the area the facility or modification would affect. While the applicant believes the largest area is a 3 kilometer radius, the Department believes the radius arguably includes the entire county and possibly the contiguous counties. The impacts include visibility impairment and effects on regional ozone concentrations. Please expand the write-up to include development in Sumter and surrounding counties as well as ambient air quality trends in and near Sumter County.

25. Please provide a detailed discussion of the truck traffic that will be generated from the construction and operation of the kiln. Some of this information has already been provided on your spreadsheets describing the road sources. Please show where the values of 6.8 for init lat and 1.84 for init vert came from in your spreadsheet describing the paved roads emissions estimation. Please discuss how the release height of 0 meters was chosen. Please provide a diagram showing each road segment, its location and its emission parameters.

26. The facility plot plan on page 11 does not show the dimensions and location of the buildings and structures on the property. Please provide a plot plan with UTM coordinates overlaid in a 100 meter grid showing the locations and the dimensions of the buildings and structures

27. Please provide a nitrogen deposition analysis for the Chassahowitzka PSD Class I area.

28. Please provide a table in Section 4 summarizing all of pollutant emission rates that were included in the Class I area PSD increment and visibility modeling.

29. Predicted impacts from all applicable PSD pollutants on soils, vegetation and wildlife should be included in the Additional Impact Analysis. In the application, the Additional Impact Analysis includes impacts to soils and vegetation from PM_{10} only. Please provide an analysis for the other PSD pollutants subject to review for this project. Please also include impacts to wildlife in your analysis.

We will forward any comments received from other agencies as soon as we receive them. Rule 62-4.050(3), F.A.C. requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. Permit applicants are advised that Rule 62-4.055(1), F.A.C. now requires applicants to respond to requests for information within 90 days. If there are any questions, plêase call Cindy Mulkey at 850/921-8968. Matters regarding modeling issues should be directed to Cleve Holladay at 850/921-8986.

Sincerely,

A.A. Linero, Program Administrator
Bureau of Air Regulation
New Source Review Section

AAL/cm

cc: Paul Mazak, FMC*
Jim Little, EPA
John Bunyak, NPS
Jim Cleary, DEP SWD
Joey Chandler, Sumter County Board of County Commissioners
Steve Cullen, Koogler and Associates
Ed & Wanda Gallagher

1. There does not appear to be any preliminary and original engineering of the kind typically associated with a cement project that has progressed to the stage where an air permit application is submitted. Typically at this point in cement project development, there is preliminary work by an engineering and design firm if not by the actual potential suppliers such as Polysius, F.L. Smidth, KHD Humboldt Wedag, CLE, etc. Please provide design information and engineering drawings.

Response: The applicant contends that specifying a cement plant manufacturer at this time will reduce their ability to negotiate plant and engineering costs and terms. It is anticipated that design information and engineering drawings will be produced by the cement plant manufacturer. Plenty of instances of significant basic engineering prior to selection of manufacturer.

The applicant further contends that the cement plant will be manufactured for this project by a company that has manufactured and supplied cement plants in the U.S. Currently operating plants in the U.S. are able to meet fixed emission standards, such as NSPS and NESHAP, as well as specific standards, such as BACT. Reasonable assurance for the Department arises from the fact that there a limited number of companies that produce cement plants, as indicated in your question. Reasonable assurance = existance of possible suppliers or reliance on experienced individual?

In terms of air pollution control equipment, the Department has issued air construction permits for cement plants before design information and engineering drawings have been available. And had difficult time at hearing as a result.

The applicant is having ongoing discussions with cement plant manufacturers ✓

2. The proposed project is virtually identical in layout, production capacity, and emission characteristics to another proposed project in Florida. Please confirm that the same emissions and assumed design make sense for the area and raw materials available where the project is planned.

Response: The proposed layout is similar to other cement plants because the process flow in each is similar. The proposed plant does not have rail access, so the plant location as initially proposed is close to the main east-west roadway, State Road 50. For this same reason, the cement silos and coal storage are in proximity to the entrance road.

The raw material and raw milling unit operations are in proximity to the current and expected mining areas. The other unit operations are logically placed between raw material input and product output operations.

The proposed production capacity is similar to three proposed cement plant projects: second kilns at existing cement plants in Alachua County, Hernando County, and Suwannee County; as well as being consistent with the permitted production capacity for the Rinker cement plant in Dade County. ?

The basis for production capacity includes resources in reserves and market size. The proposed project has suitable reserves to propose an approximately 1 million ton per year clinker production rate. The projected cement needs for Central Florida, in proximity to this proposed project, are great enough to accommodate this production rate.

The proposed emissions are consistent with the Department's recent BACT determinations for Florida Rock Industries (PSD-FL-350) in Alachua County and for Rinker/Florida Crushed Stone (PSD-FL-351) in Hernando County.

The area and raw materials share enough similarities with these other projects for the layout, production capacity, and emissions characteristics to make sense.

3. The requested PM limits are 0.23 lb/ton of clinker and 0.1 lb/ton of clinker from the kiln and clinker cooler respectively. This equates to 0.33 lb/ton of clinker or roughly 0.2 lb/ton of feed. For reference, F.L. Smidth guaranteed combined kiln and cooler emissions of 0.125 lb/ton of feed through a single baghouse for the new Titan America kiln in Medley, Florida. Titan has requested lowering the limit to 0.09 lb/ton of feed. This equates to roughly 0.15 lb/ton of clinker for kiln and cooler PM emissions combined. This is less than half of the value proposed by Florida Mining Corporation. Please provide any comments regarding this issue.

Response: As described above, the proposed PM limits are based directly on very recent Department BACT determinations, with separate control devices for the kiln and clinker cooler. These are merely proposed emissions limitations. The Department will make determinations of BACT for each PSD pollutant during the permitting process.

4. It is possible to design the plant with a single stack and avoid some particulate emissions. Is such a configuration an option for this project? If not, please explain.

Response: A single stack configuration, for the kiln and clinker cooler, remains an option for this project. The choice of stack configurations will be resolved after selection of a cement plant manufacturer. If necessary, dispersion modeling will be updated to reflect any changes.

5. Will any raw materials, fuels, or products be shipped in or out by railroad? What efforts will be made to minimize truck traffic, dust emissions from vehicular traffic, and emissions from vehicular fuel combustion associated with the proposed project? Please provide a detailed discussion regarding truck traffic that will be generated from the construction and operation of the new facility.

Response: No raw materials, fuels, or products will be shipped in or out by railroad. Truck traffic will be minimized by plant location in proximity to State Road 50. Dust emissions will be minimized by paving and maintenance of travel surfaces. The use of a vacuum/sweeper truck is anticipated for the entrance road.

No specific efforts will be made to minimize emissions from vehicular fuel combustion associated with the proposed project. Fuel-based emissions from vehicle engines are regulated by the federal government at the engine manufacturer. Also, most of the truck traffic will be vehicles operated by transportation vendors, not by trucks operated by the facility.

Truck traffic generated from the construction of the new facility will vary based on the construction phase. Such truck traffic will include the delivery of ready mixed concrete for foundations.

Truck traffic generated from the operation of the facility was discussed in detail in a section of the application form. This included emissions estimations. The discussion included trucks hauling solid fuel and raw materials (additives) in, and trucks hauling finished cement out.

It is anticipated that raw materials (limestone and overburden) from onsite will be delivered to the quarry hall by conveyor. The application also addressed this operating scenario.

6. Describe the primary fuel firing scenarios and describe the ratio of heat input at various fuel mixtures. Detail why heat input ratios might change under normal operating conditions and emissions. Provide an estimate of pollutant emissions under each scenario.

Response:
The primary fuel firing scenarios include the fuel fired through the kiln burner to be pulverized coal or a mixture of coal and petroleum coke. The fuel fired through the calciner burner will typically be pulverized coal, pulverized petroleum coke, or a mixture of the two.

In general the ratio of the heat input between the kiln and calciner is about 40% of the heat value fired at the kiln burner and about 60% of the heat value fired at the calciner burner. The heat input ratio between burners is somewhat independent of fuel mixtures and operating conditions.

The heat input ratio of various fuel mixtures can vary. Typically, the kiln burner will burn coal at 100%, but may burn a mixture of about 30% coke and 70% coal. Typically, the calciner burner will burn coal at 100%, but may burn a mixture of about 30% coke and 70% coal, or other fuels in various combinations with or without coal. Other fuels described in the application include natural gas, propane, fuel oil, tire-derived fuel at up to 15% of the total heat value, high carbon fly ash as high as 60% of the total heat value, and used oil.

The heat input to the system is determined by the raw material feed rate to the kiln and the burnability of the raw materials. Increase in feed rate or burnability will require increases in total heat input rate. The feed rate is limited by the plant mechanical design and raw material properties. The raw material burnability is most dependent on the chemistry of the onsite raw materials and the raw meal fineness from the raw mill.

Fuel ratios will be affected by changes in fuel parameters, including heat value and volatility; fuel availability and delivered price.

Changes in heat input ratios or in fuels are not expected to have significant effects on emissions from the kiln system. Emissions variations over long averaging times are expected to be minimal in terms of concentration or mass per unit time. Most pollutant emissions are assumed as independent of fuels and heat input ratios. At all times emissions are expected to be within the limits proposed in the application.

Particulate matter emissions are assumed to be independent of fuels and heat input ratios and are limited by control equipment. CO and VOC emissions are controlled mainly by raw material selection and combustion practices, such as adequate turbulence and residence time following the combustion chamber.

SO2 emissions are controlled by inherent scrubbing by the alkalis in the raw materials prior to the fuel firing locations and not by limiting sulfur from fuels. When sufficient alkali is present in the raw materials, sulfur from fuels exits the kiln system with clinker. Sulfur dioxide emissions observed from cement plants can result from sulfur in the fuel that is in excess of alkalis in the feed or from sulfur (e.g., pyritic sulfur) in raw materials fed to the preheater. Raw materials in Florida are typically low in pyritic sulfur.

NOx emissions are affected by the fuels fired and the heat input ratios. More volatile fuels are often burned in the calciner to allow for more reduction of the NOx generated by the main burner of the kiln. The combustion of tires functions in the same way to reduce NOx emissions. The heat input ratio between the kiln burner and the calciner burner can affect NOx emissions, as fuel burned in the kiln burner generates thermal NOx due to the high temperatures encountered in this area. Fuels burned in the calciner burner at lower temperatures generate less NOx per unit of heat input, and are also staged to create reducing zones.

During startup, fuel consumption will be greater than during steady state operations because heat is not recovered for combustion air. Emissions may likewise be affected as the kiln system is heated and raw materials are introduced through the preheater. Data from operating cement plants have demonstrated that mass emission limitations are not typically exceeded during startup.

7. Typical fuel specifications were provided for the proposed fuels with the exception of used oil. Provide a description and expected analysis of the used oil to be combusted.

Response: Typical used oil specifications are included as an attachment to this response.

8. Recent testing conducted at other cement plants in Florida indicated that lower NOX emissions are possible by selective non-catalytic reduction (SNCR) than proposed. According to the application, the cost-effectiveness to achieve 1.95 lb NOX/ton was estimated at a little more than $1,000 per ton of NOX removed. An application was recently received by the State of Arizona proposing a limit of 1.15 lb/ton based on modeling results. An existing Heidelberger (SCANCEM) facility in Sweden achieves 0.9 lb NOX/ton by SNCR. Please develop and submit a cost-effectiveness analysis to achieve 1.5 and 1.0 lb NOX/ton of clinker.

Response: Cost effectiveness analyses to achieve 1.5 and 1.0 lb/ton clinker NOx emission limits using SNCR are included as an attachment to this response in Tables 1 and 2, respectively. As shown in Tables 1 and 2, the cost effectiveness for SNCR is $982/ton of NOx removed and $898/ton of NOx removed to achieve emission limits of 1.5 lb/ton clinker and 1.0 lb/ton clinker, respectively.

Of greater concern is the increased quantity of ammonia reagent necessary for higher levels of control, and corresponding effects on handling, storage, and ammonia slip.

9. With reference to Pages 77 and 78, Has Florida Mining Corporation inquired of catalyst manufacturers whether or not catalyst poisoning is a given if a selective catalytic reduction (SCR) system is located prior to the baghouse? Note that the dust loading in the area (parallel to downcomer from the preheater) where an SCR system is located is much lower than in the preheater and much lower than after the raw mill. There is much experience now at coal fired power plants operating SCR systems prior to electrostatic precipitators.

Response: Flemming Hansen, the manager of SCR Catalyst & Technology for Haldor Topsoe, a leading catalyst manufacturer for both the US and Europe, provided information in email correspondence dated June 30, 2005. Mr. Hansen stated:

> "SCR for cement kilns have been studied by us and other catalyst suppliers but as SCR is not considered BACT, we don't see much "real" interest in pursuing this for plants in neither Europe nor US and have cutback further studies. To my knowledge there is only a single full scale installation, Solnhofen in Germany (dry kiln) which operates fairly well. Due to the high level of particulates, SCR for cement kiln can be problematic and cause clogging of the catalyst channels. The high alkali content in the cement dust can also cause poisoning of the catalyst. Based on our studies and testing we find that with the correct choice of catalyst pitch and frequent cleaning of the catalyst with steam or air blowers the operation of an SCR upstream of the particulate removal should be possible. Down stream of the particulate filters SCR operation should be relatively trouble free. "

Although Mr. Hansen stated that they believes it could be possible to operate an SCR system upstream of the PM control device with the "correct choice of catalyst pitch and frequent cleaning of the catalyst with steam or air blowers", this is only theoretical and has not been proven at a cement kiln operation. Therefore, SCR is not considered further as a feasible NOx control technique for the cement kiln.

10. With respect to Section 6.4.3, please explain how SCR would operate in a cement plant in tandem with overfire air (OFA) and Low NOX burners (LNB) described by Florida Mining Corporation as the "Top" control technique.

Response: In this control technique, OFA and LNB are utilized as part of the combustion system, while SCR would be utilized downstream of the combustion equipment. SCR along with OFA and LNB that is described in the application and listed as the "top" control technique in Table 7-9 is not specifically representing a cement plant operation. In a cement plant, OFA and LNB would be utilized at the kiln (where coal or other fuel is combusted) and the SCR system would operate outside of the kiln, downstream after the gas has cooled somewhat.

11. With reference to Page 75, reburn is actually incorporated into various staged combustion calciner designs. The procedure involves burning some or all of the calciner fuel in an aggressive reducing atmosphere. Arguably the F.L. Smidth Low NOX calciner, the Polysius Multistaged Combustion (MSC) calciner at Florida Rock, and the KHD Humboldt Wedag Pyroclon all incorporate reburn to some degree. Does the reburn design described operate within the kiln, the calciner, or after the calciner?

Response: The plant design is currently in the preliminary stages and design details such as the description of incorporation of "reburn to some degree" is not yet known. Since this is a new plant design, the incorporation of reburn will be considered by the vendor in the final plant design. The location of reburn in the kiln, calciner, or after the calciner will also be determined in the final plant design.

12. NOX control described in the application appears to rely on destroying thermal NOX after it is formed in the kiln, prevention of fuel NOX formation in the calciner, and/or destruction by reagent injection after the calciner. What consideration has been given to minimizing thermal NOX formation by flame cooling, Low NOX kiln burners, or "intelligent" automated expert control systems like Linkman or Polexpert?

Response: The prevention of NOx emissions by low NOx burners or similar plant designs are valid design considerations. However, the plant design is currently in the preliminary stages and designs to incorporate low NOx burners or other pollution prevention techniques will be considered by the vendor and Florida Mining Corporation in the final plant design.

13. The BACT proposal for CO is 3.6 lb/ton of clinker. For reference, F.L. Smidth guaranteed a value of 1.77 lb CO/ton for the Titan project in Medley. Titan has requested a lower value of approximately 1.33 lb CO/ton while achieving 2.1 lb NOX/ton of clinker. The Department's observation is that some designs provide insufficient residence time following introduction of tertiary burnout air to adequately

reduce CO. Please evaluate (under your "Good Combustion Practices" proposal) the possibility of increasing the length of the ductwork from the top of the calciner to the bottom cyclone. The cost per ton of CO removed can be estimated from the construction and operational considerations associated with the residence time to complete burnout.

Response: An evaluation of ductwork length with respect to residence time for CO burnout will be recommended to the plant manufacturer, after selection. In this case, the Department's request can be used to assist in the plant-specific design.

14. VOC control to achieve 0.12 lb/ton of clinker is given as "Good Combustion Practices". Regardless of combustion practices, VOC emissions can be high unless raw materials (especially additives) are selected that will not evolve VOC in the preheater. Please describe the raw material procurement practices for mill scale, fly ash, etc. that can influence both VOC and CO emissions. The proposed value appears to be adequate.

Response: Detailed raw material procurement practices will be developed prior to plant operation. Such practices will ensure that raw materials (especially additives) are selected that will not evolve VOC in the preheater.

Black box? No procedure?

15. SO2 control to achieve 0.28 lb/ton of clinker is given as "dry scrubbing (hydrated lime injection)" as necessary when the raw mill is not operating and inherent "limestone scrubbing" when the raw mill is operating. Please address the nature of the raw materials and include this in the Top Down analysis.

Response: Sulfur in the raw material from the property is assumed to be low, based on data from the USGS, included as an attachment to this report. The data show consistently low sulfur content in soils and surficial materials across central Florida, with concentrations of less than 0.08 percent.

16. The SO2 limit for Florida Rock Kiln 1 is 0.16 lb/ton of clinker on a 24-hour basis. They do not practice hydrated lime injection. Please provide a rationale for the greater emission limit request given that hydrated lime injection is available if needed. Please provide data on sulfur in the raw material from the property.

Response: Per the recent permit No. 0010087-013-AC, the SO2 limit for the proposed Florida Rock Kiln 2 is 0.28 lb/ton of clinker on a 24-hour basis, and hydrated lime injection is to be used when higher sulfur feed or fuels are used. The requested emission limit for the Florida Mining Mabel Cement Plant is identical.

Regarding Florida Rock Kiln 1, the initial BACT emission limit for SO2 was also identical (i.e., 0.28 lb/ton clinker). The referenced emission limit of 0.16 lb/ton of clinker was volunteered by Florida Rock in 2002, with an accompanying production rate increase.

Sulfur in the raw material from the property is assumed to be low, based on data from the USGS, included as an attachment to this report. The data show consistently low sulfur content in soils and surficial materials across central Florida, with concentrations of less than 0.08 percent.

17. What additives will be used to insure the correct alkali to sulfur ratio is maintained when using petroleum coke? Florida limestone is low in alkali. Use of high sulfur petroleum coke can upset the balance between alkali and sulfur that is needed to insure fuel sulfur is incorporated into the clinker rather than deposited within the internal cycle (calciner/bottom cyclone/kiln inlet). Submit a projected chemical analysis of the additives likely to be used at this plant.

Response: The Department has addressed this question, in part, in a recent Best Available Control Technology Determination for Florida Crushed Stone, accompanying Permit no. 0530021-009-AC. In the determination, the Department states:

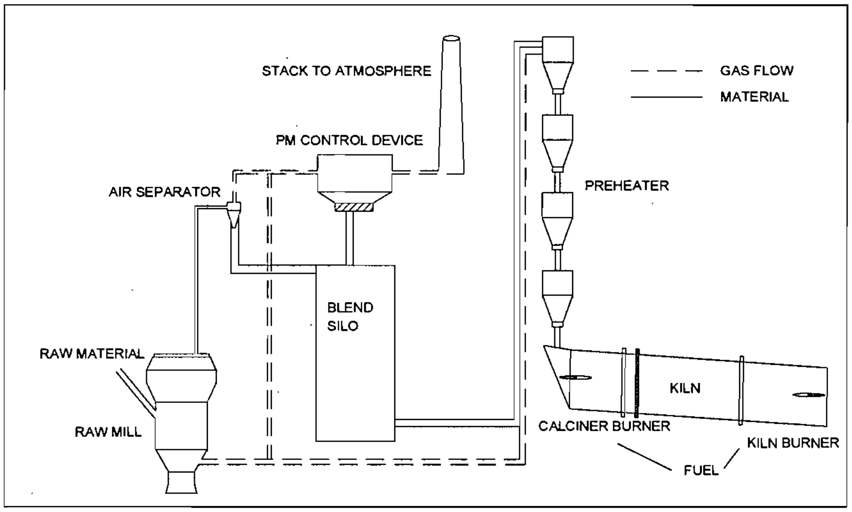
> *"The Department does not believe that burning of petroleum coke will cause additional SO2 emissions compared with coal because of the virtually complete scrubbing that occurs in the calciner."*

The alkali-sulfur balance necessary to avoid internal buildup is an operational issue. The most common alkalis are sodium and potassium, and USGS data included with this response show that both are consistently low in soils and surficial materials across Florida. This may limit the amount of petroleum coke that can be burned, or provide the opportunity to seek additives containing these elements.

Projected chemical analyses of the additives likely to be used at this plant will be submitted to the Department when available.

18. Please provide a diagram showing the introduction points of mercury into the process and its fate including the internal cycle (calciner/kiln) and the external cycle (raw mill/preheater/dust control equipment). What measures have been considered to minimize emissions of mercury entering the process or emitted from the kiln stack?

Response: The following simplified diagram shows the introduction points for mercury into the process, and can illustrate the internal cycle and the external cycle.



Mercury is introduced into the process with raw materials at the raw mill and with fuels at the burners. Mercury in fuels is volatilized during combustion and is adsorbed on raw meal in the raw mill (when operating), adsorbed onto particulate matter captured by the particulate matter control device; or emitted to the atmosphere via the stack. Mercury in raw materials is volatilized by kiln exhaust gases in the raw mill and is adsorbed onto particulate matter captured by the particulate matter control device, or emitted to the atmosphere via the stack.

The external cycle is mercury emitted from the stack, and can be from raw materials and fuels, with or without the raw mill running. The internal cycle is from mercury adsorbed onto raw meal or dust captured by the control device; both of which are typically conveyed to the blending silo. The raw meal from the blending silo is conveyed to the preheater and the adsorbed mercury with any remaining mercury is volatilized again, within the internal cycle.

No specific measures have been considered to minimize emissions of mercury entering the process. Due to its volatility, virtually all of the mercury input to the system is assumed to be emitted to the atmosphere via the kiln stack. No specific measures have been considered to minimize emissions of mercury emitted from the stack. The proposed emission limitation for mercury is less than the PSD regulatory threshold.

19. Please provide the protocol for the mercury material balance to be relied upon to insure emissions are no greater than 122 lb/year. Include proposed process testing locations, frequency of testing, and methods. Please review the availability and capability of continuous mercury monitoring equipment in lieu of, or in addition to the material balance.

Response: The Department has established a monitoring protocol for mercury emissions in several permits, including the recent permit issued to Florida Crushed Stone (Permit

No. 0530021-009-AC). The protocol is acceptable to the applicant and is reproduced below:

> *Material Balance Analysis of Mercury: The owner or operator shall demonstrate compliance with the mercury throughput limitation by material balance and making and maintaining records of monthly and rolling 12-month mercury throughput. The owner or operator shall, for each month of sampling required by this condition, perform daily sampling of the raw mill feed, coal, petroleum coke, and tires, and shall composite the daily samples each month, and shall analyze the monthly composite sample to determine mercury content of these materials for the month. The owner or operator shall determine the mass of mercury introduced into the pyroprocessing system (in units of pounds per month) from the total of the product of the mercury content from the monthly composite analysis and the mass of each material or fuel used during the month. The consecutive 12-month record shall be determined from the individual monthly records for the current month and the preceding eleven months and shall be expressed in units of pounds of mercury per consecutive 12-month period. Such records shall be completed no later than 25 days following the month of the records. To determine the mercury content of the feed material and fuels to be used in the monthly calculation, sampling and analysis shall be performed in accordance with the following schedule:*
>
> 1. *During the first quarter of plant operation, sample each month and analyze each month's composite sample.*
> 2. *After the first quarter, sample for one month of each quarter and analyze that month's composite sample.*

EPA is evaluating mercury CEM for the Utility MACT Working Group. In a March 2003 Mercury Monitoring Update, EPA identified certain concerns related to mercury CEM, including:

- Stability, reliability, and availability of calibration standards
- Loss of sample in handling system
- Species conversion
- CEMS costs, complexity, performance
- CEMS application on US sources
- Fuel, equipment, control uniqueness
- Availability

EPA is conducting further study. As mercury CEM are still being evaluated for utility sources, it is likely premature to consider for application to other source categories such as cement.

20. Has Florida Mining Corporation or affiliates had any violations (or warning letters) related to any Department regulations at any of their facilities? Have officers of Florida Mining Corporation also been officers of other companies that have had violations (or warning letters) of Department regulations at any facilities? Please provide all documentation in relation to any such violations.

Response: The Department issued a warning letter to Florida Mining Corporation, dated February 17, 2004, in which possible violations were presented. These possible violations were in reference to the construction of a culverted crossing of Jumper Creek to facilitate the removal of overburden and to support the existing agricultural operation. The crossing was constructed over surface waters, and according to the Department's assessment no wetlands were impacted due to the construction.

The applicant has since obtained an after-the-fact permit for the crossing, and continues to discuss with the Department the resolution of the potential violation.

No other violations or warning letters were identified.

21. Please list experience of company officers owning or operating industrial enterprises requiring air permits in the State of Florida or in other states.

Response: The Florida Department of State, Division of Corporations, Corporations Online Public Inquiry system, in the Officer/Director Detail section, lists only Paul Mazak, II as President of Florida Mining Corporation.

Mr. Mazak reports no prior experience owning or operating industrial enterprises requiring air permits in the State of Florida or in other states.

22. Please provide information as to the experience of the operators of the proposed site. If the position of plant operator is still to be determined, please describe the minimum requirements for this position established by your company including, but not limited to, total years experience in the cement industry, total years experience as plant operator, educational background, etc.

Response: The position of plant operator is still to be determined, and the applicant has not established minimum requirements for this position. Important factors will include total years experience in the cement industry, total years experience as plant operator, and educational background.

23. Please provide information as to the experience of the plant manager of the proposed site. If the position of plant manager is still to be determined, please describe the minimum requirements for this position established by your company including, but not limited to, total years experience in the cement industry, total years experience as plant manager, educational background, etc.

Response: The position of plant manager is still to be determined, and the applicant has not established minimum requirements for this position. Important factors will include total years experience in the cement industry, total years experience as plant manager, and educational background.

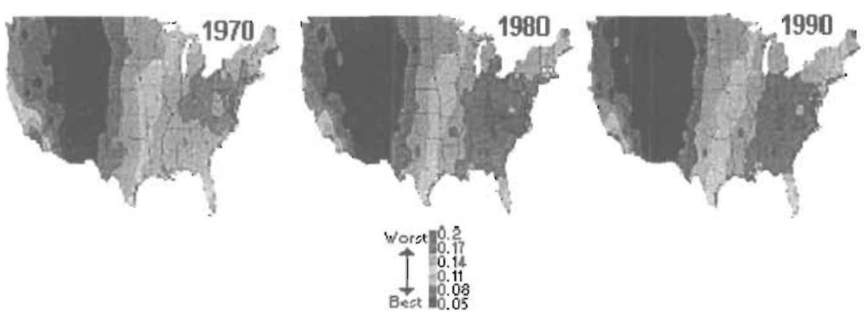
24. A very cursory assessment was provided pursuant to Paragraph 62-212.400(h)5., F.A.C. The rule requires information relating to the air quality impacts of, and the nature and extent of, all general commercial, residential, industrial and other growth which has occurred since August 7, 1977, in the area the facility or modification would affect. While the applicant believes the largest area is a 3 kilometer radius, the Department believes the radius arguably includes the entire county and possibly the contiguous counties. The impacts include visibility impairment and effects on regional ozone concentrations. Please expand the write-up to include development in Sumter and surrounding counties as well as ambient air quality trends in and near Sumter County.

Response: Although the report defined the area the plant would affect as equal to the area of significant impact, detailed information was provided on the nature and extent of, all general commercial, residential, industrial and other growth which has occurred since August 7, 1977, in Sumter County.

Expanding this assessment beyond the area the plant would affect for the entire county was necessary because the development parameters previously reported are available on a county-wide basis. Further expansion of the assessment of development to include surrounding counties is not warranted.

To be responsive to the Department, information was developed on visibility impairment and ambient air quality trends in and near Sumter County, including ozone concentrations; as a result of general commercial, residential, industrial and other growth which has occurred since August 7, 1977.

Visibility impairment[1] can be estimated from the following maps.



[1] http://www.epa.gov/air/airtrends/aqtrnd94/vis.html

APPLICATION INFORMATION

Purpose of Application

This application for air permit is submitted to obtain: (Check one)

Air Construction Permit

☒ Air construction permit.

Air Operation Permit

☐ Initial Title V air operation permit.

☐ Title V air operation permit revision.

☐ Title V air operation permit renewal.

☐ Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is required.

☐ Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is not required.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit (Concurrent Processing)

☐ Air construction permit and Title V permit revision, incorporating the proposed project.

☐ Air construction permit and Title V permit renewal, incorporating the proposed project.

Note: By checking one of the above two boxes, you, the applicant, are requesting concurrent processing pursuant to Rule 62-213.405, F.A.C. In such case, you must also check the following box:

☐ I hereby request that the department waive the processing time requirements of the air construction permit to accommodate the processing time frames of the Title V air operation permit.

Application Comment

Application for an air construction permit for a proposed project subject to prevention of significant deterioration (PSD) review.

APPLICATION INFORMATION

Scope of Application

Emissions Unit ID Number	Description of Emissions Unit	Air Permit Type	Air Permit Proc. Fee
No ID	Raw Materials Handling & Storage	AC1A	$7500
No ID	Raw Mill System		
No ID	Raw Mill/Kiln		
No ID	Clinker Cooler		
No ID	Clinker Handling & Silos		
No ID	Finish Mill		
No ID	Cement Silos, Loadout, & Bagging		
No ID	Coal/Coke Mill		
No ID	Fugitive Emissions from Truck Travel		

Application Processing Fee

Check one: ☒ Attached - Amount: **$7500** ☐ Not Applicable

APPLICATION INFORMATION

Owner/Authorized Representative Statement

Complete if applying for an air construction permit or an initial FESOP.

1. Owner/Authorized Representative Name: **Paul Mazak – President**
2. Owner/Authorized Representative Mailing Address... Organization/Firm: **Florida Mining Corporation** Street Address: **7000 SR 50** City: **Webster** State: **Florida** Zip Code: **33597**
3. Owner/Authorized Representative Telephone Numbers... Telephone: **(352) 569-0422** ext. Fax: **(352) 569-0425**
4. Owner/Authorized Representative Email Address:
5. Owner/Authorized Representative Statement: *I, the undersigned, am the owner or authorized representative of the facility addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other requirements identified in this application to which the facility is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit.* [signature] 5/27/05 Signature Date

APPLICATION INFORMATION

Application Responsible Official Certification

Complete if applying for an initial/revised/renewal Title V permit or concurrent processing of an air construction permit and a revised/renewal Title V permit. If there are multiple responsible officials, the "application responsible official" need not be the "primary responsible official."

1.	Application Responsible Official Name: **Not Applicable – Construction Permit Only**
2.	Application Responsible Official Qualification (Check one or more of the following options, as applicable): ☐ For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C. ☐ For a partnership or sole proprietorship, a general partner or the proprietor, respectively. ☐ For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official. ☐ The designated representative at an Acid Rain source.
3.	Application Responsible Official Mailing Address... Organization/Firm: Street Address: City: State: Zip Code:
4.	Application Responsible Official Telephone Numbers... Telephone: ( ) - ext. Fax: ( ) -
5.	Application Responsible Official Email Address:
6.	Application Responsible Official Certification: *I, the undersigned, am a responsible official of the Title V source addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other applicable requirements identified in this application to which the Title V source is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit. Finally, I certify that the facility and each emissions unit are in compliance with all applicable requirements to which they are subject, except as identified in compliance plan(s) submitted with this application.* Signature Date

APPLICATION INFORMATION

Professional Engineer Certification

1.	Professional Engineer Name: **Steven C. Cullen, P.E.** Registration Number: **45188**
2.	Professional Engineer Mailing Address... Organization/Firm: **Koogler & Associates, Inc.** Street Address: **4014 NW 13th Street** City: **Gainesville** State: **Florida** Zip Code: **32609**
3.	Professional Engineer Telephone Numbers... Telephone: **(352) 377-5822** ext. **19** Fax: **(352) 377-7158**
4.	Professional Engineer Email Address: sculllen@kooglerassociates.com
5.	Professional Engineer Statement: *I, the undersigned, hereby certify, except as particularly noted herein*, that:* *(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and* *(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.* *(3) If the purpose of this application is to obtain a Title V air operation permit (check here ☐, if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.* *(4) If the purpose of this application is to obtain an air construction permit (check here ☒, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here ☐, if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.* *(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here ☐, if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.* Signature (seal) 5/26/2005 Date

* Attach any exception to certification statement.

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates... Zone **17** East (km) **404.2** North (km) **3162.2**		2. Facility Latitude/Longitude Latitude (DD/MM/SS) **28/35/07** Longitude (DD/MM/SS) **81/58/48**	
3. Governmental Facility Code: **0**	4. Facility Status Code: **C**	5. Facility Major Group SIC Code: **32**	6. Facility SIC(s): **3241**
7. Facility Comment: **None**			

Facility Contact

1. Facility Contact Name: **Paul Mazak - President**
2. Facility Contact Mailing Address... Organization/Firm: **Florida Mining Corporation** Street Address: **7000 SR 50** City: **Webster** State: **Florida** Zip Code: **33597**
3. Facility Contact Telephone Numbers: Telephone: **(352) 569-0422** ext. Fax: **(352) 569-0425**
4. Facility Contact Email Address:

Facility Primary Responsible Official

Complete if an "application responsible official" is identified in Section I. that is not the facility "primary responsible official."

1. Facility Primary Responsible Official Name: **Not Applicable – Construction Permit Only**
2. Facility Primary Responsible Official Mailing Address... Organization/Firm: Street Address: City: State: Zip Code:
3. Facility Primary Responsible Official Telephone Numbers... Telephone: ( ) - ext. Fax: ( ) -
4. Facility Primary Responsible Official Email Address:

FACILITY INFORMATION

Facility Regulatory Classifications

Check all that would apply *following* completion of all projects and implementation of all other changes proposed in this application for air permit. Refer to instructions to distinguish between a "major source" and a "synthetic minor source."

1. ☐ Small Business Stationary Source	☒ Unknown	
2. ☐ Synthetic Non-Title V Source		
3. ☒ Title V Source		
4. ☒ Major Source of Air Pollutants, Other than Hazardous Air Pollutants (HAPs)		
5. ☐ Synthetic Minor Source of Air Pollutants, Other than HAPs		
6. ☒ Major Source of Hazardous Air Pollutants (HAPs)*		
7. ☐ Synthetic Minor Source of HAPs		
8. ☒ One or More Emissions Units Subject to NSPS (40 CFR Part 60)		
9. ☐ One or More Emissions Units Subject to Emission Guidelines (40 CFR Part 60)		
10. ☒ One or More Emissions Units Subject to NESHAP (40 CFR Part 61 or Part 63)		
11. ☐ Title V Source Solely by EPA Designation (40 CFR 70.3(a)(5))		

12. Facility Regulatory Classifications Comment:
***Presumed major for HAPS**

Proposed new facility will be subject to:

- ❑ **NSPS Subpart F**
- ❑ **NSPS Subpart Y**
- ❑ **NSPS Subpart OOO**
- ❑ **NESHAP Subpart LLL**

FACILITY INFORMATION

List of Pollutants Emitted by Facility

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]?
PM	**A**	**N**
PM10	**A**	**N**
NOX	**A**	**N**
SO2	**A**	**N**
CO	**A**	**N**
VOC	**B**	**N**
DIOX	**B**	**N**
H114	**B**	**N**

FACILITY INFORMATION

B. EMISSIONS CAPS

Facility-Wide or Multi-Unit Emissions Caps

1. Pollutant Subject to Emissions Cap	2. Facility Wide Cap [Y or N]? (all units)	3. Emissions Unit ID No.s Under Cap (if not all units)	4. Hourly Cap (lb/hr)	5. Annual Cap (ton/yr)	6. Basis for Emissions Cap
Not Applicable					

7. Facility-Wide or Multi-Unit Emissions Cap Comment: **None**

C. FACILITY ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1.	Facility Plot Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) ☒ Attached, Document ID: **Plot Plan** ☐ Previously Submitted, Date:________
2.	Process Flow Diagram(s): (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) ☒ Attached, Document ID: **Process diagram** ☐ Previously Submitted, Date:_____
3.	Precautions to Prevent Emissions of Unconfined Particulate Matter: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) ☒ Attached, Document ID: **UPM Precautions** ☐ Previously Submitted, Date:__

Additional Requirements for Air Construction Permit Applications

1.	Area Map Showing Facility Location: ☒ Attached, Document ID: **PSD Report**
2.	Description of Proposed Construction or Modification: ☒ Attached, Document ID: **PSD Report**
3.	Rule Applicability Analysis: ☒ Attached, Document ID: **PSD Report**
4.	List of Exempt Emissions Units (Rule 62-210.300(3)(a) or (b)1., F.A.C.): ☒ Attached, Document ID: **PSD Report**
5.	Fugitive Emissions Identification (Rule 62-212.400(2), F.A.C.): ☒ Attached, Document ID: **Within Application**
6.	Preconstruction Air Quality Monitoring and Analysis (Rule 62-212.400(5)(f), F.A.C.): ☒ Attached, Document ID: **PSD Report**
7.	Ambient Impact Analysis (Rule 62-212.400(5)(d), F.A.C.): ☒ Attached, Document ID: **PSD Report**
8.	Air Quality Impact since 1977 (Rule 62-212.400(5)(h)5., F.A.C.): ☒ Attached, Document ID: **PSD Report**
9.	Additional Impact Analyses (Rules 62-212.400(5)(e)1. and 62-212.500(4)(e), F.A.C.): ☒ Attached, Document ID: **PSD Report**
10.	Alternative Analysis Requirement (Rule 62-212.500(4)(g), F.A.C.): ☐ Attached, Document ID:_________ ☒ Not Applicable

FACILITY INFORMATION

Additional Requirements for FESOP Applications

☒ **Not Applicable to this Application**

1. List of Exempt Emissions Units (Rule 62-210.300(3)(a) or (b)1., F.A.C.): ☐ Attached, Document ID:________ ☐ Not Applicable (no exempt units at facility)	

Additional Requirements for Title V Air Operation Permit Applications

☒ **Not Applicable to this Application**

1. List of Insignificant Activities (Required for initial/renewal applications only): ☐ Attached, Document ID:________ ☐ Not Applicable (revision application)	
2. Identification of Applicable Requirements (Required for initial/renewal applications, and for revision applications if this information would be changed as a result of the revision being sought): ☐ Attached, Document ID:________ ☐ Not Applicable (revision application with no change in applicable requirements)	
3. Compliance Report and Plan (Required for all initial/revision/renewal applications): ☐ Attached, Document ID:________ Note: A compliance plan must be submitted for each emissions unit that is not in compliance with all applicable requirements at the time of application and/or at any time during application processing. The department must be notified of any changes in compliance status during application processing.	
4. List of Equipment/Activities Regulated under Title VI (If applicable, required for initial/renewal applications only): ☐ Attached, Document ID:________ ☐ Equipment/Activities On site but Not Required to be Individually Listed ☐ Not Applicable	
5. Verification of Risk Management Plan Submission to EPA (If applicable, required for initial/renewal applications only) : ☐ Attached, Document ID:__________ ☐ Not Applicable	
6. Requested Changes to Current Title V Air Operation Permit: ☐ Attached, Document ID:__________ ☐ Not Applicable	

Additional Requirements Comment

None

III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application for air permit. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application – Where this application is used to apply for both an air construction permit and a revised/renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. **The air construction permitting classification must be used to complete the Emissions Unit Information Section of this application for air permit.** A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air construction permitting and insignificant emissions units are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification ☒ **Not Applicable**

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.) ☐ The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit. ☐ The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one) ☐ This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent). ☐ This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions. ☒ This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.				
2. Description of Emissions Unit Addressed in this Section: **Raw Materials Handling and Storage**				
3. Emissions Unit Identification Number: **No ID**				
4. Emissions Unit Status Code: **C**	5. Commence Construction Date: **N/A**	6. Initial Startup Date: **N/A**	7. Emissions Unit Major Group SIC Code: **32**	8. Acid Rain Unit? ☐ Yes ☒ No
9. Package Unit: **Not Applicable** Manufacturer: Model Number:				
10. Generator Nameplate Rating: **Not Applicable** MW				
11. Emissions Unit Comment: **This section addresses raw material (limestone and overburden) processing from the quarry up to raw material storage. This emissions unit also addresses additives handling and storage, from delivery to storage. The additives include, <u>but are not limited to</u>, mill scale, feldspar, and fly ash. Other materials potentially used for making cement include slag, clay, loam, bottom ash, bauxite, shale, iron ore, and glass. Any non-hazardous sources of aluminum, iron, and silicon that will not impact emissions are potential raw materials.**				

Emissions Unit Control Equipment

1. Control Equipment/Method(s) Description: **None**
2. Control Device or Method Code(s): **None**

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate: **1500 TPH maximum and 3,200,000 TPY**		
2. Maximum Production Rate: **Not Applicable**		
3. Maximum Heat Input Rate: **Not Applicable** million Btu/hr		
4. Maximum Incineration Rate: **Not Applicable** pounds/hr tons/day		
5. Requested Maximum Operating Schedule:	hours/day weeks/year	days/week **8760** hours/year
6. Operating Capacity/Schedule Comment: **Average process rate = 3,200,000 TPY ÷ 8760 hours/year = 365 TPH**		

C. EMISSION POINT (STACK/VENT) INFORMATION
(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: **ROCK**		2. Emission Point Type Code: **4**
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: ❑ **Primary crusher** ❑ **Belt conveyor transfer points up to raw material storage** ❑ **Conveyors for additive handling up to additive storage**		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: **N/A**		
5. Discharge Type Code: **F**	6. Stack Height: **N/A** Feet	7. Exit Diameter: **N/A** feet
8. Exit Temperature: **77°F**	9. Actual Volumetric Flow Rate: **N/A** acfm	10. Water Vapor: **N/A** %
11. Maximum Dry Standard Flow Rate: **N/A** Dscfm		12. Nonstack Emission Point Height: **0** feet
13. Emission Point UTM Coordinates... Zone: **17** East (km): **403.59** North (km): **3163.20**		14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) **See Field 13** Longitude (DD/MM/SS) **See Field 13**
15. Emission Point Comment: **None**		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 3

1. Segment Description (Process/Fuel Type): **Mineral Products: Cement Manufacturing: Dry Process: Primary Crushing**		
2. Source Classification Code (SCC): **3-05-006-09**	3. SCC Units: **Tons Processed**	
4. Maximum Hourly Rate: **1500**	5. Maximum Annual Rate: **3,200,000**	6. Estimated Annual Activity Factor: **N/A**
7. Maximum % Sulfur: **N/A**	8. Maximum % Ash: **N/A**	9. Million Btu per SCC Unit: **N/A**
10. Segment Comment: **Annual average rate = 365 tons/hour x 8760 hours/year = 3,200,000 TPY**		

Segment Description and Rate: Segment 2 of 3

1. Segment Description (Process/Fuel Type): **Mineral Products: Cement Manufacturing: Dry Process: Raw Material Transfer**		
2. Source Classification Code (SCC): **3-05-006-12**	3. SCC Units: **Tons Processed**	
4. Maximum Hourly Rate: **1500**	5. Maximum Annual Rate: **3,200,000**	6. Estimated Annual Activity Factor: **N/A**
7. Maximum % Sulfur: **N/A**	8. Maximum % Ash: **N/A**	9. Million Btu per SCC Unit: **N/A**
10. Segment Comment: **Annual average rate = 365 tons/hour x 8760 hours/year = 3,200,000 TPY**		

D. SEGMENT (PROCESS/FUEL) INFORMATION (CONTINUED)

Segment Description and Rate: Segment 3 of 3

1. Segment Description (Process/Fuel Type): **Mineral Products: Cement Manufacturing: Dry Process: Raw Material Unloading**		
2. Source Classification Code (SCC): **3-05-006-07**	3. SCC Units: **Tons Processed**	
4. Maximum Hourly Rate: **1500**	5. Maximum Annual Rate: **3,200,000**	6. Estimated Annual Activity Factor: **N/A**
7. Maximum % Sulfur: **N/A**	8. Maximum % Ash: **N/A**	9. Million Btu per SCC Unit: **N/A**
10. Segment Comment: **Annual average rate = 365 tons/hour x 8760 hours/year = 3,200,000 TPY**		

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM	**None**	**None**	**EL [VE]**
PM10	**None**	**None**	**NS**

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM**	2. Total Percent Efficiency of Control: **N/A**
3. Potential Emissions: **See Field 5** lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): 0 to **2.1** tons/year	
6. Emission Factor: **Crushing: 0.0012 lb/ton** **Transfer: 0.00013 lb/ton** **Unloading: 0.0000016 lb/ton** Reference: **AP-42 Table 11.19.2-2, dated 6/03**	7. Emissions Method Code: **3**
8. Calculation of Emissions: **Emission factor: 0.0012 lb/ton + 0.00013 lb/ton + 0.0000016 lb/ton = 0.0013316 lb/ton** **3,200,000 tons/year processed x 0.0013316 lb/ton x 1.0 ton/2000 pounds = 2.1 tons/year**	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: **None**	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions __ of __ ☒ **Not Applicable**

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of __ ☒ **Not Applicable**

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of __ ☒ **Not Applicable**

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM10**

2. Total Percent Efficiency of Control: **N/A**

3. Potential Emissions: **See Field 5**
lb/hour tons/year

4. Synthetically Limited?
☐ Yes ☒ No

5. Range of Estimated Fugitive Emissions (as applicable):
0 to **0.9** tons/year

6. Emission Factor: **Crushing: 0.00054 lb/ton**
Transfer: 0.000045 lb/ton
Unloading: 0.0000016 lb/ton
Reference: **AP-42 Table 11.19.2-2, dated 6/03**

7. Emissions Method Code: **3**

8. Calculation of Emissions:

Emission factor: 0.00054 lb/ton + 0.000045 lb/ton + 0.0000016 lb/ton = 0.0005866 lb/ton
3,200,000 tons/year processed x 0.0005866 lb/ton x 1.0 ton/2000 pounds = 0.9 tons/year

9. Pollutant Potential/Estimated Fugitive Emissions Comment: **None**

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions __ of __ ☒ **Not Applicable**

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of __ ☒ **Not Applicable**

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of __ ☒ **Not Applicable**

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

G. VISIBLE EMISSIONS INFORMATION

Complete if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation 1 of 2

1. Visible Emissions Subtype: **VE10**	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: **10%** Exceptional Conditions: **10%** Maximum Period of Excess Opacity Allowed: **0** min/hour	
4. Method of Compliance: **Method 9**	
5. Visible Emissions Comment: **40CFR60.672(b), Transfer points on belt conveyors**	

Visible Emissions Limitation: Visible Emissions Limitation 2 of 2

1. Visible Emissions Subtype: **VE15**	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: **15%** Exceptional Conditions: **15%** Maximum Period of Excess Opacity Allowed: **0** min/hour	
4. Method of Compliance: **Method 9**	
5. Visible Emissions Comment: **40CFR60.672(c), Primary crusher**	

H. CONTINUOUS MONITOR INFORMATION

Complete if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor ___ of ___ ☒ **Not Applicable**

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement: ☐ Rule ☐ Other	
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

Continuous Monitoring System: Continuous Monitor ___ of ___ ☒ **Not Applicable**

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement: ☐ Rule ☐ Other	
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: **Flow diagram** ☐ Previously Submitted, Date ______

2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: **No fuels** ☐ Previously Submitted, Date ________

3. Detailed Description of Control Equipment (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: **No controls** ☐ Previously Submitted, Date ________

4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: __________ ☐ Previously Submitted, Date ________
   ☒ Not Applicable (construction application)

5. Operation and Maintenance Plan (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: __________ ☐ Previously Submitted, Date ________
   ☒ Not Applicable

6. Compliance Demonstration Reports/Records
   ☐ Attached, Document ID: __________
   Test Date(s)/Pollutant(s) Tested: ________________________________

   ☐ Previously Submitted, Date: _______
   Test Date(s)/Pollutant(s) Tested: ________________________________

   ☐ To be Submitted, Date (if known):___________
   Test Date(s)/Pollutant(s) Tested: ________________________________

   ☒ Not Applicable

   Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.

7. Other Information Required by Rule or Statute
   ☒ Attached, Document ID: **PSD Report** ☐ Not Applicable

Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(6) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)) ☐ Attached, Document ID: ________ ☒ Not Applicable	
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(5)(h)6., F.A.C., and Rule 62-212.500(4)(f), F.A.C.) ☐ Attached, Document ID: ________ ☒ Not Applicable	
3. Description of Stack Sampling Facilities (Required for proposed new stack sampling facilities only) ☐ Attached, Document ID: ________ ☒ Not Applicable	

Additional Requirements for Title V Air Operation Permit Applications ☒ **Not Applicable**

1. Identification of Applicable Requirements ☐ Attached, Document ID: ________ ☒ Not Applicable	
2. Compliance Assurance Monitoring ☐ Attached, Document ID: ________ ☒ Not Applicable	
3. Alternative Methods of Operation ☐ Attached, Document ID: ________ ☒ Not Applicable	
4. Alternative Modes of Operation (Emissions Trading) ☐ Attached, Document ID: ________ ☒ Not Applicable	
5. Acid Rain Part Application ☐ Certificate of Representation (EPA Form No. 7610-1) ☐ Copy Attached, Document ID:_ ☐ Acid Rain Part (Form No. 62-210.900(1)(a)) ☐ Attached, Document ID:________ ☐ Previously Submitted, Date:________ ☐ Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) ☐ Attached, Document ID:________ ☐ Previously Submitted, Date:________ ☐ New Unit Exemption (Form No. 62-210.900(1)(a)2.) ☐ Attached, Document ID:________ ☐ Previously Submitted, Date:________ ☐ Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) ☐ Attached, Document ID:________ ☐ Previously Submitted, Date:________ ☐ Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.) ☐ Attached, Document ID:________ ☐ Previously Submitted, Date:________ ☐ Phase II NOx Averaging Plan (Form No. 62-210.900(1)(a)5.) ☐ Attached, Document ID:________ ☐ Previously Submitted, Date:________ ☒ Not Applicable	

Additional Requirements Comment

None

III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application for air permit. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application – Where this application is used to apply for both an air construction permit and a revised/renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. **The air construction permitting classification must be used to complete the Emissions Unit Information Section of this application for air permit.** A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air construction permitting and insignificant emissions units are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification ☒ **Not Applicable**

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

   ☐ The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

   ☐ The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

   ☐ This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

   ☒ This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

   ☐ This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:
   Raw Mill System

3. Emissions Unit Identification Number: **No ID**

4. Emissions Unit Status Code: **C**	5. Commence Construction Date: **N/A**	6. Initial Startup Date: **N/A**	7. Emissions Unit Major Group SIC Code: **32**	8. Acid Rain Unit? ☐ Yes ☒ No

9. Package Unit: **Not Applicable**
   Manufacturer: Model Number:

10. Generator Nameplate Rating: **Not Applicable** MW

11. Emissions Unit Comment:

Raw mill system, from raw material and additive storage to preheater. This emissions unit also includes a 40 MMBtu/hour air heater for use when additional raw material drying capacity is required. Emissions from the air heater and raw mill are addressed with the Raw Mill/Kiln emissions unit.

