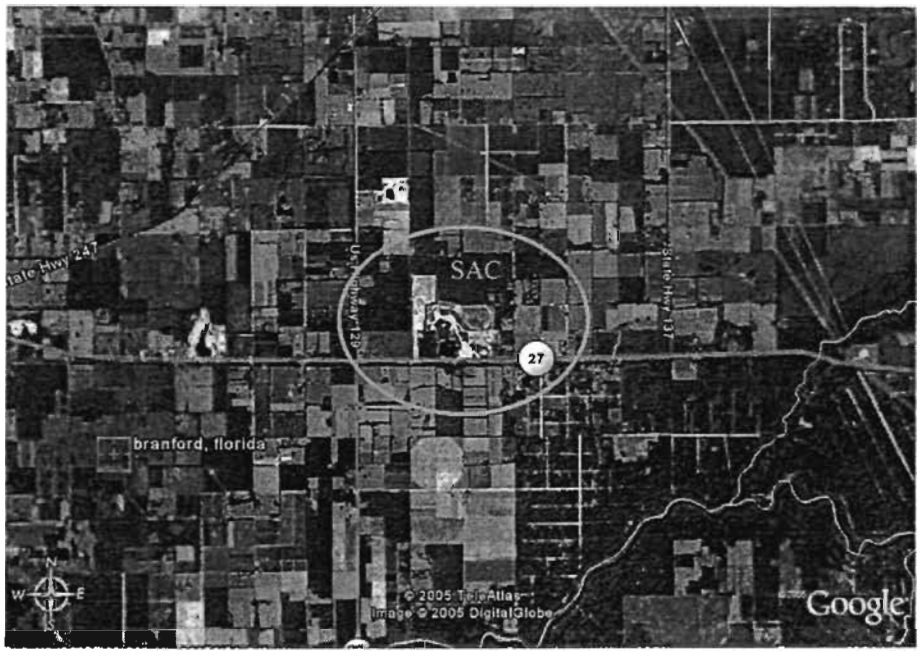
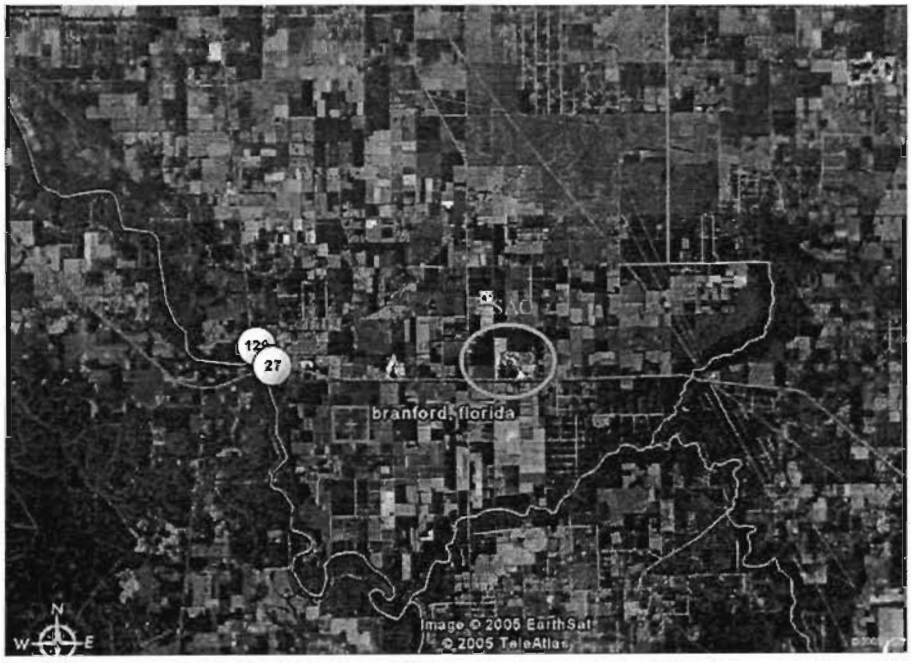
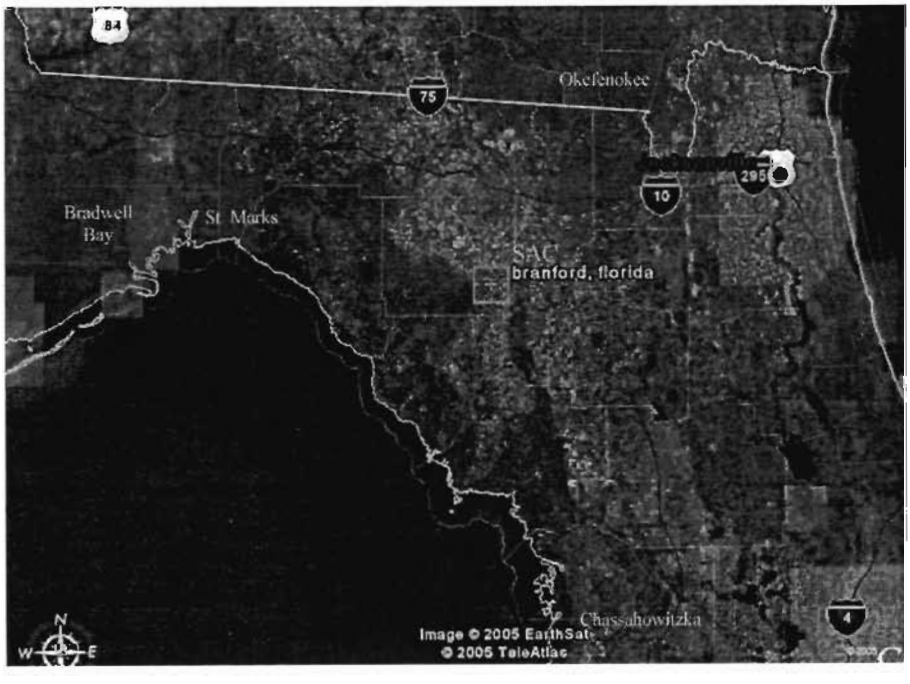
Aerial photograph depicting surrounding land use in the immediate vicinity of SAC



Zoomed out view of aerial photograph depicting surrounding land use in the vicinity of SAC
(consistent with forested areas)



Aerial photograph showing predominant land use between SAC and Class I Areas
(consistent with forested areas)



Brooks & Associates, Inc.
Engineering and Environmental Consulting

June 20, 2005

RECEIVED
JUN 24 2005
BUREAU OF AIR REGULATION

Mr. Jeffrey F. Koerner, P.E.
Division of Air Resources
Department of Environmental Protection
2600 Blair Stone Road, MS # 5500
Tallahassee, Florida 32399-2400

SUBJECT: **Response to Request for Additional Information (RAI), dated 06/10/05**
Suwannee American Cement

Dear Mr. Pennington:

I, the undersigned, hereby certify 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 the above referenced Application for Air Permit, and in this Response to the Request for Additional Information (RRAI) 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 and RRAI 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,and RRAI based solely upon the materials, information and calcuiations submitted with this application and RRAI.

I further certify that the engineering features of each such emissions unit described in this application and RRAI 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.

Should you have any questions, please feel free to contact the appropriate party.

Sincerely,

Stephanie S. Brooks, PE

STEPHANIE S. BROOKS No. 52000 STATE OF FLORIDA PROFESSIONAL ENGINEER

5068 NW 85th Rd. Coral Springs, FL 33067
Phone: (954) 796-1987 Fax: (954) 796-1984

P.O. Box 410
Branford, Fl 32008

June 20, 2005

Mr. Jeff Koerner
Division of Air Resources
Department of Environmental Protection
2600 Blair Stone Road, MS # 5500
Tallahassee, Florida 32399-2400

SUBJECT: **Response to Request for Additional Information (RAI), June 10, 2005**
Suwannee American Cement – Branford Plant
DEP File No. 1210465-014-AC (PSD-FL-352)
Proposed New Kiln at the Branford Cement Plant in Suwannee County, Florida

Dear Mr. Koerner:

Suwannee American Cement (SAC) includes the following information in response to the Florida Department of Environmental Protection's (Department) request for additional information (RAI) dated June 10, 2005. SAC has included text from the Department's RAI in *italic* for clarity with SAC responses following each response.

If the Department has any additional questions regarding the responses supplied please feel free to contact me at (386) 935-5039 or by e-mail at jbhorton@suwanneecement.com.

Sincerely,

Joe Horton
Suwannee American Cement

CC: Tom Messer - SAC
Celso Martini – SAC
Trina Vielhauer – DEP
Chris Kirts – DEP, NED
Stephanie Brooks, P.E. - Brooks and Associates
Ron Hawks - Environmental Quality Management
Kent Berry - Environmental Quality Management
George Schewe - Environmental Quality Management
G. Worley, EPA
Q. Bunyak, NPS

1. *The application requests a carbon monoxide (CO) standard of 3.6 lb/ton of clinker based on an annual stack test conducted in accordance with EPA Method 9.*

   a. *The application indicates that CO emissions will be controlled as a function of raw materials and combustion practices. It is noted that other recent kiln designs have incorporated a much longer loop of duct work between the calciner and the lower cyclone to provide a longer residence time and enhance carbon burnout. For example, F.L. Smidth guaranteed a CO value of 1.77 lb/ton of clinker for the existing Titan plant in Medley, which utilizes such a design. Also, in a recent application to the Department, Titan has requested a long-term CO standard of 1.33 lb/ton of clinker while achieving a NOx emission rate of 2.1 lb/ton of clinker. Please discuss the implications of providing for additional residence time in this manner, the affect on CO emissions, and the costs related to the additional level of control.*

As described in Section 1 of the Regulatory Analysis Report in Support of a Major Source Air Permit, SAC requested emission limits for carbon monoxide (CO) of 4.0 lb/ton of clinker and based on an biennial EPA Method 10 stack testing, not 3.6 lb/ton of clinker or with Method 9 as indicated in the RAI. In the Best Available Control Technology Analysis in Support of PSD Permit Application, CO emissions were evaluated and analyzed. Based upon the BACT/LAER clearinghouse and previously issued BACT permits in the state of Florida, including most recently Florida Crushed Stone and Florida Rock Industries, a BACT limit of 4.0 lb/ton was justified. SAC has yet to select a vendor and regardless of vendor, adequate retention time for burnout of CO from incomplete combustion will be addressed. Retention time for completion of combustion can and does significantly reduce CO emissions from the combustion sources but does nothing to affect CO from raw materials which may contain organic sources. SAC would accept a CO limit of 3.6 lb/ton as BACT in place of the previously requested limit of 4.0 lb/t.

SAC is somewhat unclear about the cited emission limits for Titan. The current and proposed limits, per the draft April 5, 2005, permit available from DEP, are 2.3 lb/t clinker for CO and 2.88 lb/t for NO_x. Titan may have agreed to lower limits as part of recent permit discussion and may be able to meet a more stringent limit for CO due to limestone and other raw materials available in the Miami area which may contain much lower organics than the materials being used by SAC. A CO limit of 3.6 lb/ton is still considerably lower the recently issued BACT determinations in other states and the same as recently issued permits by the Department in Northern Florida.

   b. *The request CO value appears high compared to actual emissions from some of the newer plants. In addition, data gathered during recent SNCR testing does not appear to support a claim that ammonia injection for NOx control results in elevated CO emissions. Please discuss the basis of the proposed CO emissions rate and compare to recent projects.*

Data from the existing SAC plant built in 2001 and 2002 show CO emissions in the range of 2.5 to 3.0 lb/ton. This and the current BACT/LAER clearinghouse values were used as the basis for evaluation for the proposed CO limits. Additionally during SNCR testing at SAC an increase in CO emission was observed during periods of testing. This is also commonly seen with testing and operations with SNCR in the US and Europe. Polysius, who built the existing system and assisted with the SNCR testing, has reported the following in its report, NOx Abatement with the SNCR Process in Kiln Plants with Staged Combustion:

> There was found to be a rise in CO as a function, of the molar ratio, as shown in Fig 6. However, up to molar ratios less than 1 this rise was not very significant and was of the order of 100 to 300 mg/m³ (stp), and the measured values were strongly scattered. Above this molar ratio, however, the increase in CO concentration rose further and reached 600 mg/m³ (stp) or more.

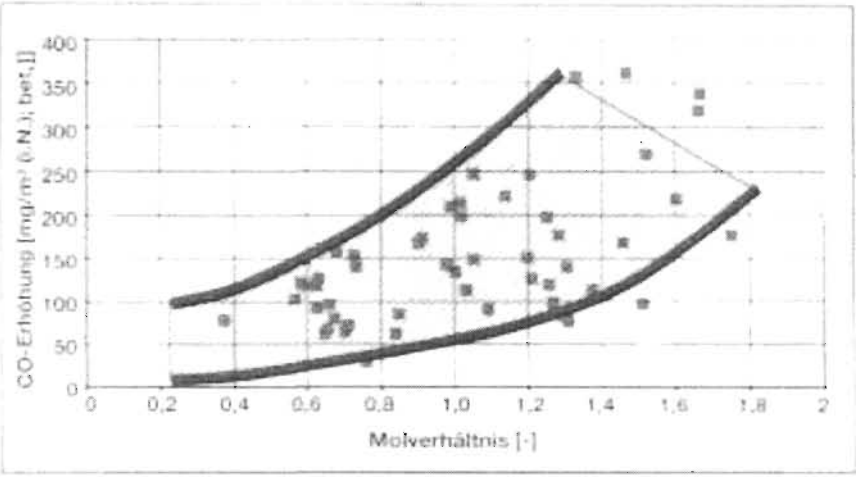
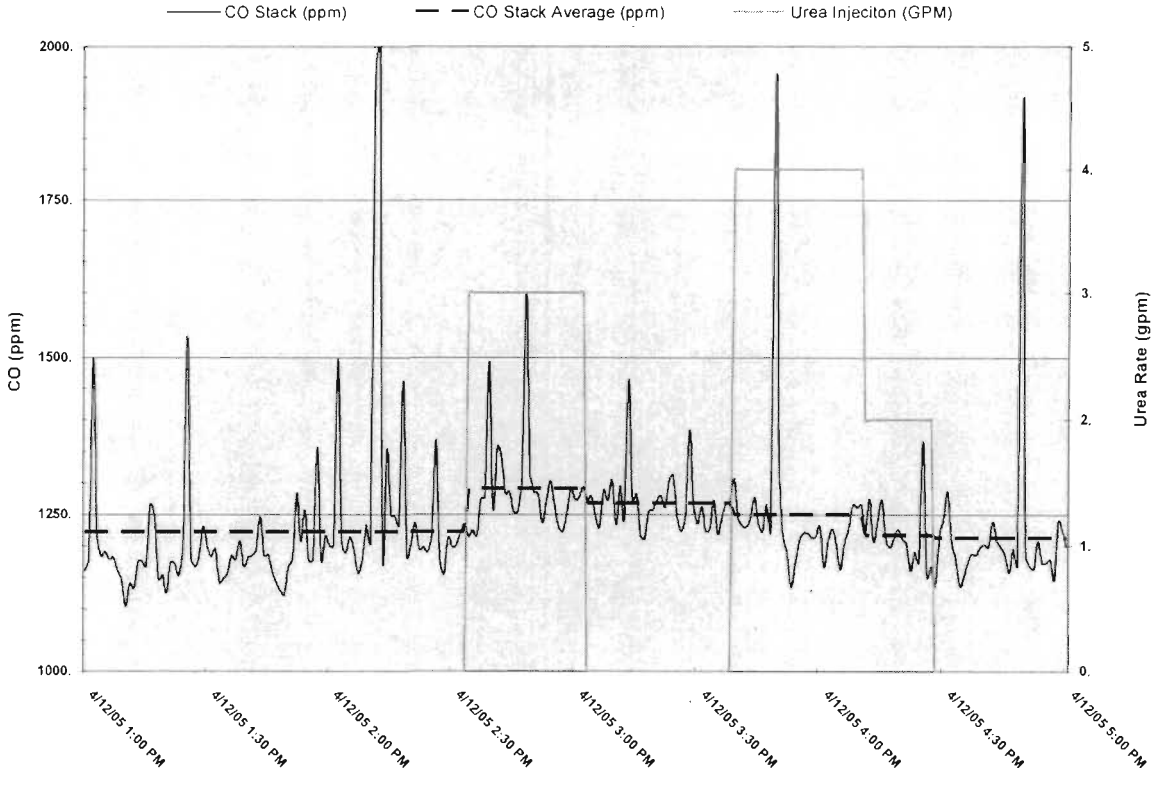


Figure 6: Dependence of the increase in CO on molar ratio

Similar findings have been observed during tests conducted by the European Cement Research Association (ECRA) in testing of SNCR in recently built kiln systems with staged combustion principals. Votorantim Cementos, in SNCR testing at other locations throughout North America, has observed these findings. One incident of this can be seen in the following figure.

Figure: CO Relation to Urea Injection Rate



c. *The Department has recently issued draft air construction permits for two new kilns that require the installation of a Continuous Emissions Monitoring System (CEMS) to demonstrate compliance with the CO standard. Propose a CO standard based on compliance demonstrated with a CEMS. The following items should be considered: additional residence time for burnout by extending the loop of duct work between the calciner and lower cyclone; the numerical value for the standard; the averaging period for the standard; and periods of startup, shutdown, and malfunction.*

[Rule 62-4.055, F.A.C.; Rule 62-4.070(3), F.A.C.; and Rule 62-212.400(6), F.A.C.]

As stated above, SAC has yet to select a vendor or finalize design of the calciner, but regardless of the vendor, adequate residence time for proper burnout of CO will be included. With no finalized design, extension of looping or duct work is not possible; SAC and the selected vendor will insure that appropriate retention time will be designed into the system based on calciner configuration, fuels to be used and raw materials.

In reviewing the recently issued draft permit from the Department to Florida Rock Industries (Permit 0010087-013-AC, PSD-FL-350), it is noted in Section III, Subsection B: State Requirements - Condition 14, that demonstration of compliance with the CO limit of 3.6 lb/ton is based on a 3-hour test. This is confirmed to be a Method 10 or 10A in Section III, Subsection B: State Requirements - Condition 24 which outlines the methods to demonstrate compliance with the appropriate CO limits. It is also stated that CO shall be monitored with a continuous emission monitor in Section III, Subsection B: State Requirements - Condition 20. Condition 20 also makes reference to a 30-day block average for CO which is to also be evaluated against the CO limit but it is unclear to SAC as to what purpose this serves since demonstration of compliance is clearly defined during the 3-hour Method 10 or 10A testing.

As stated previously, SAC would consider a CO limit of 3.6 lb/ton of clinker BACT instead of the 4.0 lb/ton previously requested in the permit application. SAC would also monitor CO emissions with the process monitors as is currently done at the existing plant or with a CO monitor in the stack while demonstrating compliance with the CO limit through annual stack testing using Method 10 or 10A as is stated in the Florida Rock Industries Permit (Permit 0010087-013-AC, PSD-FL-350).

2. *The application indicates that mercury emissions will be monitored by a conservative calculation of the potential emissions based on the sampling and analysis of raw materials and fuels. This method is used for the existing kiln. For this project, please identify the following: specific sampling and analysis methods used; frequency of sampling; the calculation method; and an example calculation from the existing kiln. In addition, discuss the procedure used when results are below the detectable levels of the analytic method.*

[Rule 62-4.055, F.A.C.; Rule 62-4.070(3), F.A.C.; and Rule 62-212.400, F.A.C.]

As previously addressed in the RAI response to question 12 submitted to the Department from SAC dated April 25, 2005:

> Mercury emissions were calculated from the total of all inputs into the proposed new kiln system using the same materials that comply with the mercury limit for the existing kiln system. A safety factor was used to insure a very conservative estimate. SAC assumed that all mercury inputs into the kiln system would equal all mercury outputs via the stack with no incorporation of mercury into clinker. Data from samples taken over the past two years of similar kiln feed materials and fuel materials at the existing site were used to calculate the mercury factors used in the estimate for the inputs. The limiting factor in the determination of the estimates and calculations was the detection limit for the mercury in most of the raw materials used that are quarried from the site. SAC used the

current lab detection limits for raw material inputs and actual data collected for fuels collected over the past two years which resulted in the conservative estimate of 122 pounds of mercury emissions per year. Actual mercury inputs from the raw materials such as limestone and sand are probably well below the detection limits resulting in another assurance of the overestimation of mercury emissions.

SAC proposes to monitor mercury in the same manner used for the existing kiln. SAC would monitor all feed and fuel inputs into the process on a semi-annual basis. Composites of the materials would be collected and analyzed on this semi-annual basis or prior to introduction of new material or fuel into the process. These results along with the amount of all inputs in this semi-annual period would be used to determine a total input of mercury into the system for this period. Detection limits would be treated as the detection limit value. Any consecutive semi-annual analysis and mass balance sum would be below 122 pounds ensuring that no 12 month period has mercury inputs above 122 pounds. SAC would also analyze the clinker during this semi-annual analysis and if clinker results yielded detectable limits of mercury then the mercury detected in the clinker would be excluded from the calculated input amount since this mercury could not be present in air emissions and should be excluded from the 122 pounds per hour.

The analytical method used would be the currently approved EPA Method 7471A Mercury in Solid or Semisolid Waste (Manual Cold Vapor Technique) or other approved or appropriate methods.

3. *Please provide a detailed discussion regarding additional truck traffic that will be generated from the construction and operation of the new kiln. Compare and contrast the future operations with existing plant operations including the number of additional trucks needed, the number of additional truck trips, reasonable precautions that will be taken to minimize fugitive dust emissions from vehicular traffic, and emissions from vehicular fuel combustion. Please discuss the feasibility and impacts of adding a rail spur to tie into the existing rail system. Please link the potential road emissions estimates to the road segment information provided in Tables 3-2 and 3-5.*

[Rule 62-4.055, F.A.C.; Rule 62-4.070(3), F.A.C.; and Rule 62-212.400, F.A.C.]

Detailed information on the existing and increased vehicular traffic and emissions is presented in Attachment A. As discussed in our May 9, 2005, RAI response (response to Question 2), SAC utilizes vacuum sweeping to minimize silt loading and PM_{10} emissions from paved roads in the plant. Other reasonable precautions that may be utilized to minimize fugitive dust emissions from vehicular traffic and are also set forth in Section II.10.(c) of our current PSD permit, including: application of asphalt, water, chemicals or other dust suppressants to unpaved roads and yards.

As can be seen from the data in Attachment A, vehicular traffic and resulting engine emissions will roughly double. There is little, if anything SAC can do beyond the Federal Motor Vehicle Control Program (FMVCP) to reduce the engine emissions. As older vehicles (both on- and off-road gasoline and diesel powered vehicles) are replaced by newer vehicles subject to more stringent emission limits under the FMVCP, engine emissions will continually decline.

SAC currently has no rail access available at the site. To gain rail access, SAC would have to find means to connect to the nearest track section approximately 15 miles east in High Springs. It is difficult to evaluate the feasibility or economic impact of such an endeavor since this would also require SAC's costumers to receive product via rail or SAC to construct terminals to offload rail and transfer to bulk trucks. Currently the vast majority of SAC's customers can only receive cement via bulk trucks. If

conditions change and customers or market demands necessitate the need to investigate rail delivery of cement, then SAC will further investigate the possibility of utilizing rail.

4. *The emission sources used for both the NAAQS and PSD compliance modeling were selected based on the 20D rule. Suwannee's use of this rule did not consider the additive effects of the sources located at the same facility or general location. The Department's review of the 20D rule-eliminated-sources in Attachment A in the original modeling submittal reveals a few PM10 sources that may need to be included in the impact modeling emission inventories and in the modeling results. Application of the 20D rule starts at the edge of the significant impact area (3.4 km in this case) instead of at the center of the facility. This means that all sources within the significant impact area, if any, should be modeled. Please see the attached North Carolina 20-D method. Also, please submit Appendix B to the additional information dated May 9, 2005. This is titled, "20D Analysis for SAC – FDEP Inventory and 20D Distances to SAC". The document was missing from the submittal.*

[Rule 62-4.055, F.A.C.; Rule 62-4.070(3), F.A.C.; and Rule 62-212.400, F.A.C.]

The 20D analysis has been revised in accordance with the North Carolina methodology (see Appendix B to enclosed revised Modeling Report). The revised Modeling Report presents revised increment and NAAQS modeling results resulting from the inclusion of several additional sources. The air quality increases were very small and still comply with the PM_{10} increments and NAAQS.

5. *Please provide a table in Section 6 of the Class I impacts section summarizing all of the pollutant emissions rates that were included in the Class I area PSD increment, visibility and deposition modeling. Submit a detailed discussion of the methodology used to determine the representative combined emission rates that were used in the Class I impact analysis.*

[Rule 62-4.055, F.A.C.; Rule 62-4.070(3), F.A.C.; and Rule 62-212.400, F.A.C.]

The emissions used in the Class I modeling are now discussed on page 53 and presented in detail in Appendix E of the revised Modeling Report.

6. *Please provide larger copies of Figures 2-2 and 2-3. These figures represent the SAC facility building, source configuration and structure identification figures.*

[Rule 62-4.055, F.A.C.; Rule 62-4.070(3), F.A.C.; and Rule 62-212.400, F.A.C.]

Enlarged Figures 2-2 and 2-3 are included in the revised Modeling Report.

ATTACHMENT A

EXISTING AND INCREASED VEHICULAR TRAFFIC AND PM_{10} EMISSIONS

Material	Amount of Material		Truck/Loader Weight (Empty)		Truck/Loader Capacity		Total Trips
Cement	1,191,360	tons/year	15	tons	25	tons	47,654
Fly Ash	199,728	tons/year	15	tons	25	tons	7,989
Sand	31,956	tons/year	15	tons	25	tons	1,278
Iron Ore	31,956	tons/year	15	tons	25	tons	1,278
Coal	127,896	tons/year	15	tons	25	tons	5,116
Gypsum	75,000	tons/year	15	tons	25	tons	3,000
Employee Traffic	75	employees/day	3,500	lbs	1	employee	27,375
Front End Loader 1 Sand	31,956	tons/year	25	tons	7.5	tons	4,261
Front End Loader 2 Iron Ore	31,956	tons/year	25	tons	7.5	tons	4,261
Front End Loader 3 Gypsum	75,000	tons/year	25	tons	7.5	tons	10,000
Front End Loader 4 Coal	19,184	tons/year	25	tons	7.5	tons	2,558
Quarry							
Front End Loaders Limestone	1,679,000	tons/year	25	tons	7.5	tons	223,867
Base Rock (Limestone)	44,384	tons/year	25	tons	7.5	tons	5,918

Material	Amount of Material (Throughput Increase)		Truck/Loader Weight (Empty)		Truck/Loader Capacity		Total Trips
Cement	1,191,360	tons/year	15	tons	25	tons	47,654
Fly Ash	250,272	tons/year	15	tons	25	tons	10,011
Sand	40,044	tons/year	15	tons	25	tons	1,602
Iron Ore	40,044	tons/year	15	tons	25	tons	1,602
Coal	150,000	tons/year	15	tons	25	tons	6,000
Gypsum	75,000	tons/year	15	tons	25	tons	3,000
Employee Traffic	40	employees/day	3,500	lbs	1	employee	14,600
Front End Loader 1 Sand	40,044	tons/year	25	tons	7.5	tons	5,339
Front End Loader 2 Iron Ore	40,044	tons/year	25	tons	7.5	tons	5,339
Front End Loader 3 Gypsum	75,000	tons/year	25	tons	7.5	tons	10,000
Front End Loader 4 Coal	22,500	tons/year	25	tons	7.5	tons	3,000
Quarry							
Front End Loaders Limestone	1,771,000	tons/year	25	tons	7.5	tons	236,133
Base Rock (Limestone)	55,616	tons/year	25	tons	7.5	tons	7,415

Material	Amount of Material		Truck/Loader Weight (Empty)		Truck/Loader Capacity		Total Trips
Cement	2,382,720	tons/year	15	tons	25	tons	95,309
Fly Ash	450,000	tons/year	15	tons	25	tons	18,000
Sand	72,000	tons/year	15	tons	25	tons	2,880
Iron Ore	72,000	tons/year	15	tons	25	tons	2,880
Coal	277,896	tons/year	15	tons	25	tons	11,116
Gypsum	150,000	tons/year	15	tons	25	tons	6,000
Employee Traffic	115	employees/day	3,500	lbs	1	employee	41,975
Front End Loader 1 Sand	72,000	tons/year	25	tons	7.5	tons	9,600
Front End Loader 2 Iron Ore	72,000	tons/year	25	tons	7.5	tons	9,600
Front End Loader 3 Gypsum	150,000	tons/year	25	tons	7.5	tons	20,000
Front End Loader 4 Coal	41,684	tons/year	25	tons	7.5	tons	5,558
Quarry							
Front End Loaders Limestone	3,450,000	tons/year	25	tons	7.5	tons	460,000
Base Rock (Limestone)	100,000	tons/year	25	tons	7.5	tons	13,333

Paved Road Emission Summary

Segment No.	Segment Length (mi)	Silt Loading (g/m2)	Material Trips (#/yr)	Maximum Annual Emissions: Total Mileage (Mi/yr)	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)	Hourly Emissions: TSP Emissions (lb/hr)	PM10 Emissions (lb/hr)	Number of Segments	Average PM10 per Segment (lb/hr)
1A	0.42	0.15	184,826	77,627	0.27	0.05	10.30	2.00	2.352	0.456	9	0.0506
1 (1C)	0.42	0.15	88,177	37,034	0.29	0.06	5.46	1.06	1.246	0.242	9	0.0269
2	0.03	0.15	24,611	1,477	0.11	0.02	0.08	0.02	0.019	0.004	1	0.0037
3	0.16	0.15	24,611	5,539	0.18	0.03	0.50	0.10	0.114	0.022	4	0.0055
4	0.21	0.15	14,600	3,066	0.01	0.00	0.01	0.00	0.002	0.000	7	0.00004
5	0.20	0.15	10,011	4,004	0.38	0.07	0.77	0.15	0.176	0.034	4	0.0085
6	0.09	0.15	88,177	7,936	0.29	0.06	1.17	0.23	0.267	0.052	2	0.0259
7	0.02	0.15	63,566	1,590	0.23	0.04	0.18	0.04	0.042	0.008	1	0.0081
8	0.07	0.15	59,858	5,044	0.22	0.04	0.57	0.11	0.130	0.025	2	0.0125
9	0.08	0.15	47,654	3,812	0.38	0.07	0.73	0.14	0.167	0.033	3	0.0108
10	0.06	0.15	12,203	1,464	0.38	0.07	0.28	0.05	0.064	0.012	2	0.0062
11	0.08	0.15	3,000	480	0.38	0.07	0.09	0.02	0.021	0.004	3	0.0014
12	0.02	0.15	3,203	128	0.38	0.07	0.02	0.00	0.006	0.001	1	0.0011
13	0.11	0.15	6,000	660	0.38	0.07	0.13	0.02	0.029	0.006	5	0.0011
14	0.21	0.15	3,708	1,557	0.28	0.06	0.22	0.04	0.051	0.010	5	0.0020
15	0.27	0.15	3,708	1,001	0.28	0.06	0.14	0.03	0.033	0.006	8	0.00079
16	0.03	0.15	10,000	600	0.41	0.08	0.12	0.02	0.028	0.005	1	0.0055
17	0.12	0.15	3,000	360	0.41	0.08	0.07	0.01	0.017	0.003	1	0.0033
18*	0.06	0.15	10,678	641	0.41	0.08	0.13	0.03	0.030	0.006	NA	NA
TOTAL	1.97			154,021			20.99	4.07	4.793	0.929		

* Segment No. 18 represents front-end loader traffic inside the Raw Materials Storage Building. These emissions were combined with Source No. FR1 for modeling purposes.

Paved Road Segments

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
1A	0.42	Coal/Fuels	0.15	15	25	40	27.5		X	27.5	25	277,896	11,116	0	4,669	4,669	128,388				
1A	0.42	Flyash	0.15	15	25	40	27.5		X	27.5	25	450,000	18,000	0	7,560	7,560	207,900				
1A	0.42	Sand, Iron Ore	0.15	15	25	40	27.5		X	27.5	25	144,000	5,760	0	2,419	2,419	66,528				
1A	0.42	Gypsum	0.15	15	25	40	27.5		X	27.5	25	150,000	6,000	0	2,520	2,520	69,300				
1A	0.42	Cement	0.15	15	25	40	27.5	X		27.5	25	2,382,720	95,309	40,030	0	40,030	1,100,817				
1A	0.42	Base Rock (Limestone)	0.15	15	15	30	22.5	X		22.5	15	100,000	6,667	2,800	0	2,800	63,000				
1A	0.42	Employee Vehicles	0.15	1.75	0	1.75	1.75	X		1.8	0	41,975	41,975	17,630	0	17,630	30,852				
1A	0.42	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
1A	0.42	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
1A	0.42	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					150,000	0	0	0	0					
1A	0.42	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					41,684	0	0	0	0					
1A	0.42	SUBTOTAL	0.15							21.5			184,826	60,459	17,168	77,627	1,666,784	0.27	0.05	10.30	2.00

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
1	0.42	Coal/Fuels	0.15	15	25	40	27.5	X		27.5	25	150,000	6,000	2,520	0	2,520	69,300				
1	0.42	Flyash	0.15	15	25	40	27.5	X		27.5	25	250,272	10,011	4,205	0	4,205	115,626				
1	0.42	Sand, Iron Ore	0.15	15	25	40	27.5	X		27.5	25	80,087	3,203	1,345	0	1,345	37,000				
1	0.42	Gypsum	0.15	15	25	40	27.5	X		27.5	25	75,000	3,000	1,260	0	1,260	34,650				
1	0.42	Cement	0.15	15	25	40	27.5		X	27.5	25	1,191,360	47,654	0	20,015	20,015	550,408				
1	0.42	Base Rock (Limestone)	0.15	15	15	30	22.5		X	22.5	15	55,616	3,708	0	1,557	1,557	35,038				
1	0.42	Employee Vehicles	0.15	1.75	0	1.75	1.75		X	1.8	0	14,600	14,600	0	6,132	6,132	10,731				
1	0.42	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
1	0.42	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
1	0.42	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
1	0.42	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
1	0.42	SUBTOTAL	0.15							23.0			88,177	9,330	27,704	37,034	852,753	0.29	0.06	5.46	1.06

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
2	0.03	Coal/Fuels	0.15	15	25	40	27.5					150,000	0	0	0	0					
2	0.03	Flyash	0.15	15	25	40	27.5	X	X	27.5	25	250,272	10,011	300	300	601	16,518				
2	0.03	Sand, Iron Ore	0.15	15	25	40	27.5					80,087	0	0	0	0					
2	0.03	Gypsum	0.15	15	25	40	27.5					75,000	0	0	0	0					
2	0.03	Cement	0.15	15	25	40	27.5					1,191,360	0	0	0	0					
2	0.03	Base Rock (Limestone)	0.15	15	15	30	22.5					55,616	0	0	0	0					
2	0.03	Employee Vehicles	0.15	1.75	0	1.75	1.75	X	X	1.8	0	14,600	14,600	438	438	876	1,533				
2	0.03	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
2	0.03	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
2	0.03	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
2	0.03	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
2	0.03	SUBTOTAL	0.15							12.2			24,611	738	738	1,477	18,051	0.11	0.02	0.08	0.02

Paved Road Segments

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
3	0.16	Coal/Fuels	0.15	15	25	40	27.5					150,000	0	0	0	0					
3	0.16	Flyash	0.15	15	25	40	27.5	X	X	27.5	25	250,272	10,011	1,602	1,602	3,203	88,096				
3	0.16	Sand, Iron Ore	0.15	15	25	40	27.5					80,087	0	0	0	0					
3	0.16	Gypsum	0.15	15	25	40	27.5					75,000	0	0	0	0					
3	0.16	Cement	0.15	15	22	37	26					1,191,360	0	0	0	0					
3	0.16	Base Rock (Limestone)	0.15	15	15	30	22.5					55,616	0	0	0	0					
3	0.16	Employee Vehicles	0.15	1.75	0	1.75	1.75		X	1.8	0	14,600	14,600	0	2,336	2,336	4,088				
3	0.16	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
3	0.16	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
3	0.16	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
3	0.16	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
3	0.16	SUBTOTAL	0.15							16.6			24,611	1,602	3,938	5,539	92,184	0.18	0.03	0.50	0.10

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
4	0.21	Coal/Fuels	0.15	15	25	40	27.5					150,000	0	0	0	0					
4	0.21	Flyash	0.15	15	25	40	27.5					250,272	0	0	0	0					
4	0.21	Sand, Iron Ore	0.15	15	25	40	27.5					80,087	0	0	0	0					
4	0.21	Gypsum	0.15	15	25	40	27.5					75,000	0	0	0	0					
4	0.21	Cement	0.15	15	25	40	27.5					1,191,360	0	0	0	0					
4	0.21	Base Rock (Limestone)	0.15	15	15	30	22.5					55,616	0	0	0	0					
4	0.21	Employee Vehicles	0.15	1.75	0	1.75	1.75		X	1.8	0	14,600	14,600	0	3,066	3,066	5,366				
4	0.21	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
4	0.21	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
4	0.21	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
4	0.21	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
4	0.21	SUBTOTAL	0.15							1.8			14,600	0	3,066	3,066	5,366	0.01	0.00	0.01	0.00

Paved Road Segments

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Truck Weights Loaded (Tons)	Truck Weights Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
5	0.20	Coal/Fuels	0.15	15	25	40	27.5					150,000	0	0	0	0					
5	0.20	Flyash	0.15	15	25	40	27.5	X	X	27.5	25	250,272	10,011	2,002	2,002	4,004	110,120				
5	0.20	Sand, Iron Ore	0.15	15	25	40	27.5					80,087	0	0	0	0					
5	0.20	Gypsum	0.15	15	25	40	27.5					75,000	0	0	0	0					
5	0.20	Cement	0.15	15	25	40	27.5					1,191,360	0	0	0	0					
5	0.20	Base Rock (Limestone)	0.15	15	15	30	22.5					55,616	0	0	0	0					
5	0.20	Employee Vehicles	0.15	1.75	0	1.75	1.75					14,600	0	0	0	0					
5	0.20	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
5	0.20	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
5	0.20	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
5	0.20	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
5	0.20	SUBTOTAL	0.15							27.5			10,011	2,002	2,002	4,004	110,120	0.38	0.07	0.77	0.15
6	0.09	Coal/Fuels	0.15	15	25	40	27.5		X	27.5	25	150,000	6,000	0	540	540	14,850				
6	0.09	Flyash	0.15	15	25	40	27.5		X	27.5	25	250,272	10,011	0	901	901	24,777				
6	0.09	Sand, Iron Ore	0.15	15	25	40	27.5		X	27.5	25	80,087	3,203	0	288	288	7,929				
6	0.09	Gypsum	0.15	15	25	40	27.5		X	27.5	25	75,000	3,000	0	270	270	7,425				
6	0.09	Cement	0.15	15	25	40	27.5		X	27.5	25	1,191,360	47,654	0	4,289	4,289	117,945				
6	0.09	Base Rock (Limestone)	0.15	15	15	30	22.5		X	22.5	15	55,616	3,708	0	334	334	7,508				
6	0.09	Employee Vehicles	0.15	1.75	0	1.75	1.75	X		1.8	0	14,600	14,600	1,314	0	1,314	2,300				
6	0.09	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
6	0.09	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
6	0.09	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
6	0.09	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
6	0.09	SUBTOTAL	0.15							23.0			88,177	1,314	6,622	7,936	182,733	0.29	0.06	1.17	0.23

Paved Road Segments

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Truck Weights Loaded (Tons)	Truck Weights Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
7	0.02	Coal/Fuels	0.15	15	25	40	27.5	X	X	27.5	25	150,000	6,000	120	120	240	6,600				
7	0.02	Flyash	0.15	15	25	40	27.5					250,272	0	0	0	0					
7	0.02	Sand, Iron Ore	0.15	15	25	40	27.5	X	X	27.5	25	80,087	3,203	64	64	128	3,524				
7	0.02	Gypsum	0.15	15	25	40	27.5	X	X	27.5	25	75,000	3,000	60	60	120	3,300				
7	0.02	Cement	0.15	15	25	40	27.5	X		15.0	25	1,191,360	47,654	953	0	953	14,296				
7	0.02	Base Rock (Limestone)	0.15	15	15	30	22.5	X	X	22.5	15	55,616	3,708	74	74	148	3,337				
7	0.02	Employee Vehicles	0.15	1.75	0	1.75	1.75					14,600	0	0	0	0					
7	0.02	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
7	0.02	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
7	0.02	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
7	0.02	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
7	0.02	SUBTOTAL	0.15							19.5			63,566	1,271	318	1,590	31,057	0.23	0.04	0.18	0.04

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Truck Weights Loaded (Tons)	Truck Weights Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
8	0.07	Coal/Fuels	0.15	15	25	40	27.5	X	X	27.5	25	150,000	6,000	420	420	840	23,100				
8	0.07	Flyash	0.15	15	25	40	27.5					250,272	0	0	0	0					
8	0.07	Sand, Iron Ore	0.15	15	25	40	27.5	X	X	27.5	25	80,087	3,203	224	224	448	12,333				
8	0.07	Gypsum	0.15	15	25	40	27.5	X	X	27.5	25	75,000	3,000	210	210	420	11,550				
8	0.07	Cement	0.15	15	25	40	27.5	X		15.0	25	1,191,360	47,654	3,336	0	3,336	50,037				
8	0.07	Base Rock (Limestone)	0.15	15	15	30	22.5					55,616	0	0	0	0					
8	0.07	Employee Vehicles	0.15	1.75	0	1.75	1.75					14,600	0	0	0	0					
8	0.07	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
8	0.07	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
8	0.07	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
8	0.07	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
8	0.07	SUBTOTAL	0.15							19.2			59,858	4,190	854	5,044	97,021	0.22	0.04	0.57	0.11

Paved Road Segments

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
9	0.08	Coal/Fuels	0.15	15	25	40	27.5					150,000	0	0	0	0					
9	0.08	Flyash	0.15	15	25	40	27.5					250,272	0	0	0	0					
9	0.08	Sand, Iron Ore	0.15	15	25	40	27.5					80,087	0	0	0	0					
9	0.08	Gypsum	0.15	15	25	40	27.5					75,000	0	0	0	0					
9	0.08	Cement	0.15	15	25	40	27.5		X	27.5	25	1,191,360	47,654	0	3,812	3,812	104,840				
9	0.08	Base Rock (Limestone)	0.15	15	15	30	22.5					55,616	0	0	0	0					
9	0.08	Employee Vehicles	0.15	1.75	0	1.75	1.75					14,600	0	0	0	0					
9	0.08	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
9	0.08	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
9	0.08	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
9	0.08	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
9	0.08	SUBTOTAL	0.15							27.5			47,654	0	3,812	3,812	104,840	0.38	0.07	0.73	0.14

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
10	0.06	Coal/Fuels	0.15	15	25	40	27.5	X	X	27.5	25	150,000	6,000	360	360	720	19,800				
10	0.06	Flyash	0.15	15	25	40	27.5					250,272	0	0	0	0					
10	0.06	Sand, Iron Ore	0.15	15	25	40	27.5	X	X	27.5	25	80,087	3,203	192	192	384	10,572				
10	0.06	Gypsum	0.15	15	25	40	27.5	X	X	27.5	25	75,000	3,000	180	180	360	9,900				
10	0.06	Cement	0.15	15	25	40	27.5					1,191,360	0	0	0	0					
10	0.06	Base Rock (Limestone)	0.15	15	15	30	22.5					55,616	0	0	0	0					
10	0.06	Employee Vehicles	0.15	1.75	0	1.75	1.75					14,600	0	0	0	0					
10	0.06	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
10	0.06	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
10	0.06	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
10	0.06	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
10	0.06	SUBTOTAL	0.15							27.5			12,203	732	732	1,464	40,272	0.38	0.07	0.28	0.05

Paved Road Segments

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
11	0.08	Coal/Fuels	0.15	15	25	40	27.5					150,000	0	0	0	0					
11	0.08	Flyash	0.15	15	25	40	27.5					250,272	0	0	0	0					
11	0.08	Sand, Iron Ore	0.15	15	25	40	27.5					80,087	0	0	0	0					
11	0.08	Gypsum	0.15	15	25	40	27.5	X	X	27.5	25	75,000	3,000	240	240	480	13,200				
11	0.08	Cement	0.15	15	25	40	27.5					1,191,360	0	0	0	0					
11	0.08	Base Rock (Limestone)	0.15	15	15	30	22.5					55,616	0	0	0	0					
11	0.08	Employee Vehicles	0.15	1.75	0	1.75	1.75					14,600	0	0	0	0					
11	0.08	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
11	0.08	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
11	0.08	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
11	0.08	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
11	0.08	SUBTOTAL	0.15							27.5			3,000	240	240	480	13,200	0.38	0.07	0.09	0.02
Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
12	0.02	Coal/Fuels	0.15	15	25	40	27.5					150,000	0	0	0	0					
12	0.02	Flyash	0.15	15	25	40	27.5					250,272	0	0	0	0					
12	0.02	Sand, Iron Ore	0.15	15	25	40	27.5	X	X	27.5	25	80,087	3,203	64	64	128	3,524				
12	0.02	Gypsum	0.15	15	25	40	27.5					75,000	0	0	0	0					
12	0.02	Cement	0.15	15	25	40	27.5					1,191,360	0	0	0	0					
12	0.02	Base Rock (Limestone)	0.15	15	15	30	22.5					55,616	0	0	0	0					
12	0.02	Employee Vehicles	0.15	1.75	0	1.75	1.75					14,600	0	0	0	0					
12	0.02	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
12	0.02	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
12	0.02	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
12	0.02	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
12	0.02	SUBTOTAL	0.15							27.5			3,203	64	64	128	3,524	0.38	0.07	0.02	0.00

Paved Road Segments

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
13	0.11	Coal/Fuels	0.15	15	25	40	27.5		X	27.5	25	150,000	6,000	0	660	660	18,150				
13	0.11	Flyash	0.15	15	25	40	27.5					250,272	0	0	0	0					
13	0.11	Sand, Iron Ore	0.15	15	25	40	27.5					80,087	0	0	0	0					
13	0.11	Gypsum	0.15	15	25	40	27.5					75,000	0	0	0	0					
13	0.11	Cement	0.15	15	25	40	27.5					1,191,360	0	0	0	0					
13	0.11	Base Rock (Limestone)	0.15	15	15	30	22.5					55,616	0	0	0	0					
13	0.11	Employee Vehicles	0.15	1.75	0	1.75	1.75					14,600	0	0	0	0					
13	0.11	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
13	0.11	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
13	0.11	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
13	0.11	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
13	0.11	SUBTOTAL	0.15							27.5			6,000	0	660	660	18,150	0.38	0.07	0.13	0.02

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
14	0.21	Coal/Fuels	0.15	15	25	40	27.5					150,000	0	0	0	0					
14	0.21	Flyash	0.15	15	25	40	27.5					250,272	0	0	0	0					
14	0.21	Sand, Iron Ore	0.15	15	25	40	27.5					80,087	0	0	0	0					
14	0.21	Gypsum	0.15	15	25	40	27.5					75,000	0	0	0	0					
14	0.21	Cement	0.15	15	22	37	26					1,191,360	0	0	0	0					
14	0.21	Base Rock (Limestone)	0.15	15	15	30	22.5	X	X	22.5	15	55,616	3,708	779	779	1,557	35,038				
14	0.21	Employee Vehicles	0.15	1.75	0	1.75	1.75					14,600	0	0	0	0					
14	0.21	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
14	0.21	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
14	0.21	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
14	0.21	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
14	0.21	SUBTOTAL	0.15							22.5			3,708	779	779	1,557	35,038	0.28	0.06	0.22	0.04

Paved Road Segments

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
15	0.27	Coal/Fuels	0.15	15	25	40	27.5					150,000	0	0	0	0					
15	0.27	Flyash	0.15	15	25	40	27.5					250,272	0	0	0	0					
15	0.27	Sand, Iron Ore	0.15	15	25	40	27.5					80,087	0	0	0	0					
15	0.27	Gypsum	0.15	15	25	40	27.5					75,000	0	0	0	0					
15	0.27	Cement	0.15	15	25	40	27.5					1,191,360	0	0	0	0					
15	0.27	Base Rock (Limestone)	0.15	15	15	30	22.5		X	22.5	15	55,616	3,708	0	1,001	1,001	22,525				
15	0.27	Employee Vehicles (75/day)	0.15	1.75	0	1.75	1.75					14,600	0	0	0	0					
15	0.27	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
15	0.27	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
15	0.27	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
15	0.27	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
15	0.27	SUBTOTAL	0.15							22.5			3,708	0	1,001	1,001	22,525	0.28	0.06	0.14	0.03

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
16	0.03	Coal/Fuels	0.15	15	25	40	27.5					150,000	0	0	0	0					
16	0.03	Flyash	0.15	15	25	40	27.5					250,272	0	0	0	0					
16	0.03	Sand, Iron Ore	0.15	15	25	40	27.5					80,087	0	0	0	0					
16	0.03	Gypsum	0.15	15	25	40	27.5					75,000	0	0	0	0					
16	0.03	Cement	0.15	15	25	40	27.5					1,191,360	0	0	0	0					
16	0.03	Base Rock (Limestone)	0.15	15	15	30	22.5					55,616	0	0	0	0					
16	0.03	Employee Vehicles	0.15	1.75	0	1.75	1.75					14,600	0	0	0	0					
16	0.03	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
16	0.03	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
16	0.03	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75	X	X	28.8	7.5	75,000	10,000	300	300	600	17,250				
16	0.03	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
16	0.03	SUBTOTAL	0.15							28.8			10,000	300	300	600	17,250	0.41	0.08	0.12	0.02

Paved Road Segments

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Truck Weights Loaded (Tons)	Truck Weights Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
17	0.12	Coal/Fuels	0.15	15	25	40	27.5					150,000	0	0	0	0					
17	0.12	Flyash	0.15	15	25	40	27.5					250,272	0	0	0	0					
17	0.12	Sand, Iron Ore	0.15	15	25	40	27.5					80,087	0	0	0	0					
17	0.12	Gypsum	0.15	15	25	40	27.5					75,000	0	0	0	0					
17	0.12	Cement	0.15	15	25	40	27.5					1,191,360	0	0	0	0					
17	0.12	Base Rock (Limestone)	0.15	15	15	30	22.5					55,616	0	0	0	0					
17	0.12	Employee Vehicles	0.15	1.75	0	1.75	1.75					14,600	0	0	0	0					
17	0.12	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
17	0.12	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
17	0.12	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
17	0.12	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75		X	28.8	7.5	22,500	3,000	0	360	360	10,350				
17	0.12	SUBTOTAL	0.15							28.8			3,000	0	360	360	10,350	0.41	0.08	0.07	0.01
Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Truck Weights Loaded (Tons)	Truck Weights Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
18	0.06	Coal/Fuels	0.15	15	25	40	27.5					150,000	0	0	0	0					
18	0.06	Flyash	0.15	15	25	40	27.5					250,272	0	0	0	0					
18	0.06	Sand, Iron Ore	0.15	15	25	40	27.5					80,087	0	0	0	0					
18	0.06	Gypsum	0.15	15	25	40	27.5					75,000	0	0	0	0					
18	0.06	Cement	0.15	15	25	40	27.5					1,191,360	0	0	0	0					
18	0.06	Base Rock (Limestone)	0.15	15	15	30	22.5					55,616	0	0	0	0					
18	0.06	Employee Vehicles	0.15	1.75	0	1.75	1.75					14,600	0	0	0	0					
18	0.06	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75		X	28.8	7.5	40,044	5,339	0	320	320	9,210				
18	0.06	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75		X	28.8	7.5	40,044	5,339	0	320	320	9,210				
18	0.06	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
18	0.06	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
18	0.06	SUBTOTAL	0.15							28.8			10,678	0	641	641	18,420	0.41	0.08	0.13	0.03
		GRAND TOTAL														116,987				**20.99**	4.07

Paved Road Segments																						
	Notes:																					
		Emissions based on AP-42 Section 13.2.1 (12/03), Equation (2).																				
		E = [k * (sL/2)^0.65 * (W/3)^1.5 - C] * (1 - P/4N)																				
	where	E = emission factor, lb/VMT				k (PM-30) =	0.082	lb/VMT														
		k = particle size multiplier				k (PM-10) =	0.016	lb/VMT														
		sL = road surface silt loading, g/m^2																				
		W = average vehicle weight, tons				C (PM-30) =	0.00047	lb/VMT														
		C = 1980's vehicle exhaust, brake & tire wear, lb/VMT				C (PM-10) =	0.00047	lb/VMT														
		P = number of days with >= 0.01 in precipitation																				
		N = number of days in the averaging period (365)				P =	129	days (Gainesville average)														
		Silt loading of 0.15 g/m2 or less will be maintained by use of vacuum sweeping																				

Paved Road Emission Summary

Segment No.	Segment Length (mi)	Silt Loading (g/m2)	Material Trips (#/yr)	Maximum Annual Emissions: Total Mileage (Mi/yr)	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)	Hourly Emissions: TSP Emissions (lb/hr)	PM10 Emissions (lb/hr)	Number of Segments	Average PM10 per Segment (lb/hr)
1A	0.42	0.15	184,826	77,627	0.27	0.05	10.30	2.00	2.352	0.456	9	0.051
1 (1C)	0.42	0.15	184,826	77,627	0.27	0.05	10.30	2.00	2.352	0.456	9	0.051
2	0.03	0.15	59,975	3,599	0.08	0.01	0.14	0.03	0.032	0.006	1	0.006
3	0.16	0.15	59,975	12,476	0.13	0.03	0.84	0.16	0.191	0.037	4	0.009
4	0.21	0.15	41,975	8,815	0.01	0.00	0.03	0.00	0.006	0.001	7	0.0001
5	0.20	0.15	18,000	7,200	0.38	0.07	1.39	0.27	0.316	0.061	4	0.015
6	0.09	0.15	184,826	16,634	0.27	0.05	2.21	0.43	0.504	0.098	2	0.049
7	0.02	0.15	124,851	3,088	0.23	0.04	0.35	0.07	0.080	0.015	1	0.015
8	0.07	0.15	118,185	9,874	0.22	0.04	1.09	0.21	0.250	0.048	2	0.024
9	0.08	0.15	95,309	7,625	0.38	0.07	1.47	0.28	0.335	0.065	3	0.022
10	0.06	0.15	22,876	2,745	0.38	0.07	0.53	0.10	0.121	0.023	2	0.012
11	0.08	0.15	6,000	960	0.38	0.07	0.18	0.04	0.042	0.008	3	0.0027
12	0.02	0.15	5,760	230	0.38	0.07	0.04	0.01	0.010	0.002	1	0.002
13	0.11	0.15	11,116	1,223	0.38	0.07	0.24	0.05	0.054	0.010	5	0.0021
14	0.21	0.15	6,667	2,800	0.28	0.06	0.40	0.08	0.091	0.018	5	0.0035
15	0.27	0.15	6,667	1,800	0.28	0.06	0.26	0.05	0.058	0.011	8	0.0014
16	0.03	0.15	20,000	1,200	0.41	0.08	0.25	0.05	0.056	0.011	1	0.0109
17	0.12	0.15	5,558	667	0.41	0.08	0.14	0.03	0.031	0.006	1	0.0061
18*	0.06	0.15	19,200	1,152	0.41	0.08	0.24	0.05	0.054	0.011	NA	NA
TOTAL	1.97			237,342			30.37	5.89	6.935	1.344		

* Segment No. 18 represents front-end loader traffic inside the Raw Materials Storage Building. These emissions were combined with Source No. FR1 for modeling purposes.