Emissions Unit Control Equipment

1. Control Equipment/Method(s) Description:

Baghouses

Baghouse	**Raw material transfer**	**RAW1**
Baghouse	**Raw material transfer**	**RAW2**
Baghouse	**Raw material transfer**	**RAW3**
Baghouse	**Raw material transfer**	**RAW4**
Baghouse	**Airslides and airlift**	**BLEND2**
Baghouse	**Recycle dust bin**	**BIN**
Baghouse	**Airlift and blending silo**	**BLEND1**
Baghouse	**Blending silo to preheater**	**BLEND3**

2. Control Device or Method Code(s): **016, 017, 018**

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate: **250 tons per hour wet raw material to mill**		
2. Maximum Production Rate: **Not Applicable**		
3. Maximum Heat Input Rate: **40 million Btu/hr for air heater**		
4. Maximum Incineration Rate: **Not Applicable** pounds/hr tons/day		
5. Requested Maximum Operating Schedule:	hours/day weeks/year	days/week **8760** hours/year
6. Operating Capacity/Schedule Comment: **None**		

C. EMISSION POINT (STACK/VENT) INFORMATION
(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: **See Field 3**	2. Emission Point Type Code: **3**

3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:

Baghouse Raw material transfer	**RAW1**
Baghouse Raw material transfer	**RAW2**
Baghouse Raw material transfer	**RAW3**
Baghouse Raw material transfer	**RAW4**
Baghouse Airslides and airlift	**BLEND2**
Baghouse Recycle dust bin	**BIN**
Baghouse Airlift and blending silo	**BLEND1**
Baghouse Blending silo to preheater	**BLEND3**

4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:
The air heater described in this section exhausts through the PM control device of Emissions Unit 3 of 9: Raw Mill/Kiln.

5. Discharge Type Code: **H**	6. Stack Height: **N/A** Feet	7. Exit Diameter: **N/A** feet
8. Exit Temperature: **See Table** °F	9. Actual Volumetric Flow Rate: **See Table** acfm	10. Water Vapor: **See Table** %

11. Maximum Dry Standard Flow Rate: **See Table** dscfm	12. Nonstack Emission Point Height: **See Table** feet
13. Emission Point UTM Coordinates... Zone: **17** East (km): **Table** North (km): **Table**	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) **See Field 13** Longitude (DD/MM/SS) **See Field 13**

15. Emission Point Comment: **None**

ID	UTM EAST	UTM NORTH	HEIGHT, FT	DIAM, FT	TEMP, F	ACFM	H2O	DSCFM
RAW1	404.14	3162.40	20.0	1.00	77	3000	2	2893
RAW2	404.11	3162.39	150.0	1.50	77	3000	2	2893
RAW3	404.11	3162.39	160.0	1.50	77	5000	2	4821
RAW4	404.12	3162.38	90.0	1.50	77	5000	2	4821
BLEND2	404.14	3162.27	50.0	1.50	300	3000	2	2043
BIN	404.16	3162.27	100.0	1.00	300	2000	2	1362
BLEND1	404.15	3162.28	250.0	2.50	250	18000	2	13124
BLEND3	404.16	3162.26	50.0	1.00	200	3000	2	2353
								34310

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 5

1. Segment Description (Process/Fuel Type): **Mineral Products: Cement Manufacturing: Dry Process: Raw Material Transfer**		
2. Source Classification Code (SCC): **3-05-006-12**	3. SCC Units: **Tons Processed**	
4. Maximum Hourly Rate: **250**	5. Maximum Annual Rate: **2,190,000**	6. Estimated Annual Activity Factor: **N/A**
7. Maximum % Sulfur: **N/A**	8. Maximum % Ash: **N/A**	9. Million Btu per SCC Unit: **N/A**
10. Segment Comment: **None**		

Segment Description and Rate: Segment 2 of 5

1. Segment Description (Process/Fuel Type): **Mineral Products: Cement Manufacturing: Dry Process: Raw Material Grinding**		
2. Source Classification Code (SCC): **3-05-006-13**	3. SCC Units: **Tons Processed**	
4. Maximum Hourly Rate: **250**	5. Maximum Annual Rate: **2,190,000**	6. Estimated Annual Activity Factor: **N/A**
7. Maximum % Sulfur: **N/A**	8. Maximum % Ash: **N/A**	9. Million Btu per SCC Unit: **N/A**
10. Segment Comment: **None**		

D. SEGMENT (PROCESS/FUEL) INFORMATION (CONTINUED)

Segment Description and Rate: Segment 3 of 5

1. Segment Description (Process/Fuel Type): **In-Process Fuel Use : Distillate Oil : Air Heater**		
2. Source Classification Code (SCC): **3-90-005-02**	3. SCC Units: **Thousand Gallons Burned**	
4. Maximum Hourly Rate: **0.286**	5. Maximum Annual Rate: **2502.857**	6. Estimated Annual Activity Factor: **N/A**
7. Maximum % Sulfur: **1.0**	8. Maximum % Ash: **N/A**	9. Million Btu per SCC Unit: **140**
10. Segment Comment: **This segment is for No. 2 or No. 4 oil in the air heater** **Distillate oil heat value: 140,000 Btu/gal = 140 MMBtu/10^3 gal** **40 MMBtu/hr ÷ 140 MMBtu/10^3 gal = 0.286 (10^3 gal)/hr = 286 gallons/hour** **@8760 hr/year = 2502.857 (10^3 gal)/year**		

Segment Description and Rate: Segment 4 of 5

1. Segment Description (Process/Fuel Type): **In-Process Fuel Use : Natural Gas : Air Heater**		
2. Source Classification Code (SCC): **3-90-006-02**	3. SCC Units: **Million Cubic Feet Burned**	
4. Maximum Hourly Rate: **0.038**	5. Maximum Annual Rate: **333.71**	6. Estimated Annual Activity Factor: **N/A**
7. Maximum % Sulfur: **N/A**	8. Maximum % Ash: **N/A**	9. Million Btu per SCC Unit: **1050**
10. Segment Comment: **Natural gas heat value: 1050 Btu/cf = 1050 MMBtu/MMCF** **40 MMBtu/hr ÷ 1050 MMBtu/MMCF = 0.038 MMCF/hr** **@8760 hr/year = 333.71 MMCF**		

Segment Description and Rate: Segment 5 of 5

1. Segment Description (Process/Fuel Type): **In-Process Fuel Use : Used Oil**		
2. Source Classification Code (SCC): **3-90-013-89**	3. SCC Units: **Thousand Gallons Burned**	
4. Maximum Hourly Rate: **0.3077**	5. Maximum Annual Rate: **2695**	6. Estimated Annual Activity Factor: **N/A**
7. Maximum % Sulfur: **1.0**	8. Maximum % Ash: **N/A**	9. Million Btu per SCC Unit: **130**
10. Segment Comment: **This segment is for on-spec or off-spec used oil** **Used oil heat value: 130,000 Btu/gal = 130 MMBtu/10^3 gal** **40 MMBtu/hr ÷ 130 MMBtu/10^3 gal = 0.3077 (10^3 gal)/hr = 307.7 gallons/hour** **@8760 hr/year = 2695 (10^3 gal)/year**		

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM	016,017,018	None	EL
PM10	016,017,018	None	EL
SO2	None	None	EL
NOx	None	None	EL
CO	None	None	EL
VOC	None	None	EL

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM**	2. Total Percent Efficiency of Control: **N/A**
3. Potential Emissions: **2.94** lb/hour **12.9** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **N/A** ___ to ___ tons/year	
6. Emission Factor: **0.01 gr/dscf for baghouses** Reference: **Proposed as BACT**	7. Emissions Method Code: **0**
8. Calculation of Emissions: **0.01 gr/dscf x 34310 dscfm x 60 min/hr ÷ 7000 gr/lb = 2.94 lb/hr** **@ 8760 hr/year = 12.9 TPY**	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: **None**	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **0.01 gr/dscf**	4. Equivalent Allowable Emissions: **2.94** lb/hour **12.9** tons/year
5. Method of Compliance: **Method 9 in lieu of Method 5**	
6. Allowable Emissions Comment (Description of Operating Method): **Proposed as BACT**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM10**	2. Total Percent Efficiency of Control: **N/A**
3. Potential Emissions: **2.06** lb/hour **9.0** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **N/A** ___ to ___ tons/year	
6. Emission Factor: **0.007 gr/dscf for baghouses** Reference: **Proposed as BACT**	7. Emissions Method Code: **0**
8. Calculation of Emissions: **0.007 gr/dscf x 34310 dscfm x 60 min/hr ÷ 7000 gr/lb = 2.06 lb/hr @ 8760 hr/year = 9.0 TPY**	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: **None**	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **0.007 gr/dscf**	4. Equivalent Allowable Emissions: **2.06** lb/hour **9.0** tons/year
5. Method of Compliance: **Method 9 in lieu of Method 5**	
6. Allowable Emissions Comment (Description of Operating Method): **Proposed as BACT**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

<u>Potential/Estimated Fugitive Emissions</u>

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **SO2**	2. Total Percent Efficiency of Control: **N/A**
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **N/A** ___ to ___ tons/year	
6. Emission Factor: **See Raw Mill/Kiln** Reference:	7. Emissions Method Code: **0**
8. Calculation of Emissions:	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: **Emissions from air heater will be effectively limited by BACT emissions for the Raw Mill/Kiln emissions unit.**	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance: **CEMS**	
6. Allowable Emissions Comment (Description of Operating Method): **Allowable emissions for the air heater are dictated by BACT for the Raw Mill/Kiln.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **NOx**	2. Total Percent Efficiency of Control: **N/A**
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **N/A** ___ to ___ tons/year	
6. Emission Factor: **See Raw Mill/Kiln** Reference:	7. Emissions Method Code: **0**
8. Calculation of Emissions:	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: **Emissions from the air heater will be effectively limited by BACT emissions for the Raw Mill/Kiln.**	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance: **CEMS**	
6. Allowable Emissions Comment (Description of Operating Method): **Allowable emissions for the air heater are dictated by BACT for the Raw Mill/Kiln.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **CO**	2. Total Percent Efficiency of Control: **N/A**
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **N/A** ___ to ___ tons/year	
6. Emission Factor: **See Raw Mill/Kiln** Reference:	7. Emissions Method Code: **0**
8. Calculation of Emissions:	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: **Emissions from the air heater will be effectively limited by BACT emissions for the Raw Mill/Kiln.**	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

<u>Allowable Emissions</u> Allowable Emissions <u>1</u> of <u>1</u>

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance: **Method 10**	
6. Allowable Emissions Comment (Description of Operating Method): **Allowable emissions for the air heater are dictated by BACT for the Raw Mill/Kiln.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **VOC**	2. Total Percent Efficiency of Control: **N/A**
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **N/A** ___ to ___ tons/year	
6. Emission Factor: **See Raw Mill/Kiln** Reference:	7. Emissions Method Code: **0**
8. Calculation of Emissions:	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: **Emissions from the air heater will be effectively limited by BACT emissions for the Raw Mill/Kiln.**	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance: **CEMS (VOC as THC)**	
6. Allowable Emissions Comment (Description of Operating Method): **Allowable emissions for the air heater are dictated by BACT for the Raw Mill/Kiln.**	

G. VISIBLE EMISSIONS INFORMATION

Complete if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation 1 of 2

1. Visible Emissions Subtype: **VE10**	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: **10%** Exceptional Conditions: **10%** Maximum Period of Excess Opacity Allowed: **0** min/hour	
4. Method of Compliance: **Method 22, monthly 1-minute**	
5. Visible Emissions Comment: **40CFR63.1348**	

Visible Emissions Limitation: Visible Emissions Limitation 2 of 2

1. Visible Emissions Subtype: **VE05**	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: 5% Exceptional Conditions: 5% Maximum Period of Excess Opacity Allowed: **0** min/hour	
4. Method of Compliance: **Method 9, in lieu of Method 5 for baghouses**	
5. Visible Emissions Comment: **62-297.620(4), FAC**	

H. CONTINUOUS MONITOR INFORMATION

Complete if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor ___ of ___ ☒ **Not Applicable**

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment: **See Raw Mill/Kiln emissions unit**	

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: **Flow diagram** ☐ Previously Submitted, Date ________

2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: **PSD Report**

3. Detailed Description of Control Equipment (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: **PSD Report**

4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: ________
   ☒ Not Applicable (construction application)

5. Operation and Maintenance Plan (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: ________
   ☒ Not Applicable (construction application)

6. Compliance Demonstration Reports/Records
   ☐ Attached, Document ID: ________
   Test Date(s)/Pollutant(s) Tested: ________________________

   ☐ Previously Submitted, Date: ________
   Test Date(s)/Pollutant(s) Tested: ________________________

   ☐ To be Submitted, Date (if known): ________
   Test Date(s)/Pollutant(s) Tested: ________________________

   ☒ Not Applicable

   Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.

7. Other Information Required by Rule or Statute
   ☒ Attached, Document ID: **PSD Report** ☐ Not Applicable

Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(6) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)) ☒ Attached, Document ID: **PSD Report** ☐ Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(5)(h)6., F.A.C., and Rule 62-212.500(4)(f), F.A.C.) ☒ Attached, Document ID: **PSD Report** ☐ Not Applicable
3. Description of Stack Sampling Facilities (Required for proposed new stack sampling facilities only) ☐ Attached, Document ID: ____________ ☒ Not Applicable

Additional Requirements for Title V Air Operation Permit Applications ☒ **Not Applicable**

1. Identification of Applicable Requirements ☐ Attached, Document ID: ____________ ☒ Not Applicable
2. Compliance Assurance Monitoring ☐ Attached, Document ID: ___________ ☒ Not Applicable
3. Alternative Methods of Operation ☐ Attached, Document ID: ___________ ☒ Not Applicable
4. Alternative Modes of Operation (Emissions Trading) ☐ Attached, Document ID: ___________ ☒ Not Applicable
5. Acid Rain Part Application ☐ Certificate of Representation (EPA Form No. 7610-1) ☐ Copy Attached, Document ID:_ ☐ Acid Rain Part (Form No. 62-210.900(1)(a)) ☐ Attached, Document ID:____________ ☐ Previously Submitted, Date:_________ ☐ Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) ☐ Attached, Document ID:____________ ☐ Previously Submitted, Date:_________ ☐ New Unit Exemption (Form No. 62-210.900(1)(a)2.) ☐ Attached, Document ID:____________ ☐ Previously Submitted, Date:_________ ☐ Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) ☐ Attached, Document ID:____________ ☐ Previously Submitted, Date:_________ ☐ Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.) ☐ Attached, Document ID:____________ ☐ Previously Submitted, Date:_________ ☐ Phase II NOx Averaging Plan (Form No. 62-210.900(1)(a)5.) ☐ Attached, Document ID:____________ ☐ Previously Submitted, Date:_________ ☒ Not Applicable

Additional Requirements Comment

None

III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application for air permit. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application – Where this application is used to apply for both an air construction permit and a revised/renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. **The air construction permitting classification must be used to complete the Emissions Unit Information Section of this application for air permit.** A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air construction permitting and insignificant emissions units are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification ☒ **Not Applicable**

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

   ☐ The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

   ☐ The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

   ☒ This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

   ☐ This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

   ☐ This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:
   Raw Mill/Kiln

3. Emissions Unit Identification Number: **No ID**

4. Emissions Unit Status Code: **C**	5. Commence Construction Date: **N/A**	6. Initial Startup Date: **N/A**	7. Emissions Unit Major Group SIC Code: **32**	8. Acid Rain Unit? ☐ Yes ☒ No

9. Package Unit: **Not Applicable**
   Manufacturer: Model Number:

10. Generator Nameplate Rating: **Not Applicable** MW

11. Emissions Unit Comment:

Raw Mill/Kiln from the preheater to the clinker cooler.

Emissions Unit Control Equipment

1. Control Equipment/Method(s) Description:

- **High Efficiency Electrostatic Precipitator (ESP)**

-OR-

- **High-Temperature Baghouse**

- **Selective Non-Catalytic Reduction (SNCR) or pyroprocessing technology as necessary to achieve BACT emission limit**

2. Control Device or Method Code(s): **010 or 016, 107 (if SNCR used)**

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate: **125 tons per hour clinker**		
2. Maximum Production Rate: **Not Applicable**		
3. Maximum Heat Input Rate: **400 million Btu/hr**		
4. Maximum Incineration Rate: **Not Applicable** pounds/hr	tons/day	
5. Requested Maximum Operating Schedule:	hours/day	days/week
	weeks/year	**8760** hours/year
6. Operating Capacity/Schedule Comment: **None**		

C. EMISSION POINT (STACK/VENT) INFORMATION
(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: **KILN**	2. Emission Point Type Code: **2**	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: **N/A**		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: **The air heater of the raw mill system exhausts through this emission point.**		
5. Discharge Type Code: **V**	6. Stack Height: **300** feet	7. Exit Diameter: **10.0** feet
8. Exit Temperature: **400**°F	9. Actual Volumetric Flow Rate: **250,000** acfm	10. Water Vapor: **20**%
11. Maximum Dry Standard Flow Rate: **122,838** dscfm	12. Nonstack Emission Point Height: **N/A** Feet	
13. Emission Point UTM Coordinates... Zone: **17** East (km): **404.16** North (km): **3162.24**	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) **See Field 13** Longitude (DD/MM/SS) **See Field 13**	
15. Emission Point Comment: **None**		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 9

1. Segment Description (Process/Fuel Type): **Mineral Products: Cement Manufacturing: Dry Process: Preheater/Precalciner Kiln**		
2. Source Classification Code (SCC): **3-05-006-23**	3. SCC Units: **Tons Clinker**	
4. Maximum Hourly Rate: **125**	5. Maximum Annual Rate: **1,095,000**	6. Estimated Annual Activity Factor: **N/A**
7. Maximum % Sulfur: **N/A**	8. Maximum % Ash: **N/A**	9. Million Btu per SCC Unit: **N/A**
10. Segment Comment: **None**		

Segment Description and Rate: Segment 2 of 9

1. Segment Description (Process/Fuel Type): **In-Process Fuel Use : Coal : Cement Kiln**		
2. Source Classification Code (SCC): **3-90-002-01**	3. SCC Units: **Tons Burned**	
4. Maximum Hourly Rate: **15.4**	5. Maximum Annual Rate: **134,904**	6. Estimated Annual Activity Factor: **N/A**
7. Maximum % Sulfur: **No limit requested**	8. Maximum % Ash: **No limit requested**	9. Million Btu per SCC Unit: **26**
10. Segment Comment: **Coal heat value: 13,000 Btu/lb = 26 MMBtu/ton** **400 MMBtu/hr ÷ 26 MMBtu/ton = 15.4 tons/hr** **@8760 hr/year = 134,904 tons/year**		

D. SEGMENT (PROCESS/FUEL) INFORMATION (CONTINUED)

Segment Description and Rate: Segment 3 of 9

1. Segment Description (Process/Fuel Type): **In-Process Fuel Use : Natural Gas : Cement Kiln**		
2. Source Classification Code (SCC): **3-90-006-02**	3. SCC Units: **Million Cubic Feet Burned**	
4. Maximum Hourly Rate: **0.381**	5. Maximum Annual Rate: **3337.1**	6. Estimated Annual Activity Factor: **N/A**
7. Maximum % Sulfur: **N/A**	8. Maximum % Ash: **N/A**	9. Million Btu per SCC Unit: **1050**
10. Segment Comment: **Natural gas heat value: 1050 Btu/cf = 1050 MMBtu/MMCF** **400 MMBtu/hr ÷ 1050 MMBtu/MMCF = 0.381 MMCF/hr** **@8760 hr/year = 3337.1 MMCF/year**		

Segment Description and Rate: Segment 4 of 9

1. Segment Description (Process/Fuel Type): **In-Process Fuel Use : Distillate Oil : Cement Kiln**		
2. Source Classification Code (SCC): **3-90-005-02**	3. SCC Units: **Thousand Gallons Burned**	
4. Maximum Hourly Rate: **2.857**	5. Maximum Annual Rate: **25,028**	6. Estimated Annual Activity Factor: **N/A**
7. Maximum % Sulfur: **1.0**	8. Maximum % Ash: **N/A**	9. Million Btu per SCC Unit: **140**
10. Segment Comment: **This segment is for No. 2 or No. 4 oil** **Distillate oil heat value: 140,000 Btu/gal = 140 MMBtu/10^3 gal** **400 MMBtu/hr ÷ 140 MMBtu/10^3 gal = 2.857 (10^3 gal)/hr = 2857 gallons/hour** **@8760 hr/year = 25028 (10^3 gal)/year**		

D. SEGMENT (PROCESS/FUEL) INFORMATION (CONTINUED)

Segment Description and Rate: Segment 5 of 9

1. Segment Description (Process/Fuel Type): **In-Process Fuel Use : Propane : Cement Kiln**		
2. Source Classification Code (SCC): **3-90-010-99**	3. SCC Units: **Thousand Gallons Burned**	
4. Maximum Hourly Rate: **4.255**	5. Maximum Annual Rate: **37,277**	6. Estimated Annual Activity Factor: **N/A**
7. Maximum % Sulfur: **N/A**	8. Maximum % Ash: **N/A**	9. Million Btu per SCC Unit: **94**
10. Segment Comment: **Propane heat value: 94,000 Btu/gal = 94 MMBtu/10^3 gal** **400 MMBtu/hr ÷ 94 MMBtu/10^3 gal = 4.255 (10^3 gal)/hr = 4255 gallons/hour** **@8760 hr/year = 37,277 (10^3 gal)/year**		

Segment Description and Rate: Segment 6 of 9

1. Segment Description (Process/Fuel Type): **In-Process Fuel Use : Coke : Cement Kiln**		
2. Source Classification Code (SCC): **3-90-008-99**	3. SCC Units: **Tons Burned**	
4. Maximum Hourly Rate: **15.04**	5. Maximum Annual Rate: **131,729**	6. Estimated Annual Activity Factor: **N/A**
7. Maximum % Sulfur: **No limit requested**	8. Maximum % Ash: **No limit requested**	9. Million Btu per SCC Unit: **26.6**
10. Segment Comment: **Coke heat value: 13,300 Btu/lb = 26.6 MMBtu/ton** **400 MMBtu/hr ÷ 26.6 MMBtu/ton = 15.04 tons/hr** **@8760 hr/year = 131,729 tons/year**		

D. SEGMENT (PROCESS/FUEL) INFORMATION (CONTINUED)

Segment Description and Rate: Segment 7 of 9

1. Segment Description (Process/Fuel Type): **In-Process Fuel Use : Tires** **Supplemental Fuel at up to 15% of heat value (60 MMBtu/hour)**		
2. Source Classification Code (SCC): **3-90-012-99**	3. SCC Units: **Tons Burned**	
4. Maximum Hourly Rate: **2.5**	5. Maximum Annual Rate: **21,900**	6. Estimated Annual Activity Factor: **N/A**
7. Maximum % Sulfur: **No limit requested**	8. Maximum % Ash: **No limit requested**	9. Million Btu per SCC Unit: **24**
10. Segment Comment: **Tires heat value: 12,000 Btu/lb = 24 MMBtu/ton** **60 MMBtu/hr ÷ 24 MMBtu/ton = 2.5 tons/hr** **@8760 hr/year = 21900 tons/year**		

Segment Description and Rate: Segment 8 of 9

1. Segment Description (Process/Fuel Type): **In-Process Fuel Use : High carbon fly ash** **Supplemental Fuel at up to 10% of dry preheater feed, at up to 65% carbon (LOI)**		
2. Source Classification Code (SCC): **3-90-012-99**	3. SCC Units: **Tons Burned**	
4. Maximum Hourly Rate: **13.8**	5. Maximum Annual Rate: **120,998**	6. Estimated Annual Activity Factor: **N/A**
7. Maximum % Sulfur: **No limit requested**	8. Maximum % Ash: **No limit requested**	9. Million Btu per SCC Unit: **12**
10. Segment Comment: **10% x 212.5 TPH x 65% carbon in fly ash = 13.8 TPH carbon in fly ash** **@8760 hr/year = 120,998 tons/year**		

D. SEGMENT (PROCESS/FUEL) INFORMATION (CONTINUED)

Segment Description and Rate: Segment 9 of 9

1. Segment Description (Process/Fuel Type): **In-Process Fuel Use : Used Oil**		
2. Source Classification Code (SCC): **3-90-013-89**	3. SCC Units: **Thousand Gallons Burned**	
4. Maximum Hourly Rate: **3.077**	5. Maximum Annual Rate: **26,954**	6. Estimated Annual Activity Factor: **N/A**
7. Maximum % Sulfur: **1.0**	8. Maximum % Ash: **N/A**	9. Million Btu per SCC Unit: **130**
10. Segment Comment: **This segment is for on-spec or off-spec used oil** **Used oil heat value: 130,000 Btu/gal = 130 MMBtu/10^3 gal** **400 MMBtu/hr ÷ 130 MMBtu/10^3 gal = 3.077 (10^3 gal)/hr = 3077 gallons/hour** **@8760 hr/year = 26954 (10^3 gal)/year**		

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM	**010 or 016**	**None**	**EL**
PM10	**010 or 016**	**None**	**EL**
SO2	**None**	**None**	**EL**
NOx	**107 (if used)**	**None**	**EL**
CO	**None**	**None**	**EL**
VOC	**None**	**None**	**EL**
H114	**None**	**None**	**EL**
DIOX	**None**	**None**	**EL**

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM**	2. Total Percent Efficiency of Control: **N/A**
3. Potential Emissions: **28.75** lb/hour **125.9** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **N/A** ___ to ___ tons/year	
6. Emission Factor: **0.23 lb/ton of clinker** Reference: **Proposed as BACT**	7. Emissions Method Code: **0**
8. Calculation of Emissions: **0.23 lb/ton of clinker x 125 ton/hr clinker = 28.75 lb/hr @ 8760 hr/year = 125.9 TPY**	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: **None**	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 2

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **0.23 lb/ton of clinker**	4. Equivalent Allowable Emissions: **28.75** lb/hour **125.9** tons/year
5. Method of Compliance: **Method 5**	
6. Allowable Emissions Comment (Description of Operating Method): **BACT** **Applicant requests that emissions limitations be based on clinker production only.**	

Allowable Emissions Allowable Emissions 2 of 2

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **0.30 lb/ton of dry feed**	4. Equivalent Allowable Emissions: **~63.75** lb/hour **~279.2** tons/year
5. Method of Compliance: **Method 5**	
6. Allowable Emissions Comment (Description of Operating Method): **40CFR63.1343(c)(1); 40CFR60.62(a)(1) [superseded]; 62-296.407(2)(a), FAC** **The emission limitation for BACT, based on clinker production, will be more stringent than this NESHAP/NSPS/FAC limitation. Applicant requests that emissions limitations be based on clinker production only.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM10**	2. Total Percent Efficiency of Control: **N/A**
3. Potential Emissions: **25.00** lb/hour **109.5** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **N/A** ___ to ___ tons/year	
6. Emission Factor: **0.20 lb/ton of clinker** Reference: **Proposed as BACT**	7. Emissions Method Code: **0**
8. Calculation of Emissions: **0.20 lb/ton of clinker x 125 ton/hr clinker = 25.00 lb/hr @ 8760 hr/year = 109.5 TPY**	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: **None**	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **0.20 lb/ton of clinker**	4. Equivalent Allowable Emissions: **25.00** lb/hour **109.5** tons/year
5. Method of Compliance: **Method 5**	
6. Allowable Emissions Comment (Description of Operating Method): **BACT** **Applicant requests that emissions limitations be based on clinker production only.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **SO2**	2. Total Percent Efficiency of Control: **N/A**
3. Potential Emissions: **35.00** lb/hour **153.3** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **N/A** ___ to ___ tons/year	
6. Emission Factor: **0.28 lb/ton of clinker** Reference: **Proposed as BACT**	7. Emissions Method Code: **0**
8. Calculation of Emissions: **0.28 lb/ton of clinker x 125 ton/hr clinker = 35.00 lb/hr** **@ 8760 hr/year = 153.3 TPY**	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: **None**	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **0.28 lb/ton of clinker**	4. Equivalent Allowable Emissions: **35.00** lb/hour **153.3** tons/year
5. Method of Compliance: **CEMS, 24-hour averaging requested**	
6. Allowable Emissions Comment (Description of Operating Method): **Proposed as BACT** **Applicant requests that emissions limitations be based on clinker production only. No sulfur limitations in fuels are requested.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **NOx**	2. Total Percent Efficiency of Control: **N/A**
3. Potential Emissions: **243.75** lb/hour **1067.6** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **N/A** ___ to ___ tons/year	
6. Emission Factor: **1.95 lb/ton of clinker** Reference: **Proposed as BACT**	7. Emissions Method Code: **0**
8. Calculation of Emissions: **1.95 lb/ton of clinker x 125 ton/hr clinker = 243.75 lb/hr @ 8760 hr/year = 1067.6 TPY**	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: **None**	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **1.95 lb/ton of clinker**	4. Equivalent Allowable Emissions: **243.75** lb/hour **1067.6** tons/year
5. Method of Compliance: **CEMS, 30-day averaging requested**	
6. Allowable Emissions Comment (Description of Operating Method): **None**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

<u>Potential/Estimated Fugitive Emissions</u>

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **CO**	2. Total Percent Efficiency of Control: **N/A**
3. Potential Emissions: **450.00** lb/hour **1971.0** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **N/A** ___ to ___ tons/year	
6. Emission Factor: **3.6 lb/ton of clinker** Reference: **Proposed as BACT**	7. Emissions Method Code: **0**
8. Calculation of Emissions: **3.6 lb/ton of clinker x 125 tons/hr clinker = 450.00 lb/hr** **@ 8760 hr/year = 1971.0 TPY**	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: **None**	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **3.6 lb/ton of clinker**	4. Equivalent Allowable Emissions: **450.00** lb/hour **1971.0** tons/year
5. Method of Compliance: **Method 10**	
6. Allowable Emissions Comment (Description of Operating Method): **Proposed as BACT** **Applicant requests that emissions limitations be based on clinker production only.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **VOC**	2. Total Percent Efficiency of Control: **N/A**
3. Potential Emissions: **15.00** lb/hour **65.7** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **N/A** ___ to ___ tons/year	
6. Emission Factor: **0.12 lb/ton of clinker** Reference: **Proposed as BACT**	7. Emissions Method Code: **0**
8. Calculation of Emissions: **0.12 lb/ton of clinker x 125 tons/hr clinker = 15.00 lb/hr** **@ 8760 hr/year = 65.7 TPY**	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: **None**	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 2

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **0.12 lb/ton of clinker**	4. Equivalent Allowable Emissions: **15.00** lb/hour **65.7** tons/year
5. Method of Compliance: **CEMS, 30-day average**	
6. Allowable Emissions Comment (Description of Operating Method): **Proposed as BACT** **Applicant requests that emissions limitations be based on clinker production only.**	

Allowable Emissions Allowable Emissions 2 of 2

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **THC, 50 ppmvd as propane**	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance: **CEMS**	
6. Allowable Emissions Comment (Description of Operating Method): **40CFR63.1343(c)(4)** **Concentration-based standard only.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **H114**	2. Total Percent Efficiency of Control: **N/A**
3. Potential Emissions: lb/hour **0.061** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **N/A** ___ to ___ tons/year	
6. Emission Factor: **122 lbs/year** Reference: **Material Balance**	7. Emissions Method Code: **0**
8. Calculation of Emissions: **122 lbs/year = 0.061 tons/year**	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: **None**	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **ESCPSD**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **122 lb/year**	4. Equivalent Allowable Emissions: lb/hour **0.061** tons/year
5. Method of Compliance: **Analysis of raw materials and fuels.**	
6. Allowable Emissions Comment (Description of Operating Method): **Not a PSD pollutant**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **DIOX**	2. Total Percent Efficiency of Control: **N/A**
3. Potential Emissions: lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **N/A** ___ to ___ tons/year	
6. Emission Factor: **0.4 ng/dscm TEQ at 7% O_2** Reference: **40CFR63.1343(c)(3)**	7. Emissions Method Code: **0**
8. Calculation of Emissions: **Concentration-based standard only**	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: **None**	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **0.4 ng/dscm TEQ at 7% O_2**	4. Equivalent Allowable Emissions:* lb/hour tons/year
5. Method of Compliance: **Method 23**	
6. Allowable Emissions Comment (Description of Operating Method): **40CFR63.1343(c)(3)(ii)** ***NOTE: Concentration based standard**	

G. VISIBLE EMISSIONS INFORMATION

Complete if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation 1 of 2

1. Visible Emissions Subtype: **VE20**	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: **20%** Exceptional Conditions: **20%** Maximum Period of Excess Opacity Allowed: **0** min/hour	
4. Method of Compliance: **COMS**	
5. Visible Emissions Comment: **40CFR63.1343(c)(2)**	

Visible Emissions Limitation: Visible Emissions Limitation 2 of 2

1. Visible Emissions Subtype: **VE10**	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: **10%** Exceptional Conditions: **10%** Maximum Period of Excess Opacity Allowed: **0** min/hour	
4. Method of Compliance: **COMS**	
5. Visible Emissions Comment: **Proposed as BACT**	

H. CONTINUOUS MONITOR INFORMATION

Complete if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor 1 of 5

1. Parameter Code: **VE**	2. Pollutant(s):
3. CMS Requirement:	☒ Rule ☐ Other
4. Monitor Information... **To be supplied after construction** Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment: **COM required by NESHAP, 40CFR63.1350(c)**	

Continuous Monitoring System: Continuous Monitor 2 of 5

1. Parameter Code: **EM**	2. Pollutant(s): **SO2, NOx**
3. CMS Requirement:	☒ Rule ☐ Other
4. Monitor Information... **To be supplied after construction** Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment: **BACT**	

H. CONTINUOUS MONITOR INFORMATION (CONTINUED)

Complete if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor 3 of 5

1. Parameter Code: **EM**	2. Pollutant(s): **THC**
3. CMS Requirement:	☒ Rule ☐ Other
4. Monitor Information... **To be supplied after construction** Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment: **CEM required by NESHAP, 40CFR63.1350(h)**	

Continuous Monitoring System: Continuous Monitor 4 of 5

1. Parameter Code: **TEMP**	2. Pollutant(s):
3. CMS Requirement:	☒ Rule ☐ Other
4. Monitor Information... **To be supplied after construction** Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment: **Inlet of control device, 40CFR63.1350(f)**	

H. CONTINUOUS MONITOR INFORMATION (CONTINUED)

Complete if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor 5 of 5

1. Parameter Code: **FLOW**	2. Pollutant(s):
3. CMS Requirement:	☒ Rule ☐ Other
4. Monitor Information... **To be supplied after construction** Manufacturer: Model Number:	 Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment: **None**	

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: **PSD Report**

2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: **PSD Report**

3. Detailed Description of Control Equipment (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: **PSD Report**

4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: ____________
   ☒ Not Applicable (construction application)

5. Operation and Maintenance Plan (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: ____________
   ☒ Not Applicable (construction application)

6. Compliance Demonstration Reports/Records
   ☐ Attached, Document ID: __________
   Test Date(s)/Pollutant(s) Tested: ____________________

   ☐ Previously Submitted, Date: _______
   Test Date(s)/Pollutant(s) Tested: ____________________

   ☐ To be Submitted, Date (if known): __________
   Test Date(s)/Pollutant(s) Tested: ____________________

   ☒ Not Applicable

   Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.

7. Other Information Required by Rule or Statute
   ☒ Attached, Document ID: **PSD Report** ☐ Not Applicable

Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(6) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)) ☒ Attached, Document ID: **PSD Report** ☐ Not Applicable	
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(5)(h)6., F.A.C., and Rule 62-212.500(4)(f), F.A.C.) ☒ Attached, Document ID: **PSD Report** ☐ Not Applicable	
3. Description of Stack Sampling Facilities (Required for proposed new stack sampling facilities only) ☐ Attached, Document ID: ___________ **[Available after construction]**	

Additional Requirements for Title V Air Operation Permit Applications ☒ **Not Applicable**

1. Identification of Applicable Requirements ☐ Attached, Document ID: ___________ ☒ Not Applicable	
2. Compliance Assurance Monitoring ☐ Attached, Document ID: ___________ ☒ Not Applicable	
3. Alternative Methods of Operation ☐ Attached, Document ID: ___________ ☒ Not Applicable	
4. Alternative Modes of Operation (Emissions Trading) ☐ Attached, Document ID: ___________ ☒ Not Applicable	
5. Acid Rain Part Application ☐ Certificate of Representation (EPA Form No. 7610-1) ☐ Copy Attached, Document ID:_ ☐ Acid Rain Part (Form No. 62-210.900(1)(a)) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ New Unit Exemption (Form No. 62-210.900(1)(a)2.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ Phase II NOx Averaging Plan (Form No. 62-210.900(1)(a)5.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☒ Not Applicable	

Additional Requirements Comment

None

III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application for air permit. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application – Where this application is used to apply for both an air construction permit and a revised/renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. **The air construction permitting classification must be used to complete the Emissions Unit Information Section of this application for air permit.** A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air construction permitting and insignificant emissions units are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification ☒ **Not Applicable**

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

☐ The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

☐ The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

☒ This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

☐ This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

☐ This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:
Clinker Cooler

3. Emissions Unit Identification Number: **No ID**

4. Emissions Unit Status Code: **C**	5. Commence Construction Date: **N/A**	6. Initial Startup Date: **N/A**	7. Emissions Unit Major Group SIC Code: **32**	8. Acid Rain Unit? ☐ Yes ☒ No

9. Package Unit: **Not Applicable**
Manufacturer: Model Number:

10. Generator Nameplate Rating: **Not Applicable** MW

11. Emissions Unit Comment: **None**

Emissions Unit Control Equipment

1. Control Equipment/Method(s) Description: **High efficiency electrostatic precipitator (ESP)** **-OR-** **High temperature baghouse**	
2. Control Device or Method Code(s): **010 or 016**	

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate: **125 tons per hour**		
2. Maximum Production Rate: **Not Applicable**		
3. Maximum Heat Input Rate: **Not Applicable**		
4. Maximum Incineration Rate: **Not Applicable** pounds/hr	tons/day	
5. Requested Maximum Operating Schedule:	hours/day weeks/year	days/week **8760** hours/year
6. Operating Capacity/Schedule Comment: **None**		

C. EMISSION POINT (STACK/VENT) INFORMATION
(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: **Cooler**	2. Emission Point Type Code: **2**	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: **N/A**		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: **The coal mill will exhaust through the stack after the clinker cooler control device.**		
5. Discharge Type Code: **V**	6. Stack Height: **200** feet	7. Exit Diameter: **10** feet
8. Exit Temperature: **500**°F	9. Actual Volumetric Flow Rate: **180,000** acfm	10. Water Vapor: **5**%
11. Maximum Dry Standard Flow Rate: **94,100** dscfm	12. Nonstack Emission Point Height: **N/A** feet	
13. Emission Point UTM Coordinates... Zone: **17** East (km): **404.20** North (km): **3162.17**	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) **See Field 13** Longitude (DD/MM/SS) **See Field 13**	
15. Emission Point Comment: **None**		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 1

1. Segment Description (Process/Fuel Type): **Mineral Products: Cement Manufacturing: Dry Process: Clinker Cooler**		
2. Source Classification Code (SCC): **3-05-006-14**	3. SCC Units: **Tons Processed**	
4. Maximum Hourly Rate: **125**	5. Maximum Annual Rate: **1,095,000**	6. Estimated Annual Activity Factor: **N/A**
7. Maximum % Sulfur: **N/A**	8. Maximum % Ash: **N/A**	9. Million Btu per SCC Unit: **N/A**
10. Segment Comment: **None**		

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM	**010 or 016**	**None**	**EL**
PM10	**010 or 016**	**None**	**EL**

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM**	2. Total Percent Efficiency of Control: **N/A**
3. Potential Emissions: **12.50** lb/hour **54.8** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **N/A** ___ to ___ tons/year	
6. Emission Factor: **0.1 lb/ton of clinker** Reference: **Proposed as BACT**	7. Emissions Method Code: **0**
8. Calculation of Emissions: **0.1 lb/ton of clinker x 125 ton/hr clinker = 12.50 lb/hr** **@ 8760 hr/year = 54.8 TPY**	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: **None**	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 2

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **0.1 lb/ton of clinker**	4. Equivalent Allowable Emissions: **12.50** lb/hour **54.8** tons/year
5. Method of Compliance: **Method 5**	
6. Allowable Emissions Comment (Description of Operating Method): **Proposed as BACT** **Applicant requests that emissions limitations be based on clinker production only.**	

Allowable Emissions Allowable Emissions 2 of 2

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **0.10 lb/ton of dry feed**	4. Equivalent Allowable Emissions: **~21.3** lb/hour **~93.1** tons/year
5. Method of Compliance: **Method 5**	
6. Allowable Emissions Comment (Description of Operating Method): **40CFR63.1345(a)(1); 40CFR60.62(b)(1) [superseded]; 62-296.407(2)(b), FAC** **The emission limitation for BACT, based on clinker production, will be more stringent than this NESHAP/NSPS/FAC limitation. Applicant requests that the emissions limitation be based on clinker production only.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM10**	2. Total Percent Efficiency of Control: **N/A**
3. Potential Emissions: **10.00** lb/hour **43.8** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **N/A** ___ to ___ tons/year	
6. Emission Factor: **0.08 lb/ton of clinker** Reference: **Proposed as BACT**	7. Emissions Method Code: **0**
8. Calculation of Emissions: **0.08 lb/ton of clinker x 125 ton/hr clinker = 10.00 lb/hr** **@ 8760 hr/year = 43.8 TPY**	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: **None**	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

<u>**Allowable Emissions**</u> Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **0.08 lb/ton of clinker**	4. Equivalent Allowable Emissions: **10.00** lb/hour **43.8** tons/year
5. Method of Compliance: **Method 5**	
6. Allowable Emissions Comment (Description of Operating Method): **Proposed as BACT** **Applicant requests that emissions limitations be based on clinker production only.**	

G. VISIBLE EMISSIONS INFORMATION

Complete if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation 1 of 1

1. Visible Emissions Subtype: **VE10**	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: **10%** Exceptional Conditions: **10%** Maximum Period of Excess Opacity Allowed: **0** min/hour	
4. Method of Compliance: **COMS**	
5. Visible Emissions Comment: **40CFR63.1345(a)(2) ; 40CFR60.62(b)(2) [superseded] ; proposed as BACT**	

H. CONTINUOUS MONITOR INFORMATION

Complete if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor 1 of 1

1. Parameter Code: **VE**	2. Pollutant(s):
3. CMS Requirement:	☒ Rule ☐ Other
4. Monitor Information... **To be supplied after construction** Manufacturer: Model Number:	 Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment: **COMS required by NESHAP, 40CFR63.1350(d)**	

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: **PSD Report**

2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: **No fuels** ☐ Previously Submitted, Date ________

3. Detailed Description of Control Equipment (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: **PSD Report**

4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: ________
   ☒ Not Applicable (construction application)

5. Operation and Maintenance Plan (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: ________
   ☒ Not Applicable (construction application)

6. Compliance Demonstration Reports/Records
   ☐ Attached, Document ID: ________
   Test Date(s)/Pollutant(s) Tested: ________

   ☐ Previously Submitted, Date: ________
   Test Date(s)/Pollutant(s) Tested: ________

   ☐ To be Submitted, Date (if known): ________
   Test Date(s)/Pollutant(s) Tested: ________

   ☒ Not Applicable

   Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.

7. Other Information Required by Rule or Statute
   ☒ Attached, Document ID: **PSD Report** ☐ Not Applicable

Additional Requirements for Air Construction Permit Applications

1.	Control Technology Review and Analysis (Rules 62-212.400(6) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)) ☒ Attached, Document ID: **PSD Report** ☐ Not Applicable
2.	Good Engineering Practice Stack Height Analysis (Rule 62-212.400(5)(h)6., F.A.C., and Rule 62-212.500(4)(f), F.A.C.) ☒ Attached, Document ID: **PSD Report** ☐ Not Applicable
3.	Description of Stack Sampling Facilities (Required for proposed new stack sampling facilities only) ☐ Attached, Document ID: ___________ **[Available after construction]**

Additional Requirements for Title V Air Operation Permit Applications ☒ **Not Applicable**

1.	Identification of Applicable Requirements ☐ Attached, Document ID: ___________ ☒ Not Applicable
2.	Compliance Assurance Monitoring ☐ Attached, Document ID: ___________ ☒ Not Applicable
3.	Alternative Methods of Operation ☐ Attached, Document ID: ___________ ☒ Not Applicable
4.	Alternative Modes of Operation (Emissions Trading) ☐ Attached, Document ID: ___________ ☒ Not Applicable
5.	Acid Rain Part Application ☐ Certificate of Representation (EPA Form No. 7610-1) ☐ Copy Attached, Document ID:_ ☐ Acid Rain Part (Form No. 62-210.900(1)(a)) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ New Unit Exemption (Form No. 62-210.900(1)(a)2.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ Phase II NOx Averaging Plan (Form No. 62-210.900(1)(a)5.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☒ Not Applicable

Additional Requirements Comment

None

III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application for air permit. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application – Where this application is used to apply for both an air construction permit and a revised/renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. **The air construction permitting classification must be used to complete the Emissions Unit Information Section of this application for air permit.** A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air construction permitting and insignificant emissions units are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification ☒ **Not Applicable**

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

   ☐ The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

   ☐ The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

   ☐ This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

   ☒ This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

   ☐ This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:
   Clinker Handling & Silos

3. Emissions Unit Identification Number: **No ID**

4. Emissions Unit Status Code: **C**	5. Commence Construction Date: **N/A**	6. Initial Startup Date: **N/A**	7. Emissions Unit Major Group SIC Code: **32**	8. Acid Rain Unit? ☐ Yes ☒ No

9. Package Unit: **Not Applicable**
   Manufacturer: Model Number:

10. Generator Nameplate Rating: **Not Applicable** MW

11. Emissions Unit Comment:

Clinker handling from the clinker cooler to the clinker silos. Clinker and additive handling from storage to the finish mill.