Paved Road Segments

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
1A	0.42	Coal/Fuels	0.15	15	25	40	27.5		X	27.5	25	277,896	11,116	0	4,669	4,669	128,388				
1A	0.42	Flyash	0.15	15	25	40	27.5		X	27.5	25	450,000	18,000	0	7,560	7,560	207,900				
1A	0.42	Sand, Iron Ore	0.15	15	25	40	27.5		X	27.5	25	144,000	5,760	0	2,419	2,419	66,528				
1A	0.42	Gypsum	0.15	15	25	40	27.5		X	27.5	25	150,000	6,000	0	2,520	2,520	69,300				
1A	0.42	Cement	0.15	15	25	40	27.5	X		27.5	25	2,382,720	95,309	40,030	0	40,030	1,100,817				
1A	0.42	Base Rock (Limestone)	0.15	15	15	30	22.5	X		22.5	15	100,000	6,667	2,800	0	2,800	63,000				
1A	0.42	Employee Vehicles	0.15	1.75	0	1.75	1.75	X		1.8	0	41,975	41,975	17,630	0	17,630	30,852				
1A	0.42	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
1A	0.42	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
1A	0.42	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					150,000	0	0	0	0					
1A	0.42	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					41,684	0	0	0	0					
1A	0.42	SUBTOTAL	0.15							21.5			184,826	60,459	17,168	77,627	1,666,784	0.27	0.05	10.30	2.00

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
1	0.42	Coal/Fuels	0.15	15	25	40	27.5	X		27.5	25	277,896	11,116	4,669	0	4,669	128,388				
1	0.42	Flyash	0.15	15	25	40	27.5	X		27.5	25	450,000	18,000	7,560	0	7,560	207,900				
1	0.42	Sand, Iron Ore	0.15	15	25	40	27.5	X		27.5	25	144,000	5,760	2,419	0	2,419	66,528				
1	0.42	Gypsum	0.15	15	25	40	27.5	X		27.5	25	150,000	6,000	2,520	0	2,520	69,300				
1	0.42	Cement	0.15	15	25	40	27.5		X	27.5	25	2,382,720	95,309	0	40,030	40,030	1,100,817				
1	0.42	Base Rock (Limestone)	0.15	15	15	30	22.5		X	22.5	15	100,000	6,667	0	2,800	2,800	63,000				
1	0.42	Employee Vehicles	0.15	1.75	0	1.75	1.75		X	1.8	0	41,975	41,975	0	17,630	17,630	30,852				
1	0.42	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
1	0.42	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
1	0.42	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					150,000	0	0	0	0					
1	0.42	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					41,684	0	0	0	0					
1	0.42	SUBTOTAL	0.15							21.5			184,826	17,168	60,459	77,627	1,666,784	0.27	0.05	10.30	2.00

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
2	0.03	Coal/Fuels	0.15	15	25	40	27.5					277,896	0	0	0	0					
2	0.03	Flyash	0.15	15	25	40	27.5	X	X	27.5	25	450,000	18,000	540	540	1,080	29,700				
2	0.03	Sand, Iron Ore	0.15	15	25	40	27.5					144,000	0	0	0	0					
2	0.03	Gypsum	0.15	15	25	40	27.5					150,000	0	0	0	0					
2	0.03	Cement	0.15	15	25	40	27.5					2,382,720	0	0	0	0					
2	0.03	Base Rock (Limestone)	0.15	15	15	30	22.5					100,000	0	0	0	0					
2	0.03	Employee Vehicles	0.15	1.75	0	1.75	1.75	X	X	1.8	0	41,975	41,975	1,259	1,259	2,519	4,407				
2	0.03	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
2	0.03	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
2	0.03	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					150,000	0	0	0	0					
2	0.03	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					41,684	0	0	0	0					
2	0.03	SUBTOTAL	0.15							9.5			59,975	1,799	1,799	3,599	34,107	0.08	0.01	0.14	0.03

Paved Road Segments

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Truck Weights Loaded (Tons)	Truck Weights Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
3	0.16	Coal/Fuels	0.15	15	25	40	27.5					277,896	0	0	0	0					
3	0.16	Flyash	0.15	15	25	40	27.5	X	X	27.5	25	450,000	18,000	2,880	2,880	5,760	158,400				
3	0.16	Sand, Iron Ore	0.15	15	25	40	27.5					144,000	0	0	0	0					
3	0.16	Gypsum	0.15	15	25	40	27.5					150,000	0	0	0	0					
3	0.16	Cement	0.15	15	22	37	26					2,382,720	0	0	0	0					
3	0.16	Base Rock (Limestone)	0.15	15	15	30	22.5					100,000	0	0	0	0					
3	0.16	Employee Vehicles	0.15	1.75	0	1.75	1.75		X	1.8	0	41,975	41,975	0	6,716	6,716	11,753				
3	0.16	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
3	0.16	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
3	0.16	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					150,000	0	0	0	0					
3	0.16	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					41,684	0	0	0	0					
3	0.16	SUBTOTAL	0.15							13.6			59,975	2,880	9,596	12,476	170,153	0.13	0.03	0.84	0.16

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Truck Weights Loaded (Tons)	Truck Weights Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
4	0.21	Coal/Fuels	0.15	15	25	40	27.5					277,896	0	0	0	0					
4	0.21	Flyash	0.15	15	25	40	27.5					450,000	0	0	0	0					
4	0.21	Sand, Iron Ore	0.15	15	25	40	27.5					144,000	0	0	0	0					
4	0.21	Gypsum	0.15	15	25	40	27.5					150,000	0	0	0	0					
4	0.21	Cement	0.15	15	25	40	27.5					2,382,720	0	0	0	0					
4	0.21	Base Rock (Limestone)	0.15	15	15	30	22.5					100,000	0	0	0	0					
4	0.21	Employee Vehicles	0.15	1.75	0	1.75	1.75		X	1.8	0	41,975	41,975	0	8,815	8,815	15,426				
4	0.21	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
4	0.21	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
4	0.21	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					150,000	0	0	0	0					
4	0.21	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					41,684	0	0	0	0					
4	0.21	SUBTOTAL	0.15							1.8			41,975	0	8,815	8,815	15,426	0.01	0.00	0.03	0.00

Paved Road Segments

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
5	0.20	Coal/Fuels	0.15	15	25	40	27.5					277,896	0	0	0	0					
5	0.20	Flyash	0.15	15	25	40	27.5	X	X	27.5	25	450,000	18,000	3,600	3,600	7,200	198,000				
5	0.20	Sand, Iron Ore	0.15	15	25	40	27.5					144,000	0	0	0	0					
5	0.20	Gypsum	0.15	15	25	40	27.5					150,000	0	0	0	0					
5	0.20	Cement	0.15	15	25	40	27.5					2,382,720	0	0	0	0					
5	0.20	Base Rock (Limestone)	0.15	15	15	30	22.5					100,000	0	0	0	0					
5	0.20	Employee Vehicles	0.15	1.75	0	1.75	1.75					41,975	0	0	0	0					
5	0.20	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
5	0.20	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
5	0.20	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					150,000	0	0	0	0					
5	0.20	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					41,684	0	0	0	0					
5	0.20	SUBTOTAL	0.15							27.5			18,000	3,600	3,600	7,200	198,000	0.38	0.07	1.39	0.27

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
6	0.09	Coal/Fuels	0.15	15	25	40	27.5		X	27.5	25	277,896	11,116	0	1,000	1,000	27,512				
6	0.09	Flyash	0.15	15	25	40	27.5		X	27.5	25	450,000	18,000	0	1,620	1,620	44,550				
6	0.09	Sand, Iron Ore	0.15	15	25	40	27.5		X	27.5	25	144,000	5,760	0	518	518	14,256				
6	0.09	Gypsum	0.15	15	25	40	27.5		X	27.5	25	150,000	6,000	0	540	540	14,850				
6	0.09	Cement	0.15	15	25	40	27.5		X	27.5	25	2,382,720	95,309	0	8,578	8,578	235,889				
6	0.09	Base Rock (Limestone)	0.15	15	15	30	22.5		X	22.5	15	100,000	6,667	0	600	600	13,500				
6	0.09	Employee Vehicles	0.15	1.75	0	1.75	1.75	X		1.8	0	41,975	41,975	3,778	0	3,778	6,611				
6	0.09	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
6	0.09	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
6	0.09	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					150,000	0	0	0	0					
6	0.09	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					41,684	0	0	0	0					
6	0.09	SUBTOTAL	0.15							21.5			184,826	3,778	12,857	16,634	357,168	0.27	0.05	2.21	0.43

Paved Road Segments

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Truck Weights Loaded (Tons)	Truck Weights Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
7	0.02	Coal/Fuels	0.15	15	25	40	27.5	X	X	27.5	25	277,896	11,116	222	222	445	12,227				
7	0.02	Flyash	0.15	15	25	40	27.5					450,000	0	0	0	0					
7	0.02	Sand, Iron Ore	0.15	15	25	40	27.5	X	X	27.5	25	144,000	5,760	115	115	230	6,336				
7	0.02	Gypsum	0.15	15	25	40	27.5	X	X	27.5	25	150,000	6,000	120	120	240	6,600				
7	0.02	Cement	0.15	15	25	40	27.5	X		15.0	25	2,382,720	95,309	1,906	0	1,906	28,593				
7	0.02	Base Rock (Limestone)	0.15	15	15	30	22.5	X	X	22.5	15	100,000	6,667	133	133	267	6,000				
7	0.02	Employee Vehicles	0.15	1.75	0	1.75	1.75					41,975	0	0	0	0					
7	0.02	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
7	0.02	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
7	0.02	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					150,000	0	0	0	0					
7	0.02	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					41,684	0	0	0	0					
7	0.02	SUBTOTAL	0.15							19.4			124,851	2,497	591	3,088	59,756	0.23	0.04	0.35	0.07

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Truck Weights Loaded (Tons)	Truck Weights Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
8	0.07	Coal/Fuels	0.15	15	25	40	27.5	X	X	27.5	25	277,896	11,116	778	778	1,556	42,796				
8	0.07	Flyash	0.15	15	25	40	27.5					450,000	0	0	0	0					
8	0.07	Sand, Iron Ore	0.15	15	25	40	27.5	X	X	27.5	25	144,000	5,760	403	403	806	22,176				
8	0.07	Gypsum	0.15	15	25	40	27.5	X	X	27.5	25	150,000	6,000	420	420	840	23,100				
8	0.07	Cement	0.15	15	25	40	27.5	X		15.0	25	2,382,720	95,309	6,672	0	6,672	100,074				
8	0.07	Base Rock (Limestone)	0.15	15	15	30	22.5					100,000	0	0	0	0					
8	0.07	Employee Vehicles	0.15	1.75	0	1.75	1.75					41,975	0	0	0	0					
8	0.07	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
8	0.07	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
8	0.07	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					150,000	0	0	0	0					
8	0.07	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					41,684	0	0	0	0					
8	0.07	SUBTOTAL	0.15							19.1			118,185	8,273	1,601	9,874	188,146	0.22	0.04	1.09	0.21

Paved Road Segments

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Truck Weights Loaded (Tons)	Truck Weights Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
9	0.08	Coal/Fuels	0.15	15	25	40	27.5					277,896	0	0	0	0					
9	0.08	Flyash	0.15	15	25	40	27.5					450,000	0	0	0	0					
9	0.08	Sand, Iron Ore	0.15	15	25	40	27.5					144,000	0	0	0	0					
9	0.08	Gypsum	0.15	15	25	40	27.5					150,000	0	0	0	0					
9	0.08	Cement	0.15	15	25	40	27.5		X	27.5	25	2,382,720	95,309	0	7,625	7,625	209,679				
9	0.08	Base Rock (Limestone)	0.15	15	15	30	22.5					100,000	0	0	0	0					
9	0.08	Employee Vehicles	0.15	1.75	0	1.75	1.75					41,975	0	0	0	0					
9	0.08	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
9	0.08	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
9	0.08	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					150,000	0	0	0	0					
9	0.08	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					41,684	0	0	0	0					
9	0.08	SUBTOTAL	0.15							27.5			95,309	0	7,625	7,625	209,679	0.38	0.07	1.47	0.28
Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Truck Weights Loaded (Tons)	Truck Weights Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
10	0.06	Coal/Fuels	0.15	15	25	40	27.5	X	X	27.5	25	277,896	11,116	667	667	1,334	36,682				
10	0.06	Flyash	0.15	15	25	40	27.5					450,000	0	0	0	0					
10	0.06	Sand, Iron Ore	0.15	15	25	40	27.5	X	X	27.5	25	144,000	5,760	346	346	691	19,008				
10	0.06	Gypsum	0.15	15	25	40	27.5	X	X	27.5	25	150,000	6,000	360	360	720	19,800				
10	0.06	Cement	0.15	15	25	40	27.5					2,382,720	0	0	0	0					
10	0.06	Base Rock (Limestone)	0.15	15	15	30	22.5					100,000	0	0	0	0					
10	0.06	Employee Vehicles	0.15	1.75	0	1.75	1.75					41,975	0	0	0	0					
10	0.06	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
10	0.06	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
10	0.06	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					150,000	0	0	0	0					
10	0.06	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					41,684	0	0	0	0					
10	0.06	SUBTOTAL	0.15							27.5			22,876	1,373	1,373	2,745	75,490	0.38	0.07	0.53	0.10

Paved Road Segments

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Truck Weights Loaded (Tons)	Truck Weights Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
11	0.08	Coal/Fuels	0.15	15	25	40	27.5					277,896	0	0	0	0					
11	0.08	Flyash	0.15	15	25	40	27.5					450,000	0	0	0	0					
11	0.08	Sand, Iron Ore	0.15	15	25	40	27.5					144,000	0	0	0	0					
11	0.08	Gypsum	0.15	15	25	40	27.5	X	X	27.5	25	150,000	6,000	480	480	960	26,400				
11	0.08	Cement	0.15	15	25	40	27.5					2,382,720	0	0	0	0					
11	0.08	Base Rock (Limestone)	0.15	15	15	30	22.5					100,000	0	0	0	0					
11	0.08	Employee Vehicles	0.15	1.75	0	1.75	1.75					41,975	0	0	0	0					
11	0.08	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
11	0.08	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
11	0.08	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					150,000	0	0	0	0					
11	0.08	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					41,684	0	0	0	0					
11	0.08	SUBTOTAL	0.15							27.5			6,000	480	480	960	26,400	0.38	0.07	0.18	0.04

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
12	0.02	Coal/Fuels	0.15	15	25	40	27.5					277,896	0	0	0	0					
12	0.02	Flyash	0.15	15	25	40	27.5					450,000	0	0	0	0					
12	0.02	Sand, Iron Ore	0.15	15	25	40	27.5	X	X	27.5	25	144,000	5,760	115	115	230	6,336				
12	0.02	Gypsum	0.15	15	25	40	27.5					150,000	0	0	0	0					
12	0.02	Cement	0.15	15	25	40	27.5					2,382,720	0	0	0	0					
12	0.02	Base Rock (Limestone)	0.15	15	15	30	22.5					100,000	0	0	0	0					
12	0.02	Employee Vehicles	0.15	1.75	0	1.75	1.75					41,975	0	0	0	0					
12	0.02	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
12	0.02	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
12	0.02	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					150,000	0	0	0	0					
12	0.02	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					41,684	0	0	0	0					
12	0.02	SUBTOTAL	0.15							27.5			5,760	115	115	230	6,336	0.38	0.07	0.04	0.01

Paved Road Segments

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
13	0.11	Coal/Fuels	0.15	15	25	40	27.5		X	27.5	25	277,896	11,116	0	1,223	1,223	33,625				
13	0.11	Flyash	0.15	15	25	40	27.5					450,000	0	0	0	0					
13	0.11	Sand, Iron Ore	0.15	15	25	40	27.5					144,000	0	0	0	0					
13	0.11	Gypsum	0.15	15	25	40	27.5					150,000	0	0	0	0					
13	0.11	Cement	0.15	15	25	40	27.5					2,382,720	0	0	0	0					
13	0.11	Base Rock (Limestone)	0.15	15	15	30	22.5					100,000	0	0	0	0					
13	0.11	Employee Vehicles	0.15	1.75	0	1.75	1.75					41,975	0	0	0	0					
13	0.11	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
13	0.11	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
13	0.11	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					150,000	0	0	0	0					
13	0.11	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					41,684	0	0	0	0					
13	0.11	SUBTOTAL	0.15							27.5			11,116	0	1,223	1,223	33,625	0.38	0.07	0.24	0.05

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
14	0.21	Coal/Fuels	0.15	15	25	40	27.5					277,896	0	0	0	0					
14	0.21	Flyash	0.15	15	25	40	27.5					450,000	0	0	0	0					
14	0.21	Sand, Iron Ore	0.15	15	25	40	27.5					144,000	0	0	0	0					
14	0.21	Gypsum	0.15	15	25	40	27.5					150,000	0	0	0	0					
14	0.21	Cement	0.15	15	22	37	26					2,382,720	0	0	0	0					
14	0.21	Base Rock (Limestone)	0.15	15	15	30	22.5	X	X	22.5	15	100,000	6,667	1,400	1,400	2,800	63,000				
14	0.21	Employee Vehicles	0.15	1.75	0	1.75	1.75					41,975	0	0	0	0					
14	0.21	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
14	0.21	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
14	0.21	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					150,000	0	0	0	0					
14	0.21	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					41,684	0	0	0	0					
14	0.21	SUBTOTAL	0.15							22.5			6,667	1,400	1,400	2,800	63,000	0.28	0.06	0.40	0.08

Paved Road Segments

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
15	0.27	Coal/Fuels	0.15	15	25	40	27.5					277,896	0	0	0	0					
15	0.27	Flyash	0.15	15	25	40	27.5					450,000	0	0	0	0					
15	0.27	Sand, Iron Ore	0.15	15	25	40	27.5					144,000	0	0	0	0					
15	0.27	Gypsum	0.15	15	25	40	27.5					150,000	0	0	0	0					
15	0.27	Cement	0.15	15	25	40	27.5					2,382,720	0	0	0	0					
15	0.27	Base Rock (Limestone)	0.15	15	15	30	22.5		X	22.5	15	100,000	6,667	0	1,800	1,800	40,500				
15	0.27	Employee Vehicles	0.15	1.75	0	1.75	1.75					41,975	0	0	0	0					
15	0.27	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
15	0.27	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
15	0.27	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					150,000	0	0	0	0					
15	0.27	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					41,684	0	0	0	0					
15	0.27	SUBTOTAL	0.15							22.5			6,667	0	1,800	1,800	40,500	0.28	0.06	0.26	0.05

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
16	0.03	Coal/Fuels	0.15	15	25	40	27.5					277,896	0	0	0	0					
16	0.03	Flyash	0.15	15	25	40	27.5					450,000	0	0	0	0					
16	0.03	Sand, Iron Ore	0.15	15	25	40	27.5					144,000	0	0	0	0					
16	0.03	Gypsum	0.15	15	25	40	27.5					150,000	0	0	0	0					
16	0.03	Cement	0.15	15	25	40	27.5					2,382,720	0	0	0	0					
16	0.03	Base Rock (Limestone)	0.15	15	15	30	22.5					100,000	0	0	0	0					
16	0.03	Employee Vehicles	0.15	1.75	0	1.75	1.75					41,975	0	0	0	0					
16	0.03	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
16	0.03	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
16	0.03	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75	X	X	28.8	7.5	150,000	20,000	600	600	1,200	34,500				
16	0.03	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					41,684	0	0	0	0					
16	0.03	SUBTOTAL	0.15							28.8			20,000	600	600	1,200	34,500	0.41	0.08	0.25	0.05

Paved Road Segments																					
				Truck Weights				Truck Trips													
Segment No.	Segment Length	Material	Silt Loading	Empty	Capacity	Loaded	Avg	Empty	Loaded	Truck Weight	Material Net	Material	Material Trips	Empty Mileage	Loaded Mileage	Total Mileage	Weight x Mileage	TSP E Factor	PM10 E Factor	TSP Emissions	PM10 Emissions
	(mi)		(g/m2)	(Tons)		(Tons)	(Tons)				(Tons)	(T/yr)	(#/yr)	(Mi/yr)	(Mi/yr)	(Mi/yr)		lb/VMT	lb/VMT	(Ton/yr)	(Ton/yr)
17	0.12	Coal/Fuels	0.15	15	25	40	27.5					277,896	0	0	0	0					
17	0.12	Flyash	0.15	15	25	40	27.5					450,000	0	0	0	0					
17	0.12	Sand, Iron Ore	0.15	15	25	40	27.5					144,000	0	0	0	0					
17	0.12	Gypsum	0.15	15	25	40	27.5					150,000	0	0	0	0					
17	0.12	Cement	0.15	15	25	40	27.5					2,382,720	0	0	0	0					
17	0.12	Base Rock (Limestone)	0.15	15	15	30	22.5					100,000	0	0	0	0					
17	0.12	Employee Vehicles	0.15	1.75	0	1.75	1.75					41,975	0	0	0	0					
17	0.12	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
17	0.12	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
17	0.12	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					150,000	0	0	0	0					
17	0.12	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75		X	28.8	7.5	41,684	5,558	0	667	667	19,175				
17	0.12	SUBTOTAL	0.15							28.8			5,558	0	667	667	19,175	0.41	0.08	0.14	0.03
				Truck Weights				Truck Trips													
Segment No.	Segment Length	Material	Silt Loading	Empty	Capacity	Loaded	Avg	Empty	Loaded	Truck Weight	Material Net	Material	Material Trips	Empty Mileage	Loaded Mileage	Total Mileage	Weight x Mileage	TSP E Factor	PM10 E Factor	TSP Emissions	PM10 Emissions
	(mi)		(g/m2)	(Tons)		(Tons)	(Tons)				(Tons)	(T/yr)	(#/yr)	(Mi/yr)	(Mi/yr)	(Mi/yr)		lb/VMT	lb/VMT	(Ton/yr)	(Ton/yr)
18	0.06	Coal/Fuels	0.15	15	25	40	27.5					277,896	0	0	0	0					
18	0.06	Flyash	0.15	15	25	40	27.5					450,000	0	0	0	0					
18	0.06	Sand, Iron Ore	0.15	15	25	40	27.5					144,000	0	0	0	0					
18	0.06	Gypsum	0.15	15	25	40	27.5					150,000	0	0	0	0					
18	0.06	Cement	0.15	15	25	40	27.5					2,382,720	0	0	0	0					
18	0.06	Base Rock (Limestone)	0.15	15	15	30	22.5					100,000	0	0	0	0					
18	0.06	Employee Vehicles	0.15	1.75	0	1.75	1.75					41,975	0	0	0	0					
18	0.06	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75		X	28.8	7.5	72,000	9,600	0	576	576	16,560				
18	0.06	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75		X	28.8	7.5	72,000	9,600	0	576	576	16,560				
18	0.06	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					150,000	0	0	0	0					
18	0.06	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					41,684	0	0	0	0					
18	0.06	SUBTOTAL	0.15							28.8			19,200	0	1,152	1,152	33,120	0.41	0.08	0.24	0.05
		GRAND TOTAL														159,715				30.37	5.89

Paved Road Segments							
	Notes:						
		Emissions based on AP-42 Section 13.2.1 (12/03), Equation (2).					
		E = [k * (sL/2)^0.65 * (W/3)^1.5 - C] * (1 - P/4N)					
	where	E = emission factor, lb/VMT	k (PM-30) =	0.082	lb/VMT		
		k = particle size multiplier	k (PM-10) =	0.016	lb/VMT		
		sL = road surface silt loading, g/m^2					
		W = average vehicle weight, tons	C (PM-30) =	0.00047	lb/VMT		
		C = 1980's vehicle exhaust, brake & tire wear, lb/VMT	C (PM-10) =	0.00047	lb/VMT		
		P = number of days with >= 0.01 in precipitation					
		N = number of days in the averaging period (365)	P =	129	days (Gainesville average)		
		Silt loading of 0.15 g/m2 or less will be maintained by use of vacuum sweeping					

REVISED AIR DISPERSION MODELING REPORT
FOR PSD PERMIT APPLICATION
SUWANNEE AMERICAN CEMENT

Prepared for:

Suwannee American Cement Company
U.S. Route 27
Branford, Florida 32008

PN 050430.0001.002
050430.0001.003

Prepared by:

Environmental Quality Management, Inc.
Cedar Terrace Office Park, Suite 250
3325 Durham-Chapel Hill Boulevard
Durham, North Carolina 27707

June 23, 2005

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EXECUTIVE SUMMARY

This document provides the dispersion modeling analysis required as part of the Prevention of Significant Deterioration (PSD) submittal for the proposed Suwannee American Cement Company (SAC) Line 2 expansion project in Branford, Florida. The document includes an evaluation of the Class II area Significant Impact Levels (SILs) and associated Significant Impact Areas (SIA), Class I and II area PSD increment consumption, impact on the National Ambient Air Quality Standards (NAAQS) in the Class II area, and Class I area visibility impacts and sulfate/nitrate deposition, and other additional impacts. Based on the dispersion modeling performed for pollutant emissions from the existing and the proposed new and modified sources at SAC, the ambient air impacts of the project are below the levels specified by all applicable regulatory requirements, and the application should be approvable on the basis of the proposed impacts on air quality.

The SIA analysis for CO, SO_2, and NO_2 resulted in less than SILs, but greater than the SIL for PM_{10}. Impacts of PM_{10} greater than the SILs required that additional modeling be performed for Class II area PSD increment and NAAQS analyses for PM_{10}. Building downwash was included in the modeling. Terrain in the area is flat to gently rolling and thus, not a significant concern. Nonetheless, elevations for all source, building, and receptor locations were included in the analysis.

Other existing sources in the region out to about 100 km were considered in terms of their potential interactive impacts for the NAAQS and PSD increment analysis. A 20D analysis was conducted on the inventory of PM_{10} sources provided by FDEP with those not screening out being included in the modeling. The results of the Class I area visibility, nitrate/sulfate deposition, and increment consumption analyses indicated all impacts at the four Class I areas were less than the applicable Air Quality Related Values (Okefenokee, Chasshowitka, St. Marks, and Bradwell Bay). Additional impacts analysis for emissions associated with growth in the area and vegetation and soils showed impacts that were insignificant when compared to overall emissions in the area and applicable levels of effect, respectively.

SECTION 1

PROJECT AND ANALYSIS OVERVIEW

1.1 Project Overview

The Line 2 expansion project consists of adding a second dry process preheater/precalciner kiln to the existing facility located northeast of the intersection of U.S. Route 27 (east-west highway) and County Road 49 (north-south roadway). The facility property is located about 3.7 miles east of Branford. Figure 1-1 shows the location of the property with respect to the roadway landmarks and surrounding area geographical setting which is predominantly rural and mixed pine forest. Additional operations that will be affected by the Line 2 expansion are increased quarry and conveying activity, increased material handling and storage, and increased roadway traffic due to incoming supplies and outgoing cement trucks.

Detailed discussion of the project is provided in the permit application. As discussed in the Regulatory Analysis Report for that application, Prevention of Significant Deterioration (PSD) review is required under the provisions of FAC 62-212.400 for all criteria pollutants except lead. The pollutants requiring ambient air quality impact assessment are: PM_{10}, NO_2, SO_2, and CO.