Emissions Unit Control Equipment

1. Control Equipment/Method(s) Description: **Baghouses**	
2. Control Device or Method Code(s): **016, 017**	

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate: **125 TPH from cooler, 160 TPH to mill**		
2. Maximum Production Rate: **Not Applicable**		
3. Maximum Heat Input Rate: **Not Applicable**		
4. Maximum Incineration Rate: **Not Applicable** pounds/hr tons/day		
5. Requested Maximum Operating Schedule:	hours/day weeks/year	days/week **8760** hours/year
6. Operating Capacity/Schedule Comment: **None**		

C. EMISSION POINT (STACK/VENT) INFORMATION
(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: **Clinker silo**	2. Emission Point Type Code: **3**

3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:
Baghouse Cooler discharge CLINKER1
Baghouse Clinker handling CLINKER6
Baghouse Clinker handling CLINKER5
Baghouse Clinker into silo CLINKER2
Baghouse Clinker from silo CLINKER3
Baghouse Clinker/additives to finish mill CLINKER4

4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: **N/A**

5. Discharge Type Code: **H**	6. Stack Height: **Table** feet	7. Exit Diameter: **Table** Feet
8. Exit Temperature: **Table** °F	9. Actual Volumetric Flow Rate: **Table** acfm	10. Water Vapor: **Table** %

11. Maximum Dry Standard Flow Rate: **Table** dscfm	12. Nonstack Emission Point Height: **N/A** feet
13. Emission Point UTM Coordinates... Zone: **17** East (km): **Table** North (km): **Table**	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) **See Field 13** Longitude (DD/MM/SS) **See Field 13**

15. Emission Point Comment: **Information in table below for baghouses.**

ID	UTM EAST	UTM NORTH	HEIGHT, FT	DIAM, FT	TEMP, F	ACFM	H2O	DSCFM
CLINKER1	404.19	3162.19	40	1.00	300	4000	2	2725
CLINKER6	404.22	3162.12	200	1.00	300	4000	2	2725
CLINKER5	404.19	3162.11	200	1.00	300	4000	2	2725
CLINKER2	404.23	3162.12	200	1.00	250	4000	2	2917
CLINKER3	404.20	3162.11	20	1.00	200	4000	2	3138
CLINKER4	404.19	3162.11	50	1.00	200	4000	2	3138
								17365

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 3

1. Segment Description (Process/Fuel Type): **Mineral Products: Cement Manufacturing: Dry Process: Clinker Transfer**		
2. Source Classification Code (SCC): **3-05-006-16**	3. SCC Units: **Tons Processed**	
4. Maximum Hourly Rate: **125**	5. Maximum Annual Rate: **1,095,000**	6. Estimated Annual Activity Factor: **N/A**
7. Maximum % Sulfur: **N/A**	8. Maximum % Ash: **N/A**	9. Million Btu per SCC Unit: **N/A**
10. Segment Comment: **Clinker from cooler**		

Segment Description and Rate: Segment 2 of 3

1. Segment Description (Process/Fuel Type): **Mineral Products: Cement Manufacturing: Dry Process: Clinker Transfer**		
2. Source Classification Code (SCC): **3-05-006-16**	3. SCC Units: **Tons Processed**	
4. Maximum Hourly Rate: **160**	5. Maximum Annual Rate: **1,401,600**	6. Estimated Annual Activity Factor: **N/A**
7. Maximum % Sulfur: **N/A**	8. Maximum % Ash: **N/A**	9. Million Btu per SCC Unit: **N/A**
10. Segment Comment: **Clinker and additives to finish mill**		

D. SEGMENT (PROCESS/FUEL) INFORMATION (CONTINUED)

Segment Description and Rate: Segment 3 of 3

1. Segment Description (Process/Fuel Type): **Mineral Products: Cement Manufacturing: Dry Process: Clinker Silos**		
2. Source Classification Code (SCC): **3-05-006-15**	3. SCC Units: **Tons Processed**	
4. Maximum Hourly Rate: **125**	5. Maximum Annual Rate: **1,095,000**	6. Estimated Annual Activity Factor: **N/A**
7. Maximum % Sulfur: **N/A**	8. Maximum % Ash: **N/A**	9. Million Btu per SCC Unit: **N/A**
10. Segment Comment: **SCC refers to clinker piles – clinker will be stored in enclosed silos at this facility, not piles.**		

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM	**016, 017**	**None**	**EL**
PM10	**016, 017**	**None**	**EL**

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM**	2. Total Percent Efficiency of Control: **N/A**
3. Potential Emissions: **1.49** lb/hour **6.5** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **N/A** ___ to ___ tons/year	
6. Emission Factor: **0.01 gr/dscf for baghouses** Reference: **Proposed as BACT**	7. Emissions Method Code: **0**
8. Calculation of Emissions: **0.01 gr/dscf x 17365 dscfm x 60 min/hr ÷ 7000 gr/lb = 1.49 lb/hr @ 8760 hr/year = 6.5 TPY**	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: **None**	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS (CONTINUED)

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **0.01 gr/dscf**	4. Equivalent Allowable Emissions: **1.49** lb/hour **6.5** tons/year
5. Method of Compliance: **Method 9 in lieu of Method 5**	
6. Allowable Emissions Comment (Description of Operating Method): **Proposed as BACT**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM10**	2. Total Percent Efficiency of Control: **N/A**
3. Potential Emissions: **1.04** lb/hour **4.6** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **N/A** ___ to ___ tons/year	
6. Emission Factor: **0.007 gr/dscf for baghouses** Reference: **Proposed as BACT**	7. Emissions Method Code: **0**
8. Calculation of Emissions: **0.007 gr/dscf x 17365 dscfm x 60 min/hr ÷ 7000 gr/lb = 1.04 lb/hr** **@ 8760 hr/year = 4.6 TPY**	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: **None**	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS (CONTINUED)

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **0.007 gr/dscf**	4. Equivalent Allowable Emissions: **1.04** lb/hour **4.6** tons/year
5. Method of Compliance: **Method 9 in lieu of Method 5**	
6. Allowable Emissions Comment (Description of Operating Method): **Proposed as BACT**	

G. VISIBLE EMISSIONS INFORMATION

Complete if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation 1 of 2

1. Visible Emissions Subtype: **VE10**	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: **10%** Exceptional Conditions: **10%** Maximum Period of Excess Opacity Allowed: **0** min/hour	
4. Method of Compliance: **Method 22, monthly 1-minute**	
5. Visible Emissions Comment: **40CFR63.1348**	

Visible Emissions Limitation: Visible Emissions Limitation 2 of 2

1. Visible Emissions Subtype: **VE05**	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: **5%** Exceptional Conditions: **5%** Maximum Period of Excess Opacity Allowed: **0** min/hour	
4. Method of Compliance: **Method 9, in lieu of Method 5**	
5. Visible Emissions Comment: **62-297.620(4), FAC**	

H. CONTINUOUS MONITOR INFORMATION

Complete if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor __ of __

1. Parameter Code: **N/A**	2. Pollutant(s):
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	 Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) ☒ Attached, Document ID: **PSD Report**
2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) ☐ Attached, Document ID: **No fuels** ☐ Previously Submitted, Date ________
3. Detailed Description of Control Equipment (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) ☒ Attached, Document ID: **PSD Report**
4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) ☐ Attached, Document ID: ________ ☒ Not Applicable (construction application)
5. Operation and Maintenance Plan (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) ☐ Attached, Document ID: ________ ☒ Not Applicable (construction application)
6. Compliance Demonstration Reports/Records ☐ Attached, Document ID: ________ Test Date(s)/Pollutant(s) Tested: ________ ☐ Previously Submitted, Date: ________ Test Date(s)/Pollutant(s) Tested: ________ ☐ To be Submitted, Date (if known): ________ Test Date(s)/Pollutant(s) Tested: ________ ☒ Not Applicable Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.
7. Other Information Required by Rule or Statute ☒ Attached, Document ID: **PSD Report** ☐ Not Applicable

Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(6) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)) ☒ Attached, Document ID: **PSD Report** ☐ Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(5)(h)6., F.A.C., and Rule 62-212.500(4)(f), F.A.C.) ☒ Attached, Document ID: **PSD Report** ☐ Not Applicable
3. Description of Stack Sampling Facilities (Required for proposed new stack sampling facilities only) ☐ Attached, Document ID: ___________ ☒ Not Applicable

Additional Requirements for Title V Air Operation Permit Applications ☒ **Not Applicable**

1. Identification of Applicable Requirements ☐ Attached, Document ID: ___________ ☒ Not Applicable
2. Compliance Assurance Monitoring ☐ Attached, Document ID: ___________ ☒ Not Applicable
3. Alternative Methods of Operation ☐ Attached, Document ID: ___________ ☒ Not Applicable
4. Alternative Modes of Operation (Emissions Trading) ☐ Attached, Document ID: ___________ ☒ Not Applicable
5. Acid Rain Part Application ☐ Certificate of Representation (EPA Form No. 7610-1) ☐ Copy Attached, Document ID:_ ☐ Acid Rain Part (Form No. 62-210.900(1)(a)) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ New Unit Exemption (Form No. 62-210.900(1)(a)2.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ Phase II NOx Averaging Plan (Form No. 62-210.900(1)(a)5.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☒ Not Applicable

Additional Requirements Comment

None

III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application for air permit. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application – Where this application is used to apply for both an air construction permit and a revised/renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. **The air construction permitting classification must be used to complete the Emissions Unit Information Section of this application for air permit.** A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air construction permitting and insignificant emissions units are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification ☒ **Not Applicable**

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

   ☐ The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

   ☐ The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

   ☒ This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

   ☐ This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

   ☐ This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:
   Finish Mill

3. Emissions Unit Identification Number: **No ID**

4. Emissions Unit Status Code: **C**	5. Commence Construction Date: **N/A**	6. Initial Startup Date: **N/A**	7. Emissions Unit Major Group SIC Code: **32**	8. Acid Rain Unit? ☐ Yes ☒ No

9. Package Unit: **Not Applicable**
   Manufacturer: Model Number:

10. Generator Nameplate Rating: **Not Applicable** MW

11. Emissions Unit Comment: **None**

Emissions Unit Control Equipment

1. Control Equipment/Method(s) Description: **Baghouses**
2. Control Device or Method Code(s): **018**

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate: **Not applicable**		
2. Maximum Production Rate: **160 tons per hour cement**		
3. Maximum Heat Input Rate: **Not Applicable**		
4. Maximum Incineration Rate: **Not Applicable** pounds/hr tons/day		
5. Requested Maximum Operating Schedule:	hours/day weeks/year	days/week **8760** hours/year
6. Operating Capacity/Schedule Comment: **Portland cement and masonry cement**		

C. EMISSION POINT (STACK/VENT) INFORMATION
(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: **Finish mill**	2. Emission Point Type Code: **3**
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: **Baghouse Finish mill air separator MILL3** **Baghouse Finish mill MILL1** **Baghouse Mill to air separator MILL2**	
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: **N/A**	

5. Discharge Type Code: **H**	6. Stack Height: **See Table** Feet	7. Exit Diameter: **See Table** feet
8. Exit Temperature: **See Table** °F	9. Actual Volumetric Flow Rate: **See Table** acfm	10. Water Vapor: **See Table** %

11. Maximum Dry Standard Flow Rate: **See Table** dscfm	12. Nonstack Emission Point Height: **N/A** feet
13. Emission Point UTM Coordinates... Zone: **17** East (km): **Table** North (km): **Table**	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) **See Field 13** Longitude (DD/MM/SS) **See Field 13**
15. Emission Point Comment: **Information in table below for baghouses.**	

ID	UTM EAST	UTM NORTH	HEIGHT, FT	DIAM, FT	TEMP, F	ACFM	H2O	DSCFM
MILL3	404.15	3162.11	120	8.00	180	130000	2	105159
MILL1	404.18	3162.10	120	4.50	180	40000	2	32357
MILL2	404.16	3162.10	40	1.50	180	5000	2	4045
								141560

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 1

1. Segment Description (Process/Fuel Type): **Mineral Products: Cement Manufacturing: Dry Process: Clinker Grinding**		
2. Source Classification Code (SCC): **3-05-006-17**	3. SCC Units: **Tons Processed**	
4. Maximum Hourly Rate: **160**	5. Maximum Annual Rate: **1,401,600**	6. Estimated Annual Activity Factor: **N/A**
7. Maximum % Sulfur: **N/A**	8. Maximum % Ash: **N/A**	9. Million Btu per SCC Unit: **N/A**
10. Segment Comment: **Clinker plus additives**		

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM	**018**	**None**	**EL**
PM10	**018**	**None**	**EL**

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM**	2. Total Percent Efficiency of Control: **N/A**
3. Potential Emissions: **12.13** lb/hour **53.1** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **N/A** ___ to ___ tons/year	
6. Emission Factor: **0.01 gr/dscf for baghouses** Reference: **Proposed as BACT**	7. Emissions Method Code: **0**
8. Calculation of Emissions: **0.01 gr/dscf x 141560 dscfm x 60 min/hr ÷ 7000 gr/lb = 12.13 lb/hr** **@ 8760 hr/year = 53.1 TPY**	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: **None**	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **0.01 gr/dscf**	4. Equivalent Allowable Emissions: **12.13** lb/hour **53.1** tons/year
5. Method of Compliance: **Method 9 in lieu of Method 5**	
6. Allowable Emissions Comment (Description of Operating Method): **Proposed as BACT**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM10**	2. Total Percent Efficiency of Control: **N/A**
3. Potential Emissions: **8.49** lb/hour **37.2** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **N/A** ___ to ___ tons/year	
6. Emission Factor: **0.007 gr/dscf for baghouses** Reference: **Proposed as BACT**	7. Emissions Method Code: **0**
8. Calculation of Emissions: **0.007 gr/dscf x 141560 dscfm x 60 min/hr ÷ 7000 gr/lb = 8.49 lb/hr @ 8760 hr/year = 37.2 TPY**	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: **None**	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **0.007 gr/dscf**	4. Equivalent Allowable Emissions: **8.49** lb/hour **37.2** tons/year
5. Method of Compliance: **Method 9 in lieu of Method 5**	
6. Allowable Emissions Comment (Description of Operating Method): **Proposed as BACT**	

G. VISIBLE EMISSIONS INFORMATION

Complete if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation 1 of 2

1. Visible Emissions Subtype: **VE10**	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: **10%** Exceptional Conditions: **10%** Maximum Period of Excess Opacity Allowed: **0** min/hour	
4. Method of Compliance: **Method 22, daily 6-minute**	
5. Visible Emissions Comment: **40CFR63.1347**	

Visible Emissions Limitation: Visible Emissions Limitation 2 of 2

1. Visible Emissions Subtype: **VE05**	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: **5%** Exceptional Conditions: **5%** Maximum Period of Excess Opacity Allowed: **0** min/hour	
4. Method of Compliance: **Method 9, in lieu of Method 5 for baghouses**	
5. Visible Emissions Comment: **Baghouses, 62-297.620(4), FAC**	

H. CONTINUOUS MONITOR INFORMATION

Complete if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor ___ of ___ ☒ **Not Applicable**

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	 Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: **PSD Report**

2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: **No fuels** ☐ Previously Submitted, Date ________

3. Detailed Description of Control Equipment (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: **PSD Report**

4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: ________
   ☒ Not Applicable (construction application)

5. Operation and Maintenance Plan (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: ________
   ☒ Not Applicable (construction application)

6. Compliance Demonstration Reports/Records
   ☐ Attached, Document ID: ________
   Test Date(s)/Pollutant(s) Tested: ________

   ☐ Previously Submitted, Date: ________
   Test Date(s)/Pollutant(s) Tested: ________

   ☐ To be Submitted, Date (if known): ________
   Test Date(s)/Pollutant(s) Tested: ________

   ☒ Not Applicable

   Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.

7. Other Information Required by Rule or Statute
   ☒ Attached, Document ID: **PSD Report** ☐ Not Applicable

Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(6) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)) ☒ Attached, Document ID: **PSD Report** ☐ Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(5)(h)6., F.A.C., and Rule 62-212.500(4)(f), F.A.C.) ☒ Attached, Document ID: **PSD Report**
3. Description of Stack Sampling Facilities (Required for proposed new stack sampling facilities only) ☐ Attached, Document ID: ___________ ☒ Not Applicable

Additional Requirements for Title V Air Operation Permit Applications ☒ **Not Applicable**

1. Identification of Applicable Requirements ☐ Attached, Document ID: ___________ ☒ Not Applicable
2. Compliance Assurance Monitoring ☐ Attached, Document ID: ___________ ☒ Not Applicable
3. Alternative Methods of Operation ☐ Attached, Document ID: ___________ ☒ Not Applicable
4. Alternative Modes of Operation (Emissions Trading) ☐ Attached, Document ID: ___________ ☒ Not Applicable
5. Acid Rain Part Application ☐ Certificate of Representation (EPA Form No. 7610-1) ☐ Copy Attached, Document ID:_ ☐ Acid Rain Part (Form No. 62-210.900(1)(a)) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ New Unit Exemption (Form No. 62-210.900(1)(a)2.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ Phase II NOx Averaging Plan (Form No. 62-210.900(1)(a)5.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☒ Not Applicable

Additional Requirements Comment

None

III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application for air permit. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application – Where this application is used to apply for both an air construction permit and a revised/renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. **The air construction permitting classification must be used to complete the Emissions Unit Information Section of this application for air permit.** A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air construction permitting and insignificant emissions units are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification ☒ **Not Applicable**

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

☐ The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

☐ The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

☐ This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

☒ This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

☐ This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:
Cement Silos, Loadout & Bagging

3. Emissions Unit Identification Number: **No ID**

4. Emissions Unit Status Code: **C**	5. Commence Construction Date: **N/A**	6. Initial Startup Date: **N/A**	7. Emissions Unit Major Group SIC Code: **32**	8. Acid Rain Unit? ☐ Yes ☒ No

9. Package Unit: **Not Applicable**
Manufacturer: Model Number:

10. Generator Nameplate Rating: **Not Applicable** MW

11. Emissions Unit Comment: **None**

Emissions Unit Control Equipment

1. Control Equipment/Method(s) Description: **Baghouses**
2. Control Device or Method Code(s): **018**

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate: **500 tons per hour loadout**		
2. Maximum Production Rate: **Not Applicable**		
3. Maximum Heat Input Rate: **Not Applicable**		
4. Maximum Incineration Rate: **Not Applicable** pounds/hr tons/day		
5. Requested Maximum Operating Schedule:	hours/day weeks/year	days/week **8760** hours/year
6. Operating Capacity/Schedule Comment: **None**		

C. EMISSION POINT (STACK/VENT) INFORMATION
(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: **Cement silos**	2. Emission Point Type Code: **3**

3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:

Baghouse	**Cement to silos**	**CEMENT1**
Baghouse	**Cement to silos**	**CEMENT2**
Baghouse	**Loadout from silos**	**CEMENT3**
Baghouse	**Bagging machine**	**BAG**

4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: **N/A**

5. Discharge Type Code: **H**	6. Stack Height: **See Table** feet	7. Exit Diameter: **See Table** feet
8. Exit Temperature: **See Table** °F	9. Actual Volumetric Flow Rate: **See Table** acfm	10. Water Vapor: **See Table** %

11. Maximum Dry Standard Flow Rate: **See Table** dscfm	12. Nonstack Emission Point Height: **N/A** feet
13. Emission Point UTM Coordinates... Zone: **17** East (km): **Table** North (km): **Table**	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) **See Field 13** Longitude (DD/MM/SS) **See Field 13**

15. Emission Point Comment: **Information in table below for baghouses.**

ID	UTM EAST	UTM NORTH	HEIGHT, FT	DIAM, FT	TEMP, F	ACFM	H2O	DSCFM
CEMENT1	404.30	3162.10	200	3	160	15000	2	12525
CEMENT2	404.31	3162.08	200	3	160	15000	2	12525.4
CEMENT3	404.30	3162.09	25	1	150	4000	2	3394.89
BAG	404.28	3162.08	100	3	150	15000	2	12730.8
								41176

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 2

1. Segment Description (Process/Fuel Type): **Mineral Products: Cement Manufacturing: Dry Process: Cement Silos**		
2. Source Classification Code (SCC): **3-05-006-18**	3. SCC Units: **Tons Processed**	
4. Maximum Hourly Rate: **160**	5. Maximum Annual Rate: **1,401,600**	6. Estimated Annual Activity Factor: **N/A**
7. Maximum % Sulfur: **N/A**	8. Maximum % Ash: **N/A**	9. Million Btu per SCC Unit: **N/A**
10. Segment Comment: **Silo loading from finish mill** **160 tons/hr x 8760 hr/year = 1,401,600 tons/year**		

Segment Description and Rate: Segment 2 of 2

1. Segment Description (Process/Fuel Type): **Mineral Products: Cement Manufacturing: Dry Process: Cement Loadout**		
2. Source Classification Code (SCC): **3-05-006-19**	3. SCC Units: **Tons Processed**	
4. Maximum Hourly Rate: **500**	5. Maximum Annual Rate: **1,401,600**	6. Estimated Annual Activity Factor: **N/A**
7. Maximum % Sulfur: **N/A**	8. Maximum % Ash: **N/A**	9. Million Btu per SCC Unit: **N/A**
10. Segment Comment: **Maximum annual rate is limited by cement produced.**		

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM	**018**	**None**	**EL**
PM10	**018**	**None**	**EL**

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM**	2. Total Percent Efficiency of Control: **N/A**
3. Potential Emissions: **3.53** lb/hour **15.5** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **N/A** ___ to ___ tons/year	
6. Emission Factor: **0.01 gr/dscf for baghouses** Reference: **Proposed as BACT**	7. Emissions Method Code: **0**
8. Calculation of Emissions: **0.01 gr/dscf x 41176 dscfm x 60 min/hr ÷ 7000 gr/lb = 3.53 lb/hr** **@ 8760 hr/year = 15.5 TPY**	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: **None**	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **0.01 gr/dscf**	4. Equivalent Allowable Emissions: **3.53** lb/hour **15.5** tons/year
5. Method of Compliance: **Method 9 in lieu of Method 5**	
6. Allowable Emissions Comment (Description of Operating Method): **Proposed as BACT**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM10**	2. Total Percent Efficiency of Control: **N/A**
3. Potential Emissions: **2.47** lb/hour **10.8** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **N/A** ___ to ___ tons/year	
6. Emission Factor: **0.007 gr/dscf for baghouses** Reference: **Proposed as BACT**	7. Emissions Method Code: **0**
8. Calculation of Emissions: **0.007 gr/dscf x 41176 dscfm x 60 min/hr ÷ 7000 gr/lb = 2.47 lb/hr** **@ 8760 hr/year = 10.8 TPY**	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: **None**	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **0.007 gr/dscf**	4. Equivalent Allowable Emissions: **2.47** lb/hour **10.8** tons/year
5. Method of Compliance: **Method 9 in lieu of Method 5**	
6. Allowable Emissions Comment (Description of Operating Method): **Proposed as BACT**	

G. VISIBLE EMISSIONS INFORMATION

Complete if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation 1 of 2

1. Visible Emissions Subtype: **VE10**	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: 10% Exceptional Conditions: 10% Maximum Period of Excess Opacity Allowed: 0 min/hour	
4. Method of Compliance: **Method 22, monthly 1-minute**	
5. Visible Emissions Comment: **40CFR63.1348**	

Visible Emissions Limitation: Visible Emissions Limitation 2 of 2

1. Visible Emissions Subtype: **VE05**	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: 5% Exceptional Conditions: 5% Maximum Period of Excess Opacity Allowed: 0 min/hour	
4. Method of Compliance: **Method 9, in lieu of Method 5 for baghouses**	
5. Visible Emissions Comment: **Baghouses, 62-297.620(4), FAC**	

H. CONTINUOUS MONITOR INFORMATION

Complete if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor ___ of ___ ☒ **Not Applicable**

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
☒ Attached, Document ID: **PSD Report**

2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
☐ Attached, Document ID: **No fuels** ☐ Previously Submitted, Date ________

3. Detailed Description of Control Equipment (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
☒ Attached, Document ID: **PSD Report**

4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
☐ Attached, Document ID: ____________
☒ Not Applicable (construction application)

5. Operation and Maintenance Plan (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
☐ Attached, Document ID: ____________
☒ Not Applicable (construction application)

6. Compliance Demonstration Reports/Records
☐ Attached, Document ID: __________
Test Date(s)/Pollutant(s) Tested: ______________________________

☐ Previously Submitted, Date: _______
Test Date(s)/Pollutant(s) Tested: ______________________________

☐ To be Submitted, Date (if known): ___________
Test Date(s)/Pollutant(s) Tested: ______________________________

☒ Not Applicable

Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.

7. Other Information Required by Rule or Statute
☒ Attached, Document ID: **PSD Report** ☐ Not Applicable

Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(6) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)) ☒ Attached, Document ID: **PSD Report** ☐ Not Applicable	
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(5)(h)6., F.A.C., and Rule 62-212.500(4)(f), F.A.C.) ☐ Attached, Document ID: ___________ ☒ Not Applicable	
3. Description of Stack Sampling Facilities (Required for proposed new stack sampling facilities only) ☐ Attached, Document ID: ___________ ☒ Not Applicable	

Additional Requirements for Title V Air Operation Permit Applications ☒ **Not Applicable**

1. Identification of Applicable Requirements ☐ Attached, Document ID: ___________ ☒ Not Applicable	
2. Compliance Assurance Monitoring ☐ Attached, Document ID: __________ ☒ Not Applicable	
3. Alternative Methods of Operation ☐ Attached, Document ID: __________ ☒ Not Applicable	
4. Alternative Modes of Operation (Emissions Trading) ☐ Attached, Document ID: __________ ☒ Not Applicable	
5. Acid Rain Part Application ☐ Certificate of Representation (EPA Form No. 7610-1) ☐ Copy Attached, Document ID:_ ☐ Acid Rain Part (Form No. 62-210.900(1)(a)) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ New Unit Exemption (Form No. 62-210.900(1)(a)2.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ Phase II NOx Averaging Plan (Form No. 62-210.900(1)(a)5.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☒ Not Applicable	

Additional Requirements Comment

None

III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application for air permit. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application – Where this application is used to apply for both an air construction permit and a revised/renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. **The air construction permitting classification must be used to complete the Emissions Unit Information Section of this application for air permit.** A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air construction permitting and insignificant emissions units are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification ☒ **Not Applicable**

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

   ☐ The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

   ☐ The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

   ☒ This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

   ☐ This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

   ☐ This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:
   Coal/Coke Mill

3. Emissions Unit Identification Number: **No ID**

4. Emissions Unit Status Code: **C**	5. Commence Construction Date: **N/A**	6. Initial Startup Date: **N/A**	7. Emissions Unit Major Group SIC Code: **32**	8. Acid Rain Unit? ☐ Yes ☒ No

9. Package Unit: **Not Applicable**
   Manufacturer: Model Number:

10. Generator Nameplate Rating: **Not Applicable** MW

11. Emissions Unit Comment:

Coal/coke handling from railcar unloading to the pulverized coal bin.

Emissions Unit Control Equipment

1. Control Equipment/Method(s) Description: **Baghouses**
2. Control Device or Method Code(s): **018**

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate: **15.4 tons per hour coal/coke to mill**		
2. Maximum Production Rate: **Not Applicable**		
3. Maximum Heat Input Rate: **Not Applicable**		
4. Maximum Incineration Rate: **Not Applicable** pounds/hr tons/day		
5. Requested Maximum Operating Schedule:	hours/day weeks/year	days/week **8760** hours/year
6. Operating Capacity/Schedule Comment: **None**		

C. EMISSION POINT (STACK/VENT) INFORMATION
(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: **Coal mill**	2. Emission Point Type Code: **3**

3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:

Baghouse Coal mill COAL1
Baghouse Coal bin COAL2

4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:
The coal mill exhausts through cooler stack after the clinker cooler control device.

5. Discharge Type Code: **Table**	6. Stack Height: **Table** feet	7. Exit Diameter: **Table** feet
8. Exit Temperature: **See Table** °F	9. Actual Volumetric Flow Rate: **See Table** acfm	10. Water Vapor: **See Table** %

11. Maximum Dry Standard Flow Rate: **See Table** dscfm	12. Nonstack Emission Point Height: **N/A** feet
13. Emission Point UTM Coordinates... Zone: **17** East (km): **See Table** North (km): **See Table**	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) **See Field 13** Longitude (DD/MM/SS) **See Field 13**

15. Emission Point Comment: **Information in table below for baghouses.**

ID	UTM EAST	UTM NORTH	HEIGHT, FT	DIAM, FT	TEMP, F	ACFM	H2O	DSCFM
COAL1	404.20	3162.20	200	10.0	160	25000	8	19598
COAL2	404.21	3162.20	80	1.0	160	3000	2	2505
								22103

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 1

1. Segment Description (Process/Fuel Type): **Mineral Products: Coal Cleaning : Material Handling : Crushing**		
2. Source Classification Code (SCC): **3-05-010-10**	3. SCC Units: **Tons Processed**	
4. Maximum Hourly Rate: **15.4**	5. Maximum Annual Rate: **134,904**	6. Estimated Annual Activity Factor: **N/A**
7. Maximum % Sulfur: **N/A**	8. Maximum % Ash: **N/A**	9. Million Btu per SCC Unit: **N/A**
10. Segment Comment: **Coal or petroleum coke**		

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM	**018**	**None**	**EL**
PM10	**018**	**None**	**EL**

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM**	2. Total Percent Efficiency of Control: **N/A**
3. Potential Emissions: **1.89** lb/hour **8.3** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **N/A** ___ to ___ tons/year	
6. Emission Factor: **0.01 gr/dscf for baghouses** Reference: **Proposed as BACT**	7. Emissions Method Code: **0**
8. Calculation of Emissions: **0.01 gr/dscf x 22103 dscfm x 60 min/hr ÷ 7000 gr/lb = 1.89 lb/hr** **@ 8760 hr/year = 8.3 TPY**	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: **None**	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 2

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **0.01 gr/dscf**	4. Equivalent Allowable Emissions: **1.89** lb/hour **8.3** tons/year
5. Method of Compliance: **Method 9 in lieu of Method 5**	
6. Allowable Emissions Comment (Description of Operating Method): **Proposed as BACT**	

Allowable Emissions Allowable Emissions 2 of 2

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **0.031 gr/dscf**	4. Equivalent Allowable Emissions: **5.87** lb/hour **25.7** tons/year
5. Method of Compliance: **Method 9 in lieu of Method 5**	
6. Allowable Emissions Comment (Description of Operating Method): **Coal mill only** **40CFR60.252(a)(1). BACT is more stringent than this NSPS Subpart Y limitation.**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM10**	2. Total Percent Efficiency of Control: **N/A**
3. Potential Emissions: **1.33** lb/hour **5.8** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **N/A** ___ to ___ tons/year	
6. Emission Factor: **0.007 gr/dscf for baghouses** Reference: **Proposed as BACT**	7. Emissions Method Code: **0**
8. Calculation of Emissions: **0.007 gr/dscf x 22103 dscfm x 60 min/hr ÷ 7000 gr/lb = 1.33 lb/hr @ 8760 hr/year = 5.8 TPY**	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: **None**	

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **0.007 gr/dscf**	4. Equivalent Allowable Emissions: **1.33** lb/hour **5.8** tons/year
5. Method of Compliance: **Method 9 in lieu of Method 5**	
6. Allowable Emissions Comment (Description of Operating Method): **Proposed as BACT**	

G. VISIBLE EMISSIONS INFORMATION

Complete if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation 1 of 3

1. Visible Emissions Subtype: **VE10**	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: **10%** Exceptional Conditions: **10%** Maximum Period of Excess Opacity Allowed: **0** min/hour	
4. Method of Compliance: **COMS – in cooler stack**	
5. Visible Emissions Comment: **Coal mill, at cooler stack, 40CFR63.1345(a)(2)**	

Visible Emissions Limitation: Visible Emissions Limitation 2 of 3

1. Visible Emissions Subtype: **VE20**	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: **20%** Exceptional Conditions: **20%** Maximum Period of Excess Opacity Allowed: **0** min/hour	
4. Method of Compliance: **Method 9**	
5. Visible Emissions Comment: **40CFR60.252(a)(2), and 40CFR60.252(c)** **Coal mill, coal processing and conveying equipment, coal storage system, or coal transfer and loading system processing coal**	

G. VISIBLE EMISSIONS INFORMATION (CONTINUED)

Complete if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation 3 of 3

1. Visible Emissions Subtype: **VE05**	2. Basis for Allowable Opacity: ☒ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: 5% Exceptional Conditions: 5% Maximum Period of Excess Opacity Allowed: **0** min/hour	
4. Method of Compliance: **Method 9, in lieu of Method 5**	
5. Visible Emissions Comment: **62-297.620(4), FAC**	

H. CONTINUOUS MONITOR INFORMATION

Complete if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor 1 of 1

1. Parameter Code: **TEMP**	2. Pollutant(s):
3. CMS Requirement:	☒ Rule ☐ Other
4. Monitor Information... **To be supplied after construction** Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment: **Required by NSPS, 40CFR60.253**	

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: **PSD Report**
2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: **No fuels** ☐ Previously Submitted, Date ________
3. Detailed Description of Control Equipment (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☒ Attached, Document ID: **PSD Report**
4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: ____________
   ☒ Not Applicable (construction application)
5. Operation and Maintenance Plan (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: ____________
   ☒ Not Applicable (construction application)
6. Compliance Demonstration Reports/Records
   ☐ Attached, Document ID: __________
   Test Date(s)/Pollutant(s) Tested: ______________________________

   ☐ Previously Submitted, Date: _______
   Test Date(s)/Pollutant(s) Tested: ______________________________

   ☐ To be Submitted, Date (if known):___________
   Test Date(s)/Pollutant(s) Tested: ______________________________

   ☒ Not Applicable

   Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.
7. Other Information Required by Rule or Statute
   ☒ Attached, Document ID: **PSD Report** ☐ Not Applicable

Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(6) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)) ☒ Attached, Document ID: **PSD Report** ☐ Not Applicable	
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(5)(h)6., F.A.C., and Rule 62-212.500(4)(f), F.A.C.) ☒ Attached, Document ID: **PSD Report** ☐ Not Applicable	
3. Description of Stack Sampling Facilities (Required for proposed new stack sampling facilities only) ☐ Attached, Document ID: ___________ ☒ Not Applicable	

Additional Requirements for Title V Air Operation Permit Applications ☒ **Not Applicable**

1. Identification of Applicable Requirements ☐ Attached, Document ID: ___________ ☒ Not Applicable	
2. Compliance Assurance Monitoring ☐ Attached, Document ID: ___________ ☒ Not Applicable	
3. Alternative Methods of Operation ☐ Attached, Document ID: ___________ ☒ Not Applicable	
4. Alternative Modes of Operation (Emissions Trading) ☐ Attached, Document ID: ___________ ☒ Not Applicable	
5. Acid Rain Part Application ☐ Certificate of Representation (EPA Form No. 7610-1) ☐ Copy Attached, Document ID:_ ☐ Acid Rain Part (Form No. 62-210.900(1)(a)) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ New Unit Exemption (Form No. 62-210.900(1)(a)2.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ Phase II NOx Averaging Plan (Form No. 62-210.900(1)(a)5.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☒ Not Applicable	

Additional Requirements Comment

None

III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application for air permit. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application – Where this application is used to apply for both an air construction permit and a revised/renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. **The air construction permitting classification must be used to complete the Emissions Unit Information Section of this application for air permit.** A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air construction permitting and insignificant emissions units are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification ☒ **Not Applicable**

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

   ☐ The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

   ☐ The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

   ☐ This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

   ☐ This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

   ☒ This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:
   Fugitive emissions from truck travel

3. Emissions Unit Identification Number: **No ID**

4. Emissions Unit Status Code: **A**	5. Commence Construction Date: **N/A**	6. Initial Startup Date: **N/A**	7. Emissions Unit Major Group SIC Code: **32**	8. Acid Rain Unit? ☐ Yes ☒ No

9. Package Unit: **Not Applicable**
   Manufacturer: Model Number:

10. Generator Nameplate Rating: **Not Applicable** MW

11. Emissions Unit Comment:

This section addresses paved road emissions from coal hauling and cement hauling.

Emissions Unit Control Equipment

1. Control Equipment/Method(s) Description: **Vacuum/Sweeper for paved road**
2. Control Device or Method Code(s): **N/A**

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate: **174 tons per hour coal/cement hauled, average**		
2. Maximum Production Rate: **Not Applicable**		
3. Maximum Heat Input Rate: **Not Applicable** million Btu/hr		
4. Maximum Incineration Rate: **Not Applicable** pounds/hr tons/day		
5. Requested Maximum Operating Schedule:	hours/day weeks/year	days/week **8760** hours/year
6. Operating Capacity/Schedule Comment: **None**		

C. EMISSION POINT (STACK/VENT) INFORMATION
(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: **Entrance road**	2. Emission Point Type Code: **4**
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: **N/A**	
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: **N/A**	

5. Discharge Type Code: **F**	6. Stack Height: **N/A** feet	7. Exit Diameter: **N/A** feet
8. Exit Temperature: **77°F**	9. Actual Volumetric Flow Rate: **N/A** acfm	10. Water Vapor: **N/A** %

11. Maximum Dry Standard Flow Rate: **N/A** dscfm	12. Nonstack Emission Point Height: **0** feet
13. Emission Point UTM Coordinates...**N/A** Zone: East (km): North (km):	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)
15. Emission Point Comment: **Fugitive emissions from the paved entrance road, due to hauling of coal and cement.**	

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 1

1. Segment Description (Process/Fuel Type): **Mineral Products: Cement Manufacturing: Other Not Classified**		
2. Source Classification Code (SCC): **3-05-006-99**	3. SCC Units: **Vehicle Miles Traveled (VMT)**	
4. Maximum Hourly Rate: **N/A**	5. Maximum Annual Rate: **N/A**	6. Estimated Annual Activity Factor: **26350**
7. Maximum % Sulfur: **N/A**	8. Maximum % Ash: **N/A**	9. Million Btu per SCC Unit: **N/A**
10. Segment Comment: **1248', 1-way, = 0.47 miles per truck trip** **174 tons/hour/27.25 tons/load = 6.4 truck trips per hour** **0.47 mi/trip * 6.4 trips/hour = 3.0 mi/hr** **@8760 hr/year = 26350 VMT/year**		

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM	**None**	**None**	**NS**
PM10	**None**	**None**	**NS**

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM**	2. Total Percent Efficiency of Control: **N/A**
3. Potential Emissions: **See Field 5** lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **0** to **4.9** tons/year	
6. Emission Factor: **0.374 lb/VMT** Reference: **AP-42 Section 13.2.1.3**	7. Emissions Method Code: **3**

8. Calculation of Emissions:

E, lb/VMT = size factor (silt loading/2)$^{0.65}$ x (weight/3)$^{1.5}$

- **PM size factor 0.082**
- **Silt loading = 0.14 g/m^2**
- **Average vehicle weight = 26.125 tons**

E = 0.082(0.14/2)$^{0.65}$ x (26.125/3)$^{1.5}$ = 0.374 lb/VMT
@26350 VMT/year = 4.9 tons/year

9. Pollutant Potential/Estimated Fugitive Emissions Comment: **None**

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions __ of __ ☒ **Not Applicable**

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of __ ☒ **Not Applicable**

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of __ ☒ **Not Applicable**

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM10**	2. Total Percent Efficiency of Control: **N/A**
3. Potential Emissions: **See Field 5** lb/hour tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): **0** to **1.0** tons/year	
6. Emission Factor: **0.073 lb/VMT** Reference: **AP-42 Section 13.2.1.3**	7. Emissions Method Code: **3**

8. Calculation of Emissions:

E, lb/VMT = size factor (silt loading/2)$^{0.65}$ x (weight/3)$^{1.5}$

- **PM10 size factor 0.016**
- **Silt loading = 0.14 g/m^2**
- **Average vehicle weight = 26.125 tons**

E = 0.016(0.14/2)$^{0.65}$ x (26.125/3)$^{1.5}$ = 0.073 lb/VMT
@26350 VMT/year = 1.0 tons/year

9. Pollutant Potential/Estimated Fugitive Emissions Comment: **None**

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions __ of __ ☒ **Not Applicable**

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of __ ☒ **Not Applicable**

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions __ of __ ☒ **Not Applicable**

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

G. VISIBLE EMISSIONS INFORMATION

Complete if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation __ of __ ☒ **Not Applicable**

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: ☐ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

Visible Emissions Limitation: Visible Emissions Limitation __ of __ ☒ **Not Applicable**

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: ☐ Rule ☐ Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

H. CONTINUOUS MONITOR INFORMATION

Complete if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor ___ of ___ ☒ **Not Applicable**

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

Continuous Monitoring System: Continuous Monitor ___ of ___ ☒ **Not Applicable**

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	☐ Rule ☐ Other
4. Monitor Information... Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
☐ Attached, Document ID: **N/A** ☐ Previously Submitted, Date ________

2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
☐ Attached, Document ID: **No fuels** ☐ Previously Submitted, Date ________

3. Detailed Description of Control Equipment (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
☐ Attached, Document ID: **No controls** ☐ Previously Submitted, Date ________

4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
☐ Attached, Document ID: ________ ☐ Previously Submitted, Date ________
☒ Not Applicable (construction application)

5. Operation and Maintenance Plan (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
☐ Attached, Document ID: ________ ☐ Previously Submitted, Date ________
☒ Not Applicable

6. Compliance Demonstration Reports/Records
☐ Attached, Document ID: ________
Test Date(s)/Pollutant(s) Tested: ________

☐ Previously Submitted, Date: ________
Test Date(s)/Pollutant(s) Tested: ________

☐ To be Submitted, Date (if known): ________
Test Date(s)/Pollutant(s) Tested: ________

☒ Not Applicable

Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.

7. Other Information Required by Rule or Statute
☒ Attached, Document ID: **PSD Report** ☐ Not Applicable

Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(6) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)) ☐ Attached, Document ID: ___________ ☒ Not Applicable	
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(5)(h)6., F.A.C., and Rule 62-212.500(4)(f), F.A.C.) ☐ Attached, Document ID: ___________ ☒ Not Applicable	
3. Description of Stack Sampling Facilities (Required for proposed new stack sampling facilities only) ☐ Attached, Document ID: ___________ ☒ Not Applicable	

Additional Requirements for Title V Air Operation Permit Applications ☒ **Not Applicable**

1. Identification of Applicable Requirements ☐ Attached, Document ID: ___________ ☒ Not Applicable	
2. Compliance Assurance Monitoring ☐ Attached, Document ID: ___________ ☒ Not Applicable	
3. Alternative Methods of Operation ☐ Attached, Document ID: ___________ ☒ Not Applicable	
4. Alternative Modes of Operation (Emissions Trading) ☐ Attached, Document ID: ___________ ☒ Not Applicable	
5. Acid Rain Part Application ☐ Certificate of Representation (EPA Form No. 7610-1) ☐ Copy Attached, Document ID:_ ☐ Acid Rain Part (Form No. 62-210.900(1)(a)) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ New Unit Exemption (Form No. 62-210.900(1)(a)2.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☐ Phase II NOx Averaging Plan (Form No. 62-210.900(1)(a)5.) ☐ Attached, Document ID:___________ ☐ Previously Submitted, Date:_________ ☒ Not Applicable	

Additional Requirements Comment

None

REPORT IN SUPPORT OF
AN APPLICATION FOR A PSD
CONSTRUCTION PERMIT REVIEW

FLORIDA MINING CORPORATION
Cement Plant
Mabel, Sumter County, Florida

May 26, 2005

KOOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES
4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
352/377-5822 ▪ FAX/377-7158

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1. Introduction

This report is in support of an application for an air construction permit. Florida Mining Corporation proposes to construct a new cement manufacturing plant.

The plant site consists of approximately 40 acres located within more than 1000 acres of limestone and overburden reserves. The plant will have a dry process preheater/precalciner kiln system, and will produce various types and grades of Portland cement and masonry cement. The cement will be stored in silos, will be shipped in bulk by trucks, and will be bagged and palletized for shipping by trucks.

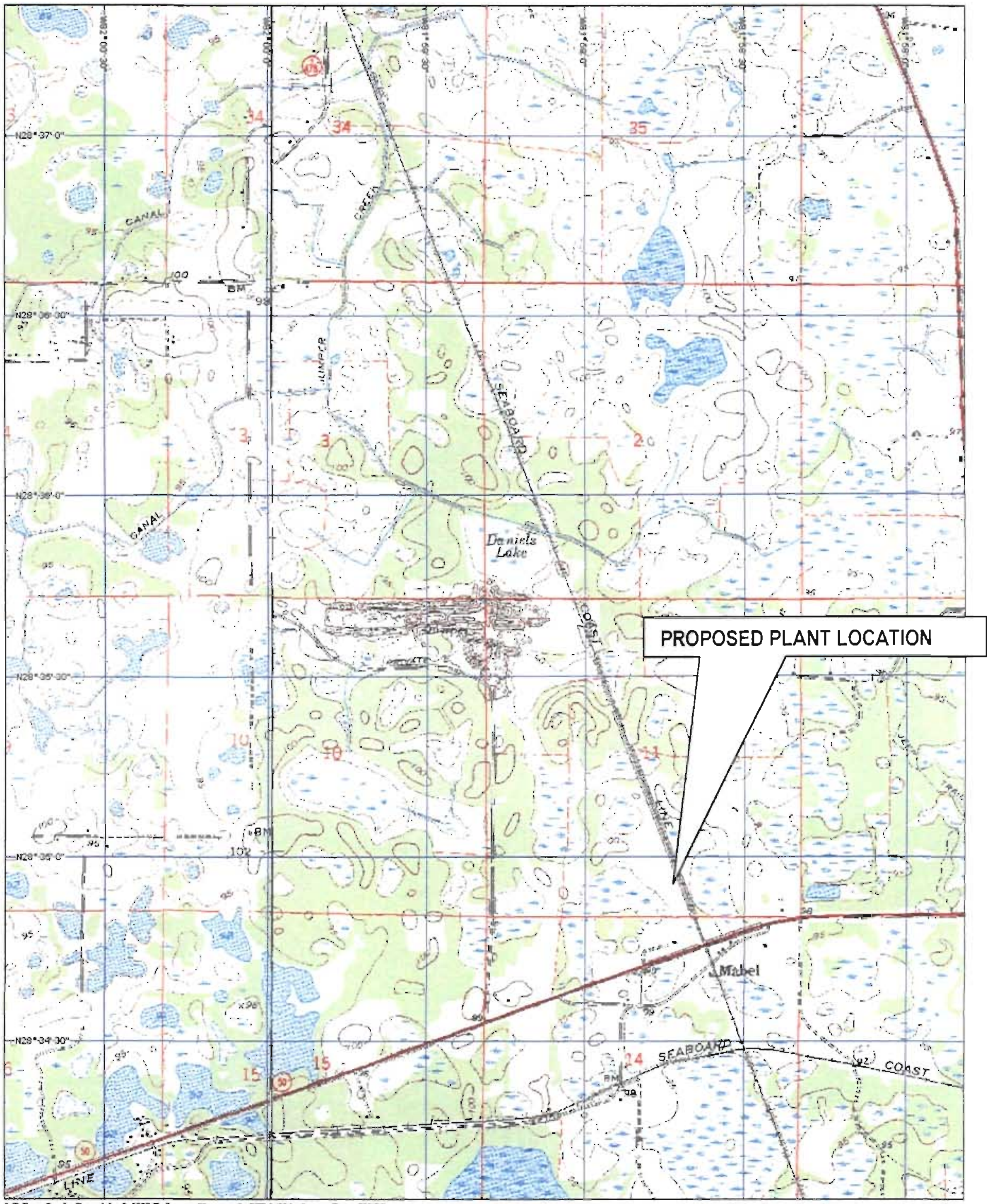
1.1 Applicant

Paul Mazak, President
Florida Mining Corporation
7000 SR 50
Webster, Florida 33597

1.2 Area Map Showing Facility Location

This report provides the relevant portion of a USGS topographic map (Mascotte Quadrangle) showing the location of the facility in relation to residences, roads, and other features of the surrounding area.

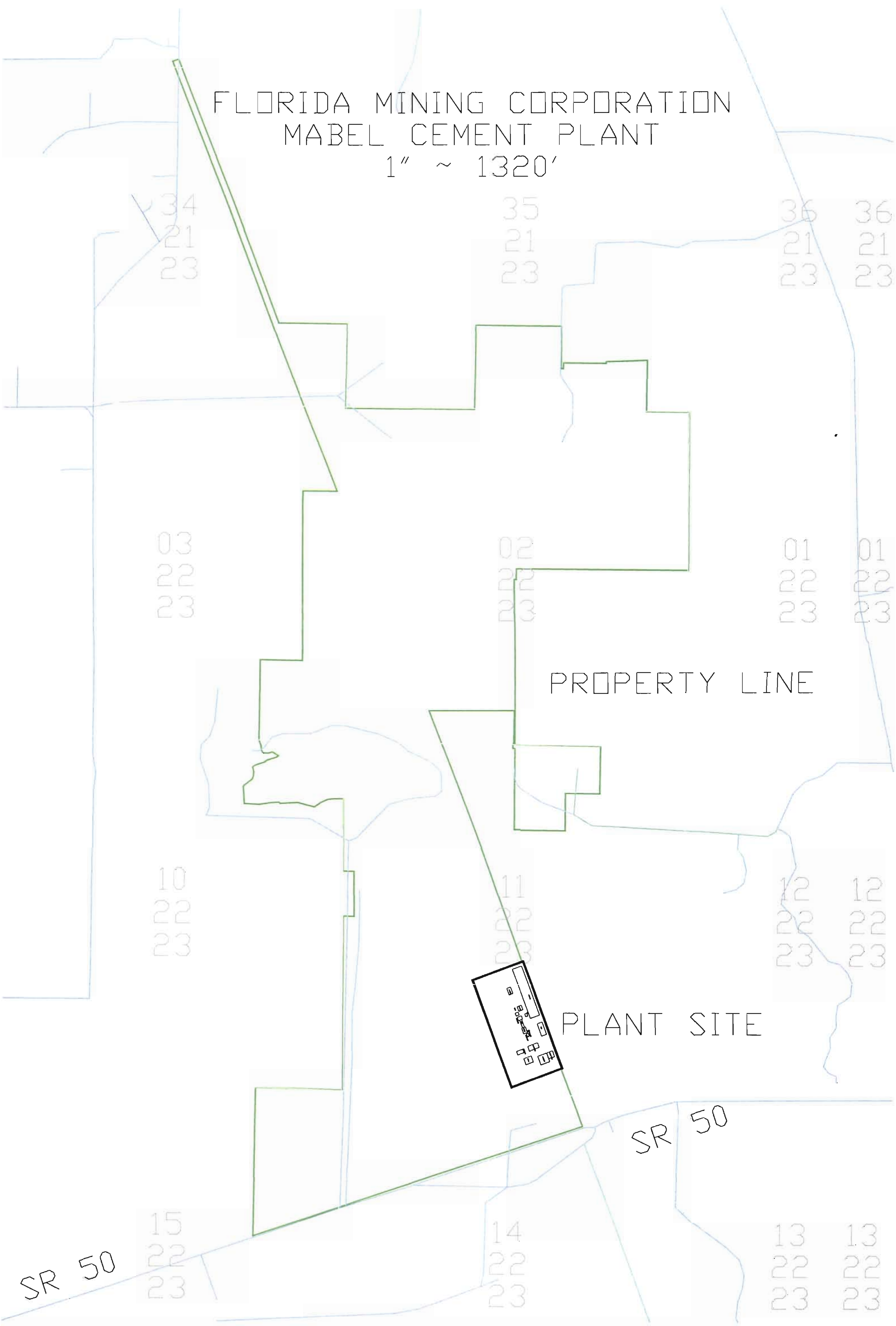
The cement plant will be located north of State Road 50, Mabel, Sumter County, Florida. The UTM coordinates of the Florida Mining Corporation facility are Zone 17, 404.2 km East and 3162.2 km North. See Figure 1 – Site Location Map. A property boundary drawing follows the site location map.



3-D TopoQuads Copyright © 1999 DeLorme Yarmouth, ME 04096 Source Data: USGS

750 ft Scale: 1 : 25,000 Detail: 13-0 Datum: WGS84

FIGURE 1 – SITE LOCATION MAP


FLORIDA MINING CORPORATION
MABEL CEMENT PLANT
1" ~ 1320'
34 21 23
35 21 23
36 21 23
36 21 23
03 22 23
02 22 23
01 22 23
01 22 23
PROPERTY LINE
10 22 23
11 22 23
12 22 23
12 22 23
PLANT SITE
SR 50
15 22 23
14 22 23
13 22 23
13 22 23
SR 50

2. Description of Proposed Construction

This section of the report provides a detailed description of the proposed construction project.

2.1 Proposed New Emissions Units

This section includes a description of the nature, location, design capacity, and projected operations of each proposed new emissions unit.

2.1.1 Raw Materials Handling & Storage

This section addresses raw material (limestone and overburden) processing from the quarry up to raw material storage. This emissions unit also addresses additives handling and storage, from delivery to storage. The additives include, but are not limited to, mill scale, feldspar, and flyash. Dozens of suitable materials are available as suitable additives for cement manufacturing.

2.1.2 Raw Mill System

This proposed emissions unit is the raw mill system, from raw material and additive storage to the preheater. The materials will be transported to the raw mill from raw materials storage. The raw mill will be equipped with a high efficiency air separator. The product of the raw mill is called the raw meal. The raw meal will be collected in cyclones, and conveyed with airslides to an airlift. An induced draft fan will provide draft. Heat for raw material drying will be provided by the preheater exhaust gases and by an air heater. The particulate matter control device catch and the raw mill product will be conveyed to the blend silo or directly to the preheater.

This emissions unit also includes a 40 MMBtu/hour air heater for use when additional raw material drying capacity is required. Emissions from the air heater and raw mill are addressed with the Raw Mill/Kiln emissions unit.

This emissions unit will be located near the proposed raw materials storage area. The projected operations are 250 tons per hour of wet raw material to the raw mill, with a requested maximum operating schedule of 8760 hours/year.

2.1.3 Raw Mill/Kiln

This emissions unit is the Raw Mill/Kiln, from the preheater to the clinker cooler. The kiln feed from the blend silo will be conveyed to the preheater airlift. Fuels will be burned in the precalciner and at the main burner at the discharge end of the kiln. Combustion air for the precalciner will be provided through a tertiary air duct from the clinker cooler. Fuels will be burned in the raw mill air heater when additional material drying is necessary. The kiln system will convert the raw meal into clinker, which consists primarily of gray, glass-hard, spherically shaped nodules.

This emissions unit will be located between the proposed raw mill and the proposed clinker cooler. The projected operations are 125 tons per hour of clinker to the clinker cooler, with a requested maximum operating schedule of 8760 hours/year. The maximum heat input rate is 400 million Btu/hr. Proposed fuels include coal, natural gas, fuel oil, petroleum coke, propane, tires, high carbon fly ash, and used oil.

The particulate matter control device will be an electrostatic precipitator (ESP) or a fabric filter (baghouse). Selective non-catalytic reduction (SNCR) or alternative pyroprocessing technology is proposed to achieve the BACT emissions limitation for nitrogen oxides.

2.1.4 Clinker Cooler

This emissions unit is the clinker cooler. Upon discharge from the kiln, the clinker will be quenched in a reciprocating grate cooler with flow control grates, and conveyed to the clinker storage silos. The exhaust from the cooler will go to an ESP or a baghouse and then to a stack. A portion of the clinker cooler gases will be ducted to the coal mill to dry the coal.

This emissions unit will be located between the kiln and the clinker silos. The projected operations are 125 tons per hour of clinker to the clinker cooler, with a requested maximum operating schedule of 8760 hours/year.

2.1.5 Clinker Handling & Silos

This emissions unit is clinker handling from the clinker cooler to the clinker silos. After the cooler, the clinker will be conveyed to the clinker storage silos. This emissions unit also addresses clinker and additives from storage being conveyed to the finish mill.

The clinker will be withdrawn from the clinker storage silos through flow control gates, and discharged onto the finish mill feed conveyor. The transfer points will be vented through a baghouse. The mill feed conveyor will be a covered conveyor. Gypsum and limestone will be received by truck and stored under cover.

This emissions unit will be located between the clinker cooler and the finish mill. The projected operations are 125 tons per hour of clinker from the clinker cooler and 160 tons per hour of clinker and additives to the finish mill, with a requested maximum operating schedule of 8760 hours/year.

Fabric filters are proposed to control particulate matter emissions.

2.1.6 Finish Mill

Clinker from the silos and additives will be transferred to the finish mill feed conveyor. The gypsum and limestone, grinding aids and other mineral additives will be interground with the clinker in the finish mill.

The finish mill will be in a closed circuit with a high efficiency air separator and cyclones. The mill will be vented by a fabric filter. A fabric filter will vent all the conveying equipment. Finished cement will be stored in concrete silos, vented by baghouses. The finished cement will be conveyed pneumatically to the cement storage silos.

This emissions unit will be located between the clinker silos and the cement silos. The projected operations are 160 tons per hour of cement to the cement silos, with a requested maximum operating schedule of 8760 hours/year.

2.1.7 Cement Silos, Loadout & Bagging

This emissions unit is cement pneumatically conveyed into silos, cement loadout to trucks from the cement silos, and cement bagging. Cement withdrawal will occur through rotary shut-off valves, flow control valves, and airslides to a vented retractable loading spouts, or to a bagging machine. There will be a truck scale under the proposed silos. The loading spouts and the bagging machine will each be equipped with a fabric filter.

The cement bagging operation will consist of a screen, a surge hopper, a bucket elevator, and a packer. The bags will be palletized after being air cleaned. A fabric filter will vent all equipment, including the air cleaning device. The pallets will be moved by forklift to storage, where they will be loaded on trucks.

This emissions unit will be located between the finish mill and the plant entrance road. The projected operations are 500 tons per hour of cement to trucks or the bagging machine, with a requested maximum operating schedule of 8760 hours/year.

2.1.8 Coal/Coke Mill

This emissions unit is coal/coke handling from truck unloading to the pulverized coal/coke bin. Coal and coke will be received by truck. The coal/coke will be conveyed to a bucket elevator. The bucket elevator will discharge either into a covered storage facility or onto a belt and then to a bin. Coal/coke will be stockpiled in the covered storage facility or in uncovered piles and then reclaimed by a front-end loader through the unloading system.

The coal/coke will be conveyed from the bin to a vertical mill. The coal/coke will be dried in the mill with hot air drawn from the clinker cooler. The milled coal/coke will be collected in a product fabric filter, and stored in a pulverized coal/coke bin. The bin will be vented through a fabric filter. The milled coal/coke will be pneumatically conveyed to the main burner and precalciner burner.

This emissions unit will be located near the plant access road. The projected operations are 15.4 tons per hour to the mill, with a requested maximum operating schedule of 8760 hours/year.

2.2 Fugitive Emissions Identification

This section identifies fugitive emissions, which are also addressed and quantified in a specific Emissions Unit Information Section of the application form. This section addresses paved road emissions from fuels hauling (inbound) and cement hauling (outbound). The fugitive emissions addressed in this section are fugitive particulate matter emissions generated by trucks. These are particulate emissions from the proposed paved road from State Road 50 to the cement silos and to the coal/coke unloading and storage area. The facility proposes to operate and maintain a vacuum sweeper truck to limit the silt loading on the paved road.

2.3 Precautions to Prevent Emissions of Unconfined Particulate Matter

A recent draft PSD permit for an expansion at a cement plant provides precautions to prevent emissions of unconfined particulate matter. Those precautions, with minor amendment, are reproduced in this section of the report. The precautions will be applicable to the proposed new emissions units.

The material handling activities at the plant covered by this protocol include loading and unloading, storage and conveying of:

- Limestone and overburden

- Iron oxide source (coal ash, iron ore, or other)
- Gypsum
- Coal/coke

Reasonable precautions include the following:

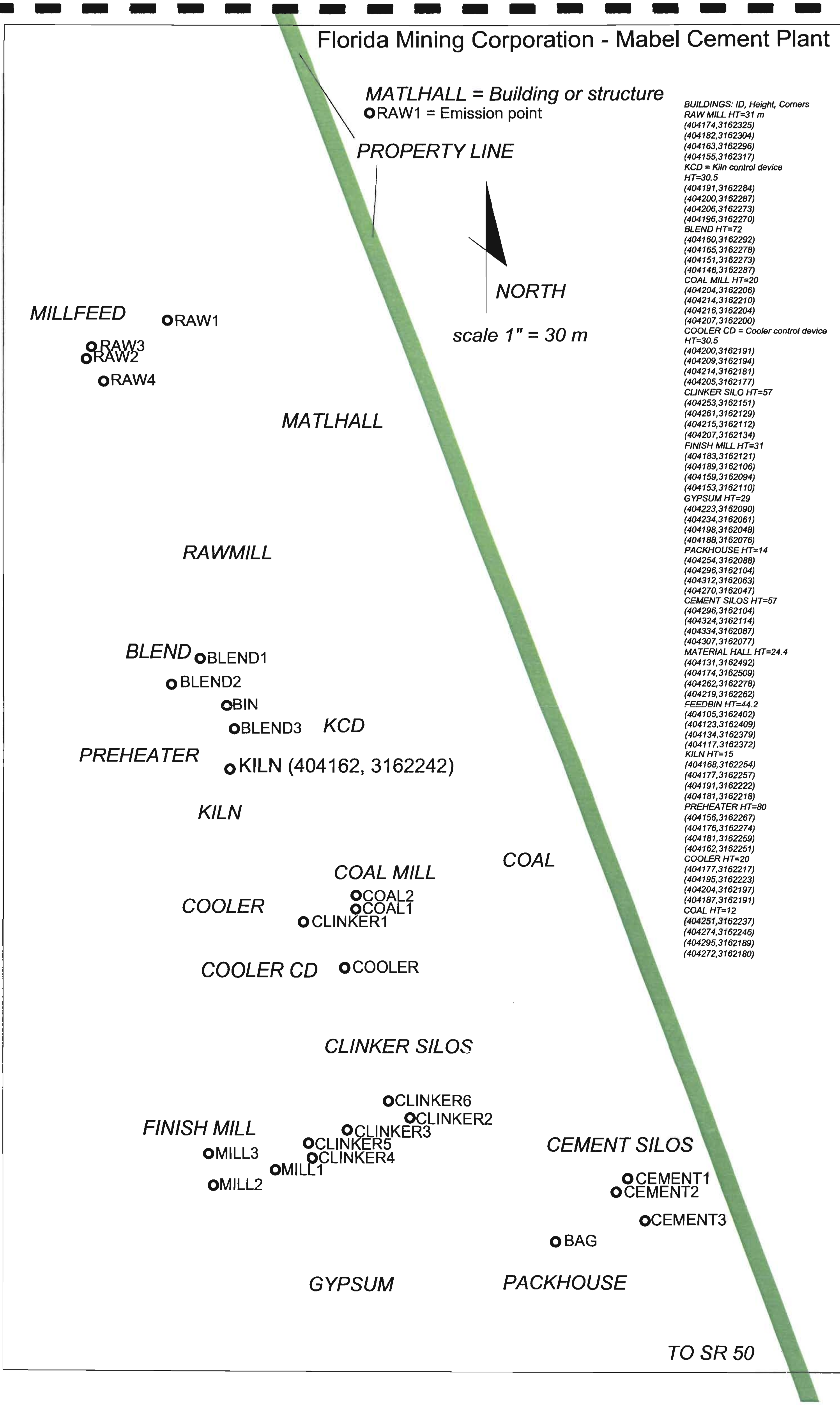
- Paving and maintenance of roads, parking areas and yards.
- Application of water or chemicals to control emissions from such activities as demolition of buildings, grading roads, construction, and land clearing.
- Application of asphalt, water, chemicals or other dust suppressants to unpaved roads, yards, open stock piles and similar activities.
- Removal of particulate matter from roads and other paved areas under the control of the owner or operator of the facility to prevent reentrainment, and from buildings or work areas to prevent particulate from becoming airborne.
- Landscaping or planting of vegetation.
- Use of hoods, fans, filters, and similar equipment to contain, capture and/or vent particulate matter.
- Confining abrasive blasting where possible.
- Enclosure or covering of conveyor systems.

Additional reasonable precautions applicable to this facility are:

- All materials, coal and petroleum coke at the plant shall be stored under roof on compacted clay or concrete, or in enclosed vessels.
- Water supply lines, hoses and sprinklers shall be located near all materials, coal and petroleum coke stockpiles.
- All plant operators shall be trained in basic environmental compliance and shall perform visual inspections of materials, coal and petroleum coke regularly and before handling. If the visual inspections indicate a lack of surface moisture, the materials, coal and petroleum coke shall be wetted with sprinklers. Such wetting shall continue until the potential for unconfined particulate matter emissions are minimized.
- Water spray bars shall be located at each unenclosed material and fuel conveyor with the potential to generate significant unconfined particulate matter emissions, and the spray bars shall be used to wet the materials and fuel if inherent moisture and moisture from wetting the storage piles are not sufficient to prevent unconfined particulate matter emissions.
- The manufacturing area and the access roadways for the facility shall be paved with asphalt or concrete.
- Vacuum Sweeper used on paved roads.

2.4 Facility Plot Plan

This report provides a plot plan of the facility showing the location of proposed manufacturing processes, control equipment, stacks, vents, identifiable sources of fugitive emissions and principal buildings. The plot plan is drawn to scale, shows the precise location of the new emissions units and their emission points, includes at least one UTM coordinate point, and shows the compass direction. The plot plan also provides corner locations and heights of any buildings or structures that may affect dispersion of pollutants from the new emissions units. These building dimensions were used for air quality modeling studies performed by the applicant in support of the air construction permit application.

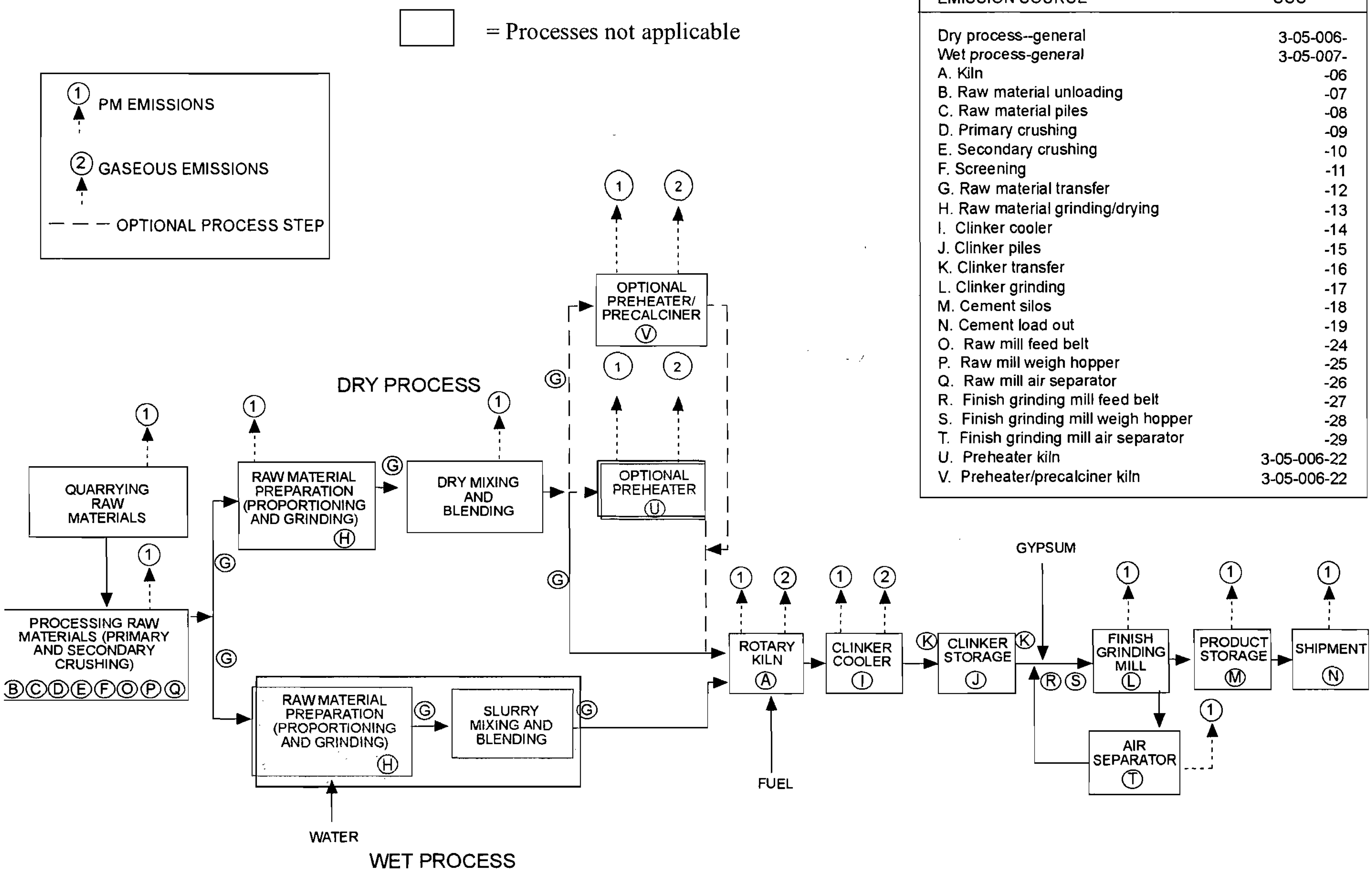


Florida Mining Corporation - Mabel Cement Plant
MATLHALL = Building or structure
RAW1 = Emission point
PROPERTY LINE
NORTH
scale 1" = 30 m
BUILDINGS: ID, Height, Corners
RAW MILL HT=31 m
(404174,3162325)
(404182,3162304)
(404163,3162296)
(404155,3162317)
KCD = Kiln control device
HT=30.5
(404191,3162284)
(404200,3162287)
(404206,3162273)
(404196,3162270)
BLEND HT=72
(404160,3162292)
(404165,3162278)
(404151,3162273)
(404146,3162287)
COAL MILL HT=20
(404204,3162206)
(404214,3162210)
(404216,3162204)
(404207,3162200)
COOLER CD = Cooler control device
HT=30.5
(404200,3162191)
(404209,3162194)
(404214,3162181)
(404205,3162177)
CLINKER SILO HT=57
(404253,3162151)
(404261,3162129)
(404215,3162112)
(404207,3162134)
FINISH MILL HT=31
(404183,3162121)
(404189,3162106)
(404159,3162094)
(404153,3162110)
GYPSUM HT=29
(404223,3162090)
(404234,3162061)
(404198,3162048)
(404188,3162076)
PACKHOUSE HT=14
(404254,3162088)
(404296,3162104)
(404312,3162063)
(404270,3162047)
CEMENT SILOS HT=57
(404296,3162104)
(404324,3162114)
(404334,3162087)
(404307,3162077)
MATERIAL HALL HT=24.4
(404131,3162492)
(404174,3162509)
(404262,3162278)
(404219,3162262)
FEEDBIN HT=44.2
(404105,3162402)
(404123,3162409)
(404134,3162379)
(404117,3162372)
KILN HT=15
(404168,3162254)
(404177,3162257)
(404191,3162222)
(404181,3162218)
PREHEATER HT=80
(404156,3162267)
(404176,3162274)
(404181,3162259)
(404162,3162251)
COOLER HT=20
(404177,3162217)
(404195,3162223)
(404204,3162197)
(404187,3162191)
COAL HT=12
(404251,3162237)
(404274,3162246)
(404295,3162189)
(404272,3162180)
MILLFEED
RAW1
RAW3
RAW2
RAW4
MATLHALL
RAWMILL
BLEND
BLEND1
BLEND2
BIN
BLEND3
KCD
PREHEATER
KILN (404162, 3162242)
KILN
COAL
COAL MILL
COAL2
COAL1
COOLER
CLINKER1
COOLER CD
COOLER
CLINKER SILOS
CLINKER6
CLINKER2
FINISH MILL
CLINKER3
CLINKER5
CLINKER4
CEMENT SILOS
MILL3
MILL1
MILL2
CEMENT1
CEMENT2
CEMENT3
BAG
GYPSUM
PACKHOUSE
TO SR 50

2.5 Process Flow Diagram

A general process flow diagram for cement manufacturing, from AP-42 section 11.6 is reproduced below.

Figure 11.6-1. Process flow diagram for portland cement manufacturing.
(SCC = Source Classification Code.)



EMISSION SOURCE	SCC
Dry process--general	3-05-006-
Wet process-general	3-05-007-
A. Kiln	-06
B. Raw material unloading	-07
C. Raw material piles	-08
D. Primary crushing	-09
E. Secondary crushing	-10
F. Screening	-11
G. Raw material transfer	-12
H. Raw material grinding/drying	-13
I. Clinker cooler	-14
J. Clinker piles	-15
K. Clinker transfer	-16
L. Clinker grinding	-17
M. Cement silos	-18
N. Cement load out	-19
O. Raw mill feed belt	-24
P. Raw mill weigh hopper	-25
Q. Raw mill air separator	-26
R. Finish grinding mill feed belt	-27
S. Finish grinding mill weigh hopper	-28
T. Finish grinding mill air separator	-29
U. Preheater kiln	3-05-006-22
V. Preheater/precalciner kiln	3-05-006-22

2.6 Fuel Analysis or Specification

Two emissions units include fuel-combustion devices and this report provides typical fuel specifications for most of the fuels. The raw mill system includes an air heater, with natural gas, distillate oil (No. 2 and No. 4) as proposed fuels. The kiln system includes coal, natural gas, distillate oil (No. 2 and No. 4), propane, petroleum coke, tires, used oil, and high carbon fly ash as proposed fuels. The typical fuel specification gives the density, heat value, and percent content by weight of sulfur, nitrogen, and ash; where determined based on reasonably available information.

TABLE 1 – TYPICAL FUEL SPECIFICATIONS

Fuel	Density	Heat Value	Sulfur %	Nitrogen %	Ash %
Natural Gas[A,B]	1 lb/23.8 ft^3	1,050 Btu/ft^3	NEGLIGIBLE	NEGLIGIBLE	NEGLIGIBLE
Distillate Fuel Oil[A,B]	7.05 lb/gal	140,000 Btu/gal	0.2 – 1.0	<0.5	NEGLIGIBLE
Coal[A,B]	47-50 lb/ft^3	13,000 Btu/lb	0.6 – 5.4	<2	4 – 20
Propane[A]	4.24 lb/gal	94,000 Btu/gal	NEGLIGIBLE	NOT DETERMINED	NEGLIGIBLE
Petroleum Coke[A,C]	80-100 lb/ft^3	13,300 Btu/lb	1.5 – 10	NOT DETERMINED	0.05 – 2.8
Tires[D,E]	7.4 lb/ft^3	15,500 Btu/lb	0.91 – 1.8	<0.1 – 0.3	1.5 – 25.2
High Carbon Fly Ash[F]	42-48 lb/ft^3	5000-8000 Btu/lb	1 – 2	0.3 – 0.7	100

2.7 Description of Control Equipment

2.7.1 PM/PM_{10}

Electrostatic precipitators or baghouses are proposed for the Raw Mill/Kiln and for the clinker cooler. Baghouses are proposed for other material handling operations. Many raw material

[A] AP-42, Appendix A

[B] http://www-mugc.cc.monash.edu.au/~barbie/env3627/fossilfuel.htm

[C] http://pangea.stanford.edu/~lbcf/meeting/chemeng.pdf

[D] *Scrap Tire & Rubber Users Directory,* Recycling Research Institute, 1998

[E] *Air Emissions Associated with the Combustion of Scrap Tires for Energy Recovery,* Malcolm Pirnie, 1991

[F] Email communication from Steve Gasiorowski, Separation Technologies,LLC, October 6, 2004 handling operations involve material with sufficiently high moisture contents to preclude the need for add-on controls. A vacuum/sweeper truck is proposed for use at the facility to limit emissions from paved roadways.

2.7.2 NOx

Selective non-catalytic reduction (SNCR) or alternative pyroprocessing technology is proposed as necessary to achieve the BACT emissions limitation.

2.8 Description of Stack Sampling Facilities

For those proposed emissions units subject to a stack sampling requirement, the applicant will provide a description of the stack sampling facilities including sampling ports, work platforms, means of access, and equipment support structures, if required by the Department. This information, if required, will be provided after plant construction, but prior to initial compliance testing.

3. Rule Applicability Analysis

This section identifies state, federal, and local air pollution control rules applicable to the facility and to the emissions units, based on the nature, location, design capacity, operating schedule, emissions, and other relevant information. This section also provides a detailed analysis of how the various provisions of Chapter 62-212, F.A.C. (Stationary Sources – Preconstruction Review), apply on a pollutant-by-pollutant basis, including general preconstruction review requirements, and prevention of significant deterioration (PSD) review. The facility is located in an area designated as attainment for criteria air pollutants, therefore nonattainment area (NAA) new source review does not apply. The project does not include a netting analysis to avoid PSD or NAA review for one or more pollutants.

If any exemptions or special provisions of Chapter 62-212, F.A.C. apply, this section provides all information necessary for the department to verify applicability of each such exemption or special provision.

The project does not involve relaxation of a federally enforceable limitation on the pollutant emitting capacity of the facility, and does not trigger retroactive application of PSD or NAA new source review.

3.1 Applicable Federal Requirements

The facility will be subject to applicable provisions of three New Source Performance Standards (NSPS) and applicable provisions of one National Emission Standards for Hazardous Air Pollutants (NESHAP).

<u>New Source Performance Standards (NSPS)</u>

Subpart F: Standards of Performance for Portland Cement Plants (40CFR60.60)

- Superseded by NESHAP Subpart LLL

Subpart Y: Standards of Performance for Coal Preparation Plants (40CFR60.250)

- For coal handling and coal mills

Subpart OOO: Standards of Performance for Nonmetallic Mineral Processing Plants (40CFR60.670)

- For raw material processing prior to raw material storage

<u>National Emission Standards for Hazardous Air Pollutants (NESHAP)</u>

NESHAP Subpart LLL*: Standards of Performance for Portland Cement Plants (40CFR63.1340)

- Subject as a Greenfield major source

*NOTE: The facility is presumed major for HAPS.

3.2 Rule 62-212.300 – General Preconstruction Review

This section discusses the requirements of Rule 62-212.300. This rule applies to the proposed construction of the emissions units described in the application for an air construction permit, pursuant to Rule 62-210.300(1), F.A.C.

3.2.1 Rule 62-212.300(1) – General Prohibitions

(a) Air Construction Permit Required

No emissions unit or facility subject to this rule will be constructed or modified without obtaining an air construction permit from the Department in accordance with the requirements of Rule 62-212.300(3), F.A.C. This report accompanies an application for an air construction permit.

(b) Ambient Air Quality Standards

The proposed construction of the emissions units at the facility will not cause or contribute to a violation of any ambient air quality standard. The ambient impact analysis section of this report provides all required documentation. The facility is not located in a nonattainment area or area of influence.

(c) Baseline Areas

The construction of the emissions units at the facility will not cause or contribute to an ambient concentration at any point within a baseline area that exceeds either the appropriate baseline concentration for the point plus the appropriate maximum allowable increase or the appropriate ambient air quality standard, whichever is less.

For this project the baseline area is the PSD Class II area, and the maximum allowable increases are the PSD Class II increments. The ambient impact analysis section of this report provides all required documentation.

3.2.2 Rule 62-212.300(2) – Applicability

(a) Relationship of General Preconstruction Review Requirements to Other Preconstruction Review Requirements

The requirements of Rule 62-212.300, F.A.C., apply to the proposed project in addition to other preconstruction review requirements under Rules 62-204.800(8) [NSPS] and (10) [NESHAP], as described above.

Rule 62-212.400 also applies, and compliance with the requirements is detailed below. Rules 62-212.500 and 62-212.600, F.A.C. are not applicable to the proposed project.

(b) Pollutants Subject to General Preconstruction Review

The pollutants subject to the general preconstruction review requirements of this rule are those pollutants not subject to preconstruction review under Rule 62-204.800 or 62-212.400, F.A.C.

The pollutants subject to Rule 62-204.800, F.A.C. (NSPS & NESHAPS) include PM, PM_{10}, opacity, dioxin/furan, and THC. The pollutants subject to Rule 62-212.400, F.A.C. (PSD) include PM, PM_{10}, SO_2, NOx, CO, and Ozone (VOC),

The pollutants subject to general preconstruction review include the following:

- Sulfuric acid mist
- Fluorides
- Lead
- Mercury
- Any single HAP
- Total HAP

3.2.3 Rule 62-212.300(3) – Permitting Requirements

(a) Required Information

In this report and accompanying application, the applicant for an air construction permit is providing the Department with the following information:

1. The nature and amounts of emissions from each emissions unit. This information is included in the application.

2. The location, design, construction, and operation of each emissions unit to the extent necessary to allow the Department to determine whether construction of the emissions unit would result in violations of any applicable provisions of Chapter 403, Florida Statutes, or Department air pollution rules, or whether the construction would interfere with the attainment and maintenance of any state or national ambient air quality standard. This information is included in the application and in this report.

(b) Information Required by 40 CFR 63.43(e)

This project does not include emissions units subject to 40 CFR 63.43(e), *Application Requirements for a Case-by-case MACT Determination.* This requirement is found at Rule 62-204.800**(11)**(d)2., F.A.C., not at Rule 62-204.800(10)(d)2., F.A.C.

NESHAP Subpart LLL is applicable, and obviates the need for a case-by-case determination.

3.3 Rule 62-212.400 – Prevention of Significant Deterioration

This section discusses the requirements of Rule 62-212.400(1)-(6). Rules 62-212.400(7), (8) and (9) do not contain substantive requirements for the applicant. The provisions of this rule generally apply to the construction of air pollutant emitting facilities in those parts of the state in which the state ambient air quality standards are being met. The provisions of this rule also establish various requirements for existing emissions units and facilities in such areas, including specific construction/operation permit requirements.

3.3.1 Rule 62-212.400(1) – General Prohibitions

(a) Ambient Air Quality Standards

The proposed construction of the emissions units at the facility will not cause or contribute to a violation of any ambient air quality standard. The ambient impact analysis section of this report provides all required documentation. The facility is not located in a nonattainment area or area of influence.

(b) Baseline Areas

The construction of the emissions units at the facility will not cause or contribute to an ambient concentration at any point within a baseline area that exceeds either the appropriate baseline concentration for the point plus the appropriate maximum allowable increase or the appropriate ambient air quality standard, whichever is less.

3.3.2 Rule 62-212.400(2) – Applicability

This section establishes that the proposed project is subject to the PSD preconstruction review requirements of this rule.

(a) Facility and Project Exemptions

As detailed below, the proposed project does not qualify for any of the exemptions of Rule 62-212.400(2)(a), F.A.C.

The modified facility will not be a nonprofit health or nonprofit educational institution. The proposed project is not being added, replaced, or used at an existing electric utility steam generating unit. The proposed project is not being undertaken for the purpose of complying with the hazardous air pollutant emission reduction requirements of 40 CFR Part 63, Subpart S, adopted and incorporated by reference at Rule 62-204.800, F.A.C. The proposed project is not being undertaken for the purpose of complying with the non-methane organic compound emission reduction requirements of 40 CFR Part 60, Subpart Cc or WWW, adopted and incorporated by reference at Rule 62-204.800, F.A.C. The proposed project is not the installation, operation, cessation, or removal of a temporary clean coal technology demonstration project that meets the requirements of 40 CFR 52.21(b)(2)(iii)(i), adopted and incorporated by reference at Rule 62-204.800, F.A.C. The proposed project is not the installation or operation of a permanent clean coal technology demonstration project that constitutes repowering. The proposed project is not the reactivation of a very clean-coal fired electric utility steam generating unit, as defined under 40 CFR 52.21(b)(38), adopted and incorporated by reference at Rule 62-204.800, F.A.C.

(b) Fugitive Emissions Exemption

As detailed below, the proposed project does not qualify for the exemption of Rule 62-212.400(2)(b), F.A.C.

The facility belongs to one of the facility categories listed in Table 212.400-1, Major Facility Categories (Portland Cement Plants), as shown in the following table.

TABLE 2 – MAJOR FACILITY CATEGORIES (LIST OF 28)

Fossil fuel fired steam electric plants of more than 250 million Btu/hr heat input
Coal cleaning plants (with thermal dryers)
Kraft pulp mills
PORTLAND CEMENT PLANTS
Primary zinc smelters
Iron and steel mill plants
Primary aluminum ore reduction plants
Primary copper smelters
Municipal incinerators capable of charging more than 250 tons of refuse per day
Hydrofluoric acid plants
Sulfuric acid plants
Nitric acid plants
Petroleum refineries
Lime plants
Phosphate rock processing plants
Coke oven batteries
Sulfur recovery plants
Carbon black plants (furnace process)
Primary lead smelters
Fuel conversion plants
Sintering plants
Secondary metal production plants
Chemical process plants
Fossil fuel boilers (or combinations thereof) totaling more than 250 MMBtu/hr heat input
Petroleum storage and transfer units with total storage capacity exceeding 300,000 barrels
Taconite ore processing plants
Glass fiber processing plants
Charcoal production plants

Reference: Table 62-212.400-1, F.A.C.

(c) Alternative Fuel or Raw Material Exemption

As detailed below, the proposed project does not qualify for the exemption of Rule 62-212.400(2)(c), F.A.C.

The proposed project does not include the use of an alternative fuel or raw material by reason of any order under Sections 2(a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 or the Power Plant and Industrial Fuel Use Act of 1978, or by reason of a natural gas curtailment plan pursuant to the Federal Power Act. The proposed project does not include the use of an alternative fuel by reason of an order or rule under Section 125 of the Act. The proposed project is not at a steam generating unit using municipal solid waste as fuel. The proposed project does not include the use of an alternative fuel or raw material which the facility was capable of accommodating before January 6, 1975. The proposed project does not include the use of an alternative fuel or raw material which the facility is approved to use under any permit issued under 40 CFR 52.21 or Rule 17-2.500 (transferred) or 62-212.400, F.A.C.

(d) New and Modified Facilities

The facility is not a proposed new minor facility. The facility is a proposed new major facility. The proposed project is not a proposed modification to a minor facility, nor a proposed modification to a major facility. The proposed project is not exempted under Rule 62-212.400(2)(a), (b) or (c), F.A.C.

The proposed project constitutes a proposed new major facility, and is subject to the PSD preconstruction review requirements of Rule 62-212.400, F.A.C.. The project will result in a significant net emissions increase (as set forth in Rule 62-212.400(2)(e)2., F.A.C.) of certain pollutants regulated under the Act, as shown in the table below.

TABLE 3 – REGULATED AIR POLLUTANTS SIGNIFICANT EMISSION RATES

Pollutant	Significant Emission Rate (Tons/Year)	Project Emission Rate (Tons/Year)	
			PSD ?
Carbon monoxide	100	1971	YES
Nitrogen oxides	40	1068	YES
Sulfur dioxide	40	153	YES
Ozone	40 VOC	66 VOC	YES
Particulate matter	25	284	YES
PM_{10}	15	223	YES
Sulfuric acid mist	7	0.002	NO
Fluorides	3	0.5	NO
Lead	0.6	0.4	NO
Mercury	0.1	0.06	NO

Reference: Table 62-212.400-2, F.A.C.

The facility to be modified is not located within 10 kilometers of a Class I area. Ambient impacts to Class I areas are addressed in the ambient impact analysis of this report.

(e) Emissions Increases

The proposed project results in net emissions increases for pollutants regulated under the Act. No contemporaneous creditable decreases in actual emissions are requested for this project. Creditable increases from the project itself and increases in quantifiable fugitive emissions are greater than zero.

The proposed facility results in significant net emissions increases for certain pollutants regulated under the Act. The net emissions increases are greater than the applicable significant emission rate listed in Table 212.400-2, Regulated Air Pollutants – Significant Emission Rates, for the following pollutants:

- Carbon Monoxide
- Nitrogen Oxides
- Sulfur Dioxide
- Ozone (as VOC)
- Particulate Matter (total)
- Particulate Matter (<10 microns)

The date on which any increase in the actual emissions or in the quantifiable fugitive emissions of the facility occurs is the date on which the owner or operator of the facility begins, or projects to begin, operation of the emissions units resulting in the increase. No decreases in the actual emissions or in the quantifiable fugitive emissions of the facility are considered for this project.

(f) Pollutants Subject to PSD Preconstruction Review

The preconstruction review requirements of Rule 62-212.400, F.A.C. apply to all pollutants regulated under the Act for which the sum of the potential emissions and the quantifiable fugitive emissions of the facility would be equal to or greater than the significant emission rates listed in Table 212.400-2, Regulated Air Pollutants – Significant Emission Rates, as shown in the preceding section.

The facility is not located within 10 kilometers of a Class I area. The facility is not located in an area designated as nonattainment for any pollutant other than ozone under Rule 62-204.340, F.A.C. The facility is not located in an ozone nonattainment area.

(g) Relaxations of Restrictions on Pollutant Emitting Capacity

The proposed project is not subject to the preconstruction review requirements of this rule solely by virtue of a relaxation in any federally enforceable limitation on the capacity of the facility to emit a pollutant (such as a restriction on hours of operation).

3.3.3 Rule 62-212.400(3) – Limited Exemptions and Special Provisions

The provisions of Rule 62-212.400(3), F.A.C. establish exemptions and exclusions from certain of the General Provisions of Rule 62-212.400(4), F.A.C., and PSD Review Requirements of Rule 62-212.400(5), F.A.C.

(a) Relocatable Facilities

The proposed facility is not a relocatable facility.

(b) Voluntary Fuel Conversions (Reserved)

(c) Temporary Emissions

No temporary emissions exemptions are being claimed.

(d) Modifications Under Fifty Tons Per Year

The facility (cement plant) was not in existence on March 1, 1978.

(e) General Ambient Monitoring Exemption

The general ambient monitoring exemption is discussed in the ambient impact analysis section of this report.

(f) Temporary Exclusions From Increment Consumption

Concentrations of particulate matter attributable to the increase in emissions from construction or other temporary emission-related activities of new or modified facilities shall be excluded in determining compliance with any maximum allowable increase.

By an Order issued by the Secretary, the following ambient concentrations shall be excluded in determining compliance with any maximum allowable increase, provided the addition of such concentrations shall not cause or contribute to a violation of any ambient air quality standard. No exclusion of such concentrations shall apply more than five years after the effective date of the latest applicable plan or order as set forth in Rule 62-212.400(3)(f)2.a. or b., F.A.C.

- The facility has not converted from the use of petroleum products, natural gas, or both by reason of an order in effect under Sections 2(a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 or the Power Plant and Industrial Fuel Use Act of 1978.
- The facility has not converted from using natural gas by reason of a natural gas curtailment plan in effect pursuant to the Federal Power Act.

The facility is not affected by SIP revisions approved by the Administrator.

By an Order issued by the Secretary, concentrations attributable to any federally enforceable interim allowable emissions resulting from the use of innovative control technology that are in excess of the final allowable emissions based on the application of BACT, shall be excluded in determining compliance with any maximum allowable increase, provided such Order shall:

a. Specify the time period over which the interim allowable emissions would occur (such time period shall not exceed four years, however such Order may be renewed for a period not to exceed an additional three years if the innovative control technology fails and the additional time period is needed to apply BACT through a demonstrated system of control).
b. Allow no emissions that would:
    (i) Have a significant impact on any Class I area or area where an applicable maximum allowable increase is known to be violated; or
    (ii) Cause or contribute to a violation of any ambient air quality standard.
c. Require limitations to be in effect by the end of the time period specified in Rule 62-212.400(3)(f)4.a., F.A.C., above, which would ensure that the emission levels from the emissions units using the innovative control technology would not exceed those that are equivalent to the application of BACT.

(g) Permanent Exclusions From Increment Consumption

The increase in ambient concentrations attributable to new emissions units outside the United States over the concentrations attributable to emissions units which are included in the baseline emissions shall be excluded in determining compliance with any maximum allowable increase.

3.3.4 Rule 62-212.400(4) – General Provisions

(a) Facilities Affecting Class I Areas

The Department shall comply with the additional notification requirements of Rule 62-210.350(2)(h), FAC, for a proposed new facility that would be located within 100 kilometers of, or whose emissions may affect, any Federal Class I area.

The Federal Land Manager of any lands contained in a Class I area which may be affected by emissions from a proposed facility may demonstrate to the Department that the emissions from the proposed facility would have an adverse impact on the air quality-related values (including visibility) of the Federal Class I area, notwithstanding that the change in air quality resulting from emissions from such facility would not cause or contribute to concentrations which would exceed any maximum allowable increase for a Class I area.

If this demonstration is received by the Department within thirty (30) days after the Department has mailed or transmitted to the Federal Land Manager a complete application pursuant to Rule 62-210.350(2)(b), FAC, it shall be considered in the Department's preliminary determination and proposed agency action on the permit application. If this demonstration is received within the public comment period on the Department's proposed agency action, it shall be considered in the Department's final determination and final agency action on the permit application.

If the Department finds that the Federal Land Manager's analysis does not demonstrate to the Department's satisfaction that an adverse impact on the air quality related values (including visibility) of a Class I area would occur, a written explanation of the reasons for such finding shall be included in the Department's preliminary or final determination as provided in Rule 62-212.400(4)(a)2.b., FAC. If the Department is satisfied that the Federal Land Manager has demonstrated an adverse impact on the air quality related values (including visibility) of a Class I area, the Department shall not issue the permit.

(b) Baseline Related Provisions

The establishment of a minor source baseline date for a pollutant establishes the baseline area for that pollutant based on the designations of individual prevention of significant deterioration (PSD) areas under Rule 62-204.360, F.A.C. The boundary of the baseline area may be changed only by redesignating the boundaries of the affected PSD areas in accordance with the redesignation provisions of Rule 62-204.320, F.A.C. The minor source baseline date for an area may be disestablished or changed as the result of such redesignation of PSD areas.

The establishment of a baseline area requires the determination of the baseline emissions that affect the baseline area. The baseline emissions are determined for each pollutant for which maximum allowable increases are established under Rule 62-204.260, F.A.C., and are used to compute the baseline concentration levels for each point within the baseline area. The baseline concentration is the ambient concentration value to which the applicable maximum allowable increase is added to determine the maximum allowable ambient concentration for each point within the area.

(c) Ambient Monitoring Quality Assurance Requirements

If ambient monitoring is required, the applicant for the proposed facility will meet the requirements of 40 CFR Part 58, Appendix B, during the operation of ambient air quality monitoring stations required pursuant to the provisions of Rule 62-212.400(5)(f) or (g), F.A.C.

3.3.5 Rule 62-212.400(5) – Preconstruction Review Requirements

(a) General

The proposed project subject to the preconstruction review requirements of this subsection shall be reviewed and permitted in accordance with the provisions of Rules 62-212.400(5)(b) through (h), F.A.C., below, unless specifically exempted from one or more of those requirements pursuant to Rule 62-212.400(3), F.A.C., Exemptions and Exclusions.

The applicant will not begin construction prior to obtaining a permit to construct in accordance with all applicable provisions of this rule and Rule 62-210.300, F.A.C.

(b) Technology Review

The proposed facility will comply with all applicable emission limitations.

(c) Best Available Control Technology

The proposed facility will apply Best Available Control Technology (BACT) for each pollutant subject to preconstruction review requirements as set forth in Rule 62-212.400(2)(f), F.A.C.

(d) Ambient Impact Analysis

The owner or operator of the proposed facility is demonstrating to the Department that the increase in federally enforceable allowable emissions from the proposed facility, together with all other applicable increases and decreases in emissions resulting from the construction (including secondary emissions), will not cause or contribute to a violation of any ambient air quality standard or maximum allowable increase.

(e) Additional Impact Analyses

The owner or operator of the proposed facility is providing the Department with the required additional impact analyses. The analyses were carried out using EPA-approved methods, if available. These requirements are addressed in the additional impact analyses section of this report.

(f) Preconstruction Air Quality Monitoring and Analysis

This requirement is addressed in the ambient impact analysis section of this report.

(g) Postconstruction Monitoring

The applicant is requesting that the Department waive the discretionary requirement for postconstruction air quality monitoring.

(h) Permit Application Information Required

The applicant is submitting this report and a completed application form to the Department. These documents provide the following information to the Department:

1. A description of the nature, location, design capacity and typical operating schedule of the facility, including specifications and drawings showing its design and plant layout;

2. A detailed schedule for construction;

3. A detailed description of the system of continuous emissions reduction proposed as BACT, emissions estimates and any other information as necessary to determine that BACT would be applied;

4. Information relating to the air quality impact of the facility, including meteorological and topographical data necessary to estimate such impact;

5. Information relating to the air quality impacts of, and the nature and extent of, all general commercial, residential, industrial and other growth which has occurred since August 7, 1977, in the area the facility would affect; and

6. A good-engineering-practice stack height, or other dispersion techniques, analysis to demonstrate compliance with Rule 62-210.550, FAC.

Project Description

The application and this report provide a description of the nature, location, design capacity and typical operating schedule of the facility, including general specifications and drawings showing proposed plant layout.

Construction Schedule

This section of the report provides a detailed schedule for construction of the facility. For the purposes of this report, the construction schedule assumes the construction permit will be issued prior to January 2006. The applicant requests that the air construction permit be issued for 5 years, to allow for any unanticipated delays.

January 2006:
- Contractor selection
- Plans and specifications

July 2006:
- Contractor mobilization

January 2007:
- Site work and foundations

July 2007:
- Major equipment delivery and erection

January 2008:
- Component tie-in
- Conveyors

July 2008:
- Control and instrumentation setup

January 2009:
- Fuel and raw material delivery
- Trial run
- Equipment check
- Plant start-up

BACT Proposal

The BACT section of this report provides a detailed description of the system of continuous emissions reduction proposed as BACT, and includes emissions estimates and any other information as necessary to determine that BACT would be applied to the facility.

Ambient Impact Analysis

The ambient impact analysis section of this report provides information relating to the air quality impact of the facility, including meteorological and topographical data necessary to estimate such impact.

Growth since 1977

This section of the report provides information relating to the air quality impacts of, and the nature and extent of, all general commercial, residential, industrial and other growth which has occurred since August 7, 1977, in the area the facility would affect.

For the purposes of this report, the area the facility will affect is defined as the area of significant impact. For conservatism, the area of significant impact is based on high-first-high concentrations. The largest area of significant impact is for PM_{10}, 24-hour average, and is a 3-kilometer radius. This specific area is sparsely populated, and generally supports agricultural land uses.

Sumter County has experienced steady growth in most areas since 1977. The population was 22,324 in 1977 and was forecasted to be 65,522 in 2005. Total housing units increased from 11,083 in 1980 to 25,812 forecasted for 2005. Employment increased in the civilian labor force from 7,683 in 1977 to 19,228 forecasted for 2005. Manufacturing establishments increased from 11 in 1977 to 26 in 2002, while retail trade establishments decreased from 192 in 1977 to 121 in 2002.

The air impacts from this growth are addressed with the background air quality concentrations, when comparing with the ambient air quality standards.

Good Engineering Practice Stack Height

Good engineering practice stack height is addressed in the ambient impact analysis section of this report.

3.3.6 Rule 62-212.400(6) – Best Available Control Technology

(a) BACT Determination

Following receipt of a complete application for a permit to construct an emissions unit or facility which requires a determination of Best Available Control Technology (BACT), the Department shall make a determination of Best Available Control Technology during the permitting process.

(b) Phased Construction Projects

For phased construction projects, the determination of BACT shall be reviewed and modified in accordance with 40 CFR 51.166(j)(4), adopted and incorporated by reference in Rule 62-204.800, F.A.C. The proposed facility is not presented as a phased construction project.

(c) Use of Innovative Control Technology

With the consent of the Governor(s) of other affected state(s), the Department shall approve, through the permitting process, the use of a system of innovative control technology if the proposed system would comply with the requirements of 40 CFR 51.166(s)(2)(i) through (v).

(d) Test Methods and Procedures

All emissions tests performed pursuant to the requirements of this rule will comply with the following requirements.

Pollutants for Which a Standard has Been Established Pursuant to 40 CFR Part 60, 40 CFR Part 61, or 40 CFR Part 63

The test methods shall be as specified in 40 CFR Part 60, Appendix A, 40 CFR Part 61, Appendix B, or 40 CFR Part 63, Appendix B, adopted and incorporated by reference in Rule 62-204.800(7), (8), (9), F.A.C.

Pollutants for Which No Standard has Been Established Pursuant to 40 CFR 60, 40 CFR 61, or 40 CFR 63

The test methods shall be as specified in the BACT determination.

4. Ambient Impact Analysis

The proposed project is subject to PSD review, and this section of the report provides a demonstration in accordance with the provisions of Rule 62-212.400(5)(d), F.A.C., that the increase in emissions from the proposed facility, together with all other increases and decreases in emissions resulting from the construction (including secondary emissions), will not cause or contribute to a violation of any ambient air quality standard or maximum allowable increase

(PSD increment). The project submittal includes all input and output files necessary for the department to verify proper application of the air quality models used for ambient impact analysis.

The EPA and the State of Florida have adopted ambient air quality standards (AAQS). Primary AAQS protect the public health while secondary AAQS protect the public welfare from adverse effects of air pollution. Areas of the country have been designated as attainment or nonattainment for specific pollutants. Areas not meeting the AAQS for a given pollutant are designated as nonattainment areas for that pollutant. Any new source or expansion of existing sources in or near these nonattainment areas are subject to more stringent air permitting requirements. Projects proposed in attainment areas are subject to air permit requirements that would ensure continued attainment status.

In promulgating the 1977 CAA Amendments, Congress quantified concentration increases above an air quality baseline for sulfur dioxide and particulate matter that would constitute significant deterioration. The size of the allowable increment depends on the classification of the area in which the source would be located or have an impact. Class I areas include specific national parks, wilderness areas and memorial parks. Class II areas are all areas not designated as Class I areas and Class III areas are industrial areas in which greater deterioration than Class II areas would be allowed. There are no Class III areas in Florida.

In 1988, EPA promulgated PSD regulations for nitrogen oxides and PSD increments for nitrogen dioxide concentrations. FDEP adopted the nitrogen dioxide increments in July 1990.

A source impact analysis is required for the proposed facility for each pollutant for which the increase in emissions exceeds the significant net emissions increase. Specific atmospheric dispersion models are required in performing the impact analysis. The analysis demonstrates the project's compliance with AAQS and allowable PSD increments. The modeling demonstrated compliance with all applicable standards, including Ambient Air Quality Standards (AAQS), PSD Class II increments, and PSD Class I increments.

4.1 Applicable Pollutants

The PSD air quality evaluation for the proposed major facility addresses the pollutants for which the allowable yearly emissions exceed any of the designated significant net emission increases. The proposed facility results in significant net emissions increases for certain pollutants regulated under the Act. The net emissions increases are greater than the applicable significant emission rate listed in Table 212.400-2, Regulated Air Pollutants – Significant Emission Rates, for the following pollutants:

- Carbon Monoxide
- Nitrogen Oxides
- Sulfur Dioxide
- Ozone (as VOC)
- Particulate Matter (total)
- Particulate Matter (<10 microns)

Both the applicable National Ambient Air Quality Standards (NAAQS) and the PSD increments are subject to air quality analyses in this PSD review. The following table lists the applicable ambient standards and increments, as relevant to this project.

TABLE 4 – PSD INCREMENTS AND NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS)

Expressed in $\mu g/m^3$

Pollutant	Averaging Period	Primary NAAQS	Secondary NAAQS	PSD Class II Increment	State Ambient Standard	PSD Class I Increment
SO_2	3-Hour	None	1300	512	1300	25
	24-Hour	365	None	91	260	5
	Annual	80	None	20	60	2
PM_{10}	24-Hour	150	150	30	150	8
	Annual	50	50	17	50	4
NO_2	Annual	100	100	25	None	2.5
CO	1-Hour	40,000	40,000	None	40,000	None
	8-Hour	10,000	10,000	None	10,000	None
O_3	1-Hour	235	235	None	None	None
	8-Hour	157	157	None	None	None
	Daily	None	None	None	235	None

4.2 Source Information

The PSD Air Quality analysis includes source information. A map showing the location of the source under review is provided. A scaled map of the facility clearly delineating the locations of all sources modeled, all buildings considered in the downwash analysis, and plant property boundaries is provided. Building sizes and shapes on the map are drawn to scale.

Rural dispersion coefficients were used in the modeling, as the surrounding area can be classified as rural. The modeling input files identify all baseline and increment sources used in the modeling, including all applicable stack parameters (UTM coordinate locations, emission rate, height, exit velocity, exit temperature and inner diameter) and volume source parameters (emission rate, center coordinates, height, horizontal and vertical dimensions).

4.2.1 Good Engineering Practice (GEP) Review

A GEP review was conducted for each proposed new source to determine if building downwash effects needed to be included in the modeling and to determine the appropriate stack heights to be used with the models. Listed below are the steps conducted in performing this review.

The dimensions (length, width, height) of all structures at the facility were acquired. Tiered structures, if any, were considered as separate buildings. A scaled plant diagram showing the location of each structure and stack is included in this submittal. EPA has developed a program called Building Profile Input Program (BPIP) that was used to generate direction-specific building dimensions.

In accordance with Chapter 62-210, FAC, the degree of emission limitation required for control of any pollutant is not to be affected by a stack height that exceeds GEP, or any other dispersion technique. The criteria for good engineering practice stack height in FAC Rule 62-210.550 states that the height of a stack should not exceed:

- 65 meters (m), or
- A height established by applying the formula:

$$H_g = H + 1.5\ L$$

where:

H_g	=	GEP stack height,
H	=	Height of the structure or nearby structure, and
L	=	Lesser dimension, height or projected width of nearby structure

The GEP stack height regulations require that the stack height used in modeling for determining compliance with AAQS and PSD increments not exceed the GEP stack height. The actual stack height may be higher or lower. This stack height policy is designed to prevent achieving ambient air quality goals solely through the use of excessive stack heights and air dispersion.

The nearby structure for the proposed facility's main stack is the preheater tower. The main stack height will be 300 feet (91.4 meters).

Preheater tower height = 262.5 feet (80 meters)
Preheater tower width = 68.9 feet (21 meters)

Therefore, GEP stack height is described by

Hg = H + 1.5L, or Hg = 80 + 33 = 111.5 meters.

The proposed stack height is less than the GEP stack height and was used for air quality modeling.

GEP stack height was also determined by the BPIP building downwash model. The following table shows that all stacks for the proposed facility are less than GEP stack height, and the proposed stack heights were used in air quality modeling.

TABLE 5 – GEP STACK HEIGHT RESULTS TABLE

(Output Units: meters)

PRELIMINARY* GEP STACK HEIGHT RESULTS TABLE

(Output Units: meters)

Stack Name	Stack Height	Stack-Building Base Elevation Differences	GEP** EQN1	Preliminary* GEP Stack Height Value
BAG	30.50	0.00	142.50	142.50
BIN	30.50	0.00	142.50	142.50
BLEND1	76.20	0.00	142.50	142.50
BLEND2	15.20	0.00	142.50	142.50
BLEND3	15.20	0.00	142.50	142.50
CEMENT1	61.00	0.00	142.50	142.50
CEMENT2	61.00	0.00	142.50	142.50
CEMENT3	7.60	0.00	142.50	142.50
CLINKER1	12.20	0.00	142.50	142.50
CLINKER2	61.00	0.00	142.50	142.50
CLINKER3	6.10	0.00	142.50	142.50
CLINKER4	15.20	0.00	142.50	142.50
CLINKER5	61.00	0.00	142.50	142.50
CLINKER6	61.00	0.00	142.50	142.50
COAL1	61.00	0.00	142.50	142.50
COAL2	24.40	0.00	142.50	142.50
COOLER	61.00	0.00	142.50	142.50
KILN	91.40	0.00	142.50	142.50
MILL1	36.60	0.00	142.50	142.50
MILL2	12.20	0.00	130.88	130.88
MILL3	36.60	0.00	142.50	142.50
RAW1	6.10	0.00	142.50	142.50
RAW2	45.70	0.00	142.50	142.50
RAW3	48.80	0.00	142.50	142.50
RAW4	27.40	0.00	142.50	142.50

4.3 Meteorological Data

Five years of representative meteorological data was used for the modeling. For the ISC modeling, surface data from Orlando, Florida was used with upper air data from Tampa, Florida for the period 1987-1991. For CALPUFF modeling, SAMSON surface and upper air data from Tampa were used for the period 1986-1990.

4.4 Modeling Methodology

4.4.1 Applicable Models

The air quality models used are those listed in the "Guideline on Air Quality Models", 40 CFR Part 51 Appendix W. All air quality analyses were performed using the current available versions of EPA guideline models. For ISC, version 02035 was used. For CALPUFF, version 5.724 was used.