This document provides the dispersion modeling documentation that fulfills the ambient air quality impact requirements of the permit application. This document covers all aspects of the required modeling including an evaluation of the Class II area, SILs and associated SIA, Class I and II area PSD increment consumption, impact on the NAAQS in the Class II area, Class I area visibility impacts and sulfate/nitrate deposition, and other additional impacts.

The facility is subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Portland Cement facilities, and no State air toxics impact analysis is required (memorandum from Howard Rhodes, Director of the Florida Division of Air Resources Management, March 1, 2000, *Revised Guidance on the Permitting of Sources Emitting Hazardous Air Pollutants*).

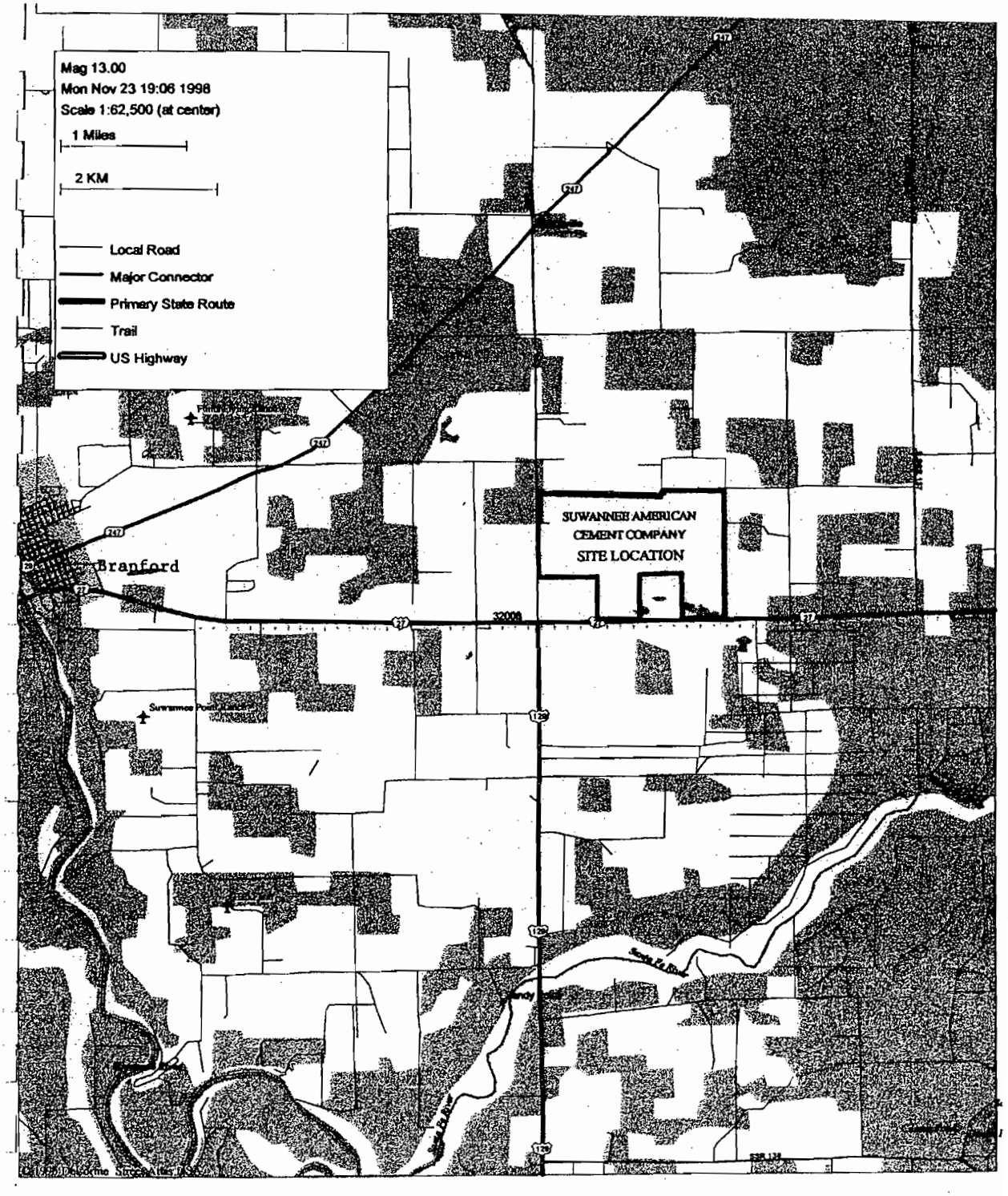


Figure 1-1. Location of Suwannee American Cement

1.2 Modeling Overview

This section provides an overview of the dispersion modeling analysis which was followed to perform the air quality impact assessments in support of the permit application. This analysis addresses the methodologies and models that were used to assess the SIA's for each criteria pollutant, the significant monitoring impacts, the PSD increment consumption due to all PSD increment consuming sources for any pollutants that exceed the applicable SIL, the overall impacts on the NAAQS (including other sources in the area) for any pollutants that exceed the applicable SIL, Class I impacts, and additional air impacts. A summary of the completed dispersion modeling is as follows:

- Used the ISCST3 Model (Industrial Source Complex Model, Version 3 in its short-term mode - Version 00101 - using the BeeLine software called BEEST - Version 9.40) including terrain in the area in the model using 30m Digital Elevation Model (DEM) data as well as building downwash.

- Used the BPIP (Building Profile Input Program) model for all downwash calculations (latest version is included in the BEEST software).

- Performed ISCST3 modeling to discern the significant impact area (SIA) for each SIL for all proposed sources and source modifications for each applicable criteria pollutant; for those pollutants where no significant impacts occur at or beyond the plant fence line, no further modeling analysis is required for that pollutant.

- For any SIL that was exceeded beyond the fence line, additional modeling was performed using the ISCST3 Model for PSD increment concentration impacts, preconstruction monitoring exemptions, and NAAQS analysis including other sources of that pollutant located within the SIA as well as other sources within about 75 km that had emissions greater than the 20D distance (i.e., were included in the analysis) and background concentrations supplied by the FDEP.

- Used the CALPUFF Model in its screening mode (CALPUFF-lite) to estimate visibility, nitrate/sulfate concentrations, and Class I increment consumption for the four Class I areas within 200 km of the SAC Branford site. Used the receptors and their respective distances to SAC for each of the four Class I areas.

- Included all modeling elements as applicable and discussed with FDEP at the modeling meeting held November 15, 2004 and summarized in a letter to FDEP dated November 23, 2004 (attached as Appendix A to this modeling report). Followed modeling guidance given verbally by the State as well that in the *Guideline on Air Quality Models*, FR Volume 68, No. 72, 18440, April 15, 2003.

- Will submit electronic copies of all input and output files from the models (including the ISCST3, CALPUFF, and BPIP models) to FDEP.

1.3 PSD Baseline and Increment Availability

The baseline date in an area is defined as the date at the time of the first permit application in the area subject to PSD requirements. Baseline dates must be defined for each pollutant that consumes PSD increments. The area in question is that area designated as attainment or unclassifiable in the area surrounding the SAC plant in which the source would exceed the SIL's. The baseline date for this area was established previously by other facilities' PSD applications, specifically by the Florida Rock Cement plant near Gainesville which constructed a cement production facility in 1994 30 km to the southeast of SAC. The baseline date was set for PM_{10}, NO_x, and SO_2. All the Florida Rock sources (current and proposed) were therefore considered in the combined PSD increment consumption analysis for the area around SAC.

Because the significant impact area for PM_{10} was within 10 km of the proposed site and existing monitors were located in nearby counties, preconstruction monitoring was not required at the discretionary authority exercised by the FDEP. All background air concentrations were provided by those monitors in the FDEP monitoring network.

SECTION 2

SAC PLANT DESCRIPTION

The site of the proposed Line 2 Expansion for SAC is the Branford facility located just northeast of the junction of U.S. Route 27 and County Road 49 in Suwannee County, Florida. Figure 1-1 shows the location of the facility with regard to the roads and surrounding geographical setting. Figure 2-1 presents a closer view of the site including the outline of existing paved roads, buildings, proposed sources, and the fenced property boundary. The site being considered in this modeling is the immediate area just west of the location of Line 1 of SAC.

The geographical setting around the plant is very flat to gently rolling with very few significant elevated terrain features. The Suwannee River runs from north northwest to the south southeast a few miles to the west of the plant and the Santa Fe River runs from northeast to southwest about two miles to the southeast of the plant. Neither river creates much of a terrain change from the surrounding near flat topography. Most terrain within 10 kilometers of the site is at about the same elevation as the plant, i.e., in the 55 to 90 foot range above sea level. The area is characterized by small farms, small businesses, pine tree plantations, and sparse residences. The town of Branford lies 3.7 miles to the west on U.S. Route 27 and has less than 1000 persons.

The building configuration at the plant consists of multiple building complexes and many outbuildings used for storage, maintenance, and other support services. Many of these buildings were constructed with their major building axes laying from north to south in keeping with the straight line of operations for the cement line. The exception is various storage areas and buildings as well as the quarry operations and conveying systems which are spread throughout the facility. Figure 2-2 presents the existing and proposed buildings and sources for the SAC plant. The figure also shows silos, stacks, parking areas, roadways, and materials handling areas.

Figure 2-3, Table 2-1, and Appendix A identify the structure and dimensions used in the modeling to determine downwash impacts.

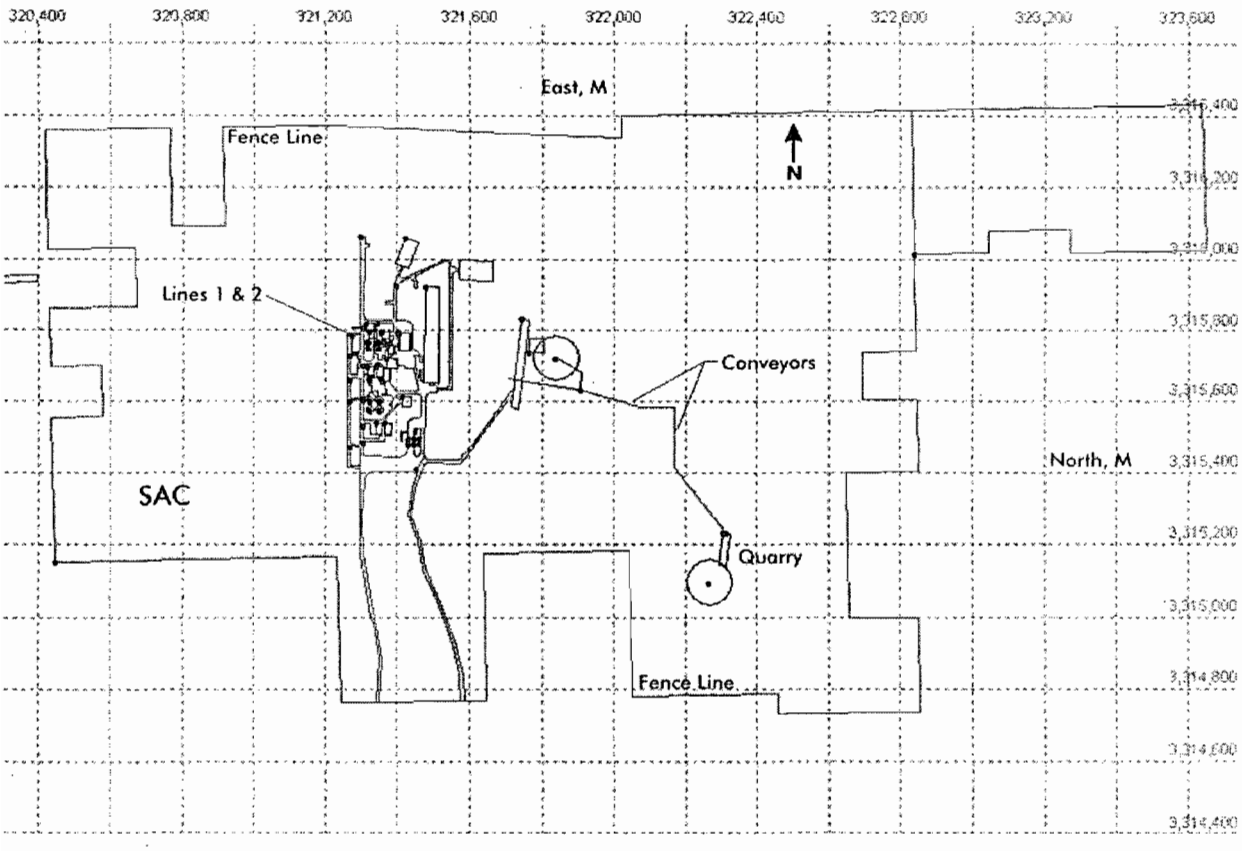


Figure 2-1. Layout of SAC Plant

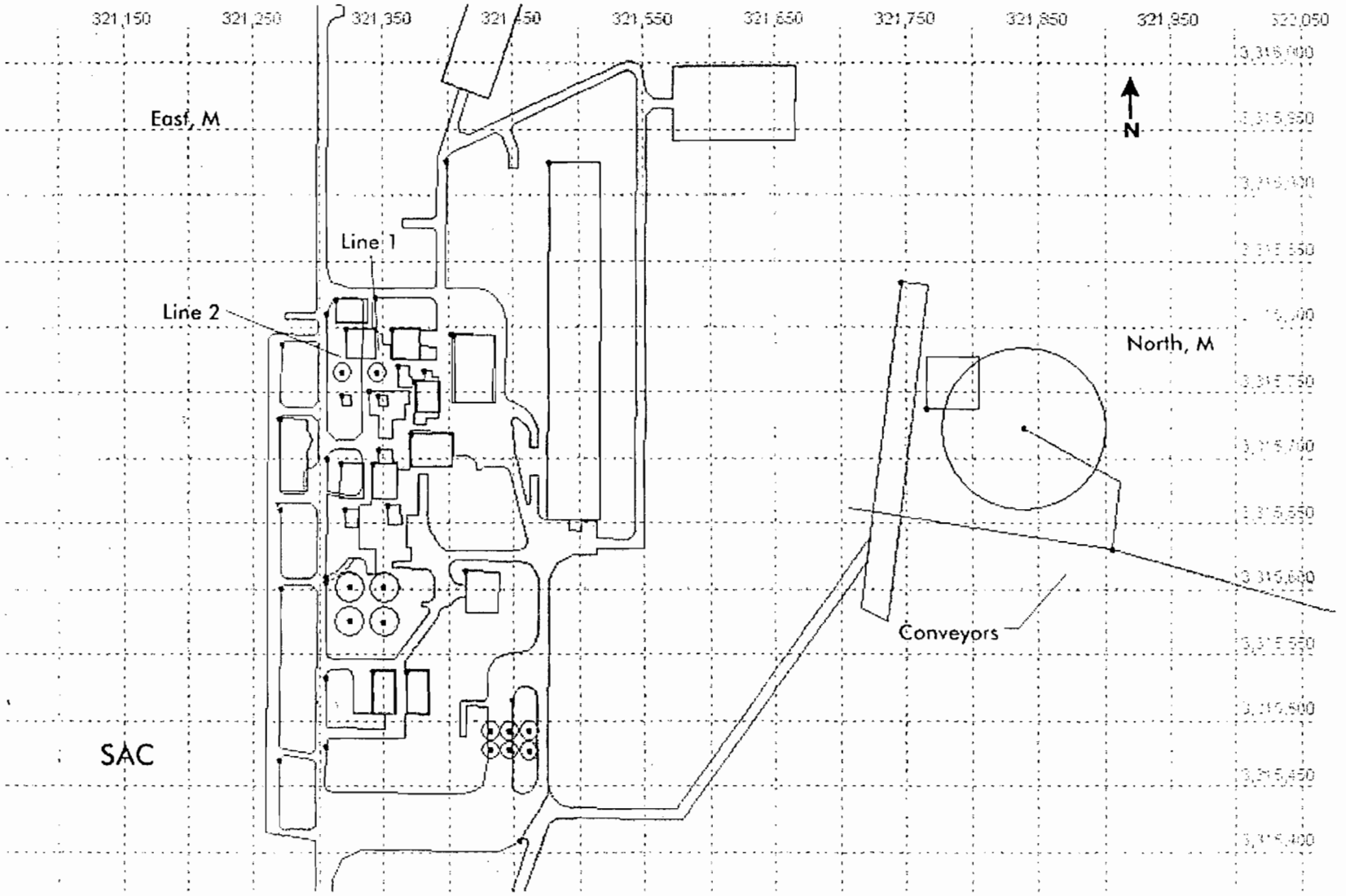


Figure 2-2. SAC Facility Building and Source Configuration

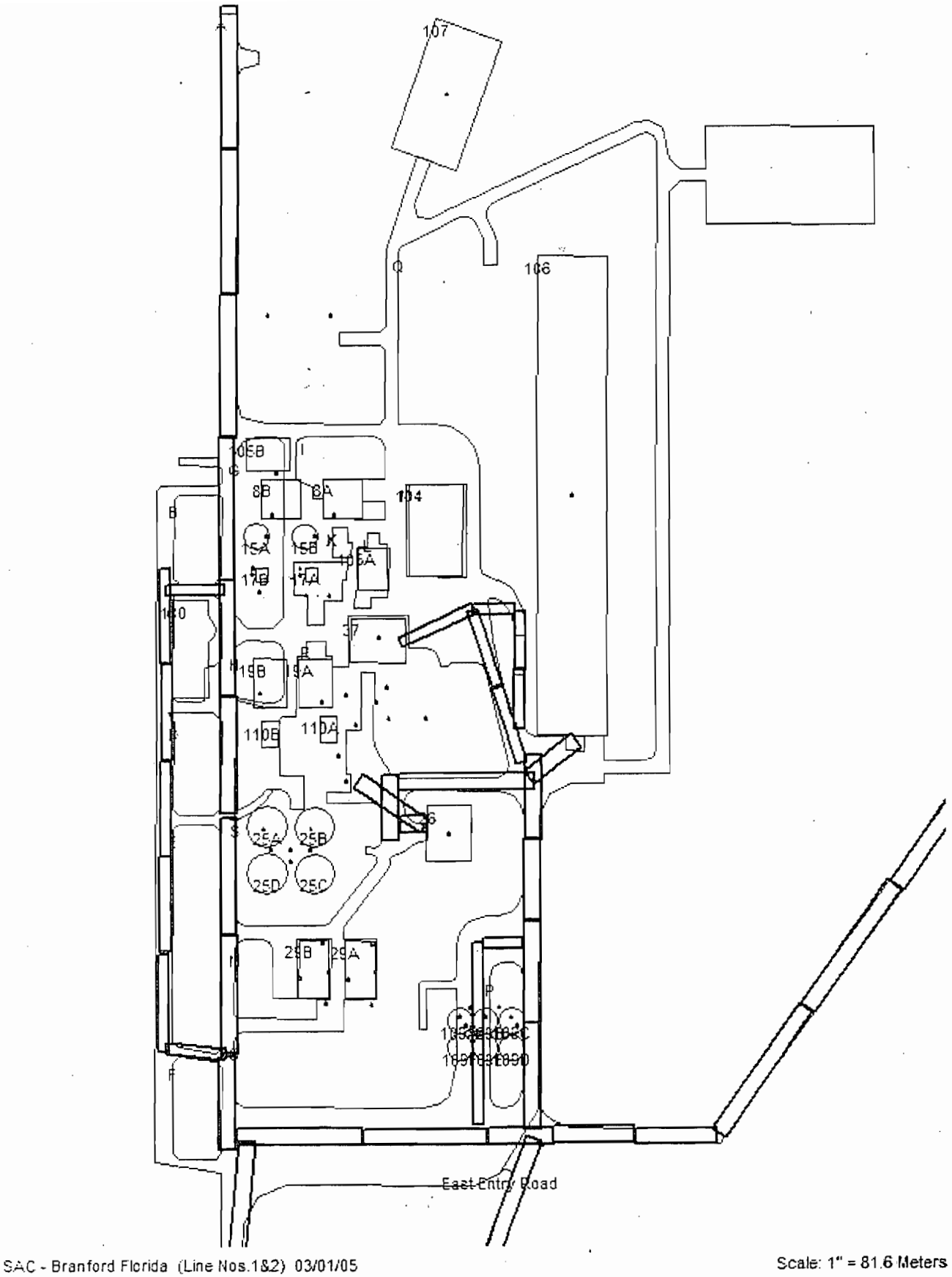


Figure 2-3. Structure Identification

TABLE 2-1. STRUCTURE IDENTIFICATION AND HEIGHT[1]

Structure Identification	Structure Name	Structure Height, m
106	Raw Material Storage	26.87
107	Fly Ash Storage	28.70
8A	Raw Mill	32.0
8B	Raw Mill (new)	32.0
17A	Preheater Tower	80.31
17B	Preheater Tower (new)	80.31
19A	Clinker Cooler	22.4
19B	Clinker Cooler (new)	22.4
110A	Cooler ESP	30.86
110B	Cooler ESP (new)	30.86
29A	Finish Mill (new)	32.11
29B	Finish Mill	32.11
100	Office	10.67
104	Maintenance	10.67
37	Coal Storage	12.19
26	Gypsum Storage	12.19
105A	Kiln Baghouse	12.19
105B	Kiln Baghouse (new)	12.19
25A	Clinker Silo (new)	56.9
25B	Clinker Silo	56.9
25C	Clinker Silo	56.9
25D	Clinker Silo (new)	56.9
15A	Homo Silo (new)	76.81
15B	Homo Silo	76.81
109A	Cement Silo	57.91
109B	Cement Silo	57.91
109C	Cement Silo (new)	57.91
109D	Cement Silo (new)	57.91
109E	Cement Silo	57.91
109F	Cement Silo	57.91

[1]See Appendix A for building dimension information.

SECTION 3

SOURCE IDENTIFICATION AND CHARACTERIZATION

All proposed sources and source modifications are described in the *Application for Prevention of Significant Deterioration (PSD) Permit.* New sources consist of a full Line 2 cement production operation consisting of a raw mill, a vertical preheater and calciner, an in-line kiln and clinker cooler, clinker handling and storage, finish mill, and cement storage and loadout operations. Other emission increases will occur at a number of existing sources due to increased throughput at the quarry, the primary crusher, conveying, material handling and storage, and roadway traffic. These increases have been considered in the SIA and PSD increment analyses. In addition, existing Line 1 sources at SAC were considered in the NAAQS analysis as were sources within about 75 km that did not pass the other source screening analysis (the so-called 20D analysis whereby individual source emissions in tons per year were greater than 20 times the distance between the facility and SAC in kilometers). Each source (whether characterized as a point, area, or volume) was assigned a unique alphanumeric name in the modeling generally related to the source identification in the SAC permitting or some descriptive name (e.g., the existing finish mill stack was N09-01, where the "01" indicates that the source was related to Line 1; the proposed finish mill stack was N09-02, where the "02" indicates that the source was related to Line 2; and paved road segments were indicated by segment number and subsequent number, such as, PV15-1).

3.1 Proposed or Modified SAC Sources

Table 3-1 presents a complete set of stack, baghouse, and other point sources and their related identifiers along with all associated source parameters, emissions, and locations for all proposed and modified stacks. This table includes all stack parameters and coordinates.

TABLE 3-1. NEW OR MODIFIED SAC POINT SOURCE PARAMETERS AND INCREASED PM_{10} EMISSIONS

Source Identification in ISCST3 Model	Source Description	East, m	North, m	Base Elevation, m	Stack Height, m	Stack Gas Temperature, K	Stack Gas Exit Velocity, m/s	Stack Diameter, m	PM_{10} Emission Rate, lb/hr
E21_02	Kiln/Raw Mill Baghouse Stack	321329.84	3315801.25	17.1	96.0	375	24.3	2.87	23.7
E28_02	Raw Mill - Aeropol	321326.92	3315777.75	17	17.1	422	0.001	0.30	0.15
E34_02	Off Spec. Feed Handling	321315.69	3315744.15	16.8	15.2	422	0.001	0.30	0.10
G07_02	Homogenizing Silo Inlet	321323.66	3315766.04	16.9	73.8	366	0.001	0.67	0.86
H08_02	Poldos Homogenizing Silo Outlet	321315.72	3315747.64	16.8	15.2	366	0.001	0.30	0.11
H08A_02	Hydrated Lime Silo	321319.66	3315733.89	16.8	10.7	333	0.001	0.37	0.17
L03_02	Clinker Pan Conveyor	321319.57	3315676.91	16.8	11.3	422	0.001	0.30	0.15
L06_02	Clinker Silo Inlet	321321.29	3315600.46	17.1	58.5	422	0.001	0.34	0.56
L25_02	Gyp/OS Clinker Transport (Relocated)	321336.66	3315582.26	16.9	25.0	305	0.001	0.30	0.41
M08_02	Clinker Silo Outlet Conveyor	321325.54	3315589.03	17	5.8	373	0.001	0.34	0.34
M09_02	Gyp/OS Clinker Silo Outlet (Relocated)	321336.54	3315589.17	16.9	3.0	305	0.001	0.34	0.31
N09_02	Finish Mill Separator	321368.94	3315515.75	16.8	53.3	343	57.6	1.22	7.29
N12_02	Finish Mill BH	321382.38	3315535.75	16.8	53.3	368	56.6	0.91	1.95
N36_02	Fringe Cement Bin	321381.97	3315501.82	16.8	19.8	328	0.001	0.43	0.26
N91_02	Finish Mill Baghouse No. 3 (S)	321384.16	3315520	16.8	14.3	366	0.001	0.43	0.34
P03_02	Cement Transport Conveyor	321453.65	3315500.32	16.8	16.5	328	0.001	0.30	0.19

Source Identification in ISCST3 Model	Source Description	East, m	North, m	Base Elevation, m	Stack Height, m	Stack Gas Temperature, K	Stack Gas Exit Velocity, m/s	Stack Diameter, m	PM_{10} Emission Rate, lb/hr
P11_02	Cement Silos	321464.26	3315489.46	16.8	59.4	328	0.001	0.61	0.64
Q17_02	Truck Load-out No. 3	321460.9	3315494.33	16.8	11.9	328	0.001	0.30	0.19
S17_02	Coal Mill No. 1 & 2 BH	321384.96	3315671.46	16.9	30.5	339	18.0	0.91	1.47
S21_02	Pulverized Coal Bin	321390.98	3315679.87	16.9	18.3	339	0.001	0.30	0.12
U05_02	Fly Ash Silo	321412.88	3315661.79	17.1	36.6	333	0.001	0.37	0.17

Emissions for each road segment that will have increased traffic as a result of the Line 2 expansion are presented in Table 3-2. Table 3-3 presents the source characteristics and increased emissions for the storage piles, conveyors, crushers, and other material transfer operations (process-related fugitive sources).

Emissions tabulations are presented elsewhere in the permit application and are only presented here in the format used in the modeling. These emissions represent the potential short-term and long-term scenarios of operation and thus, will give representative potential air impacts for both the short-term and annual air quality analyses. All coordinates for the sources (as well as all coordinates for other sources, fence lines, and receptors around the plant) were referenced to the Universal Transverse Mercator (UTM) NAD27 format.

3.2 Existing SAC Sources and Other Non-SAC Sources

As shown in Section 4, only PM_{10} was significant in terms of the SIL analysis. Therefore, the only sources that were required for completing the Class II PSD and NAAQS analysis were sources of PM_{10} emissions.

Tables 3-1 and 3-4 through 3-6 provide the point source, road segments, and process-related fugitive emission source parameters and information needed for modeling total emissions for new and existing sources at SAC. Table 3-1 presents the Line 2 (new) point source information, Table 3-4 presents the Line 1 (existing) point source information, Table 3-5 presents the road segments, and Table 3-6 presents the process-related fugitive source information. All of the existing SAC sources consume increment and thus were included in the Class I and Class II increment analysis as well as the NAAQS analysis.

It should be noted that the road emissions in Tables 3-2 and 3-5 were calculated using site-specific silt loading data measured in accordance with ASTM Method C-136, as opposed to default values in AP-42. This results in the most accurate estimation of PM_{10} emissions and PM_{10} concentrations from paved and unpaved roads.

In order to meet the PSD modeling criteria for reviewing the impacts of other sources within and outside of the SIA, several inventories of facilities and sources were obtained from the FDEP for PM_{10} within a 100 km radius. FDEP's latest inventories were all obtained electronically. These inventories were used as received from FDEP including actual or potential

TABLE 3-2. NEW OR MODIFIED SAC ROADWAY CHARACTERISTICS AND INCREASED PM_{10} EMISSIONS

Road Segment Identification	Road Segment Description	Southwest Corner - East, m	Southwest Corner - North, m	Base Elevation, m	Release Height, m	East Length, m	North Length, m	Angle of Road Segment from North	Vertical Dispersion Coefficient, m	PM_{10} Emission Rate, lb/h
PV2	Paved Road Segment No.2 (1 of 1)	321305.06	3315473.5	16.8	4	9.14	51.82	180	1.4	0.0037
PV6_1	Paved Road Segment No.6 (1 of 2)	321306.22	3315433.5	16.8	4	9.14	70.10	90	1.4	0.0259
PV6_2	Paved Road Segment No.6 (2 of 2)	321377.16	3315433	16.8	4	9.14	70.10	90	1.4	0.0259
PV9_1	Paved Road Segment No.9 (1 of 3)	321439.44	3315435.5	16.8	4	6.10	50.29	0	1.4	0.0134
PV9_2	Paved Road Segment No.9 (2 of 3)	321439.5	3315486	16.8	4	6.10	50.29	0	1.4	0.0134
PV9_3	Paved Road Segment No.9 (3 of 3)	321445.63	3315538.5	17	4	6.10	21.34	90	1.4	0.0057
PV7	Paved Road Segment No.7 (1 of 1)	321448.06	3315433.5	16.8	4	9.14	36.58	90	1.4	0.0081
PV8_1	Paved Road Segment No.8 (1 of 2)	321468.22	3315433	16.8	4	9.14	57.91	0	1.4	0.0125
PV8_2	Paved Road Segment No.8 (2 of 2)	321468.25	3315491	16.8	4	9.14	57.91	0	1.4	0.0125
PV10_1	Paved Road Segment No.10 (1 of 2)	321468.59	3315548	17	4	9.14	47.24	0	1.4	0.0063
PV10_2	Paved Road Segment No.10 (2 of 2)	321469.22	3315594.5	16.8	4	9.14	47.24	0	1.4	0.0063
PV3_1	Paved Road Segment No.3 (1 of 4)	321297.75	3315475.25	16.8	4	9.14	65.53	0	1.4	0.0055
PV3_2	Paved Road Segment No.3 (2 of 4)	321297.13	3315541.75	16.8	4	9.14	65.53	0	1.4	0.0055
PV3_3	Paved Road Segment No.3 (3 of 4)	321297.75	3315609	17	4	9.14	65.53	0	1.4	0.0055
PV3_4	Paved Road Segment No.3 (4 of 4)	321297.13	3315675.5	16.8	4	9.14	65.53	0	1.4	0.0055
PV5_1	Paved Road Segment No.5 (1 of 4)	321297.13	3315741.5	16.8	4	9.14	81.53	0	1.4	0.0085
PV5_2	Paved Road Segment No.5 (2 of 4)	321298.34	3315822.25	17.1	4	9.14	81.53	0	1.4	0.0085

Road Segment Identification	Road Segment Description	Southwest Corner - East, m	Southwest Corner - North, m	Base Elevation, m	Release Height, m	East Length, m	North Length, m	Angle of Road Segment from North	Vertical Dispersion Coefficient, m	PM_{10} Emission Rate, lb/h
PV5_3	Paved Road Segment No.5 (3 of 4)	321298.97	3315904.75	17.4	4	9.14	81.53	0	1.4	0.0085
PV5_4	Paved Road Segment No.5 (4 of 4)	321298.97	3315986.75	17.4	4	9.14	81.53	0	1.4	0.0085
PV14_1	Paved Road Segment No.14 (1 of 5)	321530.59	3315433	16.9	4	9.14	44.96	90	1.4	0.0013
PV14_2	Paved Road Segment No.14 (2 of 5)	321484.13	3315434	16.8	4	9.14	44.96	90	1.4	0.0013
PV14_3	Paved Road Segment No.14 (3 of 5)	321572.78	3315433	17.1	4	9.14	83.82	35	1.4	0.0024
PV14_4	Paved Road Segment No.14 (4 of 5)	321622.28	3315501.25	17.3	4	9.14	83.82	35	1.4	0.0024
PV14_5	Paved Road Segment No.14 (5 of 5)	321672.06	3315569.75	17.4	4	9.14	83.82	35	1.4	0.0024
PV11_1	Paved Road Segment No.11 (1 of 3)	321474.13	3315622.25	16.8	4	9.14	76.20	270	1.4	0.0024
PV11_2	Paved Road Segment No.11 (2 of 3)	321397.38	3315631	17	4	9.14	36.58	180	1.4	0.0012
PV11_3	Paved Road Segment No.11 (3 of 3)	321398.91	3315607.5	16.8	4	9.14	15.24	90	1.4	0.0005
PV4_1	Paved Road Segment No.4 (1 of 7)	321298.97	3315471.5	16.8	4	6.10	33.53	-84	1.4	0.00003
PV4_2	Paved Road Segment No.4 (2 of 7)	321261.66	3315476.25	16.8	4	6.10	53.64	0	1.4	0.00004
PV4_3	Paved Road Segment No.4 (3 of 7)	321262.91	3315532	16.8	4	6.10	53.64	0	1.4	0.00004
PV4_4	Paved Road Segment No.4 (4 of 7)	321263.5	3315585.75	16.8	4	6.10	53.64	0	1.4	0.00004
PV4_5	Paved Road Segment No.4 (5 of 7)	321264.13	3315640	16.8	4	6.10	53.64	0	1.4	0.00004
PV4_6	Paved Road Segment No.4 (6 of 7)	321263.5	3315694.5	16.8	4	6.10	53.64	0	1.4	0.00004
PV4_7	Paved Road Segment No.4 (7 of 7)	321266.56	3315739	16.8	4	6.10	33.53	90	1.4	0.00003
PV12	Paved Road Segment	321468.59	3315632.25	16.8	4	9.14	33.53	51	1.4	0.0011

Road Segment Identification	Road Segment Description	Southwest Corner - East, m	Southwest Corner - North, m	Base Elevation, m	Release Height, m	East Length, m	North Length, m	Angle of Road Segment from North	Vertical Dispersion Coefficient, m	PM_{10} Emission Rate, lb/h
	No.12 (1 of 1)									
PV13_1	Paved Road Segment No.13 (1 of 5)	321464.31	3315636.5	16.8	4	6.10	45.72	-18	1.4	0.0014
PV13_2	Paved Road Segment No.13 (2 of 5)	321450.88	3315678.75	17.1	4	6.10	45.72	-18	1.4	0.0014
PV13_3	Paved Road Segment No.13 (3 of 5)	321439.88	3315727	17.1	4	6.10	24.38	90	1.4	0.0008
PV13_4	Paved Road Segment No.13 (4 of 5)	321469.81	3315722.75	17.1	4	6.10	33.53	180	1.4	0.0010
PV13_5	Paved Road Segment No.13 (5 of 5)	321469.22	3315689.75	17.1	4	6.10	33.53	180	1.4	0.0010
PV16	Paved Road Segment No.16 (1 of 1)	321409.59	3315598	16.8	4	9.14	45.72	-55	1.4	0.0055
PV17	Paved Road Segment No.17 (1 of 1)	321441.69	3315722	17.1	4	6.10	45.72	-115	1.4	0.0033
PV1C_1	Paved Road Segment No.1C (1 of 9)	321315.84	3315425.75	16.8	4	9.14	74.68	185	1.4	0.0268
PV1C_2	Paved Road Segment No.1C (2 of 9)	321310.19	3315352.5	16.8	4	9.14	74.68	185	1.4	0.0268
PV1C_3	Paved Road Segment No.1C (3 of 9)	321304.22	3315279.75	16.5	4	9.14	74.68	180	1.4	0.0268
PV1C_4	Paved Road Segment No.1C (4 of 9)	321304.69	3315206.5	16.2	4	9.14	74.68	172	1.4	0.0268
PV1C_5	Paved Road Segment No.1C (5 of 9)	321314.53	3315132.5	16.4	4	9.14	74.68	170	1.4	0.0268
PV1C_6	Paved Road Segment No.1C (6 of 9)	321327.22	3315060.25	17.1	4	9.14	74.68	170	1.4	0.0268
PV1C_7	Paved Road Segment No.1C (7 of 9)	321342.25	3314988.25	17.6	4	9.14	74.68	167	1.4	0.0268
PV1C_8	Paved Road Segment No.1C (8 of 9)	321358.69	3314914.25	18.3	4	9.14	74.68	182	1.4	0.0268
PV1C_9	Paved Road Segment No.1C (9 of 9)	321355.63	3314838.5	15.1	4	9.14	74.68	187	1.4	0.0268
PV1A_1	Paved Road Segment No.1A (1 of 9)	321477.34	3315426.25	16.1	4	9.14	76.20	200	1.86	0.0506

Road Segment Identification	Road Segment Description	Southwest Corner - East, m	Southwest Corner - North, m	Base Elevation, m	Release Height, m	East Length, m	North Length, m	Angle of Road Segment from North	Vertical Dispersion Coefficient, m	PM_{10} Emission Rate, lb/h
PV1A_2	Paved Road Segment No.1A (2 of 9)	321452.06	3315355	16.3	4	9.14	76.20	190	1.86	0.0506
PV1A_3	Paved Road Segment No.1A (3 of 9)	321439.56	3315281.75	17	4	9.14	76.20	160	1.86	0.0506
PV1A_4	Paved Road Segment No.1A (4 of 9)	321465.84	3315209.25	17	4	9.14	76.20	170	1.86	0.0506
PV1A_5	Paved Road Segment No.1A (5 of 9)	321478.97	3315134.75	17.4	4	9.14	76.20	155	1.86	0.0506
PV1A_6	Paved Road Segment No.1A (6 of 9)	321512.09	3315065.5	17.1	4	9.14	76.20	160	1.86	0.0506
PV1A_7	Paved Road Segment No.1A (7 of 9)	321540.22	3314992.75	16.6	4	9.14	76.20	160	1.86	0.0506
PV1A_8	Paved Road Segment No.1A (8 of 9)	321565.56	3314920.5	16.6	4	9.14	76.20	170	1.86	0.0506
PV1A_9	Paved Road Segment No.1A (9 of 9)	321582.09	3314843	16.6	4	9.14	76.20	175	1.86	0.0506
PV15_1	Paved Road Segment No.15 (1 of 8)	321718.97	3315639	17.8	4	6.40	64.01	8	1.4	0.00097
PV15_2	Paved Road Segment No.15 (2 of 8)	321727.97	3315702.75	18.1	4	6.40	64.01	8	1.4	0.00097
PV15_3	Paved Road Segment No.15 (3 of 8)	321736.69	3315766.25	18.2	4	6.40	64.01	8	1.4	0.00097
PV15_4	Paved Road Segment No.15 (4 of 8)	321722.25	3315637.25	17.7	4	6.40	50.29	13	1.4	0.00077
PV15_5	Paved Road Segment No.15 (5 of 8)	321733.66	3315686.5	18	4	6.40	50.29	13	1.4	0.00077
PV15_6	Paved Road Segment No.15 (6 of 8)	321745.78	3315735.5	18.2	4	6.40	50.29	13	1.4	0.00077
PV15_7	Paved Road Segment No.15 (7of 8)	321757.22	3315784.5	17.9	4	6.40	50.29	13	1.4	0.00077
PV15_8	Paved Road Segment No.15 (8 of 8)	321748.16	3315836	16.9	4	6.40	21.00	90	1.4	0.00032

TABLE 3-3. SAC PROCESS-RELATED FUGITIVE SOURCE CHARACTERISTICS AND INCREASED PM_{10} EMISSIONS

Source Identification in ISCST3 Model	Source Description	East, m	North, M	Base Elevation, m	Release Height, m	Initial Horizontal Dispersion Coefficient, m	Initial Vertical Dispersion Coefficient, m	PM_{10} Emission Rate, lb/hr
UP19	Crusher Loading at the Quarry	322298.63	3315139.25	17.4	4	10.72	1.86	0.2850
UP20	Baserock Loadout	321785.44	3315758.5	17.9	3	9.3	1.4	0.0070
SP2	Base Rock Pile	321838.69	3315723.25	18	3.05	28.93	2.83	0.0005
SP1	Stone Pile	322266.41	3315097.75	16.5	3.05	28.93	2.83	0.0156
SP345FR1	Limestone, Sand & Iron Ore Storage; Raw Material Storage Building	321496.18	3315788.34	17.8	4.1	24	12.5	0.0375
FQ1_CRSH	Quarry Crusher Area: Loading & Primary Crusher Operations	322314.84	3315235.75	17.1	7	0.7	3.26	0.1247
FQ1_B01	Quarry Crusher Area: Conveyor B01	322297.13	3315253.75	17.3	2	0.47	0.93	0.0155
FQ1_B02	Quarry Crusher Area: Conveyor B02	322281	3315273.75	17.5	2	0.47	0.93	0.0155
FQ1_B03	Quarry Crusher Area: Conveyor B03	322264.78	3315294	17.4	2	0.47	0.93	0.0155
FQ1_B04	Quarry Crusher Area: Conveyor B04	322248.44	3315314	17.4	2	0.47	0.93	0.0155
FQ1_B05	Quarry Crusher Area: Conveyor B05	322232.34	3315334	17.1	2	0.47	0.93	0.0155
FQ1_B06	Quarry Crusher Area: Conveyor B06	322216.19	3315354	17.1	2	0.47	0.93	0.0155
FQ1_B07	Quarry Crusher Area: Conveyor B07	322199.97	3315374.25	16.9	2	0.47	0.93	0.0155
FQ1_B08	Quarry Crusher Area: Conveyor B08	322183.5	3315394.5	16.9	2	0.47	0.93	0.0155
FQ2_B08	Quarry Conveyors: B08 to B20	322168.69	3315415	17.8	2	0.47	0.93	0.0155
FQ2_B20	Quarry Conveyors: B20 to B21	322166.56	3315583.5	17.1	2	0.47	0.93	0.0155

Source Identification in ISCST3 Model	Source Description	East, m	North, M	Base Elevation, m	Release Height, m	Initial Horizontal Dispersion Coefficient, m	Initial Vertical Dispersion Coefficient, m	PM_{10} Emission Rate, lb/hr
FQ2_B21	Quarry Conveyors: B21 to B22	322072.34	3315584.25	16.8	2	0.47	0.93	0.0155
FQ2_B22	Quarry Conveyors: B22 to B24 & B22 to B40	321905.56	3315631	17.9	2	0.47	0.93	0.0005
FQ2_B24	Quarry Conveyors: B24 to B27	321910.81	3315683	17.9	2	0.47	0.93	0.0005
FQ2_B27	Quarry Conveyors: B27 to Radial Stacker	321838.88	3315724	18	2	0.47	0.93	0.0005
FQ2_B40	Quarry Conveyors: B40 to C01	321705.63	3315663	17.9	7	0.47	3.26	0.0015
SP6_FR2	Ash Storage; Fly Ash Storage Building	321426.38	3316017.05	18	10.35	12.88	9.63	0.0038
SP7	Gypsum Storage	321425.9	3315597.77	16.8	6.1	6.48	5.67	0.0007
SP8_FF1	Coal Storage; Coal Handling	321386.56	3315708.25	16.8	6.1	6.55	5.67	0.0037
FR3B_02	Raw Storage Bins (New)	321325.03	3315891.34	17.4	4.57	2.46	2.13	0.0146
FR4	Gypsum Transfer	321367.59	3315627.25	16.8	0.3	0.47	0.47	0.0019

TABLE 3-4. EXISTING SAC POINT SOURCE PARAMETERS AND PM_{10} EMISSIONS

Source Identification in ISCST3 Model	Source Description	East, M	North, m	Base Elevation, m	Stack Height, m	Stack Gas Temperature, K	Stack Gas Exit Velocity, m/s	Stack Diameter, m	PM_{10} Emission Rate, lb/hr
E21_01	Kiln/Raw Mill Baghouse Stack	321359.01	3315731.44	16.9	96.0	375	16.0	2.87	19.6
E28_01	Raw Mill - Aeropol	321361.74	3315777.53	17.1	17.1	422	0.001	0.30	0.15
E34_01	Off Spec. Feed Handling	321342.86	3315744.06	16.9	15.2	422	0.001	0.30	0.10
G07_01	Homogenizing Silo Inlet	321350.87	3315765.87	17	73.8	366	0.001	0.67	0.86
H08_01	Poldos Homogenizing Silo Outlet	321342.87	3315747.48	16.9	15.2	366	0.001	0.30	0.11
H08A_01	Hydrated Lime Silo	321345.83	3315732.22	16.8	10.7	333	0.001	0.37	0.17
K15_01	Clinker Cooler ESP Stack	321363.4	3315641.91	16.9	65.2	547	21.1	2.13	10.7
L03_01	Clinker Pan Conveyor	321354.19	3315671.73	16.8	11.3	422	0.001	0.30	0.15
L06_01	Clinker Silo Inlet	321347.97	3315600.47	16.9	58.5	422	0.001	0.34	0.56
M08_01	Clinker Silo Outlet Conveyor	321347.27	3315588.75	16.8	5.8	373	0.001	0.34	0.34
N09_01	Finish Mill BH Sepol No.1 (W)	321341.97	3315516.75	16.8	39.9	343	57.6	1.22	7.29
N12_01	Finish Mill BH-Mill No.2 (E)	321354.63	3315536	16.8	39.9	368	56.6	0.91	1.95
N36_01	Fringe Cement Bin	321355.89	3315502.01	16.8	19.8	328	0.001	0.43	0.26
N91_01	Finish Mill Baghouse No. 3 (S)	321357.94	3315520	16.8	14.3	366	0.001	0.43	0.34
P03_01	Cement Transport Conveyor	321437.87	3315499.72	16.8	16.5	328	0.001	0.30	0.19
P11_01	Cement Silo Input	321435.09	3315489.69	16.8	59.4	328	0.001	0.61	0.96
Q14_01	Truck Load-out No. 1 (W)	321445.95	3315494.46	16.8	8.8	328	0.001	0.30	0.19
Q17_01	Truck Load-out No. 2 (E)	321431.92	3315494.52	16.8	11.9	328	0.001	0.30	0.19
Q24_01	Railcar Load-out	321460.9	3315494.33	16.8	17.4	328	0.001	0.30	0.32

Source Identification in ISCST3 Model	Source Description	East, M	North, m	Base Elevation, m	Stack Height, m	Stack Gas Temperature, K	Stack Gas Exit Velocity, m/s	Stack Diameter, m	PM_{10} Emission Rate, lb/hr
S17_01	Coal Mill No. 1 & 2 BH	321373.45	3315659.12	16.9	30.5	339	18.0	0.91	1.47
S21_01	Pulverized Coal Bin	321367.61	3315675.79	16.8	18.3	339	0.001	0.30	0.12
U05_01	Fly Ash Silo	321392.14	3315661.79	17.1	36.6	333	0.001	0.37	0.17

TABLE 3-5. SAC ROADWAY CHARACTERISTICS AND TOTAL PM_{10} EMISSIONS

Road Segment Identification	Road Segment Description	Southwest Corner - East, M	Southwest Corner - North, M	Base Elevation, m	Release Height, m	East Length, m	North Length, m	Angle of Road Segment from North	Vertical Dispersion Coefficient, m	PM_{10} Emission Rate, lb/h
PV2	Paved Road Segment No.2 (1 of 1)	321305.06	3315473.5	16.8	4	9.14	51.82	180	1.4	0.0060
PV6_1	Paved Road Segment No.6 (1 of 2)	321306.22	3315433.5	16.8	4	9.14	70.10	90	1.4	0.0490
PV6_2	Paved Road Segment No.6 (2 of 2)	321377.16	3315433	16.8	4	9.14	70.10	90	1.4	0.0490
PV9_1	Paved Road Segment No.9 (1 of 3)	321439.44	3315435.5	16.8	4	6.10	50.29	0	1.4	0.0270
PV9_2	Paved Road Segment No.9 (2 of 3)	321439.5	3315486	16.8	4	6.10	50.29	0	1.4	0.0270
PV9_3	Paved Road Segment No.9 (3 of 3)	321445.63	3315538.5	17	4	6.10	21.34	90	1.4	0.0110
PV7	Paved Road Segment No.7 (1 of 1)	321448.06	3315433.5	16.8	4	9.14	36.58	90	1.4	0.0150
PV8_1	Paved Road Segment No.8 (1 of 2)	321468.22	3315433	16.8	4	9.14	57.91	0	1.4	0.0240
PV8_2	Paved Road Segment No.8 (2 of 2)	321468.25	3315491	16.8	4	9.14	57.91	0	1.4	0.0240
PV10_1	Paved Road Segment No.10 (1 of 2)	321468.59	3315548	17	4	9.14	47.24	0	1.4	0.0120
PV10_2	Paved Road Segment No.10 (2 of 2)	321469.22	3315594.5	16.8	4	9.14	47.24	0	1.4	0.0120
PV3_1	Paved Road Segment No.3 (1 of 4)	321297.75	3315475.25	16.8	4	9.14	65.53	0	1.4	0.0090
PV3_2	Paved Road Segment No.3 (2 of 4)	321297.13	3315541.75	16.8	4	9.14	65.53	0	1.4	0.0090
PV3_3	Paved Road Segment No.3 (3 of 4)	321297.75	3315609	17	4	9.14	65.53	0	1.4	0.0090
PV3_4	Paved Road Segment No.3 (4 of 4)	321297.13	3315675.5	16.8	4	9.14	65.53	0	1.4	0.0090
PV5_1	Paved Road Segment No.5 (1 of 4)	321297.13	3315741.5	16.8	4	9.14	81.53	0	1.4	0.0150
PV5_2	Paved Road Segment No.5 (2 of 4)	321298.34	3315822.25	17.1	4	9.14	81.53	0	1.4	0.0150

Road Segment Identification	Road Segment Description	Southwest Corner - East, M	Southwest Corner - North, M	Base Elevation, m	Release Height, m	East Length, m	North Length, m	Angle of Road Segment from North	Vertical Dispersion Coefficient, m	PM_{10} Emission Rate, lb/h
PV5_3	Paved Road Segment No.5 (3 of 4)	321298.97	3315904.75	17.4	4	9.14	81.53	0	1.4	0.0150
PV5_4	Paved Road Segment No.5 (4 of 4)	321298.97	3315986.75	17.4	4	9.14	81.53	0	1.4	0.0150
PV14_1	Paved Road Segment No.14 (1 of 5)	321530.59	3315433	16.9	4	9.14	44.96	90	1.4	0.0020
PV14_2	Paved Road Segment No.14 (2 of 5)	321484.13	3315434	16.8	4	9.14	44.96	90	1.4	0.0020
PV14_3	Paved Road Segment No.14 (3 of 5)	321572.78	3315433	17.1	4	9.14	83.82	35	1.4	0.0040
PV14_4	Paved Road Segment No.14 (4 of 5)	321622.28	3315501.25	17.3	4	9.14	83.82	35	1.4	0.0040
PV14_5	Paved Road Segment No.14 (5 of 5)	321672.06	3315569.75	17.4	4	9.14	83.82	35	1.4	0.0040
PV11_1	Paved Road Segment No.11 (1 of 3)	321474.13	3315622.25	16.8	4	9.14	76.20	270	1.4	0.0050
PV11_2	Paved Road Segment No.11 (2 of 3)	321397.38	3315631	17	4	9.14	36.58	180	1.4	0.0020
PV11_3	Paved Road Segment No.11 (3 of 3)	321398.91	3315607.5	16.8	4	9.14	15.24	90	1.4	0.0010
PV4_1	Paved Road Segment No.4 (1 of 7)	321298.97	3315471.5	16.8	4	6.10	33.53	-84	1.4	0.0001
PV4_2	Paved Road Segment No.4 (2 of 7)	321261.66	3315476.25	16.8	4	6.10	53.64	0	1.4	0.0001
PV4_3	Paved Road Segment No.4 (3 of 7)	321262.91	3315532	16.8	4	6.10	53.64	0	1.4	0.0001
PV4_4	Paved Road Segment No.4 (4 of 7)	321263.5	3315585.75	16.8	4	6.10	53.64	0	1.4	0.0001
PV4_5	Paved Road Segment No.4 (5 of 7)	321264.13	3315640	16.8	4	6.10	53.64	0	1.4	0.0001
PV4_6	Paved Road Segment No.4 (6 of 7)	321263.5	3315694.5	16.8	4	6.10	53.64	0	1.4	0.0001
PV4_7	Paved Road Segment No.4 (7 of 7)	321266.56	3315739	16.8	4	6.10	33.53	90	1.4	0.0001
PV12	Paved Road Segment	321468.59	3315632.25	16.8	4	9.14	33.53	51	1.4	0.0020

Road Segment Identification	Road Segment Description	Southwest Corner - East, M	Southwest Corner - North, M	Base Elevation, m	Release Height, m	East Length, m	North Length, m	Angle of Road Segment from North	Vertical Dispersion Coefficient, m	PM_{10} Emission Rate, lb/h
	No.12 (1 of 1)									
PV13_1	Paved Road Segment No.13 (1 of 5)	321464.31	3315636.5	16.8	4	6.10	45.72	-18	1.4	0.0026
PV13_2	Paved Road Segment No.13 (2 of 5)	321450.88	3315678.75	17.1	4	6.10	45.72	-18	1.4	0.0026
PV13_3	Paved Road Segment No.13 (3 of 5)	321439.88	3315727	17.1	4	6.10	24.38	90	1.4	0.0014
PV13_4	Paved Road Segment No.13 (4 of 5)	321469.81	3315722.75	17.1	4	6.10	33.53	180	1.4	0.0019
PV13_5	Paved Road Segment No.13 (5 of 5)	321469.22	3315689.75	17.1	4	6.10	33.53	180	1.4	0.0019
PV16	Paved Road Segment No.16 (1 of 1)	321409.59	3315598	16.8	4	9.14	45.72	-55	1.4	0.0109
PV17	Paved Road Segment No.17 (1 of 1)	321441.69	3315722	17.1	4	6.10	45.72	-115	1.4	0.0061
PV1C_1	Paved Road Segment No.1C (1 of 9)	321315.84	3315425.75	16.8	4	9.14	74.68	185	1.4	0.0510
PV1C_2	Paved Road Segment No.1C (2 of 9)	321310.19	3315352.5	16.8	4	9.14	74.68	185	1.4	0.0510
PV1C_3	Paved Road Segment No.1C (3 of 9)	321304.22	3315279.75	16.5	4	9.14	74.68	180	1.4	0.0510
PV1C_4	Paved Road Segment No.1C (4 of 9)	321304.69	3315206.5	16.2	4	9.14	74.68	172	1.4	0.0510
PV1C_5	Paved Road Segment No.1C (5 of 9)	321314.53	3315132.5	16.4	4	9.14	74.68	170	1.4	0.0510
PV1C_6	Paved Road Segment No.1C (6 of 9)	321327.22	3315060.25	17.1	4	9.14	74.68	170	1.4	0.0510
PV1C_7	Paved Road Segment No.1C (7 of 9)	321342.25	3314988.25	17.6	4	9.14	74.68	167	1.4	0.0510
PV1C_8	Paved Road Segment No.1C (8 of 9)	321358.69	3314914.25	18.3	4	9.14	74.68	182	1.4	0.0510
PV1C_9	Paved Road Segment No.1C (9 of 9)	321355.63	3314838.5	15.1	4	9.14	74.68	187	1.4	0.0510
PV1A_1	Paved Road Segment No.1A (1 of 9)	321477.34	3315426.25	16.1	4	9.14	76.20	200	1.86	0.0510