4.4.2 Significant Impact Area Determination Modeling

a. Significant Impact Area

Determination of the Significant Impact Area (SIA) was based on modeling of the proposed major facility only. New sources were modeled at their future maximum allowable emission rate. SIA determination modeling was performed with the ISCST3 model in default mode with five years of representative meteorological data. Building downwash was also included.

Receptor elevations were not considered in the modeling because the terrain in the modeling domain is mostly flat to gently rolling. The mixed Cartesian/polar grid used with this modeling shows the distance to where highest (high-first-high) short term and long term ambient concentrations fall below the appropriate significance levels. For this report, this distance is called the critical distance. The SIA is defined as a circular area centered on the proposed source with a radius equal to the critical distance. The SIA was established for every averaging period of every applicable pollutant for every year of meteorological data. The SIA, for each applicable pollutant, over which NAAQS and increment compliance modeling is performed, is the largest of these areas.

Modeling to determine significance was conducted using facility fenceline receptors with 100-meter spacing, discrete receptors on a polar grid with 250-meter spacing from 250 meters to 1 kilometer, radial rings using 10° spacing from 1250 meters to 3 kilometers at 250-meter intervals, and radial rings using 10° spacing from 3 kilometers to 10 kilometers at 1-kilometer intervals.

Where predicted concentrations are below the significance levels for a given pollutant, no further modeling is required for that pollutant. The following table shows the significance levels in the Class II area.

TABLE 6 – SIGNIFICANT AMBIENT AIR QUALITY IMPACTS FOR CLASS II AREAS

Pollutant	Annual	24-Hour	8-Hour	3-Hour	1-Hour
SO_2	1 $\mu g/m^3$	5 $\mu g/m^3$	--	25 $\mu g/m^3$	--
PM_{10}	1 $\mu g/m^3$	5 $\mu g/m^3$	--	--	--
NO_2	1 $\mu g/m^3$	--	--	--	--
CO	--	--	500 $\mu g/m^3$	--	2000 $\mu g/m^3$

The following table shows the SIA for each year and averaging period for each pollutant.

TABLE 7 – EVALUATION OF SIGNIFICANT IMPACTS FOR CLASS II AREAS

		1989	1990	1991	1992	1993
SO_2	Annual	Less than significant: Maximum impact = 0.11764 $\mu g/m^3$ [1991]				
	24-Hour	Less than significant: Maximum impact = 1.59709 $\mu g/m^3$ [1991]				
	3-Hour	Less than significant: Maximum impact = 6.63637 $\mu g/m^3$ [1989]				
PM_{10}	Annual	1.5 km	1.5 km	1.5 km	1.5 km	1.5 km
	24-Hour	3 km	3 km	3 km	3 km	3 km
NO_2	Annual	Less than significant: Maximum impact = 0.81920 $\mu g/m^3$ [1991]				
CO	8-Hour	Less than significant: Maximum impact = 30.27025 $\mu g/m^3$ [1990]				
	1-Hour	Less than significant: Maximum impact = 60.64861 $\mu g/m^3$ [1991]				

Sulfur dioxide, nitrogen dioxide and carbon monoxide were determined to have less than significant impacts in the Class II area. This demonstrates compliance with ambient air quality standards and PSD increments for these pollutants. No further dispersion modeling was performed for these pollutants in the Class II area.

The ambient air concentrations of PM_{10} for all periods were below the Class II significance levels within a 3-kilometer radius of the facility. Refined dispersion modeling was conducted for PM_{10} to demonstrate compliance with the PSD increments and the AAQS.

4.4.3 Preconstruction Monitoring

The initial SIA determination modeling analysis also addresses preconstruction monitoring requirements for proposed sources whose predicted ambient impact exceeds any of the de minimis monitoring concentrations specified below. The required steps for addressing preconstruction monitoring are outlined below:

Only the major new sources were modeled and computed concentrations were compared against the de minimis monitoring levels. The sources included in this modeling were the same as those included in the SIA determination modeling. Where these levels are not exceeded, monitoring is not required. Representative ambient monitoring data is available, which may exempt the applicant from preconstruction monitoring.

The proposed facility is exempt from the monitoring requirements of Rule 62-212.400(5)(f) and (g), F.A.C., for ozone because less than 100 TPY of VOC is proposed; and for lead, fluorides, mercury, and hydrogen sulfide because these pollutants are not subject to PSD review.

The proposed facility is exempt from the monitoring requirements of Rule 62-212.400(5)(f) and (g), F.A.C., for nitrogen dioxide, sulfur dioxide, and carbon monoxide because the net emissions increases of these pollutants from the facility would not have an impact on any area equal to or greater than that listed in the following table.

TABLE 8 – DE MINIMIS AMBIENT IMPACTS

Pollutant	Averaging Period	Concentration ($\mu g/m^3$)	Modeled Concentration ($\mu g/m^3$)
Nitrogen dioxide	Annual	14	0.81920 $\mu g/m^3$ [1991]
Sulfur dioxide	24-hour	13	1.59709 $\mu g/m^3$ [1991]
PM_{10}	24-hour	10	28.98984 [1991]
Carbon monoxide	8-hour	575	30.27025 $\mu g/m^3$ [1990]
Ozone	Not Applicable – Less Than 100 tons/year VOC		
Lead	Quarterly	0.1	Not Subject to PSD Review
Fluorides	24-hour	0.25	
Mercury	24-hour	0.25	
Hydrogen sulfide	1-hour	0.2	

Reference: Table 62-212.400-3, F.A.C.

The ambient concentrations resulting from the emissions of PM_{10} are greater than the de minimis levels. The Department operates PM_{10} monitors in nearby Lake County. The Department has waived the requirement for ambient monitoring for PM_{10} at similar PSD facilities.

The applicant for the proposed facility is requesting that the Department waive the requirement for analyses of ambient air quality as set forth in Rule 62-212.400(2)(f), F.A.C. This report provides an analysis of existing ambient air quality in the area of the proposed project for PM_{10}.

4.4.4 Background Concentrations

An estimate of background concentrations for this pollutant is necessary for determining compliance with ambient air quality standards. Background concentrations of PM_{10} were estimated from the Department's Quick Look reports of existing air monitoring data considered representative of the project area. These background concentrations account for unpermitted sources, mobile sources, and other background concentrations. The background concentrations were added to the modeled concentrations to evaluate compliance with the AAQS. These concentrations are shown in the following table.

TABLE 9 – PM_{10} MONITOR DATA FOR BACKGROUND CONCENTRATIONS

YEAR	MONITOR LOCATION	Concentration (μg/m³) 1st High		Arithmetic Mean
1999	Lake, SR 19, Ocala National Forest	63		19
2000	Lake, SR 19, Ocala National Forest	60		20
2001	Lake, SR 19, Ocala National Forest	62		18
2002	Lake, SR 19, Ocala National Forest	54		16
2003	Lake, SR 19, Ocala National Forest	42		17
	24-hour maximum =	**63**	Annual maximum =	**20**

Reference: FDEP QUICK LOOK Reports

4.4.5 20-D Inventory

An inventory was obtained from the Department's Bureau of Information Systems of all permitted air emission sources within the following counties:

- Citrus
- Hernando
- Hillsborough
- Lake
- Levy
- Marion
- Orange
- Osceola
- Pasco
- Polk
- Seminole
- Sumter
- Volusia

This master inventory included all permitted PM and PM_{10} sources in a 79-kilometer radius from the proposed facility. The modeling inventory for compliance with PSD increments and AAQS were developed from the master inventory. The master inventory, the 20-D inventory, and supporting spreadsheets are included with this application.

One inventory was developed – the 20-D inventory for use in the Class II area to demonstrate compliance with the AAQS and the PSD Class II area increments. The 20-D analysis includes two tasks: the total emissions of a given pollutant from a given facility were calculated in tons per year and the distance between the cement plant and the inventory facility was calculated in kilometers (D). The distance was multiplied by 20, and this value was compared to the facility's emissions in tons per year. Any facility where the 20-D value was greater than the emission value was assumed to have a negligible effect on the ambient air concentrations of the given pollutant at the proposed cement plant. It is conservative to use the 20-D inventory to demonstrate compliance with the PSD Class II increments.

The 20-D inventory is provided in the following table.

TABLE 10 – PM_{10} 20-D INVENTORY (FACILITIES)

FACILITY ID	OWNER/COMPANY NAME	SITE NAME	ZONE	NORTH (km)	EAST (km)	Allowable Topy	Distance (km)	20-D	Model?
0170004	PROGRESS ENERGY FLORIDA, INC.	CRYSTAL RIVER POWER PLANT	17	3204.5	334.3	**12606**	**82**	1633	YES
0570039	TAMPA ELECTRIC COMPANY	BIG BEND STATION	17	3074.9	363.2	**7598**	**96**	1930	YES
0970014	PROGRESS ENERGY FLORIDA, INC.	INTERCESSION CITY PLANT	17	3126	446.3	**1262**	**56**	1112	YES
1010017	PROGRESS ENERGY FLORIDA, INC.	ANCLOTE POWER PLANT	17	3120.7	327.4	**5490**	**87**	1746	YES
1050004	LAKELAND ELECTRIC	C.D. MCINTOSH, JR. POWER PLANT	17	3106.2	409	**2780**	**56**	1125	YES
1050034	MOSAIC PHOSPHATES COMPANY (CFMO)	CENTRAL FLORIDA MINERAL OPERATIONS	17	3075.7	398.2	**1798**	**87**	1735	YES

TABLE 11 – PM_{10} 20-D INVENTORY (EMISSIONS UNITS)

FACILITY ID	EU ID	EU DESCRIPTION	TPY	ID
0170004	1	Fossil Fuel Steam Generator Unit 1 (Phase II Acid Rain Unit)	2053	INV1
0170004	2	Fossil Fuel Steam Generator Unit 2 (Phase II Acid Rain Unit)	2625	INV2
0170004	3	Fossil Fuel Steam Generator-5 (Phase I & II Acid Rain Unit)	2919	INV3
0170004	4	Fossil Fuel Steam Generator-4 (Phase I & II Acid Rain Unit)	2919	INV4
0170004	6	Fly Ash Transfer From FFSG Unit 1	15.4	INV5
0170004	8	Fly Ash Storage Silo for FFSG Units 1 & 2	2.6	INV6
0170004	9	Fly Ash Transfer From (source 4) FFSG Unit 2	9.6	INV7
0170004	10	Fly Ash Transfer From (source 5) FFSG Unit 2	9.6	INV8
0170004	13	Cooling Towers for FFSG Units 1,2 and Nuclear unit 3	463	INV9
0170004	14	Bottom Ash Storage Silo for FFSG Units 1 & 2	57.1	INV10
0170004	15	Cooling Towers for FFSG Units 4 & 5	1533	INV11
0570039	1	Unit No. 1 Steam Generator (Phase II Acid Rain Unit)	1768	INV12
0570039	2	Unit No. 2 Steam Generator (Phase II Acid Rain Unit)	1750	INV13
0570039	3	Unit No. 3 Steam Generator (Phase II Acid Rain Unit)	1802	INV14
0570039	4	Unit No. 4 Steam Generator (Phase II Acid Rain Unit)	569	INV15
0570039	5	Combustion Turbine No. 2: oil fired, 78 MW	145	INV16
0570039	6	Combustion Turbine No. 3: oil fired, 78 MW	145	INV17
0570039	7	Combustion Turbine No. 1: oil fired, 18 MW	145	INV18
0570039	8	Fly Ash Silo No. 1 Baghouse	22.62	INV19
0570039	9	Fly Ash Silo No. 2 Baghouse	22.62	INV20
0570039	10	SOLID FUEL YARD	1212	INV21
0570039	11	Truck Limestone Unloading Receiving Hopper w/baghouse	3	INV22
0570039	13	LIMESTONE SILO B W/ 2 BAGHOUSES	0.2	INV23
0570039	14	Fly Ash Silo No. 3 Baghouse	1	INV24
0570039	15	UNIT 1 COAL BUNKER W/ROTO-CLONE	0.999	INV25
0570039	16	UNIT 2 COAL BUNKER W/ROTO-CLONE	0.99	INV26
0570039	17	UNIT 3 COAL BUNKER W/ROTO-CLONE	0.99	INV27
0570039	20	Drops from limestone conveyors LE, LF, LG & silo C feeder	4.7	INV28
0570039	21	Silo C with one baghouse	0.6	INV29
0570039	22	Lime silo with BH for WWTP for chloride bleed stream	0.99	INV30
0570039	23	LIMESTONE HANDLING CONVEYORS LB,LC,LD,&LE; TWO BAGHOUSES	2.847	INV31

TABLE 11 -- PM_{10} 20-D Inventory (Emissions Units) - CONTINUED

FACILITY ID	EU ID	EU DESCRIPTION	TPY	ID
0970014	2	Combustion Turbine (CT) Peaking Unit 2	**183**	INV33
0970014	3	Combustion Turbine (CT) Peaking Unit 3	**183**	INV34
0970014	4	Combustion Turbine (CT) Peaking Unit 4	**183**	INV35
0970014	5	Combustion Turbine (CT) Peaking Unit 5	**183**	INV36
0970014	6	Combustion Turbine (CT) Peaking Unit 6	**183**	INV37
0970014	7	Combustion Turbine # 7	**25.425**	INV38
0970014	8	Combustion Turbine # 8	**25.425**	INV39
0970014	9	Combustion Turbine # 9	**25.425**	INV40
0970014	10	Combustion Turbine # 10	**25.425**	INV41
0970014	11	Combustion Turbine # 11	**28.82**	INV42
0970014	18	P-12: Simple cycle combustion turbine 91 MW, GE Frame 7EA	**11**	INV43
0970014	19	P-13: Simple cycle combustion turbine 91 MW, GE Frame 7EA	**11**	INV44
0970014	20	P-14: Simple cycle combustion turbine 91 MW, GE Frame 7EA	**11**	INV45
1010017	1	STEAM TURBINE GENERATOR ANCLOTE UNIT NO. 1	**2777**	INV46
1010017	2	STEAM TURBINE GENERATOR ANCLOTE UNIT NO. 2	**2713**	INV47
1050004	1	McIntosh Unit 1- FFFSG (Phase II Acid Rain Unit)	**416.1**	INV48
1050004	2	Diesel Engine Peaking Unit 2	**7.6**	INV49
1050004	3	Diesel Engine Peaking Unit 3	**7.6**	INV50
1050004	4	Gas Turbine Peaking Unit 1	**53.26**	INV51
1050004	5	McIntosh Unit 2 FFFSG (Phase II Acid Rain Unit)	**488**	INV52
1050004	6	McIntosh Unit 3 FFFSG (Phase II Acid Rain Unit)	**1196**	INV53
1050004	28	250 MW Combustion Turbine UNIT 5 (Phase II Acid Rain Unit)	**611**	INV54
1050034	2	RAYMOND MILLS 1 AND 2 GRINDERS W/SCRUBBERS @ KINGSFORD MINE	**146.74**	INV55
1050034	3	RAYMOND MILL NO 3 GRINDER W/SCRUBBER @ KINGSFORD MINE	**131.4**	INV56
1050034	4	PHOS RK DRYER W/SCRUBBER @ KINGSFORD MINE	**193.596**	INV57
1050034	5	PHOS ROCK TRANSFER AND STORAGE SILOS W/SCRUBBER @ KINGSFORD	**87.6**	INV58
1050034	6	UNGROUND PHOSPHATE ROCK RR CAR LOAD OUT @ KINGSFORD MINE	**87.6**	INV59
1050034	7	SODA ASH STORAGE & HANDLING @ FORT GREEN MINE	**84.1**	INV60
1050034	8	BOILER @ FOUR CORNERS MINE	**0.241**	INV61
1050034	9	MAGNETITE STORAGE BIN @ FOUR CORNERS MINE (009)	**0.6**	INV62
1050034	10	FERROSILICON STORAGE BIN @ FOUR CORNERS MINE	**0.6**	INV63
1050034	11	PHOSPHATE ROCK DRYER NO. 1 @ NORALYN MINE (011)	**184.8**	INV64

TABLE 11 -- PM_{10} 20-D Inventory (Emissions Units) - CONTINUED

FACILITY ID	EU ID	EU DESCRIPTION	TPY	ID
1050034	13	PHOSPHATE ROCK STORAGE SILOS 1, 2, 3, & 12 @ NORALYN MINE (0	153.3	INV66
1050034	15	BALL MILL TRANSFERS (C109) @ NORALYN MINE (015)	43.8	INV67
1050034	16	BALL MILL NO. 3 @ NORALYN MINE (016)	43.8	INV68
1050034	17	BALL MILL NO. 4 @ NORALYN MINE (017)	43.8	INV69
1050034	18	NO. 3 BALL MILL RAILCAR LOADOUTS @ NORALYN MINE (018)	43.8	INV70
1050034	19	NO. 4 BALL MILL RAILCAR LOADOUTS @ NORALYN MINE (019)	43.8	INV71
1050034	20	A TRACK RAILCAR PHOSPHATE ROCK LOADOUT SYSTEM @ NORALYN MINE	65.7	INV72
1050034	21	B TRACK RAILCAR PHOSPHATE ROCK LOADOUT SYSTEM @ NORALYN MINE	65.7	INV73
1050034	22	T7 & T8 (TRANSFER POINTS TO CONVEYORS C31 & C33) @ NORALYN (	43.8	INV74
1050034	23	MATERIAL TRANSFER SOURCES (C20 PIT TRANSFER AREA) @ NORALYN	65.7	INV75
1050034	24	DRY PHOSPHATE ROCK TRANSFER SYSTEM @ NORALYN MINE (024)	65.7	INV76
1050034	25	SODA ASH MIX TANK & TRANSFER SYSTEM @ LONESOME MINE (025)	1.8	INV77
1050034	28	DRY UNGROUND ROCK TRUCK LOADOUT @ NORALYN MINE	1.3	INV78
1050034	29	Flocculation System-Four Corners Mine	0.61	INV79
1050034	30	Flocculation System-Fort Green Mine	0.61	INV80

4.4.6 Class II Increment Compliance Modeling

Through the coarse grid runs, the regulatory high value receptors were identified. Refined modeling for PM_{10} was then conducted with 100-meter receptor spacing in a fine-grid for PSD increments in the Class II Area. A 2-kilometer by 2-kilometer receptor fine-grid was centered in the area of the high value receptors (southeast corner of property). The greatest regulatory concentration values from the modeling runs were used to demonstrate compliance with PSD increments.

Receptor elevations were not considered in Class II Increment compliance modeling because the terrain within the SIA is mostly flat to gently rolling. All increment compliance modeling was performed with ISCST3 in default mode.

Class II Increment compliance modeling was performed only if the SIA determination modeling indicated that the new sources would have a significant impact on air quality. The purpose of Class II Increment compliance modeling is to demonstrate that the new sources will not cause or contribute to a violation of a PSD Increment.

Class II Increment compliance modeling addresses all areas within the Significant Impact Area (SIA). All maximum predicted concentrations were resolved to the nearest 100 meters. This includes maximum predicted annual concentrations as well as short term concentrations for the 24 hour PM_{10} NAAQS. Compliance with the 24-hour PM_{10} PSD Increment is achieved when the greatest high-second-high concentration over five years is less than the increment.

Class II Increment compliance modeling involved the sources under review as well as sources from within and near the SIA in the inventory provided by the Department. Modeling to address the Class II Increments included the sources under review as well as all sources in the 20-D inventory.

The ambient air impacts were evaluated with respect to the allowable PSD Class II increments. The 20-D inventory includes those facilities that have consumed the available PSD Class II increments, and were modeled with the facility's emissions to determine compliance with the

PSD increments. The emission sources from the proposed facility were modeled with the emission sources from the 20-D inventory, with the receptors described above.

TABLE 12 – CLASS II AREA INCREMENT ANALYSIS [PM_{10}]

	1987	1988	1989	1990	1991
Annual H1H < 17 μg/m³	6.09265 μg/m³	5.82649 μg/m³	7.64730 μg/m³	6.14010 μg/m³	6.50282 μg/m³
24-Hour H2H < 30 μg/m³	26.52888 μg/m³	24.85048 μg/m³	28.47846 μg/m³	27.26099 μg/m³	29.33648 μg/m³

The proposed facility is shown to not exceed any applicable Class II area PSD increments, by showing that such increments were not exceeded when the facility's emissions were modeled with the PSD inventory (20-D inventory). The inventory is conservative because all current allowable emissions are assumed to be increment consuming. This approach is considered to be more conservative, more accurate and less cumbersome than determining baseline emissions. No evaluation of increment expansion was conducted.

4.4.7 NAAQS Compliance Modeling

NAAQS compliance modeling was performed for PM_{10} because the SIA determination modeling indicated that the new sources would have a significant impact on air quality. The purpose of NAAQS compliance modeling is to demonstrate that the new sources will not cause or contribute to a violation of a NAAQS.

The ambient air concentrations from the proposed cement plant, plus the 20-D inventories, plus the background concentrations, were evaluated with respect to the applicable AAQS. This refined air quality modeling demonstrated that the AAQS were not violated for PM_{10}.

NAAQS compliance modeling addressed all areas within the Significant Impact Area (SIA). All maximum predicted concentrations were resolved to the nearest 100 meters. This included maximum predicted annual concentrations as well as short-term concentrations for the 24 hour PM_{10} NAAQS. Compliance with the 24-hour PM_{10} NAAQS is achieved when the greatest high-sixth-high concentration over five years is less than the standard.

NAAQS compliance modeling involved the sources under review as well as sources from within and near the SIA in the inventory provided by the Department. Modeling to address the NAAQS included the sources under review as well as all sources in the 20-D inventory and background concentrations. The background concentrations were added to the modeled concentrations to evaluate compliance with the AAQS. The ambient air concentrations from the proposed cement plant, including the 20-D inventory, plus the background concentrations, were evaluated with respect to the applicable AAQS. This was accomplished by adding the background concentrations from the Quick Look reports to the concentrations from the fine grid PSD modeling.

TABLE 13 – NAAQS ANALYSIS [PM_{10}]

	1987	1988	1989	1990	1991
Annual H1H < 50 μg/m³ Background = 20	26.09265 μg/m³	25.82649 μg/m³	27.64730 μg/m³	26.14010 μg/m³	26.50282 μg/m³
24-Hour H6H < 150 μg/m³ Background = 63	90.49395 μg/m³				

4.4.8 Federal Class I Areas

The nearest Class I areas and distances from the main stack for the facility are shown in the following table.

TABLE 14 - CLASS I AREAS

Class I Area	**Federal Land Manager**	**Distance from Stack to Nearest Receptor**
Chassahowitzka Wilderness Area	Fish & Wildlife Service	62 km
Okefenokee Wilderness Area	Fish & Wildlife Service	219 km
St. Marks Wilderness Area	Fish & Wildlife Service	254 km
Bradwell Bay Wilderness	Forest Service	283 km
Everglades National Park	National Park Service	306 km

Ambient and visibility impacts were determined for the nearest Class I area (Chassahowitzka National Wilderness Area).

a. Class I Area Modeling Protocol

Modeling to assess impacts at the Class I areas utilized the CALPUFF modeling system in screening mode. The CALPUFF modeling followed the guidance documents entitled *"Interagency Workgroup on Air Quality Modeling (IWAQM) Phase II Summary Report and Recommendations for Modeling Long Range Transport Impacts"* and "*Federal Land Managers' Air Quality Related Values Workgroup (Flag) Phase I Report (December 2000)", and "Guide for Applying the EPA Class I Screening Methodology with the CALPUFF Modeling System (Earth Tech, September 2001)"*. There were two key components of the Class I analysis: a Class I increment analysis, and a visibility analysis.

Class I receptors were downloaded from the National Park Service (NPS) Air Resources Division (ARD), which has developed a database of modeling receptors for all of the Class I areas in the conterminous (lower 48) United States. Receptors for Chassahowitzka were used in the modeling analysis.

b. Class I Increment

The Class I Increment analysis consisted of an initial "screening analysis" to determine whether the new or modified source will have a significant impact on air quality in the Class I area. The approach involved using CALPUFF in the screening mode. The determination was made by comparing the projected impacts from the point sources under review to the Class I "Significance Levels" proposed by EPA, as shown in the following table.

TABLE 15 – CLASS I AREA SIGNIFICANCE

Pollutant	Averaging Period	Significance Level ($\mu g/m^3$)	Maximum Modeled Concentration ($\mu g/m^3$)	Significant?
PM_{10}	Annual	0.2	0.00877 (1986)	No
	24-hour	0.3	0.10237 (1986)	No
Sulfur dioxide	Annual	0.1	0.00374 (1986)	No
	24-hour	0.2	0.04772 (1986)	No
	3-hour	1.0	0.26625 (1987)	No
Nitrogen dioxide	Annual	0.1	0.01887 (1987)	No

Reference: 61FR38292, July 23, 1996

As all pollutants and averaging periods are less than significant, no further review for compliance with Class I PSD increments is required. As impacts are below the Class I significance levels, then the increment portion of the Class I analysis is complete.

c. Visibility Analysis

IWAQM guidance (USEPA 1998) recommends non-steady state air quality modeling systems for screening and refined analyses. The IWAQM recommendations are adaptations and refinements of the CALPUFF dispersion modeling system. This modeling system consists of diagnostic meteorological models; a Gaussian puff dispersion model with algorithms for chemical transformation, wet and dry deposition, and complex terrain; and a post processor (CALPOST) for calculating concentration and deposition fields and visibility impacts. Additional guidance was from the Federal Land Managers' Air Quality Related Values Work Group (FLAG) Phase I Report (December 2000). FLAG was formed to develop a more consistent approach for the Federal Land Managers (FLMs) to evaluate air pollution effects on their resources.

The recommended modeling systems and techniques provided ground level concentrations of visibility impairing pollutants. These concentrations were then used to calculate the extinction due to these pollutants, using the relationships outlined in Appendix 2.A. In this case, the model calculates visibility impairment. The results were compared against a reference level derived from aerosol information (relative humidity adjusted hygroscopic and non-hygroscopic concentrations plus Rayleigh extinction) given in Appendix 2.B for each Class I area. This reference level is a function of relative humidity. The approach, for screening level analyses, was to use the quarterly averaged reference levels given in Table 2.B-1 that are based on spatially interpolated seasonal relative humidity values and empirically derived f(RH) adjustment factors (IMPROVE 2000). FLAG recommends basing the analyses on block 24-hour averages (i.e., daily) of modeled visibility.

If a single project's visibility impairment, compared against natural conditions, is below certain analysis thresholds, then the FLMs are not likely to object to the project or ask that a cumulative analysis be performed before the project proceeds. If a new or modified source can demonstrate that its contribution to a change in extinction is <5.0%, compared against natural conditions, for all days, then the FLM is not likely to object to the issuance of the PSD permit based on visibility impacts.

TABLE 16 – CLASS I AREA VISIBILITY IMPAIRMENT

1986	1987	1988	1989	1990
2.80%	2.32%	2.43%	1.59%	2.17%

The proposed facility's visibility impairment at any receptor in any of the Class areas reviewed is less than a 5% change in extinction for any 24-hour period.

For this project, visibility analyses conducted using the EPA-approved CALPUFF model in the screening mode demonstrated that the impacts to visibility at the nearby Class I areas will be less than 5%. This demonstration is expected to be satisfactory to the Federal Land Manager.

5. Additional Impact Analyses

Federal Secondary Ambient Air Quality Standards were established to protect the public welfare including the protection of animal and plant life, property, visibility and atmospheric clarity, and the enjoyment of life and property.

The U. S. Environmental Protection Agency was directed by Congress to develop primary and secondary ambient air quality standards. The primary standards were to protect human health and the secondary standards were to:

"... protect the public welfare from any known or anticipated adverse effects of a pollutant."

The public welfare was to include soils, vegetation and visibility.

As a basis for promulgating the air quality standards, EPA undertook studies related to the effects of all major air pollutants and published criteria documents summarizing the results of the studies. The studies included in the criteria documents were related to both acute and chronic effects of air pollutants. Based on the results of these studies, the criteria documents recommended air pollutant concentration limits for various periods of time that would protect against both chronic and acute effects of air pollutants with a reasonable margin of safety.

The facility will not cause or contribute to any exceedance of established ambient air quality standards. The emissions from the facility will result in ambient impacts that are less than significant and are considered to be de minimis, for all regulated pollutants except for PM_{10}.

5.1 Impairment to Visibility, Soils & Vegetation

The impacts to ambient air resulting from emissions of PM_{10} are well below the applicable Federal Secondary Ambient Air Quality Standards. Compliance with PSD Class II increments establishes an effective ambient air quality standard that is much more stringent than the ambient air quality standards. It is concluded that there will be no adverse effect to the soils or vegetation of the area.

Impacts to visibility at Class I areas were estimated using the CALPUFF modeling system.

5.2 Air Quality Impact as a Result of Growth Associated with the Facility

No quantifiable air quality impacts are projected for the area as a result of general commercial, residential, industrial and other growth associated with the facility.

The proposed facility will result in approximately 80-100 new jobs at the cement plant. Sumter County's unemployment rate was 4.0% in April 2005 (preliminary) and the unemployment number was 871. No increase in residential or commercial construction is expected in the area surrounding the plant as a result of this facility. Therefore, no additional growth impacts are expected as a result of the proposed project.

The area the facility will affect is the area of significant impact described in the air quality analysis section of this report. This area is within a radius of 3 kilometers from the proposed facility. The applicant owns a substantial amount of this area. General commercial, residential, and other growth within the radius is expected to continue at approximately the current rate.

6. Best Available Control Technology Analysis

6.1 Introduction

Any major stationary source or major modification subject to PSD must conduct an analysis to ensure the application of best available control technology (BACT). BACT determinations are done on a case-by-case basis and the energy, environmental, and economic impacts of each control technology are evaluated. The BACT requirement is defined as:

"an emissions limitation (including visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under the Clean Air Act which would be emitted from any proposed major stationary source or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutants. In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 40 CFR Parts 60 and 61. If the Administrator determines that technological or economic limitations on the application of imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard, or combination thereof, may be prescribed instead to satisfy the requirement for the application of best available control technology. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice or operation, and shall provide for compliance by means which achieve equivalent results."

A common method for determining BACT is the "top-down" method. The "top-down" method provides that all available control technologies be ranked in descending order of control effectiveness. The most stringent control technology is considered BACT until the applicant can eliminate that technology based on technical infeasibility, control effectiveness, energy impacts, environmental impacts, and economic impacts. The most effective control technique that is not rejected is considered to be BACT.

The BACT requirement applies to each individual new or modified affected emissions unit and pollutant emitting activity at which a new emissions increase would occur. The BACT determination must address separately air pollution controls for each emissions unit for each regulated pollutant with a significant emissions increase at the source. Therefore, in the case of the proposed cement plant a BACT analysis must be performed for PM/PM_{10}, SO_2, NO_X, VOC, and CO for the Cement Kiln, and for PM/PM_{10} for the Clinker Cooler, the Finish Mill, and the

Material Handling Equipment. A detailed "top-down" BACT analysis is described below for these emissions units for these pollutants.

The proposed Portland Cement manufacturing plant's preliminary design is presented in the application and report. The proposed control technologies are described in the following sections as a specific control technology or "equivalent". The plant design is still in the preliminary stages and the vendor has not been selected. Therefore, the final plant design, including the control equipment design, may differ somewhat from the proposed design. However, the final control equipment configurations will be equivalent in performance and reliability.

In a memorandum from December 22, 1978, titled: "BACT Information for Coal-fired Power Plants 8.7", EPA supports the concept of submitting preliminary designs followed by a later submission (prior to commencement of construction) of a more detailed control equipment analysis:

"While the new PSD regulations require a reasonable degree of assurance that the source can and will install BACT, they also permit the Agency to establish a system for initial BACT review followed by a more detailed control equipment analysis. While such a system does not relieve the source from its responsibility to demonstrate to the Agency that it is applying BACT, it does act to streamline the review process and minimize the delays incurred by power plants which cannot supply ultimate equipment designs and blueprints at the time that a permit to construct is secured. This system will also provide the utility with sufficient flexibility to take advantage of expected improvements in control technology...In general information should include the preliminary engineering and plant design criteria which will constitute the basis for soliciting and reviewing vendor proposals for control equipment...This approach must be conditioned on the company's later submission of final detailed engineering design specifications prior to commencement of construction of the control equipment. While the final engineering design and vendor specifications will vary from preliminary information, the utility must show it to be equivalent in performance and reliability established as BACT in the initial determination. These variations may include basis changes in equipment design such as a shift from an ESP to a baghouse, a change in lime/limestone scrubber to a regenerable scrubbing system or a change in the design approach to insuring reliability...Such a submission...would not constitute a reopening of the permit process."

6.2 Particulate Matter (PM/PM_{10})

6.2.1 Cement Kiln and Clinker Cooler

The proposed BACT emissions limitation for the Cement Kiln is 0.23 lb/ton clinker of PM and 0.2 lb/ton clinker of PM_{10} and for the Clinker Cooler is 0.1 lb/ton clinker of PM and 0.08 lb/ton clinker of PM_{10}. These emission limits will be met with the use of a baghouse or an ESP.

6.2.2 Finish Mills and Material Handling Equipment

The proposed BACT for the Finish Mills and Material Handling Equipment is a PM limit of 0.01 gr/dscf and a PM_{10} limit of 0.007 gr/dscf with the use of baghouses.

6.2.3 Description of Control Technologies

A summary of PM/PM_{10} control devices, including the control efficiencies, is detailed in Table 6-1. These types include the following:

Precleaners;

Wet scrubbers;

Electrostatic precipitators (ESPs);

Fabric filters;

Paper/nonwoven filters.

The various types of control techniques are described in detail below.

Precleaners

This type of technology reduces the inlet loading of PM to downstream collection devices by removing larger, abrasive particles. Precleaners include cyclones, mechanically-aided separators, momentum separators, and settling chambers.

Cyclones remove PM by centrifugal and inertial forces, induced by forcing particle-laden gas to change direction. Cyclones are also referred to as cyclone collectors, cyclone separators, centrifugal separators, and inertial separators. Cyclones are primarily used to control PM and PM greater than 10 micrometers in aerodynamic diameter.

Mechanically-aided separators remove PM by centrifugal and inertial forces, induced by mechanically accelerating particulate-laden gas. They are used primarily to control PM and PM greater than 8 to 10 micrometers in aerodynamic diameter.

Momentum separators remove PM by gravitational settling and inertial collection. The particles are separated from the moving gas stream by providing a sharp change in the direction of gas flow so that momentum carries the particle across the gas stream lines and into a hopper. They are used primarily to control larger sized PM.

Settling chambers remove PM by reducing the gas velocity to enable to dust to settle out by the action of gravity. They are also used primarily to control larger sized PM.

Wet Scrubbers

Wet scrubbers remove PM and acid gas from a waste stream. The pollutants are removed primarily through the impaction, diffusion, interception, and/or absorption of the pollutant onto droplets of liquid. The liquid containing the pollutant is then collected for disposal. The types of PM wet scrubbers include:

- Spray tower;
- Cyclonic spray tower;
- Dynamic scrubber (mechanically-aided);
- Tray tower;
- Venturi scrubber;
- Orifice scrubber;
- Condensation scrubber; and
- Mist eliminators (fiber-bed).

These types of scrubbers are described below.

In a spray tower, particulate-laden air passed into a chamber it comes in contact with a liquid spray from spray nozzles. The gas stream enters at the bottom of the tower and flows upward. Spray nozzles are mounted on either the walls of the tower or at the tower center and spray downward on the gas flow. The water droplets capture particles suspended in the gas flow through impaction, interception, and diffusion. Droplets that are large enough to settle by gravity accumulate at the bottom of the chamber. Droplets that remain in the gas stream are collected by a mist eliminator upstream of the nozzles.

Spray tower scrubbers are not typically used for fine PM applications because high liquid to gas ratios are required. Waste is generated from wet scrubbers in the form of a slurry, from which the solid waste must be treated or disposed.

Cyclonic spray scrubbers are similar to spray scrubbers, except that the gas stream flows through the chamber in a cyclonic motion. The droplets impact on the tower walls and fall to the bottom of the tower. Droplets that remain in the gas stream are removed with a mist eliminator.

Dynamic scrubbers, or mechanically-aided scrubbers, are also similar to spray scrubbers, but have a powered rotor that shears the scrubbing liquid into finely dispersed droplets. A mist eliminator or cyclonic separator removes the liquid and captured PM. These scrubbers typically have higher maintenance and power costs because of the rotor.

Tray tower scrubbers consist of a vertical tower with several perforated trays mounted horizontally inside the tower. The gas flows through the tower from the bottom and flows upward through holes in the trays, while the scrubbing liquid flows from the top and across each tray in the tower. This type of scrubber has a higher gas-liquid contact than spray towers because the gas mixes with the liquid flowing over the tray. The gas velocity stops the liquid from flowing down through the holes in the tray. Tray towers do not effectively remove submicron particles.

Venturi scrubbers have a "converging-diverging" flow channel. The cross-sectional area of the channel decreases then increases along the length of channel, which increases the waste stream velocity and turbulence which improves the gas-liquid contact. The liquid droplets are then separated from the gas stream in an entrainment section. Venturi scrubbers are typically utilized where a high collection efficiency for fine PM is desired.

Venturi scrubbers are more expensive than spray tower, cyclonic, or tray tower scrubbers, but have higher collection efficiencies for fine PM. A venturi scrubber's control efficiency is increased by increasing the pressure drop. This leads to higher operating costs.

Orifice, or impaction, scrubbers direct the gas stream flow over the surface of a pool of scrubbing liquid. As the gas impinges on the water surface, it entrains droplets of the liquid. The waste gas then flows upward and enters an orifice with a narrower opening than the duct. The orifice induces turbulence in the flow which atomizes the entrained droplets. The atomized droplets capture the PM in the gas stream. A series of baffles then removes the droplets, which fall into the liquid below. The disadvantage is the difficulty of removing the waste sludge. Capital and operation and maintenance costs are significantly higher than spray towers.

Condensation scrubbers remove PM by use of condensation to increase pollutant particle size followed by inertial impaction. Although condensation scrubbers have a high collection efficiency, the scrubber can only remove relatively small amounts of dust because of the amount of saturation and condensation that are capable of being maintained in the gas stream. They are intended to be used downstream of another scrubber. Condensation scrubbers are a new technology and have not been proven on a Cement Kiln operation. Therefore, this control technique is not considered further.

Mist eliminators, or fiber-bed scrubbers, operate as moisture-laden gas passes through beds or mats of packing fibers, such as spun glass, fiberglass, or steel. For PM collection, fiber mats must be made of coarse fibers and have a high void fraction, to decrease the tendency to plug.

Electrostatic Precipitators

Electrostatic precipitators (ESP) are control devices that use electrical forces to move the particles out of the gas stream and onto collector plates. The particles are electrically charged by forcing them to pass through a corona, which is where gaseous ions flow. The electrical field is generated from electrodes that are maintained at high voltage in the center of the flow. Once particles are collected on the plates, they must be removed without reentrainment into the gas stream.

There are several types of ESPs including plate-wire (the most common), flat plate, tubular, wet, and the two-stage. For gas streams that have a high loading of large particles, cyclones or fabric filters are used upstream of the ESP to reduce the load on the ESP. ESPs are capable of very high collection efficiencies, even for very small particles. Since the particles are dry when collected it is easier to handle the disposal of the waste material. Operating costs are relatively low and ESPs can handle a wide range of operating temperatures and gas flow rates.

Fabric Filters

In a fabric filter, flue gas is passed through a tightly woven felted fabric, causing PM in the flue gas to be collected on the fabric by sieving and other mechanisms. Fabric filters may be in the form of sheets, cartridges, or bags, with a number of individual fabric filter units housed together in a group. Bags are the most common type of fabric filter, and are referred to as baghouses. Groups of bags are placed in compartments to allow cleaning or replacements of bags without having to shut down the entire system.

Fabric filters can be made of many different types of materials. The type of fabric is based on the operating conditions. Cleaning intensity and frequency are important variables in determining removal efficiency. The dust cake can provide a significant portion of the fine particulate removal efficiency. Therefore, cleaning that is too frequent or too intense will reduce the fine particulate removal efficiency. Also the cleaning cannot be too infrequent or too ineffective because this will increase the pressure drop.

Baghouses are typically categorized by their cleaning method. The different types of cleaning methods of baghouses include shaker cleaning, reverse-air, and pulse-jet.

Paper/Nonwoven Filters

The two common types of paper/nonwoven filters are high efficiency particle air (HEPA) filter/ultra low penetration air (ULPA) filter and cartridge collectors. HEPA/ULPA filters and cartridge collectors generally contain paper media, but may also contain nonwoven media. In HEPA/ULPA filters, the filter media is sometimes made out of matted glass fiber. The small fiber diameter and high packing density of both the paper and nonwoven media allow for the efficient collection of submicron PM. The gas stream passes through the filter media and the PM collects on the media. The dust cake that accumulates on the filter media can increase the collection efficiency.

HEPA and ULPA filters are usually the final component in a PM removal system since they require larger PM to be removed. HEPA and ULPA filters cannot be operated in moist environments since they will easily plug from "sticky" PM. Therefore, since the moisture content of the gas stream is typically 8-16 percent (varies depending on if the raw mill is running) from the Cement Kiln, this technology is considered to be technically infeasible.

In cartridge filters the media is usually made of natural or synthetic material such as cellulose or fiberglass. The media is supported by inner and outer wire frames. The gas stream is passed through the filter and the PM is collected on the filter. The dust cake that accumulates on the filter media can increase the collection efficiency.

Cartridge filters cannot be operated in moist environments since they will easily plug from "sticky" PM. Therefore, since the moisture content of the gas stream is typically 8-16 percent (varies depending on if the raw mill is running) from the Cement Kiln, this technology is considered to be technically infeasible.

6.2.4 Technically Feasible Options

The control techniques that are considered technically infeasible (refer to discussion above) for PM/PM_{10} control at a Cement Kiln and Clinker Cooler include HEPA/ULPA filters and cartridge collectors. Also, condensation scrubbers have not been proven on this type of operation. A summary of the remaining proven and technically feasible control techniques ranked by the order of control efficiency is listed in Table 6-2. There are two control techniques that have the top ranking (greater than 99% control efficiency): ESPs and fabric filters. These two control techniques are discussed further below.

6.2.5 Previous BACT Determinations

Cement Kiln

A review of previous BACT determinations for Preheaters, Precalciners, Calciners, and Cement Kilns at Portland Cement Plants is presented in Table 6-3. This information was compiled from data on EPA's RACT/BACT/LAER Clearinghouse and represents $PM/PM_{10}/PM_{2.5}$ BACT determinations for the last 10 years. This review indicates that the most common control techniques have been ESPs and baghouses. A few scrubbers have also been used for this type of process.

The BACT emission limits have ranged from 0.02 lb/ton feed to 3.76 lb/ton (dry basis) for PM and 0.09 lb/ton to 3.80 lb/ton (dry basis) for PM_{10}. The most recent BACT determinations have been 0.52 lb/ton, and 0.57 lb/ton (hourly) or 0.46 lb/ton (annual) for PM and 0.52 lb/ton and 0.48 lb/ton (hourly) or 0.39 lb/ton (annual) for PM_{10}. The proposed PM and PM_{10} emission limits of 0.23 lb/ton clinker and 0.2 lb/ton clinker, respectively, are on the low end of the range of previous PM and PM_{10} BACT limits.

Clinker Coolers

A review of previous BACT determinations for Clinker Coolers at Portland Cement Plants is presented in Table 6-4. This information was compiled from data on EPA's RACT/BACT/LAER Clearinghouse and represents $PM/PM_{10}/PM_{2.5}$ BACT determinations for the last 10 years. This review indicates that the only add-on control techniques have been ESPs and baghouses.

The BACT emission limits have ranged from 0.01 lb/ton feed to 0.16 lb/ton (dry basis) for PM and 0.02 lb/ton to 0.13 lb/ton (dry basis) for PM_{10}. The most recent BACT determinations have been 0.52 lb/ton, and 0.57 lb/ton (hourly) or 0.46 lb/ton (annual) for PM and 0.52 lb/ton and 0.48 lb/ton (hourly) or 0.39 lb/ton (annual) for PM_{10}. The proposed emission limits of 0.1 lb/ton clinker and 0.08 lb/ton clinker for PM and PM_{10}, respectively, are reasonable based on the previous BACT determinations for Clinker Coolers.

Material Handling Sources

A review of recent BACT determinations was performed for PM/PM_{10} Material Handling sources at Portland Cement Plants from the Clearinghouse. A summary of this review is included in Table 6-5. From this review it is evident that the only type of add-on control technology that has been applied to this type of operation are baghouses. Other types of particulate control include water sprays, covered conveyors, enclosed buildings, etc., to minimize the generation of fugitive PM/PM_{10} emissions. PM/PM_{10} emission limits have ranged from 0.009 to 0.1 gr/dscf. The proposed PM and PM_{10} emission limits of 0.01 gr/dscf and 0.007 gr/dscf, respectively are reasonable based on the previous BACT determinations.

Finish Mills

A review of recent BACT determinations was performed for PM/PM_{10} Finish Mills at Portland Cement Plants from the Clearinghouse. A summary of this review is included in Table 6-6. From this review it is evident that the only type of add-on control technology that has been applied to this type of operation are baghouses. PM emission limits have ranged from 0.017 gr/dscf to 0.1 gr/dscf. PM_{10} emission limits have ranged from 0.01 to 0.015 gr/dscf. The proposed PM and PM_{10} emission limits of 0.01 gr/dscf and 0.007 gr/dscf, respectively are lower than any of the previous BACT determinations.

6.2.6 BACT Selection

Cement Kiln and Clinker Cooler

The proposed BACT emissions limitation for the Cement Kiln is 0.23 lb/ton clinker for PM and 0.2 lb/ton clinker for PM_{10} and the proposed BACT emissions limitation for the Clinker Cooler is 0.1 lb/ton and 0.08 lb/ton for PM and PM_{10}, respectively. PM/PM_{10} emissions are to be controlled using a baghouse (fabric filter) or electrostatic precipitator (ESP). Both of these control techniques are the top-ranked techniques based on control efficiency, technical feasibility, and proven technology. The baghouse or ESP will achieve more than 99-percent control for the Cement Kiln. The proposed emission limits of 0.23 lb/ton clinker and 0.2 lb/ton clinker for PM and PM_{10}, respectively, for the Cement Kiln and 0.1 lb/ton and 0.08 lb/ton for PM and PM_{10}, respectively, for the Clinker Cooler are reasonable based on the most recent BACT determinations listed on the Clearinghouse. The proposed control technology of a baghouse or an ESP is reasonable based on the control technologies listed on the Clearinghouse for this type of process.

Finish Mills and Material Handling Equipment

The only add-on control technology that is listed on the Clearinghouse for Finish Mills and material handling sources located at cement plants are fabric filters/baghouses. Baghouses can achieve very high control efficiency (greater than 99%). Any additional add-on control techniques would be very costly based on the control that the baghouses alone can achieve. Therefore, since baghouses are the only proven control technology for this type of source and since they can achieve very high control efficiencies, baghouses are justified as BACT for the Finish Mills and the Material Handling Equipment. The proposed PM and PM_{10} emission limits of 0.01 gr/dscf and 0.007 gr/dscf are reasonable as BACT based on previous BACT determinations for similar sources.

6.3 Sulfur Dioxide

SO_2 may be generated from the sulfur compounds in the raw material and the sulfur in the fuel. However, the alkaline nature of the cement provides for direct adsorption of SO_2 into the product. Depending on the process and the source of the sulfur, SO_2 adsorption ranges from about 70 percent to more than 95 percent.

The proposed emission limit for the Cement Kiln is 0.28 lb/ton clinker as a 24-hour average. The proposed control technique is inherent scrubbing of SO_2 by the limestone in the raw material and hydrated lime injection when the raw mill is not operating as necessary to meet the emission limit.

6.3.1 Description of Control Technologies

A summary of the available SO_2 control technologies are listed in Table 6-5, including the respective control efficiencies. These techniques include the following:

- Absorption;
- Adsorption; and
- Low sulfur fuels.

These types of controls are described in detail below.

Absorption

Absorption is a mass transfer operation in which one or more soluble components of a gas mixture are dissolved in a liquid with a low volatility. The pollutant diffuses out of the gas into the liquid when the liquid has less than the equilibrium concentration of the gaseous component. The driving force for absorption is this difference between actual and equilibrium concentration. Control devices that use absorption principles include packed towers, plate or tray columns, venturi scrubbers, and spray chambers.

Packed towers are columns that are filled with packing material that provide a large surface area. The large surface area allows for contact between the liquid and the gas. Packed towers can achieve higher removal efficiencies, handle higher liquid rates, and have relatively lower water consumption requirements than other types of gas absorbers. However, packed towers may also have high pressure drops, high instances of clogging and fouling, and high maintenance costs because of the packing material.

Plate, or tray, tower scrubbers are vertical cylinders where the gas and liquid come in contact in steps on trays or plates. The liquid enters at the top of the column and flows across each plate and through a downspout to the plates below. The gas stream flows upward through holes in the plates, bubbles into the liquid, and passes to the plate above. Plate towers are easier to clean and can handle large temperature fluctuations better than packed towers. However, at high gas flow rates, plate towers exhibit larger pressure drops and have higher liquid holdups.

Venturi scrubbers have a "converging-diverging" flow channel. The cross-sectional area of the channel decreases then increases along the length of channel, which increases the waste stream velocity and turbulence which improves the gas-liquid contact. The liquid droplets are then separated from the gas stream in an entrainment section. A venturi scrubber's control efficiency is increased by increasing the pressure drop, which leads to higher operating costs.

Spray towers use a spray distribution system to deliver liquid droplets through a countercurrent gas stream under the influence of gravity. The droplets contact the pollutants in the gas stream. The required contacting power is derived from an appropriate combination of liquid pressure and flow rate. Spray towers are easy to operate and maintain and have low energy requirements. However, they have the least effective mass transfer capability of the absorbers and have high water recirculation rate requirements.

Adsorption

In an adsorption control system, a dry alkaline powder is injected into the gas stream. SO_2 is adsorbed to the surface of the alkaline particles. A reaction occurs that forms compounds that cannot be reentrained into the gas stream. Hydrated lime (calcium hydroxide) is the most common type of alkali. A spray dry scrubber is a control technology that uses adsorption.

Low Sulfur Fuels

Another technique for lowering SO_2 emissions is to switch to a low-sulfur content fuel. The SO_2 emissions are a direct relation to the amount of sulfur levels in the fuel or feed. In the case of a cement kiln, the use of raw materials (feed) with low sulfides (pyrites) content can result in lower SO_2 emissions by preventing the formation of SO_2 emissions by pyrite roasting in the upper stages of the preheater.

6.3.2 Technically Feasible Options

All of the control techniques included in Table 6-5 are considered technically feasible for SO_2 control from the Cement Kiln. A summary of the control techniques ranked by the order of control efficiency is listed in Table 6-6. The top two control techniques, based on control efficiency, are packed tower scrubbers and spray dry scrubbing.

The proposed control technique for SO_2 from the Cement Kiln is the inherent limestone scrubbing, and hydrated lime injection (dry scrubbing) when the raw mill is not operating. The energy, environmental, and economic impacts of an add-on packed tower scrubber and hydrated lime injection (dry scrubbing) are discussed further below.

6.3.3 Previous BACT Determinations

A review of previous BACT determinations from the last ten years was performed for SO_2 emissions from Preheaters, Calciners, and Cement Kilns at Portland Cement Plants and is presented in Table 6-7. From this review, it is evident that the control techniques for SO_2 have typically been wet scrubbers (only 4 facilities), dry scrubbing equivalent (inherent scrubbing of SO_2 from limestone in raw material), low sulfur fuels, and process changes or controls. The SO_2 emission limits have ranged from 0.16 lb/ton to 28.8 lb/ton (hourly and annual averages) and 0.143 lb/ton to 10 lb/ton on a daily-average basis for coal-fired kilns.