Road Segment Identification	Road Segment Description	Southwest Corner - East, M	Southwest Corner - North, M	Base Elevation, m	Release Height, m	East Length, m	North Length, m	Angle of Road Segment from North	Vertical Dispersion Coefficient, m	PM_{10} Emission Rate, lb/h
PV1A_2	Paved Road Segment No.1A (2 of 9)	321452.06	3315355	16.3	4	9.14	76.20	190	1.86	0.0510
PV1A_3	Paved Road Segment No.1A (3 of 9)	321439.56	3315281.75	17	4	9.14	76.20	160	1.86	0.0510
PV1A_4	Paved Road Segment No.1A (4 of 9)	321465.84	3315209.25	17	4	9.14	76.20	170	1.86	0.0510
PV1A_5	Paved Road Segment No.1A (5 of 9)	321478.97	3315134.75	17.4	4	9.14	76.20	155	1.86	0.0510
PV1A_6	Paved Road Segment No.1A (6 of 9)	321512.09	3315065.5	17.1	4	9.14	76.20	160	1.86	0.0510
PV1A_7	Paved Road Segment No.1A (7 of 9)	321540.22	3314992.75	16.6	4	9.14	76.20	160	1.86	0.0510
PV1A_8	Paved Road Segment No.1A (8 of 9)	321565.56	3314920.5	16.6	4	9.14	76.20	170	1.86	0.0510
PV1A_9	Paved Road Segment No.1A (9 of 9)	321582.09	3314843	16.6	4	9.14	76.20	175	1.86	0.0510
PV15_1	Paved Road Segment No.15 (1 of 8)	321718.97	3315639	17.8	4	6.40	64.01	8	1.4	0.0020
PV15_2	Paved Road Segment No.15 (2 of 8)	321727.97	3315702.75	18.1	4	6.40	64.01	8	1.4	0.0020
PV15_3	Paved Road Segment No.15 (3 of 8)	321736.69	3315766.25	18.2	4	6.40	64.01	8	1.4	0.0020
PV15_4	Paved Road Segment No.15 (4 of 8)	321722.25	3315637.25	17.7	4	6.40	50.29	13	1.4	0.0010
PV15_5	Paved Road Segment No.15 (5 of 8)	321733.66	3315686.5	18	4	6.40	50.29	13	1.4	0.0010
PV15_6	Paved Road Segment No.15 (6 of 8)	321745.78	3315735.5	18.2	4	6.40	50.29	13	1.4	0.0010
PV15_7	Paved Road Segment No.15 (7of 8)	321757.22	3315784.5	17.9	4	6.40	50.29	13	1.4	0.0010
PV15_8	Paved Road Segment No.15 (8 of 8)	321748.16	3315836	16.9	4	6.40	21.00	90	1.4	0.0010

TABLE 3-6. PROCESS-RELATED FUGITIVE SOURCE CHARACTERISTICS AND TOTAL PM_{10} EMISSIONS

Source Identification in ISCST3 Model	Source Description	East, m	North, M	Base Elevation, m	Release Height, m	Initial Horizontal Dispersion Coefficient, M	Initial Vertical Dispersion Coefficient, m	PM_{10} Emission Rate, lb/hr
UP19	Crusher Loading at the Quarry	322298.63	3315139.25	17.4	4	10.72	1.86	0.5560
UP20	Baserock Loadout	321785.44	3315758.5	17.9	3	9.3	1.4	0.0120
SP2	Base Rock Pile	321838.69	3315723.25	18	3.05	28.93	2.83	0.1890
SP1	Stone Pile	322266.41	3315097.75	16.5	3.05	28.93	2.83	0.2190
SP345FR1	Limestone, Sand & Iron Ore Storage; Raw Material Storage Building	321496.18	3315788.34	17.8	4.1	24	12.5	0.1630
FQ1_CRSH	Quarry Crusher Area: Loading & Primary Crusher Operations	322314.84	3315235.75	17.1	7	0.7	3.26	0.2400
FQ1_B01	Quarry Crusher Area: Conveyor B01	322297.13	3315253.75	17.3	2	0.47	0.93	0.0300
FQ1_B02	Quarry Crusher Area: Conveyor B02	322281	3315273.75	17.5	2	0.47	0.93	0.0300
FQ1_B03	Quarry Crusher Area: Conveyor B03	322264.78	3315294	17.4	2	0.47	0.93	0.0300
FQ1_B04	Quarry Crusher Area: Conveyor B04	322248.44	3315314	17.4	2	0.47	0.93	0.0300
FQ1_B05	Quarry Crusher Area: Conveyor B05	322232.34	3315334	17.1	2	0.47	0.93	0.0300
FQ1_B06	Quarry Crusher Area: Conveyor B06	322216.19	3315354	17.1	2	0.47	0.93	0.0300
FQ1_B07	Quarry Crusher Area: Conveyor B07	322199.97	3315374.25	16.9	2	0.47	0.93	0.0300
FQ1_B08	Quarry Crusher Area: Conveyor B08	322183.5	3315394.5	16.9	2	0.47	0.93	0.0300
FQ2_B08	Quarry Conveyors: B08 to B20	322168.69	3315415	17.8	2	0.47	0.93	0.0300
FQ2_B20	Quarry Conveyors: B20 to B21	322166.56	3315583.5	17.1	2	0.47	0.93	0.0300

Source Identification in ISCST3 Model	Source Description	East, m	North, M	Base Elevation, m	Release Height, m	Initial Horizontal Dispersion Coefficient, M	Initial Vertical Dispersion Coefficient, m	PM_{10} Emission Rate, lb/hr
FQ2_B21	Quarry Conveyors: B21 to B22	322072.34	3315584.25	16.8	2	0.47	0.93	0.0300
FQ2_B22	Quarry Conveyors: B22 to B24 & B22 to B40	321905.56	3315631	17.9	2	0.47	0.93	0.0010
FQ2_B24	Quarry Conveyors: B24 to B27	321910.81	3315683	17.9	2	0.47	0.93	0.0010
FQ2_B27	Quarry Conveyors: B27 to Radial Stacker	321838.88	3315724	18	2	0.47	0.93	0.0010
FQ2_B40	Quarry Conveyors: B40 to C01	321705.63	3315663	17.9	7	0.47	3.26	0.0290
SP6_FR2	Ash Storage; Fly Ash Storage Building	321426.38	3316017.05	18	10.35	12.88	9.63	0.0510
SP7	Gypsum Storage	321425.9	3315597.77	16.8	6.1	6.48	5.67	0.0090
SP8_FF1	Coal Storage; Coal Handling	321386.56	3315708.25	16.8	6.1	6.55	5.67	0.0200
FR3A_01	Raw Storage Bins (Existing)	321359.93	3315891.13	17.6	4.57	2.46	2.13	0.0136
FR3B_02	Raw Storage Bins (New)	321325.03	3315891.34	17.4	4.57	2.46	2.13	0.0146
FR4	Gypsum Transfer	321367.59	3315627.25	16.8	0.3	0.47	0.47	0.0040

emissions of PM_{10} as provided. Coordinates for each source were tabulated and compared to the SAC facility (using a coordinate that represented the location of the kiln/raw mill baghouse stack for Line 1, E21-01, as a reference point). The distance between each other source and SAC was calculated (in kilometers) and multiplied by 20 (the so-called 20D). This calculation was limited to all PM_{10} sources within about 100 km of SAC (as per the FDEP's provided data base). Each source which remained on this list along with its calculated 20D distance was compared to the annual tonnage of PM_{10}. Those sources with annual emissions greater than 20D were retained and considered in both the PSD modeling and the full NAAQS analysis. For PSD increment consumption, this methodology was conservative as some of the sources in Gainesville may not be PSD increment consuming. Gainesville Power boilers and Florida Rock Cement were considered in the PSD and NAAQS modeling (all Florida Rock sources, current and future, were included in this analysis due to the proximity of the facility and its recent permitting activity).

The sources remaining after the 20D analysis and which were considered in the modeling are presented in Table 3-7 along with their source characteristics and emissions. Appendix B presents the FDEP inventory used in the 20D analysis.

TABLE 3-7. NON-SAC SOURCE PARAMETERS AND EMISSIONS OF PM_{10} (Revised)

Source Identification[a]	Source description	UTM East, m	UTM North, m	Base elevation, m	Stack height, m	Stack gas temperature, K	Stack gas velocity, m/s	Stack diameter, m	PM_{10} emissions, lb/hr
GVDH_E03	Fossil Fuel Fired Steam Generator #1(Phase II AR Unit)	365700	3292600	16.9	91.4	400	14.3	3.4	288.00
GVDH_E05	Fossil Fuel Fired Steam Generator #2 (Phase I & II AR Unit)	365700	3292600	16.9	106.7	408	15.2	5.6	242.80
FR1_E28	Recycle dust + raw meal to homogenization silo	346357.7	3285762	16.9	12.2	450	20.1	0.7	0.70
FR1_G07	Recycle dust + raw meal into homogenization silo	346385.9	3285747	16.9	68.6	366	21.4	0.7	0.91
FR1_H08	Raw meal + recycle dust to preheater	346401	3285770	26.1	18.3	366	20.4	0.4	0.34
FR1_E21	kiln	346417.1	3285766	26	76.2	375	16.4	2.9	22.10
FR1_K15	cooler	346504.4	3285787	25.5	60.0	522	12.8	2.7	7.70
FR1_L03	Clinker cooler discharge and breaker	346480.2	3285769	25.8	3.1	422	20.0	0.3	0.15
FR1_L06	Clinker into clinker silos	346546.2	3285781	25.5	57.9	422	20.8	0.3	0.20
FR1_L08	Clinker into clinker silos	346546.2	3285781	25.5	57.9	422	20.8	0.3	0.20
FR1_M08	Clinker to finish mill	346554.3	3285708	25.4	3.1	373	20.8	0.3	0.22
FR1_N09	Finish mill air separator	346567.9	3285693	25.4	40.8	372	13.9	2.3	5.56
FR1_N12	Finish mill	346567.5	3285697	25.4	40.8	372	20.4	0.9	1.39
FR1_N91	Cement handling in finish mill	346558.2	3285693	25.3	37.5	366	20.4	0.4	0.34
FR1_Q25	Cement storage silos	346618.7	3285848	24.9	79.3	339	20.0	0.6	0.74
FR1_Q26	Cement storage silos	346632.9	3285851	25.1	79.3	339	20.0	0.6	0.74
FR1_Q14	Cement silo loadout	346619.9	3285841	25	9.2	339	20.0	0.3	0.19
FR1_Q17	Cement silo loadout	346634.3	3285843	25.1	9.2	339	20.0	0.3	0.19
FR1_Q21	Cement silo loadout	346631.5	3285859	25	9.2	339	20.0	0.3	0.19

TABLE 3-7. NON-SAC SOURCE PARAMETERS AND EMISSIONS OF PM_{10} (Revised) (continued)

Source Identification[a]	Source description	UTM East, m	UTM North, m	Base elevation, m	Stack height, m	Stack gas temperature, K	Stack gas velocity, m/s	Stack diameter, m	PM_{10} emissions, lb/hr
FR1_R12	Cement bagging operation	346639.6	3285813	25.5	30.5	339	20.0	0.6	0.74
FR1_S17	Coal mill	346466.9	3285785	25.9	50.0	339	20.3	0.7	1.25
FR1_S21	Pulverized coal storage bin	346461.3	3285781	25.9	105.6	339	20.0	0.3	0.22
FR2_D33	Transfer D32-34 belts	346357	3285635	25.5	5.5	298	11.3	0.4	0.20
FR2_D35	Transfer D34-D36 belts	346280	3285735	26.1	51.4	298	11.3	0.4	0.20
FR2_D37	Transfer D36-39 belts and bins	346276	3285738	26.1	48.7	298	12.7	0.5	0.33
FR2_D49	D Bins unloading to belts	346289	3285739	26.1	25.5	298	12.7	0.5	0.33
FR2_2D37	Transfer D36-2D39 belts and bins	346278	3285727	26	48.7	298	12.7	0.5	0.33
FR2_2D49	2D Bins unloading to belts	346291	3285730	26	25.5	298	12.7	0.5	0.33
FR2_2E21	Inline kiln/raw mill w/air heater	346430	3285693	25.6	95.9	453	16.0	2.9	25.00
FR2_2E28	Airslides and bottom of airlift	346395	3285686	25.7	13.0	422	11.3	0.4	0.14
FR2_2E34	Bin 2E30	346403	3285693	25.7	30.5	422	7.5	0.4	0.09
FR2_2G07	Top of airlift and homogenizing silo	346412	3285694	25.6	73.3	366	14.3	0.8	0.81
FR2_2H08	Homogenizing silo to preheater feed	346515	3285729	25.6	15.4	366	7.5	0.4	0.11
FR2_2K15	Clinker cooler + coal mill gases after ESP	346490	3285716	25.7	60.3	522	13.7	2.7	8.75
FR2_2L03	Cooler discharge	346388	3285697	25.8	11.6	422	8.6	0.5	0.14
FR2_2L13	Clinker transport (2L20, 2L08)	346538	3285777	25.4	57.9	422	9.1	0.4	0.14
FR2_2L15	Clinker transport (2L20, 2L01, 2L08, 2L09)	346546	3285756	25.6	57.8	422	20.9	0.4	0.28

TABLE 3-7. NON-SAC SOURCE PARAMETERS AND EMISSIONS OF PM_{10} (Revised) (continued)

Source Identification[a]	Source description	UTM East, m	UTM North, m	Base elevation, m	Stack height, m	Stack gas temperature, K	Stack gas velocity, m/s	Stack diameter, m	PM_{10} emissions, lb/hr
FR2_2L16	Clinker transport (2L01, 2L20)	346554	3285726	25.4	57.8	422	13.9	0.4	0.19
FR2_2L18	Clinker into quadrated silo	346522	3285753	25.6	57.8	373	13.9	0.4	0.21
FR2_2M07	Clinker from quadrated silo	346526	3285730	25.6	5.0	373	13.9	0.4	0.21
FR2_2M08	Clinker/additives to Mill #2	346526	3285717	25.6	13.4	373	13.9	0.4	0.21
FR2_2N93	Finish mill #2 air separator	346528	3285669	25.4	39.8	343	14.7	2.3	6.43
FR2_2N94	Finish mill #2	346538	3285691	25.5	39.8	368	14.2	1.2	1.64
FR2_2N91	Airlift to separator	346539	3285669	25.4	13.6	366	18.3	0.4	0.32
FR2_2N36	Cement to fringe silo	346544	3285659	25.3	19.4	328	15.7	0.4	0.24
FR2_2Q25	Cement to silo #6	346657	3285776	25.7	58.4	339	11.4	0.8	0.70
FR2_2Q26	Cement to silo #7	346672	3285779	25.8	58.4	339	11.4	0.8	0.70
FR2_2Q14	Loadout from silos 6/7	346661	3285771	25.7	9.1	339	8.6	0.5	0.17
FR2_2S17	Coal mill #2	346484	3285727	25.8	60.3	339	1.9	2.7	1.67
FR2_2S21	Pulverized coal bin	346515	3285729	25.6	20.7	339	7.5	0.4	0.15

a. GV- Gainesville Municipal Power
FR – Florida Rock Industries

SECTION 4

AIR QUALITY MODELING METHODOLOGY

4.1 Model Specification

Dispersion modeling procedures followed U.S. EPA recommended model selection and application protocol and were used throughout this analysis primarily following the *Guideline on Air Quality Models* (April 15, 2003), the personal direction provided by FDEP (Mr. Cleve Holladay), and the U.S. EPA *New Source Review Workshop Manual* (draft, October 1990). This methodology implemented both the new source only analysis and the full impact analysis (detailed modeling and all source consideration). The new source modeling followed the threefold goal of:

- Determining whether the impact analysis can forego further modeling for each PSD pollutant depending on the significant impact analysis and the associated SIA.
- Defining the impact area for which a full impact analysis will be performed.
- Determining other sources and background concentrations that should be included in the analysis.

Based on the review of the pollutants and emission rates associated with the proposed modifications at the facility, dispersion modeling was required for emissions of SO_2, PM_{10}, NO_x, and CO. The level of detail of the modeling for these criteria pollutants depended on the determination of the extent of the significant impact areas for each constituent. Because the significant impact area for PM_{10} lay beyond the facility fence line, modeling was performed also for all SAC sources and other identified interacting and significant sources (from 20D) within about a 75-km radius of the facility.

These other sources included all those within the SIA as well as those beyond the SIA with allowable emissions that may cause them to interact with the SAC sources either in terms of PSD increment consumption or NAAQS impacts. Potentially interacting sources were evaluated

for inclusion based on FDEP guidance and the FDEP suggested 20D approach. The sources identified for inclusion in the modeling as PSD increment consuming sources are: the existing SAC sources, Gainesville Power, Florida Rock Cement, White Springs Agricultural (EU19, 32, and 69), Progress Energy turbines (EU4, 5, and 6), and Buckeye Florida Bark Boiler 1.

4.2 Model Selection

For those pollutants requiring dispersion modeling, the Industrial Source Complex Model (ISC) was used for the modeling. The ISC Model, Version 3, in its short-term mode (ISCST3, Version 02035) was used to perform all preliminary modeling as well as the PSD and NAAQS related full impact modeling. The ISCST3 Model is a steady-state straight-line Gaussian plume model that is recommended by the *Guideline on Air Quality Models*. The ISCST3 Model has many features that make it the most representative model for this analysis including:

- Recommended and accepted by the U.S. EPA
- Multiple sources
- Point, area, and volume source capabilities
- Hour-by-hour meteorological data used in calculations
- User-specified grouped source concentration estimates
- Urban/rural classification
- Building downwash of effluent
- Variable receptor locations.

No other models were used because elevated terrain was not a concern (no terrain above stack height in the vicinity around the plant). Nonetheless, digitized terrain data derived from the 30m DEM data for each applicable USGS quadrangle was used in the ISCST3 modeling to allow the model to perform its full suite of analyses considering the gentle slope of the surrounding terrain. The use of the ISCST3 Model was implemented through the BEE-LINE software called BEEST (Version 9.40).

The selection of the ISCST3 model is consistent with the FDEP guidance provided by Mr. Cleve Holladay in an initial modeling meeting in December 2004. No other air dispersion model was used for this Class II analysis, although one other related model was used to calculate building downwash influence on the plumes. This model was the U.S. EPA *Building Profile*

Input Program (BPIP) (draft user's guide, October 1993). The BPIP Model is included in the BEEST program and was used throughout this analysis.

4.3 Source Identification and Location

Each source was identified in this modeling documentation in Section 3 for all stack, fugitive source, and roadway sources characterization and emissions. Each source has a unique identifier which was used throughout the modeling analysis both in the model and in any tables presenting the concentration estimates. A Cartesian coordinate system in UTM coordinates was assigned to all sources in this analysis. Any other sources that were considered in the modeling for PSD increment purposes or NAAQS impacts were also assigned a unique identification number and had coordinates in the same UTM system as the SAC sources. Only one source was considered for the CO, SO_2, and NO_x SIL and SIA modeling, namely, the new Line 2 Kiln/Raw Mill Baghouse Stack, E21-02. No other new or modified sources emitted these pollutants except the intermittently used emergency backup generator. For PM_{10}, all sources described in Tables 3-1 through 3-8 were considered as appropriate for SIL, PSD, and NAAQS analysis.

4.4 Receptor Locations

Modeling of the individual sources was performed using the ISCST3 Model to determine maximum impact locations. Past modeling for the SAC Line 1 PSD and NAAQS permitting activities was used to select the most representative set of receptors to provide the maximum concentration estimates at a grid resolution commensurate with that recommended by FDEP (at a 100 m resolution in the vicinity of the hot spots). The receptors that were used for the SIL, PSD, and NAAQS analysis included a fence line grid at approximately 50-m intervals and multiple Cartesian grids from the fence line out to about 10 km at grid spacings varying from 100 m near the fence line to 1000-m intervals at the perimeter of the grid. Intermediate spacings of 250, 500, and 1000 m were also used in the modeling. SIL modeling analyses indicated that all maximum impacts occurred within a kilometer of the facility boundaries. Receptors used in the modeling study are shown in Figures 4-1 and 4-2. Terrain elevations were included in all cases for each receptor as derived from the 7.5' USGS maps for the area.

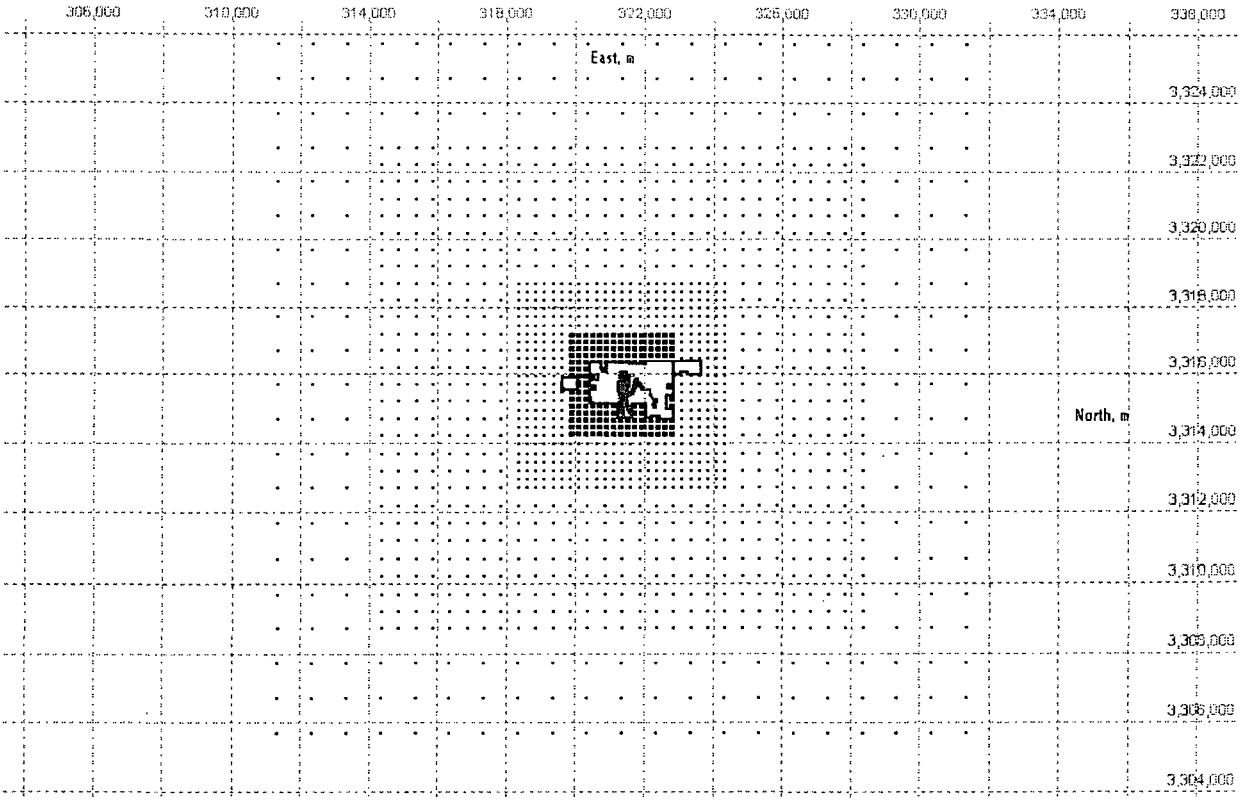


Figure 4-1. Overall Receptor Grid Used for the SAC Air Quality Modeling Analysis

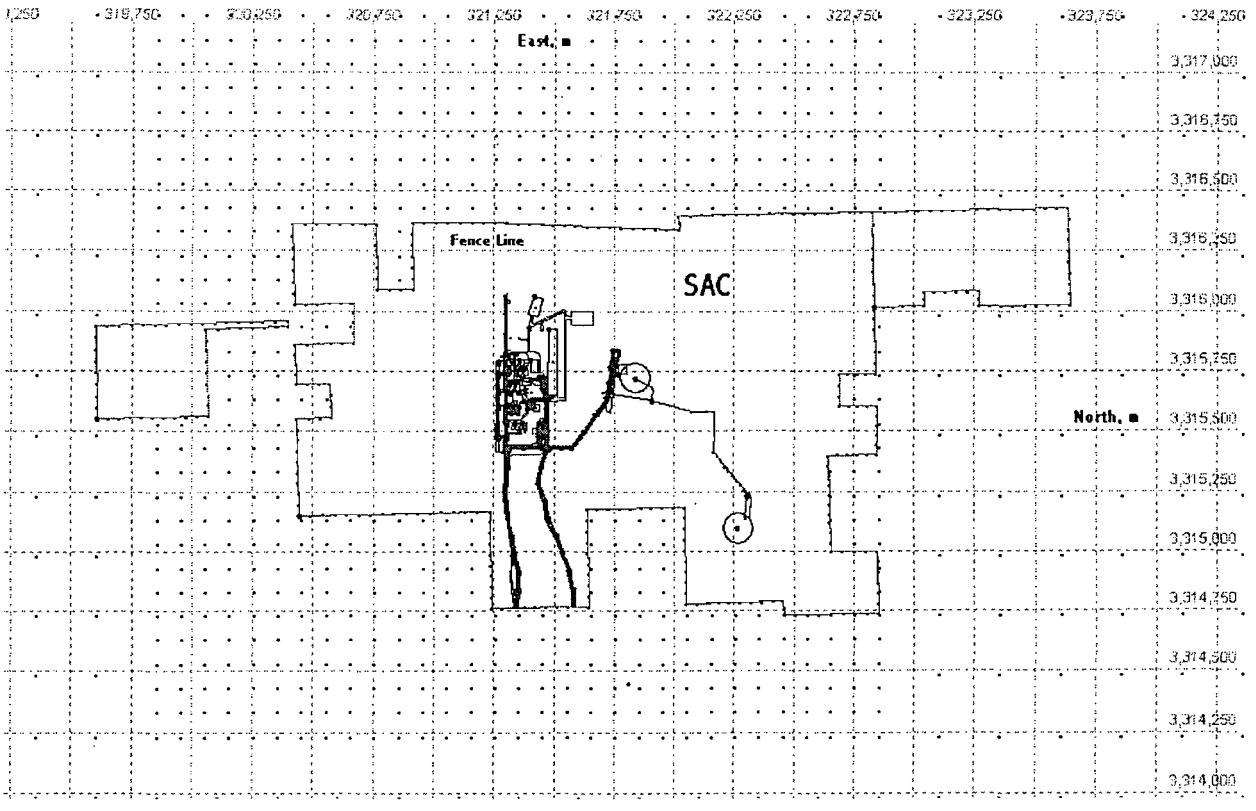


Figure 4-2. Near Field Receptor Grid Used for the SAC Air Quality Modeling Analysis

4.5 Meteorological Data

For the ISCST3 Model, preprocessed meteorological data are required. The *Guideline on Air Quality Models* specifies that five years of representative data be used for an analysis such as this. Data recommended by the FDEP were used to determine the most suitable meteorology for all modeling using the ISCST3 Model. As recommended, this data set consisted of surface meteorological observations for the airport located to the southeast in Gainesville (NWS No. 12816). This data consists of hourly observations of wind speed, wind direction, atmospheric stability class, and temperature. The upper air mixing heights associated with this surface file were obtained from the National Weather Service site in Jacksonville (NWS No. 13889). The most recent 5-year data set readily available from a combination of SCRAM web site data (U.S. EPA), Lakes Webmet site, and previously used data sets for other PSD analyses was for 1992-1996. All sites are similar in both geographical features and vegetative cover, and the combination of the two meteorological sites was deemed representative of the plant site.