6.3.4 Energy Impacts

Wet scrubbers have high energy requirements because of the cost of operating the fan and pump. The fan must use energy to overcome the pressure drop in the column, ductwork, and other parts of the control system, and the pump must use energy to recirculate the solvent. Dry scrubbing uses less energy because it is a simpler process and has a low pressure drop. There is also lower water consumption when using a dry scrubber.

6.3.5 Environmental Impacts

In a packed-tower scrubber, the water or other scrubbing solution must be treated to remove the SO_2 or be disposed of. Therefore, a packed-tower scrubber creates a separate waste stream. Dry scrubbing does not generate a wet waste product and the dry waste stream that is generated is much easier to remove.

6.3.6 *Economic Analysis*

The capital cost, operation and maintenance (O&M) cost, and annualized cost of installing a packed-tower scrubber for SO_2 control from the Cement Kiln was estimated based on the EPA's Air Pollution Control Technology Fact Sheet which was developed using EPA's cost estimating spreadsheets. The volumetric flow rate of the gas stream (153,500 scfm) was used in this estimate. The cost effectiveness was also estimated based on a conservative control efficiency of 99-percent (the control efficiency for this type of scrubber for SO_2 control ranges from 95 to 99-percent) for the packed-tower scrubber and baseline SO_2 emissions of 153 TPY (based on 0.28 lb SO_2/ton clinker and 125 TPH clinker). A summary of the costs are described below.

	Cost Factor/Equation	**Cost Range**
Capital Cost	\$11 - \$55/scfm	\$1,688,500 - \$8,442,500
O&M Cost	\$15 - \$49/scfm	\$2,302,500 - \$7,521,500
Annualized Cost	\$17 - \$78/scfm	\$2,609,500/yr - \$11,973,000/yr
Cost Effectiveness	Annualized Cost / (Baseline Emissions – Controlled Emission Rate)	\$17,228/ton - \$79,045/ton

6.3.7 *BACT Selection*

Based on the ranking of available control techniques for SO_2 control from the Cement Kiln (refer to Table 6-6) the packed-tower scrubber is the top choice. However, a packed-tower scrubber can be rejected on a cost effectiveness basis. Furthermore, a packed-tower scrubber has a high energy demand and will create a wet-waste product which requires separate treatment and disposal. The next highest control technique listed in Table 6-6, based on control efficiency, is dry scrubbing. The proposed BACT for the Cement Kiln is dry scrubbing (hydrated lime injection) as necessary when the raw mill is not operating to meet the proposed SO_2 emission limit of 0.28 lb/ton (24-hour basis), and inherent limestone scrubbing (equivalent to dry scrubbing) when the raw mill is operating. The proposed SO_2 emission limit of 0.28 lb/ton (24-hour basis) is already very low compared to most of the BACT emission limits listed on the Clearinghouse for similar processes. For these reasons, the proposed BACT is justified.

6.4 Nitrogen Oxides

NO_x is generated during fuel combustion by oxidation of chemically-bound nitrogen in the fuel and by thermal fixation of nitrogen in the combustion air. NO_x emissions increase as the nitrogen content of the fuel increases. In cement manufacturing, NO_x emissions are generated in the burning zone of the kiln and of the precalcining vessel.

6.4.1 Proposed BACT

The proposed BACT for NO_x from the Cement Kiln is 1.95 lb/ton clinker, 30-day average which will be met using a selective non-catalytic reduction (SNCR) or a kiln design that achieves an equivalent reduction in NO_x emissions. This plant design is similar to the design of Titan America's preheater/calciner kiln referred to as "sequenced fuel and air introduction" that was designed by F.L. Smidth.

6.4.2 Description of Control Technologies

A summary of available NOx control technologies and their associated control efficiencies is listed in Table 6-8. Control technologies for NO_x can be divided into two categories: pre-combustion or process changes, and post-combustion or add-on controls. The available types of NO_x controls are:

Pre-combustion controls:

- Plant design;
- Fuel switching;
- Overfire air (OFA);
- Flue gas recirculation (FGR);
- Low-NO_x burners (LNB); and
- Reburn.

Post-combustion/add-on controls:

- Selective non-catalytic reduction (SNCR); and
- Selective catalytic reduction (SCR).

These controls are described in detail below.

Plant Design

NO_x formation in the pyroprocessing system at a Portland Cement Plant is a function of the energy release. Plant designs that minimize the energy release during clinker production typically reduce the formation of NO_x emissions. Modern plant designs such as the preheater/precalciner design have lower heat input requirements for clinker production, and therefore generate lower amounts of NO_x emissions.

The plant design utilized at Titan American's Pennsuco Cement Plant in Miami, Florida is referred to by FDEP as "Sequenced Fuel and Air Introduction." This design by F.L. Smidth utilizes staged combustion in the calciner (SCC). In staged combustion, initial combustion is conducted in a primary, fuel-rich combustion zone. Combustion is then completed at lower temperatures in a second, fuel lean zone. The sub-stoichiometric oxygen introduced with the primary combustion air in to the high temperature, fuel-rich zone reduces fuel and thermal NO_x formation. Combustion in the secondary zone is conducted at a lower temperature, thus reducing thermal NO_x formation. In the F.L. Smidth design, all of the fuel is fired in a reducing atmosphere near the kiln inlet, while all of the tertiary air is supplied in the lower part of the calciner. This process uses meal staging, which is where the raw meal is split into several sections of the calciner. Meal staging helps to achieve catalytically enhanced dissociation of nitrogen oxide (NO) in the preheater and temperature control. Initial stack tests performed on this kiln indicate NO_x emissions at approximately 2.0 lb/ton.

Fuel Switching

One option for reducing NO_x emissions is to switch to a low-nitrogen content fuel. In the cement kiln, natural gas combustion with a high flame temperature and low fuel nitrogen generates a larger quantity of NO_x than does oil or coal. Oil and coal have higher fuel nitrogen contents but burn with lower flame temperatures. Since the availability of fuels is driven by economics and availability, fuel switching is considered impractical.

Overfire Air

Overfire air (OFA) combustion is when burners are fired more fuel rich that normal while the remaining combustion air is admitted through overfire air ports or an idle top row of burners.

OFA is usually used on large units since larger proportional increases in furnace size and cost may be required to assure complete fuel combustion.

Flue Gas Recirculation

Flue gas recirculation (FGR) is a process where a portion of the flue gas is recycled back to the primary combustion zone. NO_x formation is reduced by two mechanisms. The first is heating in the primary combustion zone lowers the peak flame temperature, which reduces thermal NO_x formation. The second is reducing thermal NO_x formation by lowering the oxygen content in the primary flame zone. This type of control technique is typically applied to boilers, and is not a proven control technique for a cement kiln operation. Therefore, this control technique is not considered further.

Low-NO_x Burners

Certain designs of burners have been found to generate lower NO_x emissions. The most common type of low-NO_x burner (LNB) methodology is staged air burners (staged combustion). Staged air burners are two-stage combustion burners which are fired fuel-rich in the first stage. They are specifically designed to lower flame turbulence, delay fuel/air mixing, and establish the fuel-rich zones for initial combustion. Since there is less available oxygen in the primary combustion zone, fuel NO_x formation is inhibited. Staged air burners can be used for any fuel type.

Reburn

Reburn technology involves passing the burner zone products through a secondary flame or fuel-rich combustion zone. A portion of the fuel is diverted to create a secondary flame downstream of the primary combustion zone. Reburn has only been tested on a cement kiln by a pilot project performed by Acurex Environmental Corporation. Therefore, since it has not been used on any practical applications of a cement kiln of this design, this is not considered to be a proven control technology for this type of cement kiln.

SNCR

Selective non-catalytic reduction (SNCR) is based on the chemical reduction of the NO_x molecule into molecular nitrogen (N_2) and water vapor (H_2O). A nitrogen-based reagent, such as ammonia or urea, is injected into the post-combustion flue gas. It is considered to be a selective process because the reaction of the reduction of NO_x is favored over other chemical reactions during this process for a specific range of temperatures and in the presence of oxygen.

The ammonia reaction is as follows:

$$2NO + 2NH_3 + \frac{1}{2} O_2 \rightarrow 2N_2 + 3\ H_2O$$

The urea reaction is as follows:

$$2NO + CO(NH_2)_2 + \frac{1}{2} O_2 \rightarrow 2N_2 + CO_2 + 2H_2O$$

There are advantages to urea-based systems over ammonia. Urea is non-toxic and is less volatile so it can be more easily stored and handled. Urea droplets can penetrate farther into the flue gas which enhances the mixing of the flue gas. However, urea is more expensive than ammonia.

The optimum operating temperature for SNCR is 800°C to 1,090°C (1,472°F to 1,994°F). The SNCR process must take place under an oxidizing environment.

SCR

Selective catalytic reduction (SCR) chemically reduces the NO_x molecule into N_2 and H_2O vapor. A nitrogen-based reagent such as ammonia or urea is injected into the ductwork downstream of the combustion unit. The waste gas mixes with the nitrogen-based reagent and then enters a reactor that contains the catalyst. The hot gas stream and reagent diffuse through the catalyst. The reagent reacts selectively with the NO_x molecules within a specific temperature range and in the presence of the catalyst and oxygen.

Catalyst deactivation can occur due to poisoning by flue gas constituents. As the catalyst activity decreases, NO_x removal decreases and ammonia slip increases. Catalyst poisoning can occur from high levels of PM in the gas stream. In the case of cement manufacturing, the gas stream has a high PM content. For the SCR system to operate properly, the flue gas must be between approximately 390°F to 1,100°F (200°C to 600°C). The gas stream from a cement kiln is at this temperature only well upstream of the PM control device (baghouse). Therefore, to install an SCR system to control NO_x emissions from a cement plant of this design, the SCR would have to be installed prior to the baghouse or after the baghouse with a reheat system. Installing the SCR prior to the baghouse would cause catalyst poisoning due to high PM levels and installing the SCR after the baghouse would increase the capital and operating costs of the SCR system considerably due to the need to reheat the gas stream.

6.4.3 Technically Feasible Options

The remaining technically feasible and proven NO_x control technologies are listed in Table 6-9 according to their ranking based on control efficiency. The top three control techniques are SCR with OFA and LNB, SCR, and SCR with LNB. Therefore SCR as the main control technique, including the energy, environmental, and economic impacts, is described in more detail below.

The fourth, fifth, and sixth-ranked control techniques listed in Table 6-9 are LNB, SNCR, and plant design, respectively. These are all control techniques that are proposed for this project. They are also discussed in more detail below.

6.4.4 Previous BACT Determinations

A review of previous BACT determinations on EPA's RACT/BACT/LAER Clearinghouse from the last ten years for NO_x emissions from cement kilns, preheaters/precalciners, and calciners at Portland cement plants was performed. A summary of the BACT determinations is shown in Table 6-10. Previous BACT determinations ranged from 1.72 lb/ton to 11.4 lb/ton annual average, or 13.5 lb/ton hourly average. The control equipment has typically been process design, good combustion practices, SNCR, and LNB. There have not been any facilities listed on the Clearinghouse that have proposed SCR as the control technique for NO_x emissions.

The proposed emission limit of 1.95 lb/ton clinker (30-day rolling average) is in the range of the lowest BACT determinations listed on the Clearinghouse.

6.4.5 Energy Impacts

The operate the SCR system at a Cement Kiln, gas stream reheat would be necessary. This would require considerable additional energy since the gas stream must be at a very high temperature (390°F to 1,100°F) for the SCR system to function properly.

6.4.6 Environmental Impacts

Both SCR and SNCR systems can result in ammonia in the waste gas stream which can impact visibility and resale or disposal of ash. Also, the storage and handling of ammonia creates other environmental issues. Ammonia can be utilized as a reagent in either aqueous or anhydrous form. Anhydrous ammonia is a gas at ambient temperature, and therefore must be transported and stored under pressure. At concentrations above 28% ammonia, aqueous ammonia may require a permit for storage. Ammonia also has a pungent odor. The risk of ammonia leaks creates an environmental issue to both groundwater and the air.

6.4.7 Economic Analysis

An economic analysis was performed for SNCR and SCR systems for the Cement Kiln based on EPA's Cost Control Manual, and are presented in Tables 6-11 and 6-12, respectively. As shown in Table 6-11 the cost effectiveness for SNCR was estimated to be \$1,090/ton of NO_x removed. As shown in Table 6-12 the cost effectiveness for SCR was estimated to be \$2,500/ton of NO_x removed. These cost estimates are based on the proposed NO_x emissions limit of 1.95 lb/ton, the proposed kiln heat input rate of 400 MMBtu/hr, and an uncontrolled NO_x emission rate of 4.2 lb/ton (control efficiency of 54-percent). The uncontrolled NO_x emission rate is based on AP-42 Table 11.6-8: Emission Factors for Portland Cement Manufacturing, for a preheater/precalciner kiln. Since this project is currently in the proposed status only, a vendor's design and more accurate uncontrolled NO_x emission rate is not available. The uncontrolled NO_x emission rate might actually be lower than this depending on the kiln design, yielding higher cost effectiveness numbers. The SCR system's cost effectiveness (\$2,500/ton of NO_x removed) is approximately twice as much as the SNCR system (\$1,090/ton of NO_x removed). Therefore, the SNCR system is much more cost effective than the SCR system.

6.4.8 BACT Selection

SNCR is a much more cost effective method of controlling NO_x emissions from the Cement Kiln. The SCR catalyst would most likely deactivate quickly due to catalyst poisoning from the high PM content since the SCR would need to be placed upstream of the PM control device. The gas stream could possibly be reheated downstream of the PM control device, however, this would increase the cost considerably.

SNCR is a proven control technology that is a proven NO_x control technique for preheater/precalciner cement kilns. It is a cost effective means of controlling NO_x emissions. An SNCR system or "sequenced fuel and air introduction" kiln design (equivalent NO_x reductions to SNCR) would be a cost effective control technique which would yield the highest control efficiency of the proven and technically feasible control technologies that are available. Therefore, the proposed control technique is justified as BACT.

The proposed emission limit of 1.95 lb/ton clinker (30-day rolling average) is in the range of the lowest BACT determinations listed on the Clearinghouse. Therefore, the proposed NO_X emissions limit of 1.95 lb/ton clinker (30-day rolling average) is justified based on previous determinations.

6.5 Carbon Monoxide

CO emissions are generated as products of incomplete combustion when an insufficient quantity of oxygen is provided in the reaction between carbonaceous fuel and oxygen. During the calcining of limestone in the cement manufacturing process, large amounts of CO_2 are liberated, which can dissociate into CO. The best method of controlling CO emissions is to prevent CO from forming. This can be difficult because the control techniques that reduce NO_x emissions can in turn increase CO emissions.

6.5.1 Proposed BACT

The proposed BACT for CO for the Cement Kiln is good combustion practices and an emission limit of 3.6 lb/ton clinker.

6.5.2 *Description of Control Technologies*

The available CO control technologies and their associated control efficiencies are listed in Table 6-13. As shown, there are two CO control technologies available, including:

- Good combustion practices; and
- Regenerative incineration (RTO or RCO).

These control technologies are described in detail below.

Good Combustion Practices

Good combustion practices include process controls, process design, and combustion unit design to reduce the formation of CO emissions.

Regenerative Incineration

Regenerative thermal oxidizers (RTOs) use a high-density media such as a ceramic-packed bed still hot from a previous cycle to preheat an incoming waste gas stream. The preheated, partially oxidized gases then enter a combustion chamber where they are heated by natural gas combustion to a final oxidation temperature (typically 1400°F – 1,500°F) and are maintained at this temperature to achieve the maximum CO destruction.

A regenerative catalytic oxidizer (RCO) operates similarly to an RTO except that it uses a catalyst rather than ceramic material in the packed bed. This allows for CO destruction to occur at a lower oxidation temperature (800°F). RCOs are subject to catalyst deactivation due to high PM content of the flue gas.

6.5.3 *Technically Feasible Options*

RTOs and RCOs are not considered to be proven control technologies for CO emission control at Cement Kiln operations because they have not been demonstrated as an effective method of controlling CO emissions. Therefore, the only remaining control technique is good combustion practices.

6.5.4 *Previous BACT Determinations*

A summary of previous CO BACT determinations from the last ten years is listed is Table 6-14. As shown in Table 6-14, the only means of controlling CO emissions have been good combustion practices and kiln design. Two RTOs have been installed on cement kilns in the past. One was installed at the TXI, Midlothian Texas facility. This RTO was installed voluntarily and the Texas Natural Resource Conservation Commission (TNRCC) does not consider this to be BACT. The other RTO was installed at the Holcim, Dundee Michigan facility. Both of the RTOs experienced poor heat recovery, maintenance problems, fouling, or other problems which has caused these facilities to discontinue the use of the RTOs. There has not been an RTO successfully installed and operated at a cement plant in the United States.

The range of previous BACT emission limits have been 1.2 lb/ton to 34.7 lb/ton, hourly average, or 8.43 lb/ton, annual average. One facility had a low CO limit of 0.30 lb/ton with a maximum production rate of 75 TPH. The five most recent BACT determinations have been 3 lb/ton to 4.88 lb/ton, annual average. The proposed CO emission limit of 3.6 lb/ton is on the low end of this range for the last five determinations. Therefore, the proposed CO limit is reasonable based on previous BACT determinations.

6.5.5 *BACT Selection*

The only proven control technology for CO emissions from a Cement Kiln is good combustion practices. RTOs and RCOs have not been successfully operated on this type of operation in the United States. The BACT emission limit of 3.6 lb/ton is reasonable based on recent BACT determinations for other facilities. Therefore, the proposed BACT of 3.6 lb/ton using good combustion practices is justified.

6.6 Volatile Organic Compounds

VOC emissions are generated as products of incomplete combustion when an insufficient quantity of oxygen is provided in the reaction between carbonaceous fuel and oxygen.

6.6.1 Proposed BACT

The proposed BACT for VOC is 0.12 lb/ton using good combustion practices.

6.6.2 Description of Control Technologies

Listed in Table 6-15 are the VOC control technologies that are available. The main types of control techniques include pre-combustion and post-combustion, including scrubbers and incineration. The types of control techniques include:

Pre-Combustion:

- Good combustion practices;

Post-Combustion:

- Spray chamber scrubbers;
- Packed-tower scrubbers;
- Mist eliminators;
- Dynamic/mechanically-aided scrubbers;
- Refrigerated condensers;
- Flares;
- Recuperative-type thermal oxidation;
- Thermal oxidation;
- Catalytic oxidation; and
- Regenerative incineration (RTO or RCO).

These types of control technologies are described in detail below.

Good Combustion Practices

Good combustion practices include process controls, process design, and combustion unit design to reduce the formation of VOC emissions.

Spray-Chamber Scrubbers

In a spray tower, particulate-laden air passed into a chamber it comes in contact with a liquid spray from spray nozzles. The gas stream enters at the bottom of the tower and flows upward. Spray nozzles are mounted on either the walls of the tower or at the tower center and spray downward on the gas flow. The water droplets capture particles suspended in the gas flow through impaction, interception, and diffusion. Droplets that are large enough to settle by gravity accumulate at the bottom of the chamber. Droplets that remain in the gas stream are collected by a mist eliminator upstream of the nozzles.

Spray towers do not suffer from restrictions to gas flow by accumulated residues that are commonly found in packed scrubbers. However, spray towers have the least effective mass transfer capability and thus, are generally limited to use for PM and high-solubility gases. Waste is generated from wet scrubbers in the form of a slurry, from which the solid waste must be treated or disposed.

Packed-Tower Scrubbers

Packed towers are columns that are filled with packing material that provide a large surface area. The large surface area allows for contact between the liquid and the gas. Packed towers can achieve higher removal efficiencies, handle higher liquid rates, and have relatively lower water consumption requirements than other types of gas absorbers. However, packed towers may also have high pressure drops, high instances of clogging and fouling, and high maintenance costs because of the packing material.

Mist Eliminator

Mist eliminators, or fiber-bed scrubbers, moisture-laden gas passes through beds or mats of packing fibers, such as spun glass, fiberglass, or steel. For collection of mists, small fibers may be used. The used scrubbing liquid must be treated to remove the captured pollutant from the solution.

Dynamic/Mechanically-Aided Scrubber

Dynamic scrubbers, or mechanically-aided scrubbers, are also similar to spray scrubbers, but have a powered rotor that shears the scrubbing liquid into finely dispersed droplets. An entrainment separator must be used to prevent carry-over of spray. These scrubbers typically have higher maintenance and power costs because of the rotor.

Refrigerated Condensers

Refrigerated condensers are used as air pollution control devices for treating emission streams with high VOC concentrations (usually >5,000 ppmv). Condensation is a process where one or more volatile components of a vapor mixture are separated from the remaining vapors through saturation followed by a change in phase. This change in phase can be achieved by either increasing the system pressure at a given temperature or lowering the temperature at a constant pressure. The more volatile a compound, the larger the amount that can remain as vapor at a given temperature and the lower the temperature required for saturation (condensation).

Spent coolant containing the VOCs from contact condensers usually can not be reused and can become a waste disposal problem.

Incineration

There are several types of incineration techniques that are used to control VOC emissions, including flares, thermal oxidation, recuperative-type thermal oxidation, catalytic oxidation, and regenerative oxidation. Flaring is a VOC combustion control process where the VOC emissions are piped to a remote, usually elevated, location and burned in an open flame using a burner tip, auxiliary fuel, and steam or air to promote mixing for nearly complete VOC destruction. Flares can produce undesirable noise, smoke, heat radiation, and light and can also become a source of SO_X, NO_X, and CO if combustion is incomplete.

Thermal incinerators, or thermal oxidizers, oxidize combustible materials by increasing the temperature of the material in the gas stream beyond its auto-ignition point in the presence of oxygen, while maintaining a high temperature for sufficient time to complete combustion to carbon dioxide and water. A recuperative thermal incinerator is similar to a thermal incinerator except that it has a heat recovery system by a heat exchanger. Incinerators in general are not recommended for controlling gases that contain halogen or sulfur-containing compounds because of the formation of highly corrosive acid gases.

Catalytic incinerators operate very similarly to thermal/recuperative incinerators, except that the gas passes through a catalyst bed. The catalyst increases the oxidation reaction rate which enables conversion at a lower reaction temperature than in thermal incinerators. PM can rapidly coat the catalyst which causes blinding of the catalyst. Also, the presence of chlorides, phosphorous compounds, sulfur, and metals in the gas stream, can quickly cause catalyst fouling. Therefore, catalytic oxidation is considered to be technically infeasible for a cement kiln.

Regenerative incinerators, or specifically regenerative thermal oxidizers (RTO) and regenerative catalytic oxidizers (RCO), first pass the gas stream through a hot ceramic bed that heats the stream to its ignition temperature. If the desired temperature is not attainable, a small amount of auxiliary fuel is added to the combustion chamber. The hot gases react by releasing energy in the chamber and while passing through the ceramic bed, which in turn heats it to the outlet temperature. The process flows are then switched, and now they feed the inlet stream to the hot bed. This yields very high energy recovery.

6.6.3 Technically Feasible Options

The remaining technically feasible options ranked based on their control efficiency are listed in Table 6-16. However, none of these control techniques have been demonstrated at a cement plant. Two RTOs have been installed on cement kilns in the past. One was installed at the TXI, Midlothian Texas facility. This RTO was installed voluntarily and the Texas Natural Resource Conservation Commission (TNRCC) does not consider this to be BACT. The other RTO was installed at the Holcim, Dundee Michigan facility. Both of the RTOs experienced poor heat recovery, maintenance problems, fouling, or other problems which has caused these facilities to discontinue the use of the RTOs. There has not been an RTO successfully installed and operated at a cement plant in the United States.

6.6.4 Previous BACT Determinations

A summary of previous BACT for VOC emissions from cement kilns, preheater, precalciners, and calciners at Portland Cement Plants from EPA's RACT/BACT/LAER Clearinghouse is presented in Table 6-17. As shown in Table 6-17, previous VOC BACT emission limits have ranged from 0.12 lb/ton to 13 lb/ton. The proposed VOC emission limit of 0.12 lb/ton clinker is equivalent to the most stringent BACT limit listed on the Clearinghouse.

All of the control techniques listed on the Clearinghouse were good combustion practices, plant design, and process controls except for an RTO, as mentioned above, and one facility proposed the use of a cooling air condenser and an activated carbon injection system. This Holman, Inc., facility, located in Monroe County Michigan, began operation in 1960. The VOC emission limit is 13.0 lb/ton clinker from a wet process cement kiln. This is an older plant that required that required the use of add-on control equipment to meet a very high VOC limit. The proposed Cement Kiln will be able to meet a much lower VOC emission limit of 0.12 lb/ton clinker by proper plant design and good combustion practices (i.e., without the use of add-on equipment).

6.6.5 BACT Selection

The proven control technology for VOC control at a Cement Kiln is good combustion practices. There has not been an RTO successfully installed and operated at a cement plant in the United States. The proposed BACT for VOC is 0.12 lb/ton, which is a very low emission limit compared to previous BACT determinations. Any add-on equipment would be very expensive to and would not be cost effective to achieve a greater reduction in VOC emissions beyond the proposed VOC emission limit. Therefore the proposed BACT of 0.12 lb/ton clinker using good combustion practices is justified.

7. Conclusions

The proposed allowable emission rates of particulate matter (PM), particulate matter (PM_{10}), sulfur dioxide (SO_2), nitrogen oxides (NOx), carbon monoxide (CO), and volatile organic compounds (VOC) from the Florida Mining Corporation cement plant as described in this report will not cause or contribute to a violation of any air quality standard, PSD increment, or any other provision of Chapter 62-212, FAC.

The proposed plant design information from the application and report provide the Department with reasonable assurance that the construction and operation, of the facility will not discharge, emit, or cause pollution in contravention of Department standards or rules.

ATTACHMENT 1

Table 6-3. Summary of Previous PM/PM_{10}/$PM_{2.5}$ BACT Determinations from Preheaters, Precalciners, Calciners, and Kilns at Portland Cement Plants

RBLC ID	Facility Name	State	Permit No.	Date Issued	Process Type	Fuel Used	Throughput	Emission Limit (as presented in Clearinghouse)	Emission Limit (converted [a])	Control Equipment Description	% Effic.
Particulate Matter (PM)											
IA-0070	LEHIGH CEMENT COMPANY - MASON CITY PLANT	IA	17-01-005	12/11/2003	KILN/CALCINER/PREHEATER	COAL	150 TPH Clinker	0.516 LB/T	0.516 LB/T	ESP.	
VA-0272	ROANOKE CEMENT	VA	20232	6/13/2003	LIME KILN	COAL	1,300,000 T/YR	83.9 LB/H; 297.5 TPY	0.565 lb/ton (hourly); 0.46 lb/ton (annual)	ESP and GCP	
IA-0052	LAFARGE CORPORATION	IA	PROJ. # 00-057	7/1/2002	PREHEATER/PRECALCINER KILN	COAL	3,488 T/D	0.3 LB/T	0.516 LB/TON Clinker	BAGHOUSE	99.9
WA-0307	PORTLAND CEMENT CLINKERING PLANT	WA	PSD-90-03	10/5/2001	KILN EXHAUST STACK			10.6 LB/H; 46 tpy		BAGHOUSE	
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 MI	6/29/2001	GRINDING/ PREHEATING/ KILN, K-19			32.24 LB/H; 135.41 tpy		ESP	
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 MI	6/29/2001	GRINDING/ PREHEATING/ KILN, K-19			36.33 LB/H; 152.59 tpy		ESP	
CO-0043	RIO GRANDE PORTLAND CEMENT CORP.	CO	98PB0893	9/25/2000	PREHEATER/PRECALCINER, KILN		950,000 TPY Clinker	0.01 gr/dscf, 0.105 lb/ton	0.105 lb/ton	High-Temp Baghouse	
FL-0139	SUWANNEE AMERICAN CEMENT COMPANY, INC.	FL	1210465-001-AC	.6/1/2000	IN LINE KILN & RAW MILL	Nat. Gas	178 T/H	0.13 LB/T	0.13 LB/T	BAGHOUSE	
MI-0287	HOLNAM, INC.	MI	60-71L	3/20/2000	CEMENT KILNS, WET PROCESS (2)	COAL	100 T/H FEED	130 LB/H, 1.3 lb/ton	1.3 lb/ton	Fabric Filter, Slurry Scrubber	90
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	KILN/PREHEATER/BYPASS & CLINKER COOLER EXHAUST			132.1 T/YR		BAGHOUSE	
IN-0081	LONE STAR INDUSTRIES, INC.	IN	133-10159	4/16/1999	KILN OPERATION	COAL	360 T/H	0.016 gr/dscf, 0.3 lb/ton	0.3 lb/ton	ESP	
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MAIN KILN/SCRUBBER STACK	COAL	3,100 T/D	0.22 LB/T	0.22 LB/T	Scrubber and Baghouse	
CO-0048	HOLNAM, LAPORTE CO.	CO	11LR338-1	9/22/1998	CALCINER/ KILN		584,000 T/YR	27.3 LB/H	0.33 lb/ton	BAGHOUSE.	99.9
N-0112	LONE STAR INDUSTRIES, INC.	IN	133-5886-00002-32	9/18/1998	CEMENT KILN, WET PROCESS,	COAL	75 TPH Clinker	40.5 LB/H	0.3 LB/T	ESP	
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	DRY/WET KILN & ALKALI BYPASS BAGHOUSE STACK (KS-1)		378,650 TPY DRY KILN	193.53 LB/H; 847.85 tpy	4.48 lb/ton (dry)	BAGHOUSE	
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	DRY KILN EXHAUST BAGHOUSE (KS-1A)		730,000 TPY Clinker	25.44 LB/H	0.31 lb/ton clinker	BAGHOUSE	
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	ALKALI BYPASS BAGHOUSE STACK (9A)			5.39 LB/H; 23.63 tpy		BAGHOUSE	
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	WET KILN EXHAUST BAGHOUSE (KS-1B)		378,650 TPY Clinker	162.7 LB/H; 712.8 tpy	3.76 lb/ton	BAGHOUSE	
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	ALKALI BYPASS BAGHOUSE STACK (9A)			3.06 LB/H; 13.41 tpy		BAGHOUSE	
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	DRY KILN EXHAUST BAGHOUSE (KS-1A)		730,000 T/YR CLINKER	14.44 LB/H; 63.24 tpy	0.17 lb/ton clinker	BAGHOUSE IS	
MI-0354	HOLNAM, INC	MI	60-71K	6/23/1998	CEMENT KILNS, WET PROCESS, (2)	COAL	100 T/H	1.3 LB/T	1.3 lb/ton	Baghouse	
IL-0057	ILLINOIS CEMENT COMPANY	IL	97030016	6/12/1998	KILN, CEMENT, PREHEATER-PRECALCINER		3,000 TPD Cement	0.208 LB/T	0.208 LB/T	FABRIC FILTER	99
TN-0086	SIGNAL MOUNTAIN CEMENT COMPANY.	TN	47-065-3070	5/29/1998	DRY FEED KILN	PETROLEU	160 T/H	18.3 LB/H	0.3 LB/T	BAGHOUSE	
OR-0036	DURKEE FACILITY	OR	01-0029	2/26/1998	KILN			436 LB/D	0.3 lb/ton 6-hr	BAGHOUSE	
OR-0036	DURKEE FACILITY	OR	01-0029	2/26/1998	KILN FEED FOR PREHEATER			0.019 GR/DSCF, 3-hr; 90 lb/day		BAGHOUSE	
FL-0224	FLORIDA ROCK INDUSTRIES, INC.	FL	PSD-FL-228	12/23/1996	KILN	COAL	14 T/H	0.2 LB/T clinker	0.2 LB/T clinker	ESP.	
UT-0059	ASH GROVE CEMENT COMPANY	UT	DAQE-958-96	10/24/1996	KILN	COAL	170 T/H	23.45 LB/H	0.14 LB/T	BAGHOUSE.	
FL-0110	FL CRUSHED STONE	FL	PSD-FL-227	11/17/1995	KILN	COAL	83 T/H	0.02 LB/T feed	0.02 LB/T feed	FABRIC FILTER	
WY-0044	MOUNTAIN CEMENT COMPANY-LARAMIE FACILITY	WY	CT-1137	3/6/1995	KILN, COAL	COAL	45.3 T/H COAL	13.59 LB/H	0.3 LB/TON	ESP	99.9
Particulate Matter (PM_{10})											
IA-0070	LEHIGH CEMENT COMPANY - MASON CITY PLANT	IA	17-01-005	12/11/2003	KILN/CALCINER/PREHEATER	COAL	150 TPH Clinker	0.516 LB/T	0.516 LB/T	ESP.	
VA-0272	ROANOKE CEMENT	VA	20232	6/13/2003	LIME KILN	COAL	1,300,000 T/YR	71.31 LB/H; 252.8 TPY	0.481 lb/ton (hourly); 0.39 lb/ton (annual)	ESP and GCP	
SD-0003	GCC DACOTAH - DACOTAH QUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	ROTARY KILN #6	COAL	2,250 T/D	0.01 GR/DSCF		FABRIC FILTER	
MO-0059	CONTINENTAL CEMENT COMPANY, LLC	MO	2002-02-038	9/24/2002	ROTARY KILN	COAL	183 T/H	99 %		FABRIC FILTER	
IA-0052	LAFARGE CORPORATION	IA	PROJECT NUMBE	7/1/2002	PREHEATER/PRECALCINER KILN	COAL	3,488 T/D	0.516 lb/ton clinker	0.516 LB/T	Baghouse	99.9
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 MI	6/29/2001	GRINDING/ PREHEATING/ KILN, K-19			40 LB/H; 168 TPY		ESP	
CO-0043	RIO GRANDE PORTLAND CEMENT CORP.	CO	98PB0893	9/25/2000	KILN, CLINKER		950,000 T/YR Clinker	0.01 gr/dscf, 0.097 lb/ton	0.097 lb/ton	High-Temp Fabric Filter	99.9
CO-0043	RIO GRANDE PORTLAND CEMENT CORP.	CO	98PB0893	9/25/2000	PREHEATER/PRECALCINER, KILN		950,000 T/YR Clinker	45.9 T/YR	0.097 LB/T, 12-month rolling	High-Temp Filter Baghouse	
MD-0027	LEHIGH PORTLAND CEMENT COMPANY	MD	06-6-0356R	6/8/2000	CEMENT MANUFACTURING, PREHEATER/PRECALCINER	COAL	2,214,000 T/YR	96 T/YR	0.087 LB/T	Enclos., Wet Supp., Paved Rds	60
MD-0027	LEHIGH PORTLAND CEMENT COMPANY	MD	06-6-0356R	6/8/2000	CEMENT MANUFACTURING, PREHEATER/PRECALCINER	COAL	2,214,000 T/YR	620 T/YR	0.56 LB/T	Baghouses	99
FL-0139	SUWANNEE AMERICAN CEMENT COMPANY, INC.	FL	1210465-001-AC	6/1/2000	IN LINE KILN & RAW MILL	Nat. Gas	178 T/H	0.11 LB/T	0.11 LB/T	BAGHOUSE	
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	KILN/PREHEATER/BYPASS & CLINKER COOLER EXHAUST			132.1 T/YR		BAGHOUSE	
IN-0081	LONE STAR INDUSTRIES, INC.	IN	133-10159	4/16/1999	KILN OPERATION	COAL	360 T/H	0.014 GR/DSCF	0.3 lb/ton	ESP	
IN-0081	LONE STAR INDUSTRIES, INC.	IN	133-10159	4/16/1999	ALKALI BYPASS DUST BINS			0.01 GR/DSCF; 0.64 lb/hr		BAGHOUSE	
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MAIN KILN/SCRUBBER STACK	COAL	3,100 T/D	123 TPY	0.22 lb/ton	Scrubber and Baghouse	
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	PREHEATER FEED			0.2 LB/H; 0.89 TPY			
CO-0048	HOLNAM, LAPORTE CO.	CO	11LR338-1	9/22/1998	CALCINER/ KILN		584,000 T/YR	21.3 LB/H; 74.8 TPY	0.32 lb/ton (hourly); 0.26 lb/ton (annual)	Baghouse	
N-0112	LONE STAR INDUSTRIES, INC.	IN	133-5886-00002-32	9/18/1998	CEMENT KILN, WET PROCESS,	COAL	75 T/H	37.3 LB/H	0.28 LB/T	ESP	
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	DRY/WET KILN & ALKALI BYPASS BAGHOUSE STACK (KS-1)		378,650 TPY DRY KILN	164.2 LB/H; 719.34 TPY	3.80 lb/ton (dry)	BAGHOUSE	
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	DRY KILN EXHAUST BAGHOUSE (KS-1A)		730,000 T/YR CLINKER	21.37 LB/H	0.26 lb/ton	BAGHOUSE	
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	ALKALI BYPASS BAGHOUSE STACK (9A)			4.53 LB/H; 19.85 TPY		BAGHOUSE	
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	WET KILN EXHAUST BAGHOUSE (KS-1B)		378,650 T/YR CLINKER	138.3 LB/H; 605.9 TPY	3.20 lb/ton	BAGHOUSE IS	
MO-0048	LAFARGE CORPORATION	MO	0897-019	8/20/1997	RAW MILL, PREHEATER/PRECALCINER KINL(EP		1,584,071 TONS	19.22 LB/HR, 24-HR	0.11 lb/ton (24-hr)	BAGHOUSE	
FL-0173	SOUTHDOWN, INC.	FL	PSD-FL-233	6/27/1997	KILN		165 T/H	0.18 LB/T	0.18 LB/T	FABRIC FILTERS.	
FL-0173	SOUTHDOWN, INC.	FL	PSD-FL-233	6/27/1997	KILN		165 T/H, 1-hour max	0.18 LB/T	0.18 LB/T	FABRIC FILTERS.	
FL-0173	SOUTHDOWN, INC.	FL	PSD-FL-233	6/27/1997	KILN		165 T/H, 1-hour max	0.09 LB/T	0.09 LB/T	FABRIC FILTERS.	
FL-0224	FLORIDA ROCK INDUSTRIES, INC.	FL	PSD-FL-228	12/23/1996	KILN, PORTLAND	COAL	14 T/H	0.23 LB/T, clinker	0.23 LB/T, clinker	ESP.	
UT-0059	ASH GROVE CEMENT COMPANY	UT	DAQE-958-96	10/24/1996	KILN	COAL	170 T/H	21.11 LB/H	0.12 LB/T	BAGHOUSE.	
UT-0062	HOLNAM, DEVIL'S SLIDE PLANT	UT	DAQE-522-96	5/13/1996	KILN	COAL		14 LB/H		BAGHOUSE.	
NV-0032	GREAT STAR CEMENT CORP./UNITED ROCK PRODUCT:	NV	A139	10/24/1995	CEMENT KILN		1.6 MILLION TONS	23.7 lb/hr; 0.015 gr/dscf; 88 TPY		BAGHOUSE.	99
Particulate Matter ($PM_{2.5}$)											
WA-0307	PORTLAND CEMENT CLINKERING PLANT	WA	PSD-90-03	10/5/2001	KILN EXHAUST STACK			0.005 GR/DSCF, 24-HR		BAGHOUSE	

[a] Based on 8,760 hours per year.

Source: EPA's RACT/BACT/LAER Clearinghouse, 2005.

Table 6-4. Summary of Previous PM/PM_{10} BACT Determinations from Clinker Coolers at Portland Cement Plants

RBLC ID	Facility Name	State	Permit No.	Date Issued	Throughput	Emission Limit (as presented in Clearinghouse)	Emission Limit (converted [a])	Control Equipment	% Effic.
Particulate Matter (PM)									
UT-0059	ASH GROVE CEMENT COMPANY	UT	DAQE-958-96	10/24/1996		10.69 LB/H; 0.01 gr/dscf		Baghouse	
IA-0070	LEHIGH CEMENT COMPANY - MASON CITY PLANT	IA	17-01-005	12/11/2003	150 TPH Clinker	0.015 GR/DSCF	0.1 LB/T	Baghouse	
MO-0059	CONTINENTAL CEMENT COMPANY, LLC	MO	2002-02-038	9/24/2002	182.60 T/H			Baghouse	
IA-0052	LAFARGE CORPORATION	IA	Proj. No. 00-057	7/1/2002	145.30 TONS OF	0.015 GR/DSCF	0.1 LB/TON	Baghouse	99.9
FL-0139	SUWANNEE AMERICAN CEMENT COMPANY, INC.	FL	1210465-001-AC	6/1/2000	178 T/H	0.07 LB/T DRY PM	0.07 LB/T DRY PM FEED	ESP	
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999		60.2 T/YR		Baghouse	
N-0112	LONE STAR INDUSTRIES, INC.	IN	133-5886-00002-3241	9/18/1998	75 T/H	13.5 LB/H	0.082 LB/T	Baghouse	
OR-0036	DURKEE FACILITY	OR	01-0029	2/26/1998		0.1 GR/DSCF, 3-hr	0.1 LB/T, 6-hr	Baghouse	
FL-0224	FLORIDA ROCK INDUSTRIES, INC.	FL	PSD-FL-228	12/23/1996	14 T/H	0.1 LB/T, dry	0.16 LB/T clinker	ESP	
FL-0110	FL CRUSHED STONE	FL	PSD-FL-227	11/17/1995	83 T/H	0.01 LB/T, clinker	0.01 LB/T	FABRIC FILTER	
WY-0044	MOUNTAIN CEMENT COMPANY-LARAMIE FACILITY	WY	CT-1137	3/6/1995		0.01 GR/ACF; 0.09 lb/hr		Baghouse	99.9
Particulate Matter (PM_{10})									
IA-0070	LEHIGH CEMENT COMPANY - MASON CITY PLANT	IA	17-01-005	12/11/2003	150 TPH Clinker	0.015 GR/DSCF	0.092 LB/T	Baghouse	
SD-0003	GCC DACOTAH - DACOTAH QUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	2,250 T/D	0.01 GR/DSCF	0.091 lb/ton	FABRIC FILTER	
IA-0052	LAFARGE CORPORATION	IA	Proj. # 00-057	7/1/2002		0.015 GR/DSCF		Baghouse	99.9
FL-0139	SUWANNEE AMERICAN CEMENT COMPANY, INC.	FL	1210465-001-AC	6/1/2000	178 T/H	0.06 LB/T DRY PH	0.06 LB/T DRY PH FEED	ESP	
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999		60.2 T/YR		Baghouse	
IN-0081	LONE STAR INDUSTRIES, INC.	IN	133-10159	4/16/1999	183 T/H CLINKER	0.015 GR/DSCF	0.02 lb/ton	BAGHOUSE	
CO-0048	HOLNAM, LAPORTE CO.	CO	11LR338-1	9/22/1998	584,000 T/YR CLINKER	37.7 T/YR	0.13 LB/T	Baghouse	99.9
N-0112	LONE STAR INDUSTRIES, INC.	IN	133-5886-00002-3241	9/18/1998	75 T/H	12.4 LB/H	0.075 LB/T	BAGHOUSE	
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998		12.25 LB/H; 53.66 TPY		Baghouse	
MO-0048	LAFARGE CORPORATION	MO	0897-019	8/20/1997	1,028,599 TONS	11.74 LB/HR, 24 HR	0.10 lb/ton	BAGHOUSE	99.9
FL-0224	FLORIDA ROCK INDUSTRIES, INC.	FL	PSD-FL-228	12/23/1996	14 T/H	0.13 LB/T, clinker	0.13 LB/T, clinker	ESP	
UT-0059	ASH GROVE CEMENT COMPANY	UT	DAQE-958-96	10/24/1996		9.63 LB/H; 0.009 gr/scf		Baghouse	
NV-0032	GREAT STAR CEMENT CORP./UNITED ROCK PRODUCTS (	NV	A139	10/24/1995		21 LB/HR & .015 GR/DSCF		Baghouse	99

[a] Based on 8,760 hours per year.

Source: EPA's RACT/BACT/LAER Clearinghouse, 2005.