4.6 Urban/Rural Classification

To determine whether the area surrounding the facility should be considered urban or rural, a qualitative land-use review was performed. As recommended by the EPA *Guideline on Air Quality Models*, the Auer land-use technique was used to determine if the area is better characterized as rural or urban. Specifically, the guidance recommends land-use analysis of an area within a 3.0-km radius of the site. To be classified "urban," either the population density must be greater than 750 persons per km^2 or, under the Auer technique, greater than 50 percent of the land within 3.0 km of the source must be characterized in one of the following five categories:

- I1 – Heavy Industrial – major chemical, steel, and fabrication industries; generally 3- to 5-story buildings – grass and tree growth extremely rare; <5 percent vegetation.

- I2 – Light Industrial – rail yards, truck depots, warehouses, industrial parks, minor fabrications; generally 1- to 3-story buildings – very limited grass, trees almost totally absent; <5 percent vegetation.

- C1 – Commercial – office and apartment buildings, hotels; > 10-story heights – limited grass and trees; <15 percent vegetation.

- R1 – Compact Residential – single, some multiple, family dwellings with close spacing; generally <2-story buildings; garages, no driveway – limited lawn sizes and shade trees; <30 percent vegetation.

- R3 – Compact Residential – old multifamily dwellings with close lateral separation; generally <2-story buildings; garages, no driveway – limited lawn sizes, old established shade trees; <35 percent vegetation.

Based on an analysis of the 7.5-minute USGS topographic maps for the area and personal surveys by SAC employees, it was determined that greater than 50 percent of the land within the 3.0-km radius consisted of farms and forest lands with only scattered light industrial firms and residences. Therefore, the land-use classification of the area was selected as rural, and rural dispersion coefficients were used in the modeling analysis.

4.7 Model Inputs

The ISCST3 model is very versatile both in terms of the physical phenomena that it can represent and the options that are available for model control and calculations. The regulatory default options of ISCST3 were used throughout all applications of the ISCST3 Model except for the option to allow the use of meteorological data sets that contain missing values. When a missing value is encountered, that hour is skipped and no concentration estimates are made. Table 4-1 presents a summary of the features that are set by the regulatory default option as well as other options selected for this analysis.

4.8 Building Downwash

The effluent plumes from the proposed stacks at the site will be affected by nearby buildings and structures. Because the stacks and building dimensions are such that building downwash of released effluent may cause the plumes to be influenced (which will tend to bring the plume closer to the ground), these effects were included in the analysis.

TABLE 4-1. OPTIONS SELECTED IN THE MODELING OF SAC

Option description
Regulatory defaults except for the missing hour of meteorological data option.
Concentrations in micrograms/cubic meter.
UTM coordinates for fence line and all other receptor locations.
Terrain elevations were considered.
The Rural Mode option was selected.
Default wind profile exponent values were selected.
Default vertical potential temperature gradient values were selected.
The downwind distance plume rise option was used for all sources.
Buoyancy-induced dispersion was used.
The wind system measurement height was set to 7 meters (23 ft).
Building aerodynamic downwash was performed where applicable and will include building information for both Huber-Synder and Schulman-Scire correction.
Stack tip downwash was modeled.
Program control parameters, receptors, and source input data was output.
Concentrations during calm hours were set to zero.
Averaging times were selected consistent with those applicable to the PSD increments, NAAQS, and significant impact concentrations for SO_2, PM_{10}, NO_2, and CO.

The building and stack configuration of the SAC facility was shown in Figure 2-3 for all structures after completion of all modifications. According to the EPA guidance on considering the influence of a building stack, if the stack is less than a Good Engineering Practice (GEP) stack height, the effluent should be treated as if it were affected by the building. GEP stack height is defined as:

$$H_{GEP} = h_b + 1.5L$$

where:

H_{GEP} = Good Engineering Practice stack height (m)

h_b = Nearby structure height

L = The lesser of the nearby structure height or maximum projected width.

In this case, the height of each existing and modified stack was compared to the calculated GEP stack height for each building. A second criterion that was applied to determine if downwash was applicable for each source/building combination was whether the stacks are located downwind and within 5L of the building, upwind and within 2L of the building, or off to the side and within 0.5L of the building. The results of these comparisons for each stack and each building for each of 36 wind directions were tabulated and are presented in Appendix B.

To perform this analysis, the model recommended by the EPA called the Building Profile Input Program (BPIP) was used. The BeeLine version of the BPIP Model within the BEEST was used to generate all downwash calculations.

4.9 Background Concentrations

Background concentrations for each criteria pollutant of concern were available from actual monitored data available from the FDEP through the State's Quick Look report on the FDEP website. Such data was obtained from the State's report for PM_{10}. No other background concentrations were required as all other pollutants had impacts less than their applicable SILs. Review of the nearby sites indicated that the two sites in Gainesville at NW 53rd Avenue and NW 6th Street (shut down after 2000) would be appropriate monitors to use for this analysis. The

highest PM_{10} 24-hour concentration was in 2004 at 48 $\mu g/m^3$ and 24 $\mu g/m^3$ in 2000. Discussions indicated that the nearby air monitors are representative of the area surrounding the facility and fulfill the role of preconstruction monitoring; thus, no new preconstruction monitoring was required. These values were used in subsequent NAAQS analysis.

4.10 Reporting

All modeling has been documented in this report, which is part of the permit application. An example printout from ISCST3 and spreadsheets of the 20D analysis are provided in Appendices B and C. Electronic copies of all input and output files of the modeling analysis will be provided to FDEP under a separate cover on a compact disk in ASCII or BEEST formats. One full copy of the model documentation including diskettes will be provided, with additional paper copies of the documentation made available as required.

SECTION 5

RESULTS OF THE CLASS II AMBIENT IMPACT ANALYSIS

5.1 Significant Impact Analysis

The emissions and source characteristics for sources included in the SIL analysis were presented and discussed earlier in this report. The dispersion modeling was performed over a 5-year period of meteorological data using the ISCST3 Model. The highest concentrations of each applicable averaging period (depending on pollutant) were used to determine the maximum significant concentration impacts and significant impact areas. Tables 5-1 through 5-4 present the significant impact analysis results for SO_2, CO, NO_x, and PM_{10}. No other criteria pollutants were required to be modeled.

As shown in Table 5-1 for SO_2 , the highest concentrations are less than the applicable significant levels for the 3-hour, 24-hour, and annual averaging periods for each of the five years of analysis. Thus, the maximum distance to the 3-hour significance level (25 $\mu g/m^3$), the 24-hour significance level (5 $\mu g/m^3$), and the annual significance level (1 $\mu g/m^3$) was within the fence line of the proposed property. No further modeling of SO_2 was required as per the U.S. EPA guidance for PSD modeling analysis.

As shown in Table 5-2 for CO, the highest concentrations are less than the applicable significant levels for both the 1-hour and 8-hour averaging periods for each of the five years of analysis. Thus, the maximum distance to the 1-hour significance level (2,000 $\mu g/m^3$) and the 8-hour significance level (500 $\mu g/m^3$) was within the fence line of the proposed property. No further modeling of CO was required as per the U.S. EPA guidance for PSD modeling analysis.

Significant impact concentrations for NO_2 are presented in Table 5-3. The significant impact concentrations were less than the annual averaging period concentration of 1.0 $\mu g/m^3$. All distances to the significant impact area were within the fence line and no further modeling analysis was required for NO_2.

TABLE 5-1. SUMMARY OF SULFUR DIOXIDE SIGNIFICANT IMPACTS FOR SAC

Year	Highest 3-hour Concentration ($\mu g/m^3$)	Distance to Significant 3-hour Impact (m)	Highest 24-hour Concentration ($\mu g/m^3$)	Distance to Significant 24-hour Impact (m)	Highest annual Concentration ($\mu g/m^3$)	Distance to Significant Annual Impact (m)
1992	3.9	< Fence line	0.97	< Fence line	0.06	< Fence line
1993	4.2	< Fence line	1.0	< Fence line	0.07	< Fence line
1994	3.8	< Fence line	1.0	< Fence line	0.06	< Fence line
1995	4.0	< Fence line	1.8	< Fence line	0.06	< Fence line
1996	5.6	< Fence line	1.6	< Fence line	0.06	< Fence line
Allowable Significant Level	25	Anywhere Offsite	5	Anywhere Offsite	1	Anywhere Offsite

TABLE 5-2. SUMMARY OF CARBON MONOXIDE SIGNIFICANT IMPACTS FOR SAC

Year	Highest 8-hour Concentration ($\mu g/m^3$)	Distance to Significant 8-hour Impact (m)	Highest 1-hour Concentration ($\mu g/m^3$)	Distance to Significant 1-hour Impact (m)
1992	35	< Fence line	120	< Fence line
1993	39	< Fence line	121	< Fence line
1994	34	< Fence line	156	< Fence line
1995	54	< Fence line	122	< Fence line
1996	52	< Fence line	189	< Fence line
Allowable Significant Level	500	Anywhere Offsite	2000	Anywhere Offsite

TABLE 5-3. SUMMARY OF NITROGEN OXIDES SIGNIFICANT IMPACTS FOR SAC

Year	Highest Annual Concentration ($\mu g/m^3$)	Distance to Significant Annual Impact (m)
1992	0.42	< Fence line
1993	0.50	< Fence line
1994	0.42	< Fence line
1995	0.42	< Fence line
1996	0.40	< Fence line
Allowable Significant Level	1.0	Anywhere Offsite

TABLE 5-4. SUMMARY OF PM_{10} SIGNIFICANT IMPACTS FOR SAC

Year	Highest Annual Concentration ($\mu g/m^3$)	Distance to Significant Annual Impact (m)	Highest 24-hour Concentration ($\mu g/m^3$)	Distance to Significant 24-hour Impact (m)
1992	3.4	1600	15.8	2200
1993	3.4	1700	17.6	3000
1994	3.5	1600	18.4	3400
1995	3.5	1700	17.9	2700
1996	3.6	1700	18.9	3100
Allowable Significant Level	1.0	Anywhere Offsite	5.0	Anywhere Offsite

Significant impact concentrations for PM_{10} are presented in Table 5-4. The significant impact concentrations were exceeded for both the annual (1.0 $\mu g/m^3$) and 24-hour (5.0 $\mu g/m^3$) averaging periods. The maximum distance of the significant impact area was 3400 m for the 24-hour period. Because the SIA was beyond the fence line, additional Class II area PSD and NAAQS modeling for PM_{10} was required and is presented in subsequent sections. No other sources or facilities specifically fell within the significant impact area of SAC. A map of the SIA for PM_{10} is shown in Appendix D.

5.2 PM_{10} Increment Consumption Analysis

This analysis included all existing proposed and modified sources at SAC, contemporaneous emission increases, two Gainesville Power boilers, and all Florida Rock sources (current and proposed). No other increment-consuming sources were considered due to distance, insignificance or non-applicability of emissions, or permit lapse.

The increment analysis was performed using the modeling techniques of the ISCST3 Model described earlier in this report. Table 5-5 presents the Class II PM_{10} increment analysis for each applicable averaging period at the highest annual and 24-hour concentrations and the highest second-highest 24-hour concentrations for each year of meteorological data. As can be seen in these tables, the PSD increment impacts do not vary significantly from year-to-year with the controlling value being the highest second highest concentration of 29.4 $\mu g/m^3$ for the year of meteorological data in 1996.

Table 5-6 summarizes the highest increment consumption for each averaging period and pollutant and compares the SAC PSD and all other PSD source impacts to the full PSD increments. As can be seen, the increment consumption is less than the full PSD increment on an annual basis and less than the 24-hour PSD increment when considering the highest second highest concentration.

TABLE 5-5. CLASS II PM_{10} INCREMENT RESULTS – 1992-1996

Year	SAC Highest Annual Concentration, $\mu g/m^3$	Receptor Location		All PSD Highest Annual Concentration, $\mu g/m^3$	Receptor Location	
		East, m	North, m		East, m	North, m
1992	6.5	321,234	3315168	6.6	321,234	3315168
1993	6.5	321,234	3315168	6.6	321,234	3315168
1994	6.7	321,234	3315168	6.8	321,234	3315168
1995	6.5	321,234	3315168	6.6	321,234	3315168
1996	6.4	321,639	3315177	6.5	321639	3315177

Year	SAC Highest 24-Hour Concentration, $\mu g/m^3$	Receptor Location		All PSD Highest 24-Hour Concentration, $\mu g/m^3$	Receptor Location	
		East, m	North, m		East, m	North, m
1992	31.5	321639	3315177	31.5	321639	3315177
1993	29.2	321684	3315178	29.2	321684	3315178
1994	39.6	321684	3315178	39.8	321684	3315178
1995	35.3	321774	3315180	35.3	321774	3315180
1996	36.9	321774	3315180	36.9	321774	3315180

Year	SAC Highest Second Highest 24-Hour Concentration, $\mu g/m^3$	Receptor Location		All PSD Highest Second Highest 24-Hour Concentration, $\mu g/m^3$	Receptor Location	
		East, m	North, m		East, m	North, m
1992	29.3	321,234	3315168	29.4	321,234	3315168
1993	26.1	321642	3315040	26.2	321,642	3315050
1994	28.4	321729	3315179	28.5	321729	3315179
1995	28.6	321639	3315177	28.8	321639	3315177
1996	29.4	321642	3315040	29.5	321642	3315040

TABLE 5-6. PM_{10} PSD INCREMENT CONSUMPTION- SUMMARY

Averaging Period	Combined SAC and Other Source PM_{10} Concentrations, $\mu g/m^3$					Highest Five-Year Concentration, $\mu g/m^3$	Allowable PSD Increment, $\mu g/m^3$
	1992	1993	1994	1995	1996		
Annual Maximum	6.6	6.6	6.8	6.6	6.5	6.8	17
24-hr Highest Second High	29.4	26.2	28.5	28.8	29.5	29.5	30

a Included Line 1 and 2 sources for all potential emissions. Also included the contributions from other nearby increment consuming sources.

5.3 PM_{10} NAAQS Analysis

The PSD rules require that a demonstration be provided showing that the proposed source emissions when modeled with other sources in the area and adding background do not exceed the NAAQS. Dispersion modeling for a NAAQS impact assessment was required for PM_{10}, which exceeded the SIL for the proposed SAC sources beyond the fence line. Other major sources existing in and near the significant impact area were included in the modeling. The criteria outlined in Section 3 were used whereby the FDEP selects the applicable sources to include in this NAAQS analysis. This included the comparison of the source emissions for each source within about 75 km to the 20D distance. These results are presented in Appendix B, with the sources failing the 20D screening being included in the analysis. The sources remaining after 20D were described and presented in Section 3.

A summary table of the maximum concentration impacts of PM_{10} for all sources included in the NAAQS modeling is presented in Table 5-7 for each year of meteorological data. The maximum annual, highest 24-hour, and highest second-highest 24-hour concentrations are shown in the tables as appropriate. Table 5-8 shows a summary of the highest year impacts (maximum for annual and highest second-high for short-term) combined with the background concentrations. Overall, the impacts for each year for each averaging period for PM_{10} are less than the applicable NAAQS.

TABLE 5-7. PM_{10} NAAQS ANALYSIS – 1992-1996

Year	Highest Annual Concentration	Receptor Location	
	$\mu g/m^3$	East, m	North, m
1992	7.0	321234	3315168
1993	7.0	321234	3315168
1994	7.2	321234	3315168
1995	7.0	321234	3315168
1996	6.9	321639	3315177

Year	Highest 24-Hour Concentration	Receptor Location	
	$\mu g/m^3$	East, m	North, m
1992	31.7	321234	3311568
1993	31.1	321235	3315123
1994	40.9	321684	3315178
1995	35.4	321774	3315180
1996	37.1	321774	3315180

Year	Highest Second Highest 24-Hour Concentration	Receptor Location	
	$\mu g/m^3$	East, m	North, m
1992	30.6	321234	3315168
1993	27.1	321684	3315178
1994	28.5	321234	3315168
1995	29.9	321639	3315177
1996	30.3	321642	3315040

TABLE 5-8. PM_{10} NAAQS IMPACT ANALYSIS - SUMMARY

Averaging Period	Total Baseline and PSD Source Impact, $\mu g/m^3$	Background Concentration, $\mu g/m^3$	Total PM_{10} Concentration, $\mu g/m^3$	NAAQS, $\mu g/m^3$	Percent of NAAQS
24-hour	30.6	48	78.6	150	52
Annual	7.2	24	31.2	50	62

5.4 Additional Impacts Analysis

PSD review requires an analysis of impairment to visibility, soils, and vegetation that will occur as a result of the proposed and modified SAC sources. The review also requires an analysis of the air quality impact projected for the area as a result of general commercial, residential, industrial, and other growth associated with the expansion.

5.4.1 Soils and Vegetation

No sensitive soil types are known to exist within the significant impact area of the SAC facility. Moreover, the areas of maximum impact are generally cultivated or forested and demonstrate no obvious sensitivity to industrial air emissions.

The NAAQS for all criteria pollutants were designed to protect the public health (primary standards) and welfare (secondary standards) from known or anticipated adverse effects and include a margin of safety. Factors that were considered in designing the standards included vegetation effects, soil effects, and material damage effects. Modeling of all the proposed SAC and existing emissions for the PM_{10} NAAQS analysis indicated that the maximum concentrations for all averaging times were less than each applicable NAAQS. Also SO_2, CO, and NO_2 emission impacts were less than the SIL's for these pollutants. Thus, no adverse effects on soils or vegetation are expected.

5.4.2 Growth Since 1977

Rule 62-212.400(5)(h) 5, F.A.C. requires the applicant to provide information relating to the air quality impact 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.

For the purposes of this report, the area the modification would affect is defined as the area of significant impact. As shown in Tables 5-1 to 5-4, the greatest significant impact distance is 3400 meters around the plant. This SIA does not cover the nearest town of Branford. Using the Census Bureau's LandView program, the population within the SIA was 385 in 1990 and increased to 465 in 2000.

For Suwannee County as a whole, the population increased from 22,287 in 1980 to 36,695. During the same period, housing units increased from 8,765 to 16,005.

The construction and modification of SAC is not expected to cause or contribute to related industrial or commercial growth that would have an impact on local ambient air quality.

5.4.3 Visibility

Visibility impacts for the Class I areas were calculated using a long range transport model, i.e., CALPUFF, because all four Class I areas are greater than 50 km from SAC. For consistency of presentation, the visibility impacts are presented in the next section of this report along with other Class I area impacts.

SECTION 6

CLASS I IMPACTS ANALYSIS

Dispersion modeling was performed to demonstrate the impacts of the combined emissions from the operation of the existing and proposed lines at Suwannee American Cement on nearby Class I areas. These areas included Bradwell Bay Wilderness Area, Chassahowitzka Wilderness Area, Okefenokee Wilderness Area, and St. Marks Wilderness Area. The approximate distances from the center of operations of SAC to the nearest edge of each Class 1 area as well as the administrating agency for each area is shown in Table 6-1.

TABLE 6-1. CLASS I AREAS WITHIN 200 KM OF SAC

Class I Area	Federal Land Manager	Distance from SAC to Nearest Class I Receptor, km
Bradwell Bay Wilderness	Forest Service	161
Chassahowitzka Wilderness	Fish & Wildlife Service	133
Okefenokee Wilderness		82
St. Marks Wilderness		110

The modeling for the Class I areas included an analysis of increment consumption in the Class I areas and impacts of the proposed facility (or combined facilities) on other Air Quality Related Values (AQRVs) designated by the Federal Land Managers (FLMs). For the PSD Class I increment consumption analysis, two steps were performed. The first was a modeling analysis to determine if the Line 2 project air quality impacts were greater than the applicable Class I area SILs. For any pollutants resulting in greater than SIL impacts, a multi-source modeling analysis must be conducted to determine the cumulative impact on the Class I PSD increment consumption.

For the AQRVs analysis, the recommendations in the *Interagency Workgroup on Air Quality Modeling (IWAQM) Phase II Summary Report and Recommendations for Modeling Long*

Range Transport Impacts (EPA-454/R-98-019, December 1998) and the *Federal Land Managers' Air Quality Related Values Workgroup (FLAG) Phase I Report* (U.S. Forest Service-Air Quality Program, the National Park Service – Air Resources Division, and the U.S. Fish & Wildlife Service – Air Quality Branch, December 2000) were followed. The AQRVs include those set for visibility impacts and for sulfate and nitrate deposition.

The Class I impacts analyses were combined in this section of the report because of the common application of the CALPUFF Model. CALPUFF was applied in its screening mode, the so-called CALPUFF-lite. The application of CALPUFF-lite was implemented following the guidance offered in *Guide for Applying the EPA Class I Screening Methodology with the CALPUFF Modeling System* (Earth Tech, Inc., September 2001). The methodology is referred to as CALPUFF-lite because it by-passes the need to generate a full three-dimensional wind field using the CALMET meteorological preprocessor. CALPUFF-lite instead uses meteorological data generated by the PCRAMMET Program which generates data for a single meteorological station in the format for the Industrial Source Complex Model (Version 3) in its short-term mode (ISCST3). This single-station generated data set along with the deposition and precipitation variables generated for each hour of the year were used to represent the meteorological field around the facility out to the Class I areas.

6.1 Class I Modeling Protocol

The CALPUFF-lite screening modeling procedure was followed in preparing the Class I impact assessment. A meteorological data set equivalent to that used in the Class II modeling analysis was used for this Class I modeling, namely, the 1992-1996 data for the surface meteorological observations for the airport located to the southeast in Gainesville (NWS No. 12816). This consisted of hourly observations of wind speed, wind direction, atmospheric stability class, and temperature and upper air mixing heights from the Jacksonville International Airport (NWS No. 13889). The meteorological data were prepared in the extended ISCST3 format, including the calculation of wind speed, wind flow direction, temperature, stability class, mixing height, friction velocity, Monin-Obukhov length, precipitation rate, short-wave radiation, and relative humidity.

Receptors for the Class I modeling were downloaded from the National Park Service, Air Resources Division (ARD) website for each of the four Class I areas of interest. The ARD has developed this database of receptors for such modeling analyses for each Class I area in the contiguous U.S. Figure 6-1 shows the four Class I areas with respect to each other as well as to the location of SAC.

For the purpose of determining the maximum potential impact of the increased SAC emissions on the Class I areas, all emissions were assumed to emanate through a single source, namely, the new kiln/raw mill baghouse stack. Emissions included the increased fugitives, roadways, storage piles, baghouses, and stacks. This is a very conservative approach for PM_{10}, considering that much of emissions are due to fugitive sources that are emitted near ground level and will have insignificant impacts at distant receptors. The calculation of potential emission increases is presented in Appendix E; the rates used in the Class I modeling are on page 2 of 28.

6.2 Class I Increment Consumption

A Class I significant impact analysis was conducted using the CALPUFF-lite modeling technique described above. Tables 6-2 through 6-4 show the impacts on each Class I area for each year of analysis for SO_2, NO_x, and PM_{10}. As can be seen, the air quality impacts in each area are less than the Class I SILs proposed by EPA on July 23, 1996 at 61 FR 38292 (the current Class I SIL's in Florida rules are higher). The impacts of the SAC sources are all less than the applicable proposed SILs and thus, no further Class I PSD increment modeling is required.

6.3 Visibility Analysis

The revised IWAQM guidance referenced above recommends the use of non-steady state dispersion modeling for both screening and refined dispersion modeling. The CALPUFF-lite modeling recommendations were used to calculate the visibility impacts of the combined existing and proposed SAC sources. Following the protocol for applying the CALPUFF-lite screening methodology, modeling was performed to evaluate the visibility impacts of the increased SAC emissions at each of the Class I areas. The modeling resulted in the calculation of ground-level air concentrations of visibility impairing pollutants which were subsequently converted to

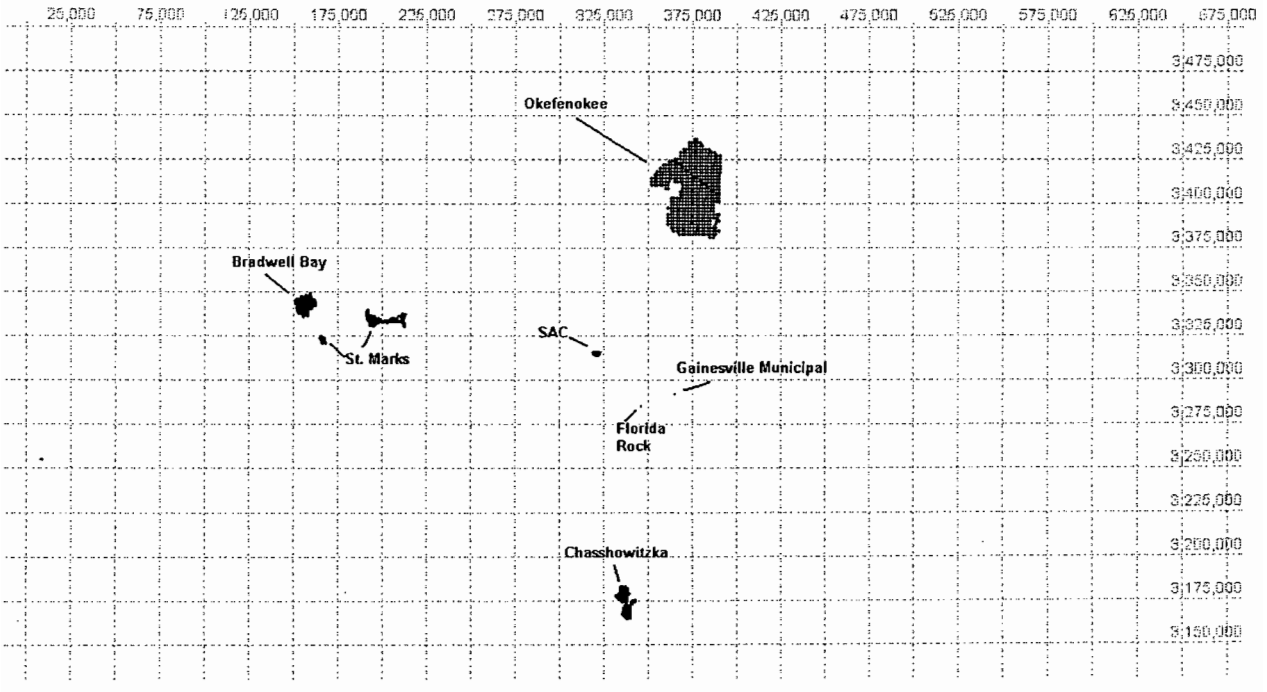


Figure 6-1. Location of Class I Areas Relative to SAC

TABLE 6-2. SUMMARY OF SULFUR DIOXIDE CLASS I SIGNIFICANT IMPACTS

Year	Highest 3-hour Concentration ($\mu g/m^3$)				Highest 24-hour Concentration ($\mu g/m^3$)				Highest Annual Concentration ($\mu g/m^3$)			
	Bradwell Bay	Chas	Oke	St. Marks	Bradwell Bay	Chas	Oke	St. Mark	Bradwell Bay	Chas	Oke	St. Marks
1992	0.10	0.13	0.26	0.16	0.023	0.27	0.60	0.33	0.001	0.002	0.004	0.002
1993	0.10	0.11	0.30	0.15	0.034	0.044	0.088	0.053	0.001	0.002	0.004	0.002
1994	0.11	0.14	0.30	0.13	0.023	0.027	0.054	0.036	0.001	0.002	0.004	0.002
1995	0.10	0.16	0.32	0.15	0.025	0.032	0.079	0.048	0.001	0.002	0.004	0.002
1996	0.12	0.12	0.34	0.18	0.025	0.035	0.070	0.042	0.001	0.001	0.004	0.002
Proposed EPA SIL	1.0				0.2				0.1			

TABLE 6-3. SUMMARY OF NITROGEN OXIDES CLASS I SIGNIFICANT IMPACTS

Year	Highest Annual Concentration ($\mu g/m^3$)			
Class I Area	Bradwell Bay	Chas	Oke	St. Marks
1992	0.004	0.006	0.018	0.009
1993	0.004	0.006	0.018	0.009
1994	0.004	0.006	0.018	0.009
1995	0.004	0.007	0.016	0.009
1996	0.003	0.004	0.013	0.006
Proposed EPA SIL	0.1			

TABLE 6-4. SUMMARY OF PM_{10} CLASS I SIGNIFICANT IMPACTS

Year	Highest Annual Concentration ($\mu g/m^3$)				Highest 24-hour Concentration ($\mu g/m^3$)			
Class I Area	Bradwell Bay	Chas	Oke	St. Marks	Bradwell Bay	Chas	Oke	St. Marks
1992	0.002	0.003	0.006	0.004	0.045	0.044	0.095	0.056
1993	0.002	0.003	0.006	0.004	0.054	0.067	0.121	0.075
1994	0.002	0.003	0.006	0.004	0.039	0.056	0.076	0.051
1995	0.002	0.003	0.006	0.004	0.051	0.060	0.114	0.072
1996	0.002	0.003	0.005	0.003	0.046	0.058	0.093	0.062
Proposed EPA SIL	0.2				0.3			

light-extinction coefficients using the equations in the IWAQM guidance for individual constituents. The total atmospheric extinction was then calculated for all constituents in the modeling including sulfates and nitrates. The resultant extinction coefficient at each receptor at both the nearest and furthest Class I receptor distance to SAC for each Class I area (e.g., 82 km and 134 km for Okefenokee which were modeled every two degrees in all 360 degrees of the compass, regardless of where Okefenokee was located with respect to SAC) due to the increased SAC emissions was compared to the background extinction coefficient. The background extinction coefficient was calculated using the methodology in *Appendix 2.B – Estimate of Natural Conditions* (FLAG 2000 guidance) which was subsequently adjusted in CALPOST post-processing using the daily relative humidities from the meteorological data sets. The analysis was based on 24-hour averages of visibility as recommended by the FLAG guidance. The background extinction was calculated from the maximum 24-hour concentrations of ammonium sulfate and nitrate measured each month at the IMPROVE sites at Okefenoke, St. Marks, and Chassahowitzka. No data were available for Bradwell Bay but St. Marks was deemed representative due to the proximity of the two areas.

As per the FLAG and IWAQM guidance, if the percent change in extinction coefficient relative to natural background is below 5 percent, the FLMs are not likely to object to the project and a cumulative impact assessment would likely not be requested. Table 6-5 presents the results of the visibility calculations for the increased SAC emissions on each Class I area considered. The increased SAC emissions have a visibility impairment less than 5 percent over a 24-hour period for each year of the modeling for each of the Class I areas. Thus, the visibility impact analysis for the Class I areas using the CALPUFF-lite modeling methodology demonstrated that the impacts to each Class I area were less than the FLAG recommended evaluation criteria of a 5 percent change over the background extinction.

TABLE 6-5. CLASS I AREA VISIBILITY IMPAIRMENT ANALYSIS – MAXIMUM PERCENT CHANGE IN EXTINCTION COEFFICIENT

Class I Area	Year of Meteorological Data				
	1992	1993	1994	1995	1996
Bradwell Bay	1.27 %	1.80 %	1.35 %	1.46 %	1.85 %
Chasshowitka	1.49 %	1.93 %	1.45 %	1.86 %	1.66 %
Okeefenokee	2.95 %	3.21 %	2.15 %	3.11 %	2.79 %
St. Marks	2.47 %	2.42 %	1.83 %	2.21 %	2.05 %
Recommended Maximum Extinction Change	5%	5%	5%	5%	5%

6.4 Class I Deposition Analysis

For the sulfate/nitrate deposition analysis, modeling was performed for the Class I areas following the CALPUFF-lite methodology outlined above. Table 6-6 presents the annual deposition values for each Class I area compared to the Deposition Analysis Threshold (DAT) for sulfur and nitrogen deposition as specified in a letter from the National Park Service and the U.S. Fish & Wildlife Service (to Mr. S. Becker, Executive Director of STAPPA/ALAPCO, January 2, 2002) and as presented in the associated *Guidance on Nitrogen And Sulfur Deposition*

Analysis Thresholds (downloaded from the FLM website at www2.nature.nps.gov/air/permits/flag/flaginfo.index.htm). The DAT that was proposed in the Guidance is 0.01kg/ha/yr for both sulfur and nitrogen. This DAT was presented as a "deposition threshold, not necessarily an adverse impact threshold." If all deposition from the increased SAC emissions is less than the applicable DAT, the FLM would likely determine that the SAC modification would not have an adverse impact on the Class I areas. The DAT was deemed applicable to all Class I areas east of the Mississippi River and thus, to each of the four Class I areas included in this analysis. As can be seen in Table 6-6, all deposition rates were less than the DAT for sulfur and nitrogen.

TABLE 6-6. SULFATE/NITRATE DEPOSITION DUE TO INCREASED SAC EMISSIONS

Class I Area	Pollutant	Deposition Rate by Year of Meteorological Data, kg/ha/yr					East U.S. DAT, kg/ha/yr
		1992	1993	1994	1995	1996	
Bradwell Bay	Sulfur	0.0012	0.0012	0.0012	0.0012	0.0009	0.01
	Nitrogen	0.0031	0.0031	0.0028	0.0028	0.0028	0.01
Chas	Sulfur	0.0016	0.0016	0.0016	0.0016	0.0012	0.01
	Nitrogen	0.0043	0.0043	0.0040	0.0043	0.0037	0.01
Oke	Sulfur	0.0031	0.0031	0.0031	0.0031	0.0031	0.01
	Nitrogen	0.0093	0.0093	0.0093	0.0093	0.0093	0.01
St. Marks	Sulfur	0.0031	0.0031	0.0031	0.0031	0.0031	0.01
	Nitrogen	0.0062	0.0062	0.0062	0.0062	0.0062	0.01

SECTION 7

MERCURY DEPOSITION

As discussed in a response to the Florida DEP by Florida Rock Industries on this issue, there are several forms of mercury detected in the emissions from cement kilns. Primarily, these include elemental mercury [Hg(O)] and reactive mercury [Hg(II)]. The two types of mercury species are expected to behave quite differently once emitted from the stack. Hg(O), due to its high vapor pressure and low water solubility, is not expected to deposit close to the facility. Hg(II), because of differences in these properties., is expected to deposit closer to the emission source. Most of the mercury an the atmosphere is elemental mercury vapor, which circulates in the atmosphere for up to a year, and hence can be widely dispersed and transported thousands of miles from likely sources of emission. The reactive form of mercury, when either bound to airborne particles or in a gaseous form, is removed from the atmosphere by precipitation and is also dry deposited.

The National Atmospheric Deposition Program/National Trends Network (NADP/NTN) is a nationwide network of precipitation monitoring sites. The network is a cooperative effort, between many different groups, including the State Agricultural Experiment Stations, U.S. Geological Survey, U.S. Department of Agriculture, and numerous other governmental and private entities. The purpose of the network is to collect data on the chemistry of precipitation for monitoring of geographical and temporal long-term trends. The precipitation at each station is collected weekly according to strict clean-handling procedures. It is then sent to the Central Analytical Laboratory where it is analyzed.

The National Atmospheric Deposition Program has expanded its sampling to include the Mercury Deposition Network (MDN), which was formed in 1995 to collect weekly samples of precipitation which are analyzed by Frontier Geosciences for total mercury. The objective of the MDN is to monitor the amount of mercury in precipitation on a regional basis. The nearest NADP/MDN Monitoring Location is Station FLO5 at the Chassahowitzka National Wildlife Refuge in Citrus County, Florida. This station is approximately 82 miles from the SAC plant.

The monitoring station has been in operation from 7/1/1991- present (see http://nadp.sws.uniuc.edu/nadpoverview.asp).

Data from this station were used to estimate the background wet and dry deposition of mercury in the vicinity of the SAC site. The annualized weekly average total mercury deposition for the period of record is 20 $\mu g/m^2$.

The program used to model the transport and deposition of mercury was the ISCST3 Model, used in a similar manner to other Class II analyses in this report except that it considered deposition. The model has a gas dry deposition component as well as a gas wet deposition component and both wet and dry particle deposition components.

Hg(II) was considered in the air dispersion modeling. At the point of stack emission and during atmospheric transport, the contaminant is partitioned between two physical phases: vapor and particle-bound. These contaminants can be removed from the atmosphere by both wet deposition and dry deposition. For the present analysis, the speciation of emitted mercury was based on the Mercury Study Report to Congress RELMAP modeling. These data have speciation percentages for Portland cement manufacturing of 80 percent elemental mercury, and 10 percent each for vapor and particle Hg(II).

An aerosol particle size distribution based on data collected by Whitby (1978) was used. This distribution is split between two modes: accumulation and coarse particles. The geometric mean diameter of several hundred measurements indicates that the accumulation mode dominates particle size, and a representative particle diameter for this mode is 0.3 microns. The coarse particles are formed largely from mechanical processes that suspend dust and soil particles in the air. A representative diameter for coarse particles is 5.7 microns. The fraction of particle emissions assigned to each particle class is approximated based on the determination of the density of surface area of each representative particle size relative to total surface area of the aerosol mass. Using this method, approximately 93% and 7% of the total surface area is estimated to be in the 0.3 and 5.7 micron diameter particles, respectively. In this analysis, nitric acid vapor was used as a surrogate for Hg vapor based on their similar solubilities in water. In the ISCST3 Model, the dry deposition of divalent mercury vapor was modeled by calculating a dry deposition velocity for each hour using the assumptions made for nitric acid.

For wet deposition of vapor and particulate Hg(II), the ISCST3 wet deposition option was used. The same data on particle size distribution and particle density was used as in the dry particle deposition runs. For particles, the wet deposition scavenging ratios used were from Figure 4-4 in the EPA Mercury Report (0.8E-4 sec/mm/hr for the 0.3 micron size range and 3.8E-4 sec/mm/hr for the 5.7 micron size range). For vapor phase Hg(II) deposition, a scavenging coefficient of 1.6E-6 sec/mm/hr was also used (based on the nitric acid scavenging ratio as described in the EPA Mercury Report).

Based on the maximum proposed stack emissions of 122 pounds per year of mercury for the new kiln, the maximum annual wet and dry deposition of mercury vapor and particles is 9.76 $\mu g/m^3$, which is less than 50 percent of the background deposition rate.

APPENDIX A

STRUCTURE DIMENSIONS

Structure ID	Base Elevation (feet)	Building Height (feet)	Corner 1		Corner 2		Corner 3		Corner 4		Corner 5		Corner 6		Corner 7		Corner 8		Corner 9	
			Easting (meters)	Northing (meters)	Easting (meters)	Northing (meters)	Easting (meters)	Northing (meters)	Easting (meters)	Northing (meters)	Easting (meters)	Northing (meters)	Easting (meters)	Northing (meters)	Easting (meters)	Northing (meters)	Easting (meters)	Northing (meters)	Easting (meters)	Northing (meters)
106	56	88	321477	3315924	321476	3315652	321515	3315652	321517	3315924										
107	59	94	321421	3316060	321395	3315987	321432	3315974	321458	3316048										
8A	56	105	321356	3315798	321356	3315776	321378	3315776	321378	3315798										
8B	56	105	321321	3315799	321321	3315776	321343	3315776	321343	3315798										
17A	55	263	321346	3315748	321346	3315740	321353	3315740	321353	3315748										
17B	55	263	321318	3315748	321318	3315740	321325	3315740	321325	3315748										
19A	55	74	321342	3315697	321341	3315669	321360	3315669	321360	3315696										
19B	55	74	321316	3315697	321316	3315669	321335	3315669	321335	3315697										
110A	55	128	321353	3315664	321353	3315650	321363	3315650	321363	3315664										
110B	55	128	321320	3315661	321320	3315647	321330	3315647	321330	3315661										
29A	55	105	321368	3315538	321367	3315506	321384	3315506	321384	3315538										
29B	55	105	321341	3315538	321341	3315506	321358	3315506	321358	3315538										
100	55	35	321271	3315730	321271	3315675	321291	3315675	321291	3315706	321294	3315710	321295	3315714	321293	3315718	321291	3315722	321291	3315730
104	56	35	321405	3315795	321404	3315743	321435	3315743	321435	3315794										
37	55	40	321371	3315719	321371	3315694	321402	3315694	321402	3315719										
26	55	40	321413	3315613	321413	3315582	321438	3315582	321438	3315613										
105A	55	40	321375	3315759	321374	3315735	321393	3315735	321393	3315759										
105B	56	40	321313	3315822	321313	3315803	321337	3315803	321337	3315822										

Structure ID	Base Elevation (feet)	Center		Silo Height (feet)	Silo Diameter (feet)
		Easting (meters)	Northing (meters)		
25A	56	321323	3315602	187	74
25B	55	321350	3315602	187	74
25C	55	321350	3315576	187	74
25D	55	321323	3315576	187	74
15A	55	321318	3315766	252	46
15B	56	321345	3315766	252	46
109A	55	321432	3315493	190	46
109B	55	321446	3315493	190	46
109C	55	321461	3315492	190	46
109D	55	321461	3315478	190	46
109E	55	321446	3315478	190	46
109F	55	321432	3315478	190	46
SP2	59	321839	3315723	0	408
SP1	54	322267	3315097	0	408

APPENDIX B

20D ANALYSES FOR SAC - FDEP INVENTORY AND 20D DISTANCES TO SAC

AC) - Branford, Florida Facility: Florida DEP Point Source Emission Inventory for Potentially Interacting PM_{10} Sources

ESCRIPTION	EU STATUS	STACK HT (ft)	DIAM (ft)	EXIT TEMP (F)	ACFM	DSCFM	VEL (ft/s)	POLLUTANT	* POTENTIAL		* ALLOWABLE		* MAXIMUM		* Overall Maximum TPY	* Facilitywide Maximum TPY	Distance Between Sources (KM)	20 * D (KM)	To Be Modeled? YES or NO	PSD or NAAQS?
									(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)						
(Phase II AR Unit)	A	300	11	261	272000		47	PM	288	526	96	526	288	1261.44	1261.4	2391.1	50.01167306	1000.233	YES	NAAQS
(Phase I & II AR Unit)	A	350	18.5	275	806407		50	PM	242.8	1064	242.8	1064	242.8	1063.464	1064.0		50.01167306	1000.233	YES	PSD & NAAQS
ase II Acid Rain Unit)	A	52	14.1	1100	1573615		168	PM10	15	22	15	15	15.	65.7	65.7		50.01167306	1000.233	YES	PSD & NAAQS
PLX 100 TO 200 MESH W/3.9%F IN RO	A	130	1.1	146	5533		97	PM	22.98	196.5	22.03	96.5	22.98	100.6524	196.5	3343.9	53.74814678	1074.963	YES	NAAQS
OLIVER W CYC SCRUBBER	A	100	3.5	100	21000		36	PM	36.16	160.3	36.54	160.03	36.54	160.0452	160.3		53.74814678	1074.963	YES	NAAQS
ALCINER ANIMAL FEED	A	100	4	120	25000		33	PM	14.05	59	14.05	59	14.05	61.539	61.5		53.74814678	1074.963	YES	NAAQS
)-21; CNTS-SCBRS&BGCLR	A	120	7	120	92400		40	PM	45	201.96	46.11	201.96	46.11	201.9618	202.0		53.74814678	1074.963	YES	NAAQS
W/WET SCRUBBER SIC 1475	A	110	3.5	110	25000		43	PM	48.17	210.98	48.17	210.98	48.17	210.9846	211.0		53.74814678	1074.963	YES	NAAQS
BER,NG,#4FO 1.5%S 34MMBTUH	A	120	7	120	92400		40	PM	33.33	145.99	33.33	145.99	33.33	145.9854	146.0		53.74814678	1074.963	YES	NAAQS
NGAS/4 FO; W/ WET SCRUB (OLD #2	A	60	7	160	82197		35	PM	43.11	188.85	43.11	188.85	43.11	188.8218	188.9		53.74814678	1074.963	YES	NAAQS
/ BUFLO SCRUBR FU/GTSP PM/ALL 3	A	100	6.5	90	99000		49	PM	36.17	158.42	36.17	158.42	36.17	158.4246	158.4		53.74814678	1074.963	YES	NAAQS
SIC 1475	A	60	1.4	120	3000		32	PM	30.43	99.69	30.43	99.69	30.43	133.2834	133.3		53.74814678	1074.963	YES	NAAQS
E& VENTURI SCRUBBER	A	120	2.3	90	20000		80	PM	40.41	177	40.41	177	40.41	176.9958	177.0		53.74814678	1074.963	YES	NAAQS
OLLECTOR	A	120	3.5	150	18000		31	PM	36.72	160.83	36.72	160.83	36.72	160.8336	160.8		53.74814678	1074.963	YES	NAAQS
NG #4FO STBY (OLD #1)	A	60	7	160	82197		35	PM	43.11	188.85	43.11	188.85	43.11	188.8218	188.9		53.74814678	1074.963	YES	NAAQS
) SCRBR(F4)	A	106	4	100	40000		53	PM	5	21.8	5	21.8	5	21.9	21.9		53.74814678	1074.963	YES	PSD model allocation.
(F4)	A	106	4	100	40000		53	PM	5	21.9	5	21.9	5	21.9	21.9		53.74814678	1074.963	YES	NAAQS
BR;DAP,MAP VIA 30&50/40 P	A	140	8	120	96000		31	PM	47.37	206.9	47.37	206.9	47.37	207.4806	207.5		53.74814678	1074.963	YES	PSD & NAAQS
R ANIMAL FEED SUPPL	A	100	4	120	25000		33	PM	14.05	59	14.05	59	14.05	61.539	61.5		53.74814678	1074.963	YES	NAAQS
5MMBTUPH,USED OIL 1%S. A1A P	A	104	6.5	380	50000		25	PM	13.8	60.5	13.8	60.5	13.8	60.444	60.5		53.74814678	1074.963	YES	NAAQS
OR USED OIL 1%S). A	A	104	6.5	380	50000		25	PM	13.8	60.5	13.8	60.5	13.8	60.444	60.5		53.74814678	1074.963	YES	NAAQS
BBER (EP1);EP2 silo baghouse.	A	75	2	115	8700		46	PM	1.12	4.7	1.12	4.7	1.12	4.9056	4.9		53.74814678	1074.963	YES	NAAQS
10,9,L1,L2,SA1,SA2.	A	94	3.5	156	28000		48	PM	31.98	134.35	31.99	134.35	31.99	140.1162	140.1		53.74814678	1074.963	YES	NAAQS
ON STACK (EP12)	A	50	4	550	50000		66	PM	25.04	105.17	25.04	105.17	25.04	109.6752	109.7		53.74814678	1074.963	YES	NAAQS
"D" H2SO4 PLNTS	A	2	0.67	200	18	14	0.9	PM	0.66	2.16			0.66	2.8908	2.9		53.74814678	1074.963	YES	NAAQS
	A	25	1.2	75	5000	5100	73	PM	0.857	3.75			0.857	3.75366	3.8		53.74814678	1074.963	YES	NAAQS
	A	50	7	110	130000		56.3	PM	46.4	203.23	46.4	203.23	46.4	203.232	203.2		53.74814678	1074.963	YES	NAAQS
	A	110	4	110	25000		33.2	PM	46.4	203.23	46.4	203.23	46.4	203.232	203.2		53.74814678	1074.963	YES	NAAQS
	A	50	5.3	380	67000		50.6	PM	13.9	59.2	13.9	59.2	13.9	60.882	60.9		53.74814678	1074.963	YES	NAAQS
	A	105	3	90	35000		82.5	PM	42.52	185.73	42.52	185.73	42.52	186.2376	186.2		53.74814678	1074.963	YES	PSD & NAAQS
Limerock Bin	A	60	3.6	95	5000	4500	8.2	PM	1	4.4	1	4.4	1	4.38	4.4		53.74814678	1074.963	YES	NAAQS
FP,S1,S2.	A	25	0.6	200	36	28	2.1	PM	1.43	3.48			1.43	6.2634	6.3		53.74814678	1074.963	YES	NAAQS
	A	110	7	318	143667		62	PM	135	246.4	46	251.9	135	591.3	591.3	2273.2	55.78212834	1115.643	YES	NAAQS
	A	110	7	340	197000		85	PM	135	246.4	45	246.4	135	591.3	591.3		55.78212834	1115.643	YES	NAAQS
	A	135	7.7	300	305067		109	PM	135	246.4	88.1	482.3	135	591.3	591.3		55.78212834	1115.643	YES	NAAQS
	A	22	11.3	726	1255500		208.7	PM	38	28.5			38	166.44	166.4		55.78212834	1115.643	YES	PSD & NAAQS
	A	22	11.3	726	1255500		208.7	PM	38	28.5			38	166.44	166.4		55.78212834	1115.643	YES	PSD & NAAQS
	A	22	11.3	726	1255500		208.7	PM	38	28.5			38	166.44	166.4		55.78212834	1115.643	YES	PSD & NAAQS
TU COMM STK W/SRC 3,4,19 A1A	A	225	13	325	103200	62900	13	PM	47.9	209.96	47.9	209.96	47.9	209.802	210.0	2986.0	65.94680615	1318.936	YES	NAAQS
0MMBTU COMM STK W/SRC2,4,19P	A	225	13	325	103200	62900	13	PM	47.9	209.96	47.9	209.96	47.9	209.802	210.0		65.94680615	1318.936	YES	NAAQS
) SCRBBR COMM STCK W/SRC 2,3,1	A	225	13	142	100700		12.6	PM	47.25	207	47.25	207	47.25	206.955	207.0		65.94680615	1318.936	YES	PSD & NAAQS
BLOX SYS A	A	225	13	142	100700		12.6	PM	97.6	427.49	97.6	427.49	97.6	427.488	427.5		65.94680615	1318.936	YES	NAAQS
& BLOX A	A	225	9	310	228600		59	PM	82.35	359.7	82.35	360.69	82.35	360.693	360.7		65.94680615	1318.936	YES	NAAQS
GN,ELECTROSTATIC PREC.FOR PM CO	A	225	9.5	438	332700	143500	78	PM	113.4	496.69	113.4	496.69	113.4	496.692	496.7		65.94680615	1318.936	YES	NAAQS
UBBER, COMMON STACK A	A	225	13	200	265000		33	PM	106.73	467.48	106.73	467.48	106.73	467.4774	467.5		65.94680615	1318.936	YES	NAAQS
RB W/WET SCRUBBER	A	142	3	171	16500	8700	38	PM	25.1	113.6	25.9	113.6	25.9	113.442	113.6		65.94680615	1318.936	YES	NAAQS
RB W/WET SCRUBBER	A	140	4	165	21800	12000	28	PM	24.1	105.3	24.05	105.34	24.1	105.558	105.6		65.94680615	1318.936	YES	NAAQS
SCRUBBER CONTROL	A	162	4	165	26500	14250	35	PM	29.1	128.5	30.19	132.22	30.19	132.2322	132.2		65.94680615	1318.936	YES	NAAQS
EMS A	A	100	6.5	290	108000	45060	54	PM	56.2	246.16	20	87.6	56.2	246.156	246.2		65.94680615	1318.936	YES	NAAQS
	A	133	1.7	141	657	461	4	PM	2.08	9.13	2.08	9.13	2.08	9.1104	9.1		65.94680615	1318.936	YES	NAAQS

Florida Rock Industries, Inc.: PSD Emission Inventory for PM_{10} Sources [a]

Source ID	Description	Easting, m	Northing, m	Stack Height, ft	Temperature, F	Exit Velocity, m/s	Stack Diameter, ft	PM10 Emissions, lb/hr
FR1_E28	Recycle dust + raw meal to homogenization silo	346,357.7	3,285,762.0	40.0	350	20.1	2.2	0.70
FR1_G07	Recycle dust + raw meal into homogenization silo	346,385.9	3,285,746.8	225.1	200	21.4	2.2	0.91
FR1_H08	Raw meal + recycle dust to preheater	346,401.0	3,285,769.7	60.0	200	20.4	1.4	0.34
FR1_E21	kiln	346,417.1	3,285,766.4	250.0	215	16.4	9.4	22.10
FR1_K15	cooler	346,504.4	3,285,786.8	196.9	480	12.8	9.0	7.70
FR1_L03	Clinker cooler discharge and breaker	346,480.2	3,285,769.3	10.2	300	20.0	1.0	0.15
FR1_L06	Clinker into clinker silos	346,546.2	3,285,781.3	190.0	300	20.8	1.1	0.20
FR1_L08	Clinker into clinker silos	346,546.2	3,285,781.3	190.0	300	20.8	1.1	0.20
FR1_M08	Clinker to finish mill	346,554.3	3,285,707.9	10.2	212	20.8	1.1	0.22
FR1_N09	Finish mill air separator	346,567.9	3,285,692.6	133.9	210	13.9	7.5	5.56
FR1_N12	Finish mill	346,567.5	3,285,697.4	133.9	210	20.4	3.1	1.39
FR1_N91	Cement handling in finish mill	346,558.2	3,285,692.9	123.0	200	20.4	1.4	0.34
FR1_Q25	Cement storage silos	346,618.7	3,285,848.4	260.2	150	20.0	2.0	0.74
FR1_Q26	Cement storage silos	346,632.9	3,285,850.9	260.2	150	20.0	2.0	0.74
FR1_Q14	Cement silo loadout	346,619.9	3,285,840.5	30.2	150	20.0	1.0	0.19
FR1_Q17	Cement silo loadout	346,634.3	3,285,843.0	30.2	150	20.0	1.0	0.19
FR1_Q21	Cement silo loadout	346,631.5	3,285,859.0	30.2	150	20.0	1.0	0.19
FR1_R12	Cement bagging operation	346,639.6	3,285,812.8	100.1	150	20.0	2.0	0.74
FR1_S17	Coal mill	346,466.9	3,285,784.7	164.1	150	20.3	2.4	1.25
FR1_S21	Pulverized coal storage bin	346,461.3	3,285,781.5	346.5	150	20.0	1.00	0.22
FR2_B03	Primary crushing	346,377	3,285,477	Modeled as a Volume Source				0.15
FR2_D33	Transfer D32-34 belts	346,357	3,285,635	18.1	77	11.3	1.31	0.20
FR2_D35	Transfer D34-D36 belts	346,280	3,285,735	168.5	77	11.3	1.31	0.20
FR2_D37	Transfer D36-39 belts and bins	346,276	3,285,738	159.8	77	12.7	1.60	0.33
FR2_D49	D Bins unloading to belts	346,289	3,285,739	83.5	77	12.7	1.60	0.33
FR2_2D37	Transfer D36-2D39 belts and bins	346,278	3,285,727	159.8	77	12.7	1.60	0.33
FR2_2D49	2D Bins unloading to belts	346,291	3,285,730	83.5	77	12.7	1.60	0.33
FR2_2E21	Inline