Table 6-5. Summary of Available SO_2 Control Technologies and the Associated Control Efficiency and Technical Feasibility

Control Technology	Control Efficiency (%)	Proven and Technically Feasible? (Y/N)	Ranking Based on Efficiency	Proposed Technology for the Cement Kiln? (Y/N)
<u>Absorption</u>				
Packed Towers	95 - 99	Y	1	N
Plate (or Tray) Scrubbers	80 - 99	Y	3	N
Venturi Scrubbers	70 - 99	Y	4	N
Spray Chambers	80 - 99	Y	3	N
<u>Adsorption</u>				
Dry Scrubbing	> 90	Y	2	Y
Low-Sulfur Fuels	< 90	Y	5	N

Table 6-6. Ranking of Available SO_2 Control Technologies by Control Efficiency

Control Technology	Control Efficiency (%)	Ranking Based on Efficiency	Proposed Technology for the Cement Kiln? (Y/N)
Packed Towers	95 - 99	1	N
Dry Scrubbing	> 90	2	Y
Plate (or Tray) Scrubbers	80 - 99	3	N
Spray Chambers	80 - 99	3	N
Venturi Scrubbers	70 - 99	4	N
Low-Sulfur Fuels	< 90	5	N

Table 6-5. Summary of Previous $PM/PM_{10}/PM_{2.5}$ BACT Determinations from Various Material Handling and Storage Sources at Portland Cement Plants

RBLC ID	Facility Name	State	Permit No.	Date Issued	Process Type	Throughput	Control Equipment Description	Emission L	Units
Particulate Matter (PM)									
IA-0070	LEHIGH CEMENT COMPANY - MASON CITY PLANT	IA	17-01-005	12/11/2003	BUCKET ELEVATOR FEED - CEMENT SILO	275 T/H	Baghouse	0.009	GR/DSCF
IA-0070	LEHIGH CEMENT COMPANY - MASON CITY PLANT	IA	17-01-005	12/11/2003	SHIPPING DISCHARGE SPOUTS	385 T/H (per spout)	BAGHOUSE.	0.009	GR/DSCF
IA-0070	LEHIGH CEMENT COMPANY - MASON CITY PLANT	IA	17-01-005	12/11/2003	AIRSLIDES & SILOS - CEMENT	275 T/H	Baghouse	0.009	GR/DSCF
IA-0070	LEHIGH CEMENT COMPANY - MASON CITY PLANT	IA	17-01-005	12/11/2003	PAN & BUCKET ELEVATORS - CLINKER	165 T/H	BAGHOUSE.	0.009	GR/DSCF
IA-0070	LEHIGH CEMENT COMPANY - MASON CITY PLANT	IA	17-01-005	12/11/2003	PAN CONVEYOR & SILO - CLINKER SILO	165 T/H	BAGHOUSE.	0.009	GR/DSCF
IA-0070	LEHIGH CEMENT COMPANY - MASON CITY PLANT	IA	17-01-005	12/11/2003	SILO WITHDRAWAL	330 T/H	BAGHOUSE.	0.009	GR/DSCF
IA-0070	LEHIGH CEMENT COMPANY - MASON CITY PLANT	IA	17-01-005	12/11/2003	CONVEYOR AND ELEVATORS	220 T/H	Baghouse	0.01	GR/DSCF
IA-0070	LEHIGH CEMENT COMPANY - MASON CITY PLANT	IA	17-01-005	12/11/2003	SEPARATOR VENT - CLINKER PREGRIND	220 T/H	BAGHOUSE.	0.01	GR/DSCF
IA-0070	LEHIGH CEMENT COMPANY - MASON CITY PLANT	IA	17-01-005	12/11/2003	MATERIAL TRANSFER TO SCRUBBER	100 T/H	BAGHOUSE.	0.01	GR/DSCF
IA-0070	LEHIGH CEMENT COMPANY - MASON CITY PLANT	IA	17-01-005	12/11/2003	MATERIAL TRANSFER FROM SCRUBBER	25 T/H	BAGHOUSE.	0.01	GR/DSCF
IA-0070	LEHIGH CEMENT COMPANY - MASON CITY PLANT	IA	17-01-005	12/11/2003	SECONDARY FUEL HANDLING	110 T/H	BAGHOUSE.	0.009	GR/DSCF
IA-0070	LEHIGH CEMENT COMPANY - MASON CITY PLANT	IA	17-01-005	12/11/2003	SECONDARY MATERIAL HANDLING	110 T/H	BAGHOUSE.	0.01	GR/DSCF
MO-0059	CONTINENTAL CEMENT COMPANY, LLC	MO	2002-02-038	9/24/2002	CRUSHING AND TRANSFER, LIMESTONE,	227.8 T/H	Baghouse, Moisture > 1.5 %, Underground Process		
MO-0059	CONTINENTAL CEMENT COMPANY, LLC	MO	2002-02-038	9/24/2002	QUARRYING - SHALE	41.5 T/H			
MO-0059	CONTINENTAL CEMENT COMPANY, LLC	MO	2002-02-038	9/24/2002	RAW MATERIAL CRUSHER, SHALE AND CLAY	53.1 T/H	BAGHOUSE		
MO-0059	CONTINENTAL CEMENT COMPANY, LLC	MO	2002-02-038	9/24/2002	ROLLER MILL CRUSHING	284.9 T/H	BAGHOUSE		
MO-0059	CONTINENTAL CEMENT COMPANY, LLC	MO	2002-02-038	9/24/2002	CEMENT HANDLING - BULK RAILCAR LOADING	191.8 T/H	Baghouse		
MO-0059	CONTINENTAL CEMENT COMPANY, LLC	MO	2002-02-038	9/24/2002	HAZARDOUS WASTE DERIVED FUEL	4.6 T/H	BAGHOUSE		
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	QUARRYING, O-1		NONE	14.61	LB/H; 13.49 TPY
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	CRUSHING OPERATION, B-06	1250 T/H	BAGHOUSE	0.6	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	TRANSPORT TO RAW MATERIAL/STORAGE BINS, RMS			5.58	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	ADDITIVES ELEVATOR, D-28		BAGHOUSE	0.94	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	BLENDING SILO, F-11		BAGHOUSE	1.03	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	RETURN ELEVATOR, F-12		BAGHOUSE	0.26	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	AEROPOL FEED, H-06		BAGHOUSE	0.17	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	ELEVATOR, H-07		BAGHOUSE	0.21	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	CLINKER ELEVATOR, L-12		BAGHOUSE	0.45	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	HOT CLINKER, L-13		BAGHOUSE	0.43	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	DOME I, L-14		BAGHOUSE	0.45	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	DOME I BOTTOM, L-15		BAGHOUSE	0.32	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	TRUCK LOADOUT SILO, L-16		BAGHOUSE	1.03	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	CLINKER DOME 2 BOTTOM, L-18		BAGHOUSE	0.21	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	CLINKER DOME 2, L-19		BAGHOUSE	0.12	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	ADDITIVE BELT, M-02		BAGHOUSE	0.25	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	ADDITIVE BELT, M-04		BAGHOUSE	0.15	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	REVERSIBLE BELT/GYP BIN, M-06		BAGHOUSE	0.25	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	CLINKER/LIMESTONE BINS, M-09		BAGHOUSE	0.3	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	SPECIAL CLINKER BIN, M-10		BAGHOUSE	0.21	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	CLINKER FEEDER BELT, M-28		BAGHOUSE	0.33	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	CLINKER FEEDER BELT, M-29, -32, -33		BAGHOUSE	0.25	LB/H, each
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	FM NO. 1 ELEVATOR, N-09		BAGHOUSE	0.15	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	FM NO. 1 SEPARATOR , N-13		BAGHOUSE	2.52	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	FLY ASH BINS, N-20		BAGHOUSE	0.17	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	FM NO. 1 AIRSLIDES, N-22		BAGHOUSE	0.72	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	FM NO. 2 ELEVATOR, N-59		BAGHOUSE	0.15	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	FM NO. 2 SEPARATOR, N-63		BAGHOUSE	2.52	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	FM NO. 2 AIRSLIDES, N-69		BAGHOUSE	0.72	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	FM NO. 1 BELT, N-94A, -94B		BAGHOUSE	0.15	LB/H, each
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	FM NO. 2 BELT, N-95		BAGHOUSE	0.25	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	SILOS 1, 2, 3, 4-7, 8-11, 12-15		BAGHOUSE	0.15	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	SILO LOADOUT 1, 2, 3, 4-7, 8-11, 12-15		BAGHOUSE	0.15	LB/H, each
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	ROTARY BAGGING ELEVATOR, R-70		BAGHOUSE	1.26	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	MANNED BAGGER ELEVATOR, R-90		BAGHOUSE	1.26	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	MATERIAL HANDLING, F-1		NONE	5.02	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	COAL/COKE STOCKPILES, S-01		NONE	0.6	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	COAL AND COKE ROAD HOPPER, S-98		NONE	1.8	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	COAL AND COKE UNLOADING, S-44		BAGHOUSE	0.64	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	COAL MILL, S-30		BAGHOUSE	2.14	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	COAL BIN, S-56		BAGHOUSE	0.6	LB/H
FL-0139	SUWANNEE AMERICAN CEMENT COMPANY, INC.	FL	1210465-001-AC	6/1/2000	COAL MILL		BAGHOUSE	0.01	GR/DSCF
FL-0139	SUWANNEE AMERICAN CEMENT COMPANY, INC.	FL	1210465-001-AC	6/1/2000	BAGHOUSE, MATERIAL HANDLING & STORAGE SILO		BAGHOUSE	0.01	GR/DSCF
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	UNLOADING, TRANSFER, CONVEYING RAW MATERIALS & ADDITIVES TO TRANSFER TOWER		BAGHOUSE	0.17	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	RAW MATERIALS EXTRACTION		MINIMIZE DISTANCE AREA. REVEGETATION, CHEMICAL STABILIZERS	2.63	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	OVERBURDEN AND WASTE ROCK REMOVAL		CONTROL PLAN	32.37	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	RAW MATERIAL REMOVAL AND HAULAGE		CONTROL PLAN	62.47	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	CEMENT KILN DUST HAULING		WETTING MATERIAL PRIOR TO PLACEMENT	2.23	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	DISTURBED AREAS IN QUARRY AND PLANT		MINIMIZATION OF AREAS EXPOSED TO EROSION.	167.21	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	MATERIAL TRANSFER, HAUL TRUCKS TO PRI CRUSH FEED CRUSHER FEED HOPPER. (2)		ENCLOSURE UNDER NEG PRESSURE, DUST CURTAINS, WATER SPRAY, BAGHOUSE	0.01	T/YR, transfer 1
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	ROCK CRUSHER		BAGHOUSE	0.05	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	TRANSFER & CONVEYING, CRUSHER #1 TO SECOND #1		BAGHOUSE	0.01	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	SECONDARY CRUSHER #1		BAGHOUSE	0.03	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	PRIMARY CRUSHER #2		BAGHOUSE	0.91	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	TRANSFER & CONVEYING, SECONDARY CRUSHER #1		BAGHOUSE	0.1	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	TRANSFER & CONVEYING, PRELIM CRUSH #2 TO PRE-BLEND		BAGHOUSE	0.28	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	STACKER BELT, RECLAIMER, PRE-BLENDING CONVEYORS		BAGHOUSE	0.25	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	RAW MATERIALS CONVEYING, RAW MILL FEED BINS		BAGHOUSE	0.22	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	UNLOADING & CONVEYING, COAL TO STOCKPILE		NEG PRESSURE AND BAGHOUSE	1.94	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	COAL STOCKPILE		SURFACE MOISTURE	0.45	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	RECLAIMING, CONVEYING, & TRANS COAL TO COAL SCREEN		Baghouse	0.19	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	SCREENING AND CRUSHING OVERSIZE COAL		BAGHOUSE.	0.19	T/YR

Table 6-5. Summary of Previous PM/PM_{10}/$PM_{2.5}$ BACT Determinations from Various Material Handling and Storage Sources at Portland Cement Plants

RBLC ID	Facility Name	State	Permit No.	Date Issued	Process Type	Throughput	Control Equipment Description	Emission L Units
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	TRANS & CONVEYING - CRUSHED COAL TO TRANSFER TOWER		BAGHOUSE. PERMIT MODIFICATION TRIGGERED BACT REVIEW OF	0.02 T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	TRANSFER, COAL, TRANSFER TOWER TO SILO		BAGHOUSE. PERMIT MODIFICATION TRIGGERED BACT REVIEW OF	0.02 T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	TRANSFER & CONVEYING, RAW MATERIAL		BAGHOUSE	0.23 T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	COAL MILL VENT BAGHOUSE		BAGHOUSE, PM	14.4 T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	RAW MILL SYSTEM		BAGHOUSE	6.17 T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	TRANSFER, MILLED RAW MEAL TO BLENDING SILO		BAGHOUSE	3.86 T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	TRANSFER, BLENDING SILO TO KILN FEED BIN		BAGHOUSE	1.54 T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	CEMENT CLINKER STORAGE & HANDLING		BAGHOUSE	0.07 T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	TRANSFER, CLINKER TO CEMENT FINISH MILL BINS		BAGHOUSE	0.09 T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	TRANSFER, CEMENT TO CEMENT SILOS		BAGHOUSE	2.55 T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	MATERIAL HANDLING, CEMENT PACKHOUSE		BAGHOUSE	0.13 T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	MATERIAL HANDLING, CEMENT BULK LOADOUTS		BAGHOUSE	2.58 T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	PAVED ROADS, CEMENT PRODUCT HAULOUT		CONTROL	1.6 T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	DRILLING AND BLASTING			1.35 T/YR
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	SHIFTABLE QUARRY BELT DROP POINT		PARTIAL ENCLOSURE AND SPRAYING	0.29 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	QUARRY BELT DROP POINT (FUTURE)		COVERED AND SPRAYED	0.29 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	QUARRY CONVEYOR BELT TO LIMESTONE STORAGE DROP		COVERED AND SPRAYED	0.29 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MOBILE CRUSHER			0.65 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	RAW MATERIAL HOPPER		BAGHOUSE	0.18 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	RAW MATERIAL FEED BIN		BAGHOUSE	0.25 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	RAW MATERIAL CONVEYOR TRANSFER		BAGHOUSE	0.39 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	BLENDING SILO DEDUSTING		BAGHOUSE	0.22 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	FEED BIN		BAGHOUSE	0.2 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	PREHEATER FEED			0.2 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	BLENDING SILO		BAGHOUSE	0.06 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	CLINKER CONVEYOR NO. 1		BAGHOUSE	0.51 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	CLINKER CONVEYOR NO. 2		BAGHOUSE AND COVERED CONVEYOR	2.15 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	CLINKER CONVEYOR AND BIN		BAGHOUSE	0.67 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	BYPASS DUST BIN			0.22 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	RAW MILL DUST BIN			0.22 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	SCRUBBER AREA		BAGHOUSE	0.09 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	RAW COAL/COKE BIN			0.08 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MAT STORAGE, CRUSHED COAL/COKE BIN		BAGHOUSE AND SPRAY PILE	0.01 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MATERIAL HANDLING SYSTEM INTO FINISH MILL		BAGHOUSE	0.92 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	CLINKER LOADOUT	1131500 T/YR	BAGHOUSE	0.18 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	CEMENT SILO NO.1		BAGHOUSE	0.1 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	CEMENT SILO NO. 2		BAGHOUSE	0.34 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	CEMENT SILO NO. 3		BAGHOUSE	0.11 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	CEMENT LOADOUT NO. 1 AND NO. 2		BAGHOUSE	0.33 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	CEMENT SILO FEED BIN #S. 1, 2, 3, 4		BAGHOUSE	0.14 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	FRONT END LOADER DROP POINT TO CRUSHER		PARTIAL ENCLOSURE WITH WATER SPRAYER	0.57 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	CRUSHER DROP POINT TO CONVEYOR		PARTIAL ENCLOSURE WITH WATER SPRAYER	0.57 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	LIMESTONE STORAGE BUILDING VENT		FULLY ENCLOSED BUILDING FOR LIME STG	0.1 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	SAND/MILL SCALE DROP POINT TO HOPPER		FULLY ENCLOSED BUILDING FOR LIME STG	0.19 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MATERIAL HANDLING, ADDITIVE DROP POINT TO		PARTIAL ENCLOSURE AND WATER	0.53 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	CLINKER TRUCK LOADING			0.53 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MAT HANDLING, COAL/COKE DROP PT TO HOPPER		PARTIAL ENCLOSURE AND WATER	0.19 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MATERIAL HANDLING, COAL/COKE DROP POINT TO		PARTIAL ENCLOSURE AND WATER	0.47 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MATERIAL HANDLING, COAL/COKE DROP POINT TO		PARTIAL ENCLOSURE AND WATER	0.47 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MATERIAL HANDLING, COAL/COKE DROP TO HOPPER		PARTIAL ENCLOSURE AND WATER	0.47 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MATERIAL HANDLING COAL/COKE DROP FEEDER TO		ENCLOSURE AND WATER	0.19 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MATERIAL HANDLING COAL/COKE DROP BELT TO		COVERED CONVEYOR	0.19 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MAT HANDLING, COAL/COKE RECEIVING DROP TO		PARTIAL ENCLOSURE AND WATER	0.07 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	QUARRY CONVEYOR BELT TO LIMESTONE		COVERED	0.01 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	QUARRY BELT (SHIFTABLE)		COVERED CONVEYOR	0.13 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	QUARRY BELT (FUTURE)		COVERED CONVEYOR	0.19 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	LIMESTONE CONVEYOR BELT TO FEED			0.01 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	SAND/MILL SCALE CONVEYOR BELT TO FEED			0.01 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	RAW MIX CONVEYOR BELT TO GRINDING		COVERED CONVEYOR BELT	0.01 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	CLINKER PAN CONVEYOR		COVERED	0.02 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	CLINKER CONVEYOR		COVERED	0.03 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MATERIAL HANDLING, ADDITIVES TO		COVERED CONVEYOR	0.02 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MAT HANDLING, COAL/COKE UNLOADING CONVEYOR			0.01 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MAT HANDLING COAL/COKE CONVEYOR TO		COVERED CONVEYOR BELT	0.01 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MATERIAL HANDLING, COAL/COKE STACKER TO		PARTIAL ENCLOSURES, WATER SPRAYS	0.01 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MAT HANDLING COAL/COKE CONVEYOR TO COAL		COVERED CONVEYOR	0.01 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MAT HANDLING COAL/COKE CONVEYOR TO MILL FEED		COVERED CONVEYOR BELT	0.01 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MATERIAL STORAGE, COAL/COKE PILES		SPRAY THE C/C	0.55 LB/H

Table 6-5. Summary of Previous PM/PM_{10}/$PM_{2.5}$ BACT Determinations from Various Material Handling and Storage Sources at Portland Cement Plants

RBLC ID	Facility Name	State	Permit No.	Date Issued	Process Type	Throughput	Control Equipment Description	Emission L Units
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	ADDITIVE PILE			0.16 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MILL SCALE PILE		WATER	0.03 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	SAND PILE			0.03 LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	CLINKER PILE			0.42 LB/H
CO-0048	HOLNAM, LAPORTE CO.	CO	11LR338-1	9/22/1998	PORTABLE CRUSHER			0.044 T/YR
CO-0048	HOLNAM, LAPORTE CO.	CO	11LR338-1	9/22/1998	STACKER / RECALCINER		BAGHOUSE.	0.051 T/YR
CO-0048	HOLNAM, LAPORTE CO.	CO	11LR338-1	9/22/1998	QUARRY HAUL ROADS, WASTE DUST		HAUL ROADS - ROAD WATERING, GRAVEL, CHEMICAL DUST SUPPRESSANTS KILN DUST DISPOSAL - WATERING OMPACTION REVEGETATION	157.1 T/YR
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	RMS SHUTTLE BELT DROP TO PILE (F-R-7)		COVERED	0.02 LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	RMS FEEDER DROP TO BELT (F-R-8)		COVERED	0.01 LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	RMS BELT DROP TO CROSS PLANT BELT (F-R-9)		COVERED CONVEYORS	0.01 LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	CROSS PLANT BELT DROP TO SHUTTLE BELT		COVERED	0.01 LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	SHUTTLE BELT DROP TO DRY FEED BINS		COVERED	0.01 LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	FEED BINS DROP TO ROLLER MILL BELT		COVERED	0.01 LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	PAVED ROADS (F-TR-1)		PAVED ROADS	10.37 T/YR
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	SOLID FUEL TRUCK UNLOADING DROP (F-TR-2)			0.02 LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	SOLID FUEL DROP TO BIN (F-B-1)		THE TOP AND SIDES OF ALL CONVEYOR BELTS SHALL BE COVERED ALL	0.01 LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	SOLID FUEL BIN DROP TO CONVEYOR (F-B-2)		THE TOP AND SIDES OF ALL CONVEYOR BELTS SHALL BE COVERED ALL	0.01 LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	SOLID FUEL CONVEYOR DROP TO BINS (PT. F-B-3)		THE TOP AND SIDES OF ALL CONVEYOR BELTS SHALL BE COVERED ALL	0.01 LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	FEED TANK DROP TO DRAG CHAIN (F-B-4)		THE TOP AND SIDES OF ALL CONVEYOR BELTS SHALL BE COVERED ALL	0.01 LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	DRAG CHAIN DROP TO BELT (PT. F-B-5)		THE TOP AND SIDES OF ALL CONVEYOR BELTS SHALL BE COVERED ALL	0.01 LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	BELT TRANSFER DROP (F-B-6)		THE TOP AND SIDES OF ALL CONVEYOR BELTS SHALL BE COVERED ALL	0.01 LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	BELT TRANSFER DROP (F-B-7)		THE TOP AND SIDES OF ALL CONVEYOR BELTS SHALL BE COVERED ALL	0.01 LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	SOLID FUEL DROP TO MILL CHUTE (F-B-8)		THE TOP AND SIDES OF ALL CONVEYOR BELTS SHALL BE COVERED ALL	0.01 LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	CLINKER DROP TO SHUTTLE BELT (F-C-1)		THE TOP AND SIDES OF ALL CONVEYOR BELTS SHALL BE COVERED ALL	0.3 LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	SHUTTLE BELT DROP TO CLINKER BARN (F-C-2)		THE TOP AND SIDES OF ALL CONVEYOR BELTS SHALL BE COVERED ALL	0.3 LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	SOLID FUEL DROP TO CONVEYOR (F-H-2)		THE TOP AND SIDES OF ALL CONVEYOR BELTS SHALL BE COVERED ALL	0.01 LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	UNPAVED ROADS (PT. F-L-1)		QUARRY ROADS SHALL BE SPRINKLED	25.34 T/YR
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	SOLID FUEL DROP TO HOPPER (F-L-2)		THE TOP AND SIDES OF ALL	0.01 LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	SOLID FUEL STORAGE DROP TO PILE (F-P-1)		THE TOP AND	0.01 LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	WIND PILE EROSION (W-P-2)		COAL AND COKE STOCKPILES SHALL	0.1 LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	KILN DUST DROP TO PILES (F-P-7)		NONE	0.01 LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	CKD DRY KILN PUG MILL TO TRUCK (F-P-12)		INCOMING AND	0.01 LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	QUARRY LOADER DROP TO TRUCK (F-O-4)		INCOMING AND	0.11 LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	PRIMARY CRUSHER (F-Q-6)		A WATER SPRAY SHALL BE APPLIED	0.01 LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	BELT TRANSFER DROP (F-R-2)			0.02 LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	BELT DROP TO TABERNACLE TRANSFER (F-R-3)		THE TOP	0.11 LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	FEED BELT DROP TO RMS SHUTTLE BELT (F-R-6)		THE TOP AND	0.02 LB/H
OR-0036	DURKEE FACILITY	OR	01-0029	2/26/1998	QUARRY OR CRUSHING		BAGHOUSE	0.1 GR/DSCF
OR-0036	DURKEE FACILITY	OR	01-0029	2/26/1998	RAW MATERIAL TRANSFER AND STORAGE		BAGHOUSE	0.1 GR/DSCF
OR-0036	DURKEE FACILITY	OR	01-0029	2/26/1998	AIR SLIDE TO BLEND SILOS		BAGHOUSE	0.1 GR/DSCF
OR-0036	DURKEE FACILITY	OR	01-0029	2/26/1998	CEMENT SILOS		BAGHOUSE	0.1 GR/DSCF
OR-0036	DURKEE FACILITY	OR	01-0029	2/26/1998	CEMENT SILOS		BAGHOUSE	0.019 GR/DSCF
OR-0036	DURKEE FACILITY	OR	01-0029	2/26/1998	RAILCAR		BAGHOUSE	0.1 GR/DSCF
OR-0036	DURKEE FACILITY	OR	01-0029	2/26/1998	CONVEYOR -		BAGHOUSE	0.019 GR/DSCF
OR-0036	DURKEE FACILITY	OR	01-0029	2/26/1998	PULVERIZED		BAGHOUSE	0.1 GR/DSCF
WY-0044	MOUNTAIN CEMENT COMPANY-LARAMIE FACILITY	WY	CT-1137	3/6/1995	CONVEYOR.	45.3 T/H COAL	BAGHOUSE	0.01 GR/ACF
WY-0044	MOUNTAIN CEMENT COMPANY-LARAMIE FACILITY	WY	CT-1137	3/6/1995	DUST RETURN		BAGHOUSE	0.01 GR/ACF
Particulate Matter (PM_{10})								
IA-0070	LEHIGH CEMENT COMPANY - MASON CITY PLANT	IA	17-01-005	12/11/2003	BUCKET ELEVATOR FEED - CEMENT SILO	275 T/H	BAGHOUSE. THERE IS ALSO A NAAQS LIMIT OF 0.34 LB/HR.	0.009 GR/DSCF
IA-0070	LEHIGH CEMENT COMPANY - MASON CITY PLANT	IA	17-01-005	12/11/2003	SHIPPING DISCHARGE SPOUTS	385 T/H (per spout)	BAGHOUSE.	0.009 GR/DSCF
IA-0070	LEHIGH CEMENT COMPANY - MASON CITY PLANT	IA	17-01-005	12/11/2003	AIRSLIDES & SILOS - CEMENT	275 T/H	BAGHOUSE. THERE IS ALSO A	0.009 GR/DSCF
IA-0070	LEHIGH CEMENT COMPANY - MASON CITY PLANT	IA	17-01-005	12/11/2003	PAN & BUCKET ELEVATORS - CLINKER	165 T/H	BAGHOUSE.	0.009 GR/DSCF
IA-0070	LEHIGH CEMENT COMPANY - MASON CITY PLANT	IA	17-01-005	12/11/2003	PAN CONVEYOR & SILO - CLINKER SILO	165 T/H	BAGHOUSE.	0.009 GR/DSCF
IA-0070	LEHIGH CEMENT COMPANY - MASON CITY PLANT	IA	17-01-005	12/11/2003	SILO WITHDRAWAL	330 T/H	BAGHOUSE.	0.009 GR/DSCF
IA-0070	LEHIGH CEMENT COMPANY - MASON CITY PLANT	IA	17-01-005	12/11/2003	CONVEYOR AND ELEVATORS	220 T/H	BAGHOUSE.	0.01 GR/DSCF
IA-0070	LEHIGH CEMENT COMPANY - MASON CITY PLANT	IA	17-01-005	12/11/2003	SEPARATOR VENT - CLINKER PREGRIND	220 T/H	BAGHOUSE.	0.01 GR/DSCF
IA-0070	LEHIGH CEMENT COMPANY - MASON CITY PLANT	IA	17-01-005	12/11/2003	MATERIAL TRANSFER TO SCRUBBER	100 T/H	BAGHOUSE.	0.01 GR/DSCF
IA-0070	LEHIGH CEMENT COMPANY - MASON CITY PLANT	IA	17-01-005	12/11/2003	MATERIAL TRANSFER FROM SCRUBBER	25 T/H	BAGHOUSE.	0.01 GR/DSCF

Table 6-5. Summary of Previous PM/PM_{10}/$PM_{2.5}$ BACT Determinations from Various Material Handling and Storage Sources at Portland Cement Plants

RBLC ID	Facility Name	State	Permit No.	Date Issued	Process Type	Throughput	Control Equipment Description	Emission L	Units
IA-0070	LEHIGH CEMENT COMPANY - MASON CITY PLANT	IA	17-01-005	12/11/2003	SECONDARY FUEL HANDLING	110 T/H	BAGHOUSE.	0.01	GR/DSCF
IA-0070	LEHIGH CEMENT COMPANY - MASON CITY PLANT	IA	17-01-005	12/11/2003	SECONDARY MATERIAL HANDLING	110 T/H	BAGHOUSE.	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	SCREEN	1000 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH QUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	RAW MATERIAL TRANSFER FROM STORAGE TO KILN	180 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	ROCK SILO TO LOESCHE MILL	180 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	STORAGE SILO, KILN FEED TO KILN #6	160 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	CLINKER SHED TO FINISH MILLS	500 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	RAW SHED TO LOESCHE MILL	40 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH QUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	RAW MATERIAL TRANSFER FROM BELT CONVEYOR 107	800 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH QUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	RAW MATERIAL TRANSFER RAW SHED (2) TO LOESCHE MILL	40 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	GYPSUM RAW SHED	350 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	PENTHOUSE STORAGE #2 (NORTH #1)	2250 T/D	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	PENTHOUSE STORAGE #2 (NORTH #2)	2250 T/D	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	PENTHOUSE STORAGE #2 (NORTH #3)	2250 T/D	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	ROCK SILO DISCHARGE	1000 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	MATERIAL TRANSFER, ALKALI	2250 T/D	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	BULK STORAGE SILOS #1	125 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	BULK STORAGE SILOS #2	125 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	BULK STORAGE SILOS #3	125 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	BULK STORAGE SILOS #4	125 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	BULK STORAGE SILOS #5	200 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	RAIL STORAGE SILOS #1	125 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	RAIL STORAGE SILOS #2	125 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	RAIL STORAGE SILOS #3	125 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	BULK RAIL LOADOUTS #1	500 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	BULK RAIL LOADOUTS #2	500 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	EAST BULK TRUCK LOADOUT	500 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	BULK TRUCK LOADOUT, WEST	500 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	CEMENT BAGGING #1	114 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	CEMENT BAGGING #2	114 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	CEMENT BAGGING #3	114 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	COAL MILL	20 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	COAL STACKER TOP	400 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	COAL SURGE BIN TOP (2)	400 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	COAL TUNNEL TO COAL STACKER	400 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	COAL TRANSFER	400 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	COAL BIN #6	400 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	COAL DRYER - FK PUMP	20 T/H	FABRIC FILTER	0.01	GR/DSCF
SD-0003	GCC DACOTAH - DACOTAH OUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	COAL HOPPER TO CONVEYOR	400 T/H	FABRIC FILTER	0.01	GR/DSCF
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	OUARRYING, O-1	0 000 T/YR	NONE	8.64	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	TRANSPORT TO RAW MATERIAL/STORAGE BINS, RMS		CLEAN AND MAINTAIN OUTGOING VEHICLES TO MINIMIZE FUGIVITES	1.33	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	MATERIAL HANDLING, F-1		NONE	2.37	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	COAL/COKE STOCKPILES, S-01		NONE	0.28	LB/H
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	COAL AND COKE ROAD HOPPER, S-98		NONE	0.9	LB/H
CO-0043	RIO GRANDE PORTLAND CEMENT CORP.	CO	98PB0893	9/25/2000	RAW MATERIAL TRANSFER, ROAD DUST	950000 T/YR CLINKER	CE = 85-90%. TREATMENT OF UNPAVED HAUL SURFACES WITH CHEMICAL STABILIZERS AND REGULAR WATERING. REGULAR INSPECTION AND CLEANING OF PAVED HAUL SURFACES. USE OF SURFACTANTS IN SPRAY WATERS. NO LIMIT SET FOR FUGITIVE EMISSION	85	%
CO-0043	RIO GRANDE PORTLAND CEMENT CORP.	CO	98PB0893	9/25/2000	MATERIAL MILLING	1000000 T/YR	LOW TEMPERATURE MEMBRANE TYPE FILTER BAGHOUSE	0.005	GR/DSCF
CO-0043	RIO GRANDE PORTLAND CEMENT CORP.	CO	98PB0893	9/25/2000	MATERIAL HANDLING	950000 T/YR	LOW TEMPERATURE MEMBRANE TYPE FILTER BAGHOUSE; CE > 99.9%	0.005	GR/DSCF
FL-0139	SUWANNEE AMERICAN CEMENT COMPANY, INC.	FL	1210465-001-AC	6/1/2000	COAL MILL		BAGHOUSE	0.01	GR/DSCF
FL-0139	SUWANNEE AMERICAN CEMENT COMPANY, INC.	FL	1210465-001-AC	6/1/2000	MATERIAL HANDLING & STORAGE SILO		BAGHOUSE	0.0085	GR/DSCF
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	UNLOADING, TRANSFER, CONVEYING RAW MATERIALS & ADDITIVES TO TRANSFER TOWER		BAGHOUSE	0.16	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	RAW MATERIALS EXTRACTION		MINIMIZE DISTANCE AREA. REVEGETATION. CHEMICAL STABILIZERS	1.32	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	OVERBURDEN AND WASTE ROCK REMOVAL		CONTROL PLAN	16.73	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	RAW MATERIAL REMOVAL AND HAULAGE		CONTROL PLAN	37.27	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	CEMENT KILN DUST HAULING		WETTING MATERIAL PRIOR TO PLACEMENT	1.34	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	DISTURBED AREAS IN OUARRY AND PLANT		MINIMIZATION OF	83.61	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	MATERIAL TRANSFER, HAUL TRUCKS TO PRI CRUSH FEED CRUSHER FEED HOPPER. (2)		ENCLOSURE UNDER NEG PRESSURE, DUST CURTAINS, WATER SPRAY, BAGHOUSE	0.01	T/YR, transfer 1
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	ROCK CRUSHER		BAGHOUSE	0.05	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	TRANSFER & CONVEYING, CRUSHER #1 TO SECOND #1		BAGHOUSE	0.01	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	SECONDARY CRUSHER #1		BAGHOUSE	0.03	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	PRIMARY CRUSHER #2		BAGHOUSE	0.91	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	TRANSFER & CONVEYING, SECONDARY CRUSHER #1		BAGHOUSE	0.1	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	TRANSFER & CONVEYING, PRELIM CRUSH #2 TO PRE-BLEND		BAGHOUSE	0.27	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	STACKER BELT, RECLAIMER, PRE-BLENDING CONVEYORS		BAGHOUSE	0.25	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	RAW MATERIALS CONVEYING, RAW MILL FEED BINS		BAGHOUSE	0.21	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	UNLOADING & CONVEYING, COAL TO STOCKPILE		NEG PRESSURE AND BAGHOUSE	1.85	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	COAL STOCKPILE		SURFACE MOISTURE	0.33	T/YR

Table 6-5. Summary of Previous PM/PM$_{10}$/PM$_{2.5}$ BACT Determinations from Various Material Handling and Storage Sources at Portland Cement Plants

RBLC ID	Facility Name	State	Permit No.	Date Issued	Process Type	Throughput	Control Equipment Description	Emission L	Units
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	RECLAIMING, CONVEYING, & TRANS COAL TO COAL SCREEN		BAGHOUSE, PERMIT MODIFICATION TRIGGERED BACT REVIEW OF		
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	SCREENING AND CRUSHING OVERSIZE COAL		BAGHOUSE, PERMIT MODIFICATION TRIGGERED BACT REVIEW OF	0.19	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	TRANS & CONVEYING - CRUSHED COAL TO TRANSFER TOWER		BAGHOUSE, PERMIT MODIFICATION TRIGGERED BACT REVIEW OF	0.02	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	TRANSFER, COAL, TRANSFER TOWER TO SILO		BAGHOUSE, PERMIT MODIFICATION TRIGGERED BACT REVIEW OF	0.02	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	TRANSFER & CONVEYING, RAW MATERIAL		BAGHOUSE	0.22	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	COAL MILL VENT BAGHOUSE		BAGHOUSE, PM	14.44	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	RAW MILL SYSTEM		BAGHOUSE	6.17	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	TRANSFER, MILLED RAW MEAL TO BLENDING SILO		BAGHOUSE	3.86	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	TRANSFER, BLENDING SILO TO KILN FEED BIN		BAGHOUSE	1.54	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	CEMENT CLINKER STORAGE & HANDLING		BAGHOUSE	0.07	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	TRANSFER, CLINKER TO CEMENT FINISH MILL BINS		BAGHOUSE	0.08	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	TRANSFER, CEMENT TO CEMENT SILOS		BAGHOUSE	2.54	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	MATERIAL HANDLING, CEMENT PACKHOUSE		BAGHOUSE	0.13	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	MATERIAL HANDLING, CEMENT BULK LOADOUTS		BAGHOUSE	2.46	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	PAVED ROADS, CEMENT PRODUCT HAULOUT		CONTROL	1.2	T/YR
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	DRILLING AND BLASTING			0.7	T/YR
IN-0081	LONE STAR INDUSTRIES, INC.	IN	133-10159	4/16/1999	COAL MILL	40 T/YR	FABRIC FILTER	0.01	GR/DSCF
IN-0081	LONE STAR INDUSTRIES, INC.	IN	133-10159	4/16/1999	CLINKER COOLER TRANSFER EQUIPMENT	183 T/H	FABRIC FILTER	0.015	GR/DSCF
IN-0081	LONE STAR INDUSTRIES, INC.	IN	133-10159	4/16/1999	CLINKER STORAGE SILOS		BAGHOUSE	0.015	GR/DSCF
IN-0081	LONE STAR INDUSTRIES, INC.	IN	133-10159	4/16/1999	CEMENT STORAGE SILOS	235 T/H	FABRIC FILTER	0.015	GR/DSCF
IN-0081	LONE STAR INDUSTRIES, INC.	IN	133-10159	4/16/1999	SECONDARY CRUSHER	400 T/H LIMESTONI	BAGHOUSE, PM10	0.015	GR/DSCF
IN-0081	LONE STAR INDUSTRIES, INC.	IN	133-10159	4/16/1999	BALL MILL TRANSFER EQUIPMENT	360 T/H raw mat'l	BAGHOUSE, PM10 = TOTAL FILTERABLE	0.01	GR/DSCF
IN-0081	LONE STAR INDUSTRIES, INC.	IN	133-10159	4/16/1999	FLY ASH SILOS	135300 tpy fly ash	BAGHOUSE, PM10 = TOTAL FILTERABLE	0.015	GR/DSCF
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	SHIFTABLE QUARRY BELT DROP POINT		PARTIAL ENCLOSURE AND SPRAYING	0.29	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	QUARRY BELT DROP POINT (FUTURE)		COVERED AND SPRAYED	0.29	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	QUARRY CONVEYOR BELT TO LIMESTONE STORAGE DROP		COVERED AND SPRAYED	0.29	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MOBILE CRUSHER			0.65	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	RAW MATERIAL HOPPER		BAGHOUSE	0.18	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	RAW MATERIAL STORAGE BINS		BAGHOUSE	0.68	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	RAW MATERIAL FEED BIN		BAGHOUSE	0.25	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	RAW MATERIAL CONVEYOR TRANSFER		BAGHOUSE	0.39	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	BLENDING SILO DEDUSTING		BAGHOUSE	0.22	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	FEED BIN		BAGHOUSE	0.2	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	BLENDING SILO		BAGHOUSE	0.06	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	CLINKER CONVEYOR NO. 1		BAGHOUSE	0.51	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	CLINKER CONVEYOR NO. 2		BAGHOUSE AND COVERED CONVEYOR	2.15	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	CLINKER CONVEYOR AND BIN		BAGHOUSE	0.67	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	BYPASS DUST BIN			0.22	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	RAW MILL DUST			0.22	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	SCRUBBER AREA		BAGHOUSE	0.09	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	RAW COAL/COKE BIN		BAGHOUSE & SPRAY COAL/COKE	0.08	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MAT STORAGE, CRUSHED COAL/COKE BIN		BAGHOUSE AND SPRAY PILE	0.01	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MATERIAL HANDLING SYSTEM INTO FINISH MILL		BAGHOUSE	0.92	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	CLINKER LOADOUT	1131500 T/YR	BAGHOUSE	0.18	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	CEMENT SILO NO.1		BAGHOUSE	0.1	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	CEMENT SILO NO. 2		BAGHOUSE	0.34	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	CEMENT SILO NO. 3		BAGHOUSE	0.11	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	CEMENT LOADOUT NO. 1 AND NO. 2		BAGHOUSE	0.33	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	CEMENT SILO FEED BIN #S. 1, 2, 3, 4		BAGHOUSE	0.14	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	FRONT END LOADER DROP POINT TO CRUSHER		PARTIAL ENCLOSURE WITH WATER SPRAYER	0.27	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	CRUSHER DROP POINT TO CONVEYOR		PARTIAL ENCLOSURE WITH WATER SPRAYER	0.27	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	LIMESTONE STORAGE BUILDING VENT		FULLY ENCLOSED BUILDING FOR LIME STG	0.05	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	SAND/MILL SCALE DROP POINT TO		FULLY ENCLOSED BUILDING FOR LIME STG	0.09	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MATERIAL HANDLING, ADDITIVE DROP POINT TO		PARTIAL ENCLOSURE AND WATER	0.25	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	CLINKER TRUCK LOADING			0.02	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MAT HANDLING, COAL/COKE DROP PT TO HOPPER		PARTIAL ENCLOSURE AND WATER	0.09	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MATERIAL HANDLING, COAL/COKE DROP POINT TO		PARTIAL ENCLOSURE AND WATER	0.22	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MATERIAL HANDLING, COAL/COKE DROP POINT TO		PARTIAL ENCLOSURE AND WATER	0.22	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MATERIAL HANDLING, COAL/COKE DROP TO HOPPER		PARTIAL ENCLOSURE AND WATER	0.22	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MATERIAL HANDLING COAL/COKE DROP FEEDER TO			0.09	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MATERIAL HANDLING COAL/COKE DROP BELT TO		COVERED CONVEYOR	0.09	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MAT HANDLING, COAL/COKE RECEIVING DROP TO		PARTIAL ENCLOSURE AND WATER	0.04	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	QUARRY CONVEYOR BELT TO LIMESTONE		COVERED CONVEYOR	0.01	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	QUARRY BELT (SHIFTABLE)		COVERED CONVEYOR	0.07	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	QUARRY BELT (FUTURE)		COVERED CONVEYOR	0.09	LB/H

Table 6-5. Summary of Previous PM/PM_{10}/$PM_{2.5}$ BACT Determinations from Various Material Handling and Storage Sources at Portland Cement Plants

RBLC ID	Facility Name	State	Permit No.	Date Issued	Process Type	Throughput	Control Equipment Description	Emission L	Units
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	LIMESTONE CONVEYOR BELT TO FEED		COVERED CONVEYOR BELT	0.01	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	SAND/MILL SCALE CONVEYOR BELT TO FEED		COVERED CONVEYOR BELT	0.01	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	RAW MIX CONVEYOR BELT TO GRINDING		COVERED CONVEYOR BELT	0.01	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	CLINKER PAN CONVEYOR		COVERED	0.01	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	CLINKER CONVEYOR		COVERED	0.02	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MATERIAL HANDLING, ADDITIVES TO		COVERED CONVEYOR	0.01	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MAT HANDLING, COAL/COKE UNLOADING CONVEYOR		COVERED CONVEYOR BELT, WATER	0.01	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MAT HANDLING COAL/COKE CONVEYOR TO		COVERED CONVEYOR BELT	0.01	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MATERIAL HANDLING, COAL/COKE STACKER TO		ENCLOSURE, WATER SPRAY	0.01	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MAT HANDLING COAL/COKE CONVEYOR TO COAL		COVERED CONVEYOR	0.01	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MAT HANDLING COAL/COKE CONVEYOR TO MILL FEED		COVERED CONVEYOR BELT	0.01	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MATERIAL STORAGE, COAL/COKE PILES		SPRAY THE C/C	0.28	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	ADDITIVE PILE			0.08	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MILL SCALE PILE		WATER	0.02	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	SAND PILE			0.02	LB/H
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	CLINKER PILE			0.21	LB/H
MI-0257	LAFARGE MIDWEST, INC., ALPENA PLANT	MI	356-88E	1/5/1999	MATERIAL STORAGE CLINKER	400000 T	BAGHOUSES. PERMIT LIMIT IS CONTROL AND GR/DSCF LIMIT	0.02	GR/DSCF
MI-0257	LAFARGE MIDWEST, INC., ALPENA PLANT	MI	356-88E	1/5/1999	CLINKER TRANSFER	2500000 T/Y	CONVEYORS AND TRANSFER POINTS ALL COVERED AND CONTROLLED BY BAGHOUSES. PERMIT LIMIT IS CONTROLS	0.02	GR/DSCF
CO-0048	HOLNAM, LAPORTE CO.	CO	11LR338-1	9/22/1998	PORTABLE CRUSHER			0.037	T/YR
CO-0048	HOLNAM, LAPORTE CO.	CO	11LR338-1	9/22/1998	STACKER / RECALCINER		BAGHOUSE	0.043	T/YR
CO-0048	HOLNAM, LAPORTE CO.	CO	11LR338-1	9/22/1998	QUARRY HAUL ROADS, WASTE DUST		HAUL ROADS - ROAD WATERING, GRAVEL, CHEMICAL DUST SUPPRESSANTS KILN DUST DISPOSAL - WATERING OMPACTION REVEGETATION	70.5	T/YR
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	RMS SHUTTLE BELT DROP TO PILE (F-R-7)		COVERED	0.01	LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	RMS FEEDER DROP TO BELT (F-R-8)		COVERED	0.01	LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	RMS BELT DROP TO CROSS PLANT BELT (F-R-9)		COVERED CONVEYORS	0.01	LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	CROSS PLANT BELT DROP TO SHUTTLE BELT		COVERED	0.01	LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	SHUTTLE BELT DROP TO DRY FEED BINS		COVERED	0.01	LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	FEED BINS DROP TO ROLLER MILL BELT		COVERED	0.01	LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	PAVED ROADS (F-TR-1)		PAVED ROADS	0.86	T/YR
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	SOLID FUEL TRUCK UNLOADING DROP (F-TR-2)			0.01	LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	SOLID FUEL FEED BINS BAGHOUSE STACK (PT. 4)		BAGHOUSE IS	0.09	LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	BLEND SILO ROOF BAGHOUSE STACK (PT. 7)		BAGHOUSE IS	0.69	LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	DRY PROC. BLEND TANKS BOTTOM BAGHOUSE STACK (PT			0.11	LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	ALKALI BYPASS BIN BAGHOUSE STACK (PT. 9B)		BAGHOUSE IS	0.21	LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	COAL/COKE BINS BAGHOUSE STACK (PT. 10)		BAGHOUSE	0.09	LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	UNDERGROUND CLINKER TUNNEL BAGHOUSE STACK (PT. 14)		BAGHOUSE IS	0.28	LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	CEMENT SILO NO. 1 BAGHOUSE STACK (PT. 25)		BAGHOUSE IS	0.69	LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	CEMENT SILO NO. 2 BAGHOUSE STACK (PT. 26)		BAGHOUSE	0.34	LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	MILL BAGHOUSES STACK (PT. 31)		BAGHOUSE IS	0.26	LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	FUEL BIN BAGHOUSE STACK (PT. 32)		BAGHOUSE IS	0.59	LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	SOLID FUEL FINES BIN BAGHOUSE STACK (PT. 33)		BAGHOUSE IS	0.06	LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	FRINGE MATERIAL BAGHOUSE STACK (PT. 38)		BAGHOUSE IS	0.15	LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	TURN HEAD MATERIAL DIVERTER BAGHOUSE (PT. 39)		BAGHOUSE IS	0.26	LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	FEED TANK BAGHOUSE STACK (PT. 40)		BAGHOUSE IS	0.15	LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	SEPARATOR BAGHOUSE STACK (PT. 41A)		BAGHOUSE IS	2.98	LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	MILL BAGHOUSE STACK (41B)		BAGHOUSE IS	1.2	LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	SOLID FUEL DROP TO BIN (F-B-1)		THE TOP AND SIDES OF ALL CONVEYOR BELTS SHALL BE COVERED	0.01	LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	SOLID FUEL BIN DROP TO CONVEYOR (F-B-2)		THE TOP AND SIDES OF ALL CONVEYOR BELTS SHALL BE COVERED	0.01	LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	SOLID FUEL CONVEYOR DROP TO BINS (PT. F-B-3)		THE TOP AND SIDES OF ALL CONVEYOR BELTS SHALL BE COVERED	0.01	LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	FEED TANK DROP TO DRAG CHAIN (F-B-4)		THE TOP AND SIDES OF ALL CONVEYOR BELTS SHALL BE COVERED	0.01	LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	DRAG CHAIN DROP TO BELT (PT. F-B-5)		THE TOP AND SIDES OF ALL CONVEYOR BELTS SHALL BE COVERED	0.01	LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	BELT TRANSFER DROP (F-B-6)		THE TOP AND SIDES OF ALL CONVEYOR BELTS SHALL BE COVERED	0.01	LB/H
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	BELT TRANSFER DROP (F-B-7)		THE TOP AND SIDES OF ALL CONVEYOR BELTS SHALL BE COVERED	0.01	LB/H

Table 6-5. Summary of Previous PM/PM_{10}/$PM_{2.5}$ BACT Determinations from Various Material Handling and Storage Sources at Portland Cement Plants

RBLC ID	Facility Name	State	Permit No.	Date Issued	Process Type	Throughput	Control Equipment Description	Emission L	Units	
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	SOLID FUEL DROP TO MILL CHUTE (F-B-8)		THE TOP AND SIDES OF ALL CONVEYOR BELTS SHALL BE COVERED	0.01	LB/H	
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	CLINKER DROP TO SHUTTLE BELT (F-C-1)		THE TOP AND SIDES OF ALL CONVEYOR BELTS SHALL BE COVERED	0.14	LB/H	
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	SHUTTLE BELT DROP TO CLINKER BARN (F-C-2)		THE TOP AND SIDES OF ALL CONVEYOR BELTS SHALL BE COVERED	0.14	LB/H	
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	SOLID FUEL DROP TO CONVEYOR (F-B-2)		THE TOP AND SIDES OF ALL CONVEYORS SHALL BE COVERED. ALL	0.01	LB/H	
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	UNPAVED ROADS (PT. F-L-1)		QUARRY ROADS SHALL BE	11.4	T/YR	
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	SOLID FUEL DROP TO HOPPER (F-L-2)		THE TOP AND SIDES OF	0.01	LB/H	
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	SOLID FUEL STORAGE DROP TO PILE (F-P-1)		THE TOP AND	0.01	LB/H	
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	WIND PILE EROSION (W-P-2)		COAL AND COKE STOCKPILES SHALL	0.05	LB/H	
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	KILN DUST DROP TO PILES (F-P-7)		NONE	0.01	LB/H	
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	CKD DRY KILN PUG MILL TO TRUCK (F-P-12)		INCOMING AND	0.01	LB/H	
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	QUARRY LOADER DROP TO TRUCK (F-Q-4)		INCOMING AND	0.05	LB/H	
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	PRIMARY CRUSHER (F-Q-6)		A WATER SPRAY SHALL BE APPLIED	0.01	LB/H	
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	BELT TRANSFER DROP (F-R-2)		THE TOP AND SIDES OF ALL	0.01	LB/H	
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	BELT DROP TO TABERNACLE TRANSFER (F-R-3)		THE TOP	0.05	LB/H	
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	FEED BELT DROP TO RMS SHUTTLE BELT (F-R-6)		THE TOP AND	0.01	LB/H	
MO-0048	LAFARGE CORPORATION	MO	0897-019	8/20/1997	CONVEYOR TRANSFER POINTS(EP		WATER SPRAY AND			
MO-0048	LAFARGE CORPORATION	MO	0897-019	8/20/1997	SCALPER SCREEN(EP	1460029 TONS	WATER SPRAY AND			
MO-0048	LAFARGE CORPORATION	MO	0897-019	8/20/1997	STORAGE		PARTIAL ENCLOSURE OR			1460029
MO-0048	LAFARGE CORPORATION	MO	0897-019	8/20/1997	STORAGE PILE(EP	182470.8 TONS	PARTIAL ENCLOSURES OR WIND			
MO-0048	LAFARGE CORPORATION	MO	0897-019	8/20/1997	STORAGE PILE(EP	6570000 TONS	PARTIAL ENCLOSURES OR WIND			
MO-0048	LAFARGE CORPORATION	MO	0897-019	8/20/1997	STORAGE PILE(EP	182470.8 TONS	PARTIAL ENCLOSURES OR WIND			
MO-0048	LAFARGE CORPORATION	MO	0897-019	8/20/1997	CONVEYORS, SURGE BIN(EP 72,	100039.2 TONS	BAGHOUSE DESIGNED TO	REDUC		99
MO-0048	LAFARGE CORPORATION	MO	0897-019	8/20/1997	SOLID FUEL STORAGE BINS AND	100039.2 TONS	BAGHOUSE DESIGNED	TO REI		99
MO-0048	LAFARGE CORPORATION	MO	0897-019	8/20/1997	SOLID FUEL DAY BIN #1(EP	100039.2 TONS	BAGHOUSE DESIGNED TO REDUCE	PM10 I		99
MO-0048	LAFARGE CORPORATION	MO	0897-019	8/20/1997	SOLID FUEL DAY BIN #2(EP	70080 TONS	BAGHOUSE DESIGNED TO REDUCE	PM10 I		99
MO-0048	LAFARGE CORPORATION	MO	0897-019	8/20/1997	BINS, CONVEYOR, ROLLER MILL	182470.8 TONS	BAGHOUSE	99	%	
MO-0048	LAFARGE CORPORATION	MO	0897-019	8/20/1997	RAW MATERIAL SILOS(EP	182470.8 TONS	BAGHOUSE DESIGNED TO REDUCE	99	%	
MO-0048	LAFARGE CORPORATION	MO	0897-019	8/20/1997	TRANSFER POINT(EP	1337039 TONS	BAGHOUSE DESIGNED TO	99	%	
MO-0048	LAFARGE CORPORATION	MO	0897-019	8/20/1997	TRANSFER POINT(EP	102930 TONS	BAGHOUSE DESIGNED TO REDUCE			
MO-0048	LAFARGE CORPORATION	MO	0897-019	8/20/1997	TRANSFER POINTS(EP	0 TONS	BAGHOUSE DESIGNED TO REDUCE PM10			
MO-0048	LAFARGE CORPORATION	MO	0897-019	8/20/1997	RAW MIX SURGE BIN(EP	1584071 TONS	BAGHOUSE DESIGNED TO			
MO-0048	LAFARGE CORPORATION	MO	0897-019	8/20/1997	RAW MIX SILO(EP	1584071 TONS	BAGHOUSE DESIGNED TO			
MO-0048	LAFARGE CORPORATION	MO	0897-019	8/20/1997	RAW MIX UNLOADING SYSTEM(EP	1584071 TONS	BAGHOUSE DESIGNED TO			
MO-0048	LAFARGE CORPORATION	MO	0897-019	8/20/1997	CLINKER SILO #1(EP	640180.8 TONS	BAGHOUSE DESIGNED TO REDUCE			
UT-0059	ASH GROVE CEMENT COMPANY	UT	DAOE-958-96	10/24/1996	COAL DELIVERY SYSTEM		BAGHOUSE	1.08	LB/H	
NV-0032	GREAT STAR CEMENT CORP./UNITED ROCK PRODUCTS	NV	A139	10/24/1995	MATL HANDLING		BAGHOUSE WITH A	18.7	LB/HR & .010 GR/I	
NV-0032	GREAT STAR CEMENT CORP./UNITED ROCK PRODUCTS	NV	A139	10/24/1995	QUARRYING		WET SUPPRESSION	399.6	LB/HR	
NV-0032	GREAT STAR CEMENT CORP./UNITED ROCK PRODUCTS	NV	A139	10/24/1995	LIMESTONE CRUSHING		BAGHOUSE WITH A	0.05	LB/HR & .010 GR/I	
NV-0032	GREAT STAR CEMENT CORP./UNITED ROCK PRODUCTS	NV	A139	10/24/1995	SAND AND GRAVEL SCREENING		WET	274.9	LB/HR	
NV-0032	GREAT STAR CEMENT CORP./UNITED ROCK PRODUCTS	NV	A139	10/24/1995	RAW MATERIALS BLENDING"		BAGHOUSE	2.334	LB/HR & .010 GR/I	
NV-0032	GREAT STAR CEMENT CORP./UNITED ROCK PRODUCTS	NV	A139	10/24/1995	COLLECTING AT FINISH		BAGHOUSE WITH A STACK	3.32	LB/HR & 0.010 GR	
NV-0032	GREAT STAR CEMENT CORP./UNITED ROCK PRODUCTS	NV	A139	10/24/1995	CEMENT STORAGE SILO		BAGHOUSE WITH A	1.269	LB/HR & .010 GR/I	
NV-0032	GREAT STAR CEMENT CORP./UNITED ROCK PRODUCTS	NV	A139	10/24/1995	SAND/GRAVEL LOADERS &		WET	399.4	LB/HR	
SD-0003	GCC DACOTAH - DACOTAH QUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	PRIMARY AND SECONDARY CRUSHERS	1000 T/H	FABRIC FILTER	0.01	GR/DSCF	

Source: EPA's RACT/BACT/LAER Clearinghouse, 2005.

Table 6-6. Summary of Previous PM/PM_{10} BACT Determinations from Finish Mills at Portland Cement Plants

RBLC ID	Facility Name	State	Permit No.	Date Issued	Process Type	Throughput	Control Equipmen	Emission Limit 1	Emission Limit 2	% Effic.
Particulate Matter (PM)										
MO-0059	CONTINENTAL CEMENT COMPANY, LLC	MO	2002-02-038	9/24/2002	FINISH MILL, CLINKER GRINDING, ELEVATOR	114.2 T/H	BAGHOUSE			
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	FINISH MILL SYSTEM		BAGHOUSE	70.78 T/YR		
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	FINISH MILL SYSTEM VENT		BAGHOUSE	9.83 LB/H; 43.1 TPY		
OR-0036	DURKEE FACILITY	OR	01-0029	2/26/1998	FINISH GRINDING MILL FEED BELT		BAGHOUSE	0.1 gr/dscf, 3-hr		
OR-0036	DURKEE FACILITY	OR	01-0029	2/26/1998	FINISH MILL #2		BAGHOUSE	0.017 gr/dscf, 3-hr	69 LB/D	
WY-0044	MOUNTAIN CEMENT COMPANY-LARAMIE FACILITY	WY	CT-1137	3/6/1995	FINISH MILL C" EXISTING GRINDING MILL USED IN		BAGHOUSE	0.01 GR/ACF	1.89 LB/H	99.9
Particulate Matter (PM_{10})										
SD-0003	GCC DACOTAH - DACOTAH QUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	FINISH MILL NO. 3	35 T/H	FABRIC FILTER	0.01 GR/DSCF		
SD-0003	GCC DACOTAH - DACOTAH QUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	FINISH MILL NO. 4	40 T/H	FABRIC FILTER	0.01 GR/DSCF		
SD-0003	GCC DACOTAH - DACOTAH QUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	FINISH MILL NO. 5	45 T/H	FABRIC FILTER	0.01 GR/DSCF		
SD-0003	GCC DACOTAH - DACOTAH QUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	FINISH MILL NO. 6	45 T/H	FABRIC FILTER	0.01 GR/DSCF		
SD-0003	GCC DACOTAH - DACOTAH QUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	FINISH MILL NO. 7 (MILL SWEEP)	85 T/H	FABRIC FILTER	0.01 GR/DSCF		
SD-0003	GCC DACOTAH - DACOTAH QUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	FINISH MILL NO. 7 (MILL SEPARATOR)	85 T/H	FABRIC FILTER	0.01 GR/DSCF		
SD-0003	GCC DACOTAH - DACOTAH QUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	FINISH MILL NO. 7 (TRANSFER)	500 T/H	FABRIC FILTER	0.01 GR/DSCF		
SD-0003	GCC DACOTAH - DACOTAH QUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	FINISH MILL #7 (TRANSFER #2)	500 T/H	FABRIC FILTER	0.01 GR/DSCF		
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	FM NO. 1 SEPARATOR , N-13		BAGHOUSE	1.26 LB/H	5.29 T/YR	
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	FM NO. 1 AIRSLIDES, N-22		BAGHOUSE	0.36 LB/H	1.51 T/YR	
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	FM NO. 2 SEPARATOR, N-63		BAGHOUSE	1.26 LB/H	5.29 T/YR	
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	FM NO. 2 AIRSLIDES, N-69		BAGHOUSE	0.36 LB/H	1.51 T/YR	
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	FINISH MILL SYSTEM		BAGHOUSE	70.78 T/YR		
IN-0081	LONE STAR INDUSTRIES, INC.	IN	133-10159	4/16/1999	FINISH MILL, NO. 3	95 T/H	FABRIC FILTER	0.01 GR/DSCF	1.97 LB/H	
IN-0081	LONE STAR INDUSTRIES, INC.	IN	133-10159	4/16/1999	FINISH MILL TRANSFER EQUIPMENT	235 TPH	BAGHOUSE	0.015 gr/dscf	0.01 GR/DSCF	
IN-0081	LONE STAR INDUSTRIES, INC.	IN	133-10159	4/16/1999	FINISH MILL TRANSFER NO. 3		FABRIC FILTER	0.015 GR/DSCF	0.01 GR/DSCF	
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	FINISH MILL SYSTEM VENT		BAGHOUSE	9.83 LB/H	43.1 T/YR	
MO-0048	LAFARGE CORPORATION	MO	0897-019	8/20/1997	FINISH MILL, HOPPER, CEMENT AIR SEPARATION	1401600 TONS	BAGHOUSE	3.46 LB/HR		

Source: EPA's RACT/BACT/LAER Clearinghouse, 2005.

Table 6-7. Summary of Previous SO_2 BACT Determinations from Cement Kilns, Preheaters, and Calciners at Portland Cement Plants

RBLC ID	Facility Name	State	Permit No.	Date Issued	Process Type	Fuel Used	Throughput	Emission Limit (as presented in Clearinghouse)	Emission Limit (converted [a])	Control Equipment Description	% Effic.
IA-0070	LEHIGH CEMENT COMPANY - MASON CITY PLANT	IA	17-01-005	12/11/2003	KILN/CALCINER/PREHEATER	COAL	150 TPH Clinker	530.3 T/YR	1.01 LB/T	WET SCRUBBER.	
VA-0272	ROANOKE CEMENT	VA	20232	6/13/2003	LIME KILN	COAL	1,300,000 T/YR	950 LB/H; 3,104.4 TPY	6.40 lb/ton (hourly); 4.78 lb/ton (annual)	LOW SULFUR FUEL, GCP AND CEMS	
SD-0003	GCC DACOTAH - DACOTAH QUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	ROTARY KILN #6	COAL	2,250 T/D	632 LB/H	6.74 lb/ton	Inherent scrubbing effect of processing limestone	
AL-0200	CEMEX, INC.	AL	105-0002-Z004	9/13/2002	CEMENT KILN	COAL	230 T/H	160 LB/H	0.821 LB/T		90
IA-0052	LAFARGE CORPORATION	IA	PN 00-057	7/1/2002	PREHEATER/PRECALCINER KILN	COAL	3,488 T/D	500 LB/D; 4,850 TPY	0.143 lb/ton (daily)	Dry Scrubber Equivalent. Lime is generated from limestone in feed and comes into contact with SO2 and some SO2 captured in waste kiln dust.	75
WA-0307	PORTLAND CEMENT CLINKERING PLANT	WA	PSD-90-03	10/5/2001	KILN EXHAUST STACK			180 ppm @ 10% O2, 1-hr		During kiln preheating period, shutdown and during maintenance of baghouse, only nat. gas will be burned and sulfur rings shall be removed if the ring was the cause of the shutdown.	
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	GRINDING/ PREHEATING/ KILN, K-19			20 LB/H; 84 TPY		NONE INDICATED.	
CO-0043	RIO GRANDE PORTLAND CEMENT CORP.	CO	98PB0893	9/25/2000	PREHEATER/PRECALCINER, KILN		950,000 T/YR Clinker	1.99 LB/T, 12-month rolling	1.99 LB/T	Raw materials quarry will be managed for optimum sulfur contents. SO2 will be absorbed in a 5-stage precalciner/preheater Kiln.	85
MD-0027	LEHIGH PORTLAND CEMENT COMPANY	MD	06-6-0356R	6/8/2000	PREHEATER/PRECALCINER	COAL	2,214,000 T/YR	1041 T/YR	0.94 lb/ton	Options include the installation of a 5-stage preheater/precalciner pyroprocessing plant and use of raw material with sulfur < 0.03%.	95
FL-0139	SUWANNEE AMERICAN CEMENT COMPANY, INC.	FL	1210465-001-AC	6/1/2000	IN LINE KILN & RAW MILL	Nat. Gas	178 T/H	0.27 LB/T CLINKER	0.27 LB/T CLINKER	Low sulfur materials and process control	
MI-0287	HOLNAM, INC.	MI	60-71L	3/20/2000	CEMENT KILNS, WET PROCESS (2)	COAL	100 T/H Feed	21.7 LB/T	21.7 LB/T	SULFUR IN FUEL LIMIT HAS BEEN DROPPED IN SCRUBBER	85
KS-0022	MONARCH CEMENT COMPANY	KS	10069	1/27/2000	2 PRECALCINERS (EACH)	Nat. Gas	107.6 TPH	421 LB/H; 622.3 TPY	3.91 lb/ton (hourly); 1.32 lb/ton (annual)	BAGHOUSE	99
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	KILN/PREHEATER/BYPASS & CLINKER COOLER			623.23 T/YR		WET LIME SCRUBBER	
IN-0081	LONE STAR INDUSTRIES, INC.	IN	133-10159	4/16/1999	KILN OPERATION	COAL	360 T/H	3317 T/YR	2.10 lb/ton		
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MAIN KILN/SCRUBBER STACK	COAL	3,100 T/D	2840 LB/H; 1,577 TPY	21.99 lb/ton (hourly); 2.79 lb/ton (annual)	SCRUBBER AND BAGHOUSE	
N-0112	LONE STAR INDUSTRIES, INC.	IN	133-5886-00002-3241	9/18/1998	CEMENT KILN, WET PROCESS,	COAL	75 T/H	543 LB/H	4.03 LB/T feed	SULFUR CONTENT OF COAL SHALL NOT EXCEED 3 PERCENT	
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	DRY/WET KILN & ALKALI BYPASS		378,650 TPY Dry Kiln/730,000 tpy	2400 LB/H; 10,512 tpy	55.52 lb/ton (dry); 28.8 lb/ton	DRY SCRUBBER.	
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	DRY KILN EXHAUST BAGHOUSE (KS-1A)		730,000 T/YR Clinker	840 LB/H; 3,679.2 TPY	10.08 lb/ton	DRY SCRUBBER ACHIEVEING AT LEAST 30% REDUCTION,	
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	ALKALI BYPASS BAGHOUSE STACK (9A)			360 LB/H; 1,576.8 TPY		NONE	
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	WET KILN EXHAUST BAGHOUSE (KS-1B)		378,650 T/YR Clinker	1200 LB/H; 5,256 TPY	27.76 lb/ton	NONE	
MI-0354	HOLNAM, INC	MI	60-71K	6/23/1998	CEMENT KILNS, WET PROCESS, (2)	COAL	100 T/H	11940 T/YR	21.7 LB/T clinker	SULFUR IN FUEL LIMITED TO 2.5% MAX, 2.17%	combined
IL-0057	ILLINOIS CEMENT COMPANY	IL	97030016	6/12/1998	KILN, CEMENT, PREHEATER-PRECALCINER		3,000 TPD Cement	0.8 LB/T	0.8 LB/T	INHERENT ABSORPTION OF SO2 IN PRODUCT	
OR-0036	DURKEE FACILITY	OR	01-0029	2/26/1998	KILN			10 PPMV; 150 lb/day		LOW SULFUR FUEL	3-H AV
FL-0224	FLORIDA ROCK INDUSTRIES, INC.	FL	PSD-FL-228	12/23/1996	KILN, PORTLAND	COAL	14 T/H	0.16 LB/T	0.16 LB/T	FUEL S LIMITS AND PROCESS DESIGN	CLINKE
UT-0059	ASH GROVE CEMENT COMPANY	UT	DAQE-958-96	10/24/1996	KILN	COAL	170 T/H	1 LB/MMBTU		LOW SULFER FUEL	
UT-0062	HOLNAM, DEVIL'S SLIDE PLANT	UT	DAQE-522-96	5/13/1996	KILN	COAL		110 LB/H		LOW SULFUR	
FL-0110	FL CRUSHED STONE	FL	PSD-FL-227	11/17/1995	KILN	COAL	83 T/H	0.27 LB/T	0.27 LB/T	PROCESS REMOVES ACID	CLINKE R
NV-0032	GREAT STAR CEMENT CORP./UNITED ROCK PRODUCTS CORP.	NV	A139	10/24/1995	CEMENT KILN/CLINKER COOLER			208 TPY	0.416 LB/TON CLINKER	FUEL SPEC: LIMIT FUEL TO COAL WITH 1% SULFUR (COAL SULFUR ANALYSIS)	90
WY-0044	MOUNTAIN CEMENT COMPANY-LARAMIE FACILITY	WY	CT-1137	3/6/1995	KILN, COAL	COAL	45.3 T/H COAL	406 LB/H (3 Hr)		LOW SULFUR COAL AND ABSORPTION OF SO2 BY THE	
MO-0059	CONTINENTAL CEMENT COMPANY, LLC	MO	2002-02-038	9/24/2002	ROTARY KILN	COAL	183 T/H	12 LB/T Clinker, 3-hr rolling; 10 lb/ton 24-hr	12 LB/T Clinker, 3-hr rolling; 10 lb/ton 24-hr	WET SCRUBBER	
TN-0086	SIGNAL MOUNTAIN CEMENT COMPANY,	TN	47-065-3070	5/29/1998	DRY FEED KILN	Pet. Coke	160 T/H	500 PPM; 89.3 lb/hr		GOOD COMBUSTION	
MO-0048	LAFARGE CORPORATION	MO	0897-019	8/20/1997	RAW MILL, PREHEATER/PRECALCINER KILN		1,584,071 TONS	477.3 LB/HR, 3 HR AVG	2.64 lb/ton (3-hr)	INHERENT DRY SCRUBBING	

[a] Based on 8,760 hours per year.

Source: EPA's RACT/BACT/LAER Clearinghouse, 2005.

Table 6-8. Summary of Available NO_x Control Technologies and the Associated Control Efficiency and Technical Feasibility

Control Technique	Control Efficiency (%)	Proven and Technically Feasible? (Y/N)	Ranking Based on Efficiency	Proposed Technology for the Cement Kiln? (Y/N)
Pre-Combustion				
Plant Design	< 50	Y	7	Y
Fuel Switching	Minimal	Y	9	N
Overfire Air (OFA)	20 - 30	Y	8	N
Flue Gas Recirculation (FGR)	50 - 80	N	3	N
Low NO_x Burners (LNB)/Staged Combustion	35 - 55	Y	5	Y
Reburn	50 - 60	N	4	N
Post-Combustion				
Selective Non-Catalytic Reduction (SNCR)	30 - 50	Y	6	Y
SCR	70 - 90	Y	2	N
LNB with SCR	50 - 80	Y	3	N
LNB with OFA and SCR	85 - 95	Y	1	N

Table 6-9. Ranking of Available NO_x Control Technologies by Control Efficiency

Control Technique	Control Efficiency (%)	Ranking Based on Efficiency	Proposed Technology for the Cement Kiln? (Y/N)
LNB with OFA and SCR	85 - 95	1	N
SCR	70 - 90	2	N
LNB with SCR	50 - 80	3	N
Low NO_x Burners (LNB), Staged Combustion	35 - 55	4	Y
Selective Non-Catalytic Reduction (SNCR)	30 - 50	5	Y
Plant Design	< 50	6	Y
Overfire Air (OFA)	20 - 30	7	N
Fuel Switching	Minimal	8	N

Table 6-10. Summary of Previous NO_x BACT Determinations from Cement Kilns and Preheaters/Precalciners/Calciners at Portland Cement Plants

RBLC ID	Facility Name	State	Permit No.	Date Issued	Process Type	Fuel Used	Throughput	Emission Limit (as presented on Clearinghouse)	Emission Limit (as calculated)[a]	% Effic.	Control Equipment Description
MS-0071	HOLCIM (US), INC.	MS	1630-00025	8/20/2004		COAL	650,000 TPY Clinker	10 LB/T	10 LB/T	5	GOOD COMBUSTION PRACTICE
IA-0070	LEHIGH CEMENT COMPANY - MASON CITY PLANT	IA	17-01-005	12/11/2003	KILN/CALCINER/PREHEATER	COAL	150 TPH Clinker	2.85 LB/T	2.85 LB/T		SNCR, Low-NOx Burners, Comb. Control, and Proper Kiln Design
SD-0003	GCC DACOTAH - DACOTAH QUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	ROTARY KILN #6	COAL	2,250 T/D	2267 T/YR	5.52 lb/ton		PREHEATER/PRECALCINATOR SYSTEM
AL-0203	HOLCIM (US), INC.	AL	503-8026-X021	2/4/2003	Kiln System (Calcining Kiln, Preheater, w/Precalciner)	COAL	390 T/H	2998 T/YR	1.76 lb/ton		
MO-0059	CONTINENTAL CEMENT COMPANY, LLC	MO	2002-02-038	9/24/2002	ROTARY KILN	COAL	183 T/H	8 lb/t clinker, 30-day rolling	8 lb/t clinker, 30-day rolling		SNCR, LOW NOX BURNERS TOP AIR DUCT
IA-0052	LAFARGE CORPORATION	IA	PROJECT No. 00-057	7/1/2002	PREHEATER/PRECALCINER KILN	COAL	3,488 T/D	2546 T/YR	4 LB/TON CLINKER		GOOD COMBUSTION PRACTICES
WA-0307	PORTLAND CEMENT CLINKERING PLANT	WA	PSD-90-03	10/5/2001	KILN EXHAUST STACK			650 ppm @ 10% O2, 24-hr			NONE INDICATED.
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	GRINDING/ PREHEATING/ KILN, K-19			660 LB/H			NONE INDICATED.
CO-0043	RIO GRANDE PORTLAND CEMENT CORP.	CO	98PB0893	9/25/2000	PREHEATER/PRECALCINER, KILN		950,000 T/YR Clinker	2.32 LB/T	2.32 LB/T		MULTI-STAGE COMBUSTION AND RECIRCULATION.
MD-0027	LEHIGH PORTLAND CEMENT COMPANY	MD	06-6-0356R	6/8/2000	PREHEATER/PRECALCINER	COAL	2,214,000 T/YR	4871 T/YR	4.40 lb/ton		5-Stage Preheater/Precalciner Pyroprocessing Plant
FL-0139	SUWANNEE AMERICAN CEMENT COMPANY, INC.	FL	1210465-001-AC	6/1/2000	IN LINE KILN & RAW MILL	Nat. Gas	178 T/H	2.9 LB/T CLINKER	2.9 LB/T CLINKER		Multi-Stage Combustion w/Sep. Line Calciner Comb. Chamber
MI-0287	HOLNAM, INC.	MI	60-71L	3/20/2000	CEMENT KILNS, WET PROCESS (2)	COAL	100 T/H FEED	6 LB/T	6 LB/T	30	30% REMOVAL IN SLURRY-SCRUBBER, RTOS.
KS-0022	MONARCH CEMENT COMPANY	KS	10069	1/27/2000	2 PRECALCINERS (EACH)	Nat. Gas	107.6 TPH	200 T/MO	5.09 lb/ton	99	NATURAL GAS
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	Kiln/Preheater/Bypass & Clinker Cooler Exhaust			2922.71 T/YR			LOW NOX COMBUSTION SYSTEM
IN-0081	LONE STAR INDUSTRIES, INC.	IN	133-10159	4/16/1999	KILN OPERATION	COAL	360 T/H	4428 T/YR	2.81 lb/ton		LOW NOX CALCINER, GOOD COMBUSTION PRACTICES
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MAIN KILN/SCRUBBER STACK	COAL	3,100 T/D	1085 LB/H	8.4 lb/ton (short-term); 2.8 lb/ton (annual)		LOW-NOX CALCINER AND LOW-NOX IN-LINE CALCINER
CO-0048	HOLNAM, LAPORTE CO.	CO	11LR338-1	9/22/1998	CALCINER/ KILN		584,000 T/YR	900 LB/H	13.5 lb/ton (short-term); 8.6 lb/ton (annual)		Design of Burner/Kiln to Control Alkali from Limestone
N-0112	LONE STAR INDUSTRIES, INC.	IN	133-5886-00002-3241	9/18/1998	CEMENT KILN, WET PROCESS,	COAL	75 T/H	471 LB/H	6.28 lb/ton		LOW NOX BURNERS AND GOOD COMBUSTION
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	Dry/Wet Kiln & Alkali Bypass Baghouse Stack		378,650 TPY DRY KILN/730,000 tpy	950 LB/H	21.98 lb/ton dry; 11.4 lb/ton wet		
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	DRY KILN EXHAUST BAGHOUSE (KS-1A)		730,000 T/YR Clinker	450 LB/H	5.40 lb/ton wet		NONE
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	WET KILN EXHAUST BAGHOUSE (KS-1B)		378,650 T/YR Clinker	450 LB/H	10.41 lb/ton dry		NONE
MI-0354	HOLNAM, INC	MI	60-71K	6/23/1998	CEMENT KILNS, WET PROCESS, (2)	COAL	100 T/H	3377 T/YR	6 LB/T clinker		
IL-0057	ILLINOIS CEMENT COMPANY	IL	97030016	6/12/1998	KILN, CEMENT, PREHEATER-PRECALCINER		3,000 TON/D CEMENT	4.5 LB/T CLINKER	4.5 LB/T CLINKER		CONVERSION TO PRECALCINER KILN
TN-0086	SIGNAL MOUNTAIN CEMENT COMPANY,	TN	47-065-3070	5/29/1998	DRY FEED KILN	Pet. Coke	160 T/H	1500 PPM	2.52 lb/ton		GOOD COMBUSTION
MO-0048	LAFARGE CORPORATION	MO	0897-019	8/20/1997	RAW MILL, PREHEATER/PRECALCINER KILN		1,584,071 TONS	1894.8 TON/YR	2.39 lb/ton		GOOD COMBUSTION practices
FL-0173	SOUTHDOWN, INC.	FL	PSD-FL-233	6/27/1997	KILN	Mixed	165 T/H, 1-Hr Max	1.8 LB/T	1.8 LB/T		GCP and Burner Design w/ Primary Comb. Air Control
FL-0173	SOUTHDOWN, INC.	FL	PSD-FL-233	6/27/1997	KILN		165 T/H, 1-Hr Max	1.72 LB/T	1.72 LB/T		GCP and Burner Design w/ Primary Comb. Air Control
FL-0224	FLORIDA ROCK INDUSTRIES, INC.	FL	PSD-FL-228	12/23/1996	KILN, PORTLAND	COAL	14 T/H	2.45 LB/T	2.45 LB/T		Process Control and Secondary Combustion of Fuel
UT-0059	ASH GROVE CEMENT COMPANY	UT	DAQE-958-96	10/24/1996	KILN	COAL	170 T/H	400 LB/H	2.35 lb/ton		LOW NOX BURNER.
UT-0062	HOLNAM, DEVIL'S SLIDE PLANT	UT	DAQE-522-96	5/13/1996	KILN	COAL		251 LB/H			LOW NOX BURNER
FL-0110	FL CRUSHED STONE	FL	PSD-FL-227	11/17/1995	KILN	COAL	83 T/H	2.8 LB/T	2.8 LB/T		COMBUSTION PRACTICES
NV-0032	GREAT STAR CEMENT CORP./UNITED ROCK PROD. (	NV	A139	10/24/1995	CEMENT KILN/CLINKER COOLER			3.1 LB/TON CLINKER	3.1 LB/TON CLINKER	50	SNCR UREA INJECTION SYSTEM AT PREHEATER
WY-0044	MOUNTAIN CEMENT COMPANY-LARAMIE FACILITY	WY	CT-1137	3/6/1995	KILN, COAL	COAL	45 T/H COAL	208.8 LB/H (30-DAY)		20	COMBUSTION UNIT DESIGN (WELL DESIGNED

[a] Based on 8,760 hours per year.

Source: EPA's RACT/BACT/LAER Clearinghouse, 2005.

Table 6-11. Economical Analysis for SNCR for NO_x Control from a Cement Kiln

Cost Item	Factor	Total Cost
Direct Capital Costs:		
Kiln Heat Input (MMBtu/hr), Q_B		400 MMBtu/hr
Control Efficiency (%), η_{NOx}		54 %
$NO_{x\ outlet}$ (proposed emission limit)		243.75 lb/hr
$NO_{x\ outlet}$ (proposed emission limit)		0.61 lb/MMBtu
$NO_{x\ uncontrolled}$ [a]		525.0 lb/hr
$NO_{x\ uncontrolled}$		1.31 lb/MMBtu
Direct Capital Cost, DC = \$950/MMBtu x Q_B x $(2{,}375/Q_B)^{0.577}$ x $(0.66 + 0.85 x \eta_{NOx})$		\$1,184,587
Indirect Capital Costs:		
Installation		
General Facilities	0.05*DC	\$59,229
Engineering and Home Office Fees	0.10*DC	\$118,459
Process Contingency	0.05*DC	\$59,229
Total Indirect Installation Costs, B		\$236,917
Project Contingency, C = 0.15 * (DC+B)		\$213,226
Total Plant Cost, D = DC + B + C		\$1,634,730
Allowance for Funds During Construction, E = 0 (assumed for SNCR)		0
Royalty Allowance, F = 0 (assumed for SNCR)		0
Preproduction Cost, G = 0.02 * (D+E)		\$32,695
Inventory Capital (cost for urea stored at site), H = $Vol_{reagent}$(gal) x $Cost_{reagent}$(\$/gal)		\$7,711
$Vol_{reagent}$		9,072 gal
$Cost_{reagent}$		\$0.85 /gal
Initial Catalyst and Chemicals, I = 0 (for SNCR)		0
Total Capital Investment, TCI = D + E + F + G + H + I		\$1,675,135
Annual Costs:		
Direct Annual Costs		
Operating and Supervisor Labor (assumed for SNCR = 0)		0
Maintenance	0.015*TCI	\$25,127
Reagent Consumption (t_{op} assumed to 8,760 hr/yr)	$q_{sol} Cost_{reag} t_{op}$	\$390,909
mass flow rate of reagent (m_{reag})		249.13 lb/hr
mass flow rate of solution (m_{sol})		498.25 lb/hr
$q_{sol} = m_{sol} * \rho / 71.0$ lb/ft^3		52.50 gph
Utilities, P = $(0.47 * NO_{x\ in} * NSR * Q_B) / 9.5$		35.3 kW
NSR = $[(2 * NO_{x\ uncontrolled}) + 0.7] * \eta_{NOx} / NO_{x\ uncontrolled}$		1.36
Annual electricity cost	$P * Cost_{elect} * t_{op}$	\$30,879
$Cost_{elect}$		0.10 \$/kW
Water Consumption		
Water flow rate, $q_{water} = 4 * m_{sol}/\rho_{water}$		238.83 gph
Annual water cost = $q_{water} * Cost_{water}$ (\$0.0004/gal)$*t_{op}$		\$836.85
Coal and Ash		
Coal (MMBtu/hr) = (900 Btu/lb * $m_{reagent}$ (lb/hr) * 9) / 10^6 (Btu/MMBtu)		2.02 MMBtu/hr

Table 6-11. Economical Analysis for SNCR for NO_x Control from a Cement Kiln

Cost Item	Factor	Total Cost
Ash = [Coal (MMBtu/hr) * 0.077 * 10^6 Btu/MMBtu] / 10,000 Btu/lb		15.54 lb/hr
Ash_{cost} = Ash (MMBtu/hr) x $11.28/ton x 8,760 hr/yr / 2,000 lb/ton		$768 /yr
$Coal_{cost}$ = Coal (MMBtu/hr) x $1.6/MMBtu x 8,760 hr/yr		$28,283 /yr
Annual Coal & Ash Cost =		$29,051
Indirect Annual Costs		
Capital Recovery Factor (assuming 7% interest rate and 20 years economic life)		0.09439
Indirect Annual Costs, IDAC = CRF*TCI		$158,116
Total Annual Cost, TAC = DC + IDAC		$1,342,703
Tons of NO_x removed		1,232 tons
Cost Efficiency		$1,090 /ton

[a] Based on AP-42 Table 11.6-8 Portlant Cement Manufacturing for a Preheater/Precalciner Kiln and a clinker production rate of 125 TPH.

Source: EPA's Cost Control Manual (January 2002).

Table 6-12. Economical Analysis for SCR for NO_x Control from a Cement Kiln

Cost Item	Factor	Total Cost
Direct Capital Costs:		
Kiln Heat Input (MMBtu/hr), Q_B		400 MMBtu/hr
Control Efficiency (%), η_{NOx}		54 %
$NO_{x\ outlet}$ (proposed emission limit)		243.75 lb/hr
$NO_{x\ outlet}$ (proposed emission limit)		0.61 lb/MMBtu
$NO_{x\ uncontrolled}$ [a]		525.0 lb/hr
$NO_{x\ uncontrolled}$		1.31 lb/MMBtu
Adjustment for SCR reactor height, $f(h_{SCR})$ = [(\$6.12/ft-MMBtu/hr) * h_{SCR}] - \$187.9/(MMBtu/hr)		\$50.78 /MMBtu/hr
$\eta_{adj} = 0.2869 + (1.058*\eta)$		57 %
$NO_{x\ adj} = 0.8524 + (0.3208 * NO_{xin})$		1.27 lb/MMBtu
$Slip_{adj} = 1.2835 - (0.0567 * (1.05 - \eta_{NOx}))$		1.25
$S_{adj} = 0.9636 + (0.0455 * 1\% S)$		1.01 %
$Vol_{catalyst} = 2.81 * Q_B * \eta_{adj} * slip_{adj} * NO_{xadj} * S_{adj} * T_{adj}/N_{SCR}$		1,032.07 ft^3
$A_{catalyst} = Q_{fluegas}$ / (16 ft/sec * 60 sec/min)		260.42 ft^2
$A_{SCR} = 1.15 * A_{catalyst}$		299.48 ft^2
$l = w = (A_{SCR})^{1/2}$		17.31 ft
$n_{layer} = V_{catalyst} / (3.1 * A_{catalyst})$ = 1.28 rounded to 2		2
$h_{layer} = V_{catalyst} / (n_{layer} * A_{catalyst})$ = 2.98 rounded to 3		3 ft
$n_{total} = n_{layer} + 1$		3
$h_{SCR} = n_{total}*(7 + h_{layer}) + 9$		39.0 ft
$f(NH_3)$ = (\$411 * m_{reag}/Q_B) - \$47.3		\$65 /MMBtu/hr
f(new)		-\$728 /MMBtu/hr
f(bypass), assuming a bypass installed		\$127 /MMBtu/hr
$f(Vol_{catalyst})$ at a catalyst cost of \$240/ft^3		\$247,697 /MMBtu/hr
Direct Capital Cost, DC = Q_B*[(\$3,380/(MMBtu/hr)) + $f(h_{SCR})$ + $f(NH_3rate)$ + f(new) + f(bypass)] * $(3,500/Q_B)^{0.35}$ + $f(Vol_{catalyst})$		**\$2,721,586**
Indirect Capital Costs:		
Installation		
General Facilities	0.05*DC	\$136,079

Table 6-12. Economical Analysis for SCR for NO_x Control from a Cement Kiln

Cost Item	Factor	Total Cost
Engineering and Home Office Fees	0.10*DC	$272,159
Process Contingency	0.05*DC	$136,079
Total Indirect Installation Costs, B		$544,317
Project Contingency, C = 0.15 * (DC+B)		$489,885
Total Plant Cost, D = DC + B + C		$3,755,788
Allowance for Funds During Construction, E = 0 (assumed for SCR)		0
Royalty Allowance, F = 0 (assumed for SCR)		0
Preproduction Cost, G = 0.02 * (D+E)		$75,116
Inventory Capital (cost for urea stored at site), H = $Vol_{reagent}$(gal) x $Cost_{reagent}$($/gal)		$7,711
$Vol_{reagent}$		9,072 gal
$Cost_{reagent}$		$0.85 /gal
Initial Catalyst and Chemicals, I = 0 (for SCR)		0
Total Capital Investment, TCI = D + E + F + G + H + I		$3,838,615
<u>Annual Costs:</u>		
<u>Direct Annual Costs</u>		
Operating and Supervisor Labor (assumed for SCR = 0)		0
Maintenance	0.015*TCI	$57,579
Reagent Consumption Cost (t_{op} assumed to 8,760 hr/yr)	$q_{sol}Cost_{reag}t_{op}$	$242,297 /yr
mass flow rate of reagent (m_{reag})		70.64 lb/hr
mass flow rate of solution (m_{sol})		243.59 lb/hr
$q_{sol} = m_{sol} * \rho / 56.0\ lb/ft^3$		32.54 gph
<u>Utilities</u>, $P = Q_B/9.5$ MMBtu/hr/kW * $[(NO_{x\ uncontrolled} * \eta_{NOx}) + 0.5*(3+n_{total}*1)]$		155.9 kW
$NSR = [(2 * NO_{x\ uncontrolled})+0.7]*\eta_{NOx} / NO_{x\ uncontrolled}$		1.36
Annual electricity cost	$P*Cost_{elect}*t_{op}$	$136,587 /yr
$Cost_{elect}$		0.10 $/kW
<u>Catalyst Replacement Cost</u> (assuming guaranteed life of 24,000 hours or 3 years and full replacement)		
Catalyst replacement cost = $FWF*1*Vol_{catalyst}*CC_{replace}/R_{layer}$		$41,902 /yr
Future worth factor, FWF = 0.14 (based on 7% interest rate)		0.14
Total Variable Direct Cost = cost of reagent + electricity + catalyst replacement		$420,785 /yr
Total Direct Annual Cost = cost of maintenance + variable cost		$478,365 /yr

Table 6-12. Economical Analysis for SCR for NO_x Control from a Cement Kiln

Cost Item	Factor	Total Cost
Capital Recovery Factor, CRF (based on 7% interest rate)		0.0944
Indirect Annual Costs, IDAC = CRF * TCI		$362,365 /yr
Total Annual Cost, TAC = DC + IDAC		$3,083,951 /yr
Tons of NO_x removed		1,232 tons
Cost Efficiency		$2,503 /ton

[a] Based on AP-42 Table 11.6-8 Portlant Cement Manufacturing for a Preheater/Precalciner Kiln and a clinker production rate of 125 TPH.

Source: EPA's Cost Control Manual (January 2002).

Table 6-13. Summary of Available CO Control Technologies and the Associated Control Efficiency and Technical Feasibility

Control Technique	Control Efficiency (%)	Proven and Technically Feasible? (Y/N)	Ranking Based on Efficiency	Proposed Technology for the Cement Kiln? (Y/N)
Pre-Combustion				
Good Combustion Practices	varies	Y	2	Y
Incineration				
Regenerative (RTO or RCO)	> 98	N	1	N

Table 6-14. Summary of Recent BACT Determinations for CO Emissions from Cement Kilns, Calciners, and Preheaters at Portland Cement Plants

RBLC ID	Facility Name	State	Permit No.	Date Issued	Process Type	Fuel Used	Throughput	Emission Limit (as presented in Clearinghouse)	Emission Limit (converted [a])	% Effic.	Control Equipment Description
IA-0070	LEHIGH CEMENT COMPANY - MASON CITY PLANT	IA	17-01-005	12/11/2003	KILN/CALCINER/PREHEATER	COAL	150 TPH Clinker	3.7 LB/T	3.7 LB/T		PROPER KILN DESIGN AND OPERATION
VA-0283	ROANOKE CEMENT	VA	VA-20232	6/13/2003	CEMENT KILN SYSTEM NO. 5	COAL	1,300,000 T/YR CLINKER	3 LB/T	3 LB/T		PROCESS CONTROL/GCPs
SD-0003	GCC DACOTAH - DACOTAH QUARRYS LIMESTONE	SD	28.1101-PSD	4/10/2003	ROTARY KILN #6	COAL	2,250 T/D	3,250 LB/H; 2,002 TPY	34.67 lb/ton (hourly); 4.88 lb/ton (annual)		GOOD COMBUSTION PRACTICES
MO-0059	CONTINENTAL CEMENT COMPANY, LLC	MO	2002-02-038	9/24/2002	ROTARY KILN	COAL	183 T/H	12 lb/ton clinker (1-hr); 10 l/bton (8-hr)	12 lb/ton clinker (1-hr); 10 lb/ton (8-hr)		PYROCLON
AL-0200	CEMEX, INC.	AL	105-0002-Z004	9/13/2002	CEMENT KILN	COAL	230 T/H	725 LB/H	3.72 LB/T		
IA-0052	LAFARGE CORPORATION	IA	PROJECT NUMBER 00-057	7/1/2002	PREHEATER/PRECALCINER KILN	COAL	3,488 T/D	4.5 lb/ton clinker	4.5 lb/ton clinker		GOOD COMBUSTION PRACTICES
WA-0307	PORTLAND CEMENT CLINKERING PLANT	WA	PSD-90-03	10/5/2001	KILN EXHAUST STACK			1045 PPM @ 10%O2; 538 lb/hr (8-hr)			NONE INDICATED.
TX-0355	PORTLAND CEMENT MANUFACTURING PLANT	TX	PSD-TX-145 M1	6/29/2001	GRINDING/ PREHEATING/ KILN, K-19			460 LB/H; 1,932 TPY			GCPs AND GOOD COMBUSTION UNIT DESIGN
CO-0043	RIO GRANDE PORTLAND CEMENT CORP.	CO	98PB0893	9/25/2000	PREHEATER/PRECALCINER, KILN		950,000 T/YR CEMENT CLINKER	2.11 LB/T	2.11 LB/T	90	MULTI-STAGE COMBUSTION AND GCP
MD-0027	LEHIGH PORTLAND CEMENT COMPANY	MD	06-6-0356R	6/8/2000	PREHEATER/PRECALCINER	COAL	2,214,000 T/YR	3328 T/YR	3.01 lb/ton		Process Modification and Operational Monitoring
FL-0139	SUWANNEE AMERICAN CEMENT COMPANY, INC.	FL	1210465-001-AC	6/1/2000	IN LINE KILN & RAW MILL	NAT. GAS	178 T/H	3.6 LB/T CLINKER	3.6 LB/T CLINKER		COMBUSTION CONTROL
MI-0287	HOLNAM, INC.	MI	60-71L	3/20/2000	CEMENT KILNS, WET PROCESS (2)	COAL	100 T/H FEED				FABRIC FILTER, SLURRY SCRUBBER, RTO.
KS-0022	MONARCH CEMENT COMPANY	KS	10069	1/27/2000	2 PRECALCINERS (EACH)	NAT. GAS	120 MMBTU/H	5,000 LB/H; 2,093.3 TPY		99	NATURAL GAS
KS-0020	ASH GROVE CEMENT	KS	1330001	8/26/1999	PREHEATER/PRECALCINER KILN	COAL	331 T/H	5,000 LB/H; 1,409 TPY	15.11 lb/ton (hourly); 0.97 lb/ton (annual)		Computerized process monitoring. GCP
CO-0047	HOLNAM, FLORENCE	CO	98-FR-0895	7/29/1999	Kiln/Preheater/Bypass & Clinker Cooler Exhaust			3988.7 T/YR			GOOD COMBUSTION
IN-0081	LONE STAR INDUSTRIES, INC.	IN	133-10159	4/16/1999	KILN OPERATION	COAL	360 T/H	2930 T/YR	3.65 LB/T clinker		GOOD COMBUSTION PRACTICES
TX-0279	NORTH TEXAS CEMENT COMPANY	TX	PSD-TX-893	3/4/1999	MAIN KILN/SCRUBBER STACK	COAL	3,100 T/D	2209 LB/H; 3,225 TPY	17.10 lb/ton (hourly); 5.70 lb/ton (annual)		GOOD COMBUSTION PRACTICES
N-0112	LONE STAR INDUSTRIES, INC.	IN	133-5886-00002-3241	9/18/1998	CEMENT KILN, WET PROCESS,	TDF	75 T/H	22.8 LB/H	0.30 lb/ton		
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	DRY/WET KILN & ALKALI BYPASS		378,650 TPY DRY KILN/730,000 tpy	702.5 LB/H; 3,076.55 TPY	16.25 lb/ton (dry); 8.43 lb/ton		
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	DRY KILN EXHAUST BAGHOUSE		730,000 T/YR CLINKER	522.5 LB/H; 2,288.55 TPY	6.27 lb/ton		NONE
TX-0282	CAPITOL CEMENT DIVISION	TX	PSD-TX-120M3	9/16/1998	WET KILN EXHAUST BAGHOUSE		378,650 T/YR CLINKER	80 LB/H; 350 TPY	1.85 lb/ton		NONE
MI-0354	HOLNAM, INC	MI	60-71K	6/23/1998	CEMENT KILNS, WET PROCESS, (2)	COAL	100 T/H	3515 T/YR	6.4 LB/T clinker		
TN-0086	SIGNAL MOUNTAIN CEMENT COMPANY,	TN	47-065-3070	5/29/1998	DRY FEED KILN	PET. COKE	160 T/H	248 LB/H; 1,085 TPY	1.55 lb/ton		GOOD COMBUSTION PRACTICES
OR-0036	DURKEE FACILITY	OR	01-0029	2/26/1998	KILN			490 LB/H; 8-hr			NONE
MO-0048	LAFARGE CORPORATION	MO	0897-019	8/20/1997	RAW MILL, PREHEATER/PRECALCINER KILN		1,584,071 TONS	842 TON/YR	1.06 lb/ton		GOOD COMBUSTION practices
FL-0173	SOUTHDOWN, INC.	FL	PSD-FL-233	6/27/1997	KILN		165 T/H (1-hr)	1.2 LB/T	1.2 LB/T		COMBUSTION CONTROLS
FL-0173	SOUTHDOWN, INC.	FL	PSD-FL-233	6/27/1997	KILN		165 T/H (1-hr)	1.2 LB/T	1.2 LB/T		GCP, BURNER DESIGN
OR-0022	ASH GROVE CEMENT COMPANY	OR	01-0029	3/10/1997	PYROPROCESSING KILN	NAT. GAS	113 TON CLINKER/H	490 LB/H	4.34 lb/ton		GCP as monitored by CO and O2 CEMS
PR-0003	PUERTO RICAN CEMENT COMPANY, INC.	PR	PR-0101	2/25/1997		COAL	4,100 TPD Clinker	296.6 LB/H, 8-H	1.74 lb/ton		COMBUSTION CONTROLS.
FL-0224	FLORIDA ROCK INDUSTRIES, INC.	FL	PSD-FL-228	12/23/1996	KILN, PORTLAND	COAL	14 T/H	2.5 LB/T	2.5 LB/T clinker		COMBUSTION CONTROLS
UT-0062	HOLNAM, DEVIL'S SLIDE PLANT	UT	DAQE-522-96	5/13/1996	KILN	COAL		438 LB/H			COMBUSTION CONTROLS
FL-0110	FL CRUSHED STONE	FL	PSD-FL-227	11/17/1995	KILN	COAL	83 T/H	2 LB/T	2 LB/T clinker, 1-hr		GOOD COMBUSTION PRACTICES
NV-0032	GREAT STAR CEMENT CORP./UNITED ROCK PRODUCT	NV	A139	10/24/1995	CEMENT KILN/CLINKER COOLER			5.67 LB/TON CLINKER	5.67 LB/TON CLINKER		GOOD COMBUSTION PRACTICE. AIR/FUEL
WY-0044	MOUNTAIN CEMENT COMPANY-LARAMIE FACILITY	WY	CT-1137	3/6/1995	KILN, COAL	COAL	45.3 T/H COAL	3.2 LB/H			PROPER COMBUSTION/BURNER

[a] Based on 8,760 hours per year.

Table 6-15. Summary of Available VOC Control Technologies and the Associated Control Efficiency and Technical Feasibility

Control Technique	Control Efficiency (%)	Technically Feasible? (Y/N)	Ranking Based on Efficiency	Proposed Technology for the Cement Kiln? (Y/N)
Pre-Combustion				
Good Combustion Practices	varies	Y	7	Y
Absorption				
Spray Chambers	50 - 95	Y	6	N
Packed-Tower Scrubbers	70 - 99	Y	5	N
Fiber-Bed Scrubber (Mist Eliminator)	70 - 99	Y	5	N
Dynamic/Mechanically-Aided Scrubber	80 - 99	Y	4	N
Refrigerated Condensers	> 90	Y	3	N
Incineration				
Flares (direct combustion)	> 98	Y	1	N
Thermal Oxidation (Recuperative-Type)	> 98	Y	1	N
Thermal Oxidation	> 98	Y	1	N
Catalytic Oxidation	< 95	N	6	N
Regenerative (RTO or RCO)	90 - 99	Y	2	N

Table 6-16. Ranking of Available VOC Control Technologies by Control Efficiency

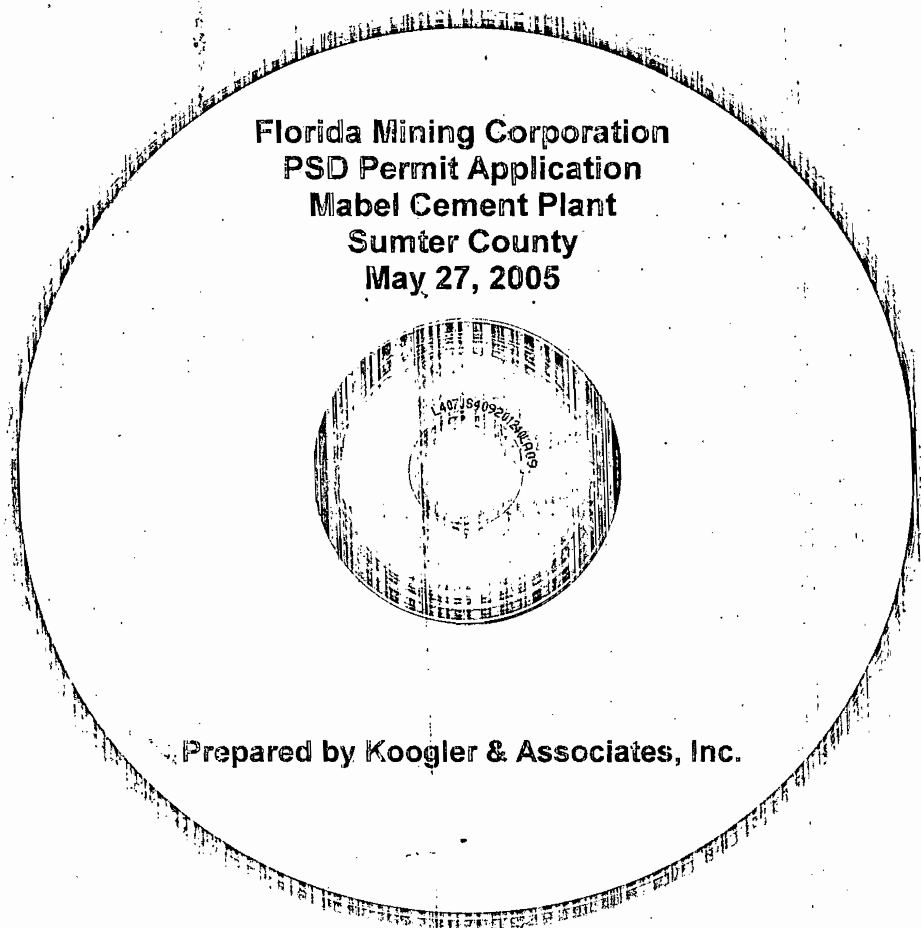
Control Technique	Control Efficiency (%)	Ranking Based on Efficiency	Proposed Technology for the Cement Kiln? (Y/N)
Flares (direct combustion)	> 98	1	N
Thermal Oxidation	> 98	1	N
Thermal Oxidation (Recuperative-Type)	> 98	1	N
Regenerative (RTO)	90 - 99	2	N
Refrigerated Condensers	> 90	3	N
Dynamic/Mechanically-Aided Scrubber	80 - 99	4	N
Packed-Tower Scrubbers	70 - 99	5	N
Fiber-Bed Scrubber (Mist Eliminator)	70 - 99	5	N
Spray Chambers	50 - 95	6	N
Good Combustion Practices	varies	7	Y

Table 6-17. Summary of Previous VOC BACT Determinations from Cement Kilns, Preheaters, and Calciners at Portland Cement Plants

RBLC ID	Facility Name	State	Permit No.	Date Issued	Process Type	Fuel Used	Throughput	Emission Limit 1	Emission Limit 2	Control Equipment Description
VA-0272	ROANOKE CEME	VA	20232	6/13/2003	LIME KILN	COAL	1300000 T/YR	126.4 LB/H; 493 TPY	0.85 lb/ton (hourly); 0.76 l	GOOD COMBUSTION PRACTICES
AL-0203	HOLCIM (US), IN	AL	503-8026-X021	2/4/2003	KILN SYSTEM (CALCINING KILN PREHTR W/PRECALCINE	COAL	390 T/H	2116 T/YR	1.24 lb/ton	
AL-0200	CEMEX, INC.	AL	105-0002-Z004	9/13/2002	CEMENT KILN	COAL	230 T/H	136 LB/H	0.698 LB/T	
FL-0231	RINKER/MIAMI C	FL	PSD-FL-324	3/1/2002	IN-LINE KILN/RAW MILL/CLINKER COOLER SYSTEM	COAL	137 T/H CLINKER	0.12 LB/TON CLINKEI	0.12 LB/TON CLINKER	PROPER COMBUSTION CONTROL AND RAW MATERIAL SELECTION.
TX-0355	PORTLAND CEM	TX	PSD-TX-145 M1	6/29/2001	GRINDING/ PREHEATING/ KILN, K-19			15 LB/H; 63 TPY		NONE INDICATED.
MD-0027	LEHIGH PORTLA	MD	06-6-0356R	6/8/2000	MATERIAL STORAGE AND TRANSFER			165 T/YR		ANY ADD ENVIRONMENTALLY INFEASIBLE
FL-0139	SUWANNEE AMI	FL	1210465-001-AC	6/1/2000	IN LINE KILN & RAW MILL	NATURAL GAS	178 T/H			COMBUSTION CONTROL
MI-0287	HOLNAM, INC.	MI	60-71L	3/20/2000	CEMENT KILNS, WET PROCESS (2)	COAL	100 T/H FEED			RTOS, THREE IN PARALLEL PER KILN. STANDBY ACTIVATED CARBON FOR BACKUP.
CO-0047	HOLNAM, FLORE	CO	98-FR-0895	7/29/1999	COAL MILL VENT BAGHOUSE			16.2 T/YR		GOOD COMBUSTION
CO-0047	HOLNAM, FLORE	CO	98-FR-0895	7/29/1999	KILN/PREHEATER/BYPASS & CLINKER COOLER EXHAUST			180.5 T/YR		GOOD COMBUSTION
TX-0279	NORTH TEXAS C	TX	PSD-TX-893	3/4/1999	MAIN KILN/SCRUBBER STACK	COAL	3100 T/D	686 LB/H; 1,008 TPY	5.31 lb/ton (hourly); 1.78 l	GOOD COMBUSTION PRACTICES
N-0112	LONE STAR INDI	IN	133-5886-00002-32	9/18/1998	CEMENT KILN, WET PROCESS,	TDF	75 T/H	9.13 LB/H	0.12 lb/ton	
TX-0282	CAPITOL CEMEN	TX	PSD-TX-120M3	9/16/1998	DRY/WET KILN & ALKALI BYPASS BAGHOUSE STACK (KS-1)		378,650 TPY DRY KILN/7.	277.55 LB/H; 395.58 TPY	6.42 lb/ton (dry, hourly); 2.1 lb/ton (dry, annual)	
TX-0282	CAPITOL CEMEN	TX	PSD-TX-120M3	9/16/1998	DRY KILN EXHAUST BAGHOUSE (KS-1A)		730000 T/YR CLINKER	97.55 LB/H; 320.44 TPY	1.17 lb/ton (hourly); 0.88 l	NONE
TX-0282	CAPITOL CEMEN	TX	PSD-TX-120M3	9/16/1998	ALKALI BYPASS BAGHOUSE STACK (9A)			2.87 LB/H; 9.44 TPY		NONE
TX-0282	CAPITOL CEMEN	TX	PSD-TX-120M3	9/16/1998	WET KILN EXHAUST BAGHOUSE (KS-1B)		378650 T/YR CLINKER	15 LB/H; 65.7 TPY	0.35 lb/ton	NONE
MI-0354	HOLNAM, INC	MI	60-71K	6/23/1998	CEMENT KILNS, WET PROCESS, (2)	COAL	100 T/H	7217 T/YR	13 LB/T clinker	COOLING AIR CONDENSER REMOVES PAH AND ORGANICS BEFORE BAGHOUSE. ACTIVATED CARBON IS INJECTED FOR ADSORPTION OFPOLLUTANTS.
TN-0086	SIGNAL MOUNT/	TN	47-065-3070	5/29/1998	DRY FEED KILN	PETROLEUM COI	160 T/H	10.7 LB/H	0.07 lb/ton	GOOD COMBUSTION
FL-0173	SOUTHDOWN, IN	FL	PSD-FL-233	6/27/1997	KILN		165 T/H (1-hr)	0.09 LB/T	0.09 LB/T	GOOD COMBUSTION PRACTICES
FL-0173	SOUTHDOWN, IN	FL	PSD-FL-233	6/27/1997	KILN		165 T/H (1-hr)	0.09 LB/T	0.09 LB/T	GOOD COMBUSTION PRACTICES.
PR-0003	PUERTO RICAN (	PR	PR-0101	2/25/1997		COAL	4100 TPD OF CLINKER	20.5 LB/H, 24-H	0.12 LB/T	COMBUSTION CONTROLS
FL-0224	FLORIDA ROCK I	FL	PSD-FL-228	12/23/1996	KILN, PORTLAND	COAL	14 T/H	0.11 LB/T clinker	0.11 LB/T clinker	COMBUSTION controls
WY-0044	MOUNTAIN CEM	WY	CT-1137	3/6/1995	KILN, COAL	COAL	45.3 T/H COAL	7.3 LB/H		PROPER COMBUSTION/BURNE R

Source: EPA's RACT/BACT/LAER Clearinghouse, 2005.

ATTACHMENT 2


Florida Mining Corporation
PSD Permit Application
Mabel Cement Plant
Sumter County
May 27, 2005
Prepared by Koogler & Associates, Inc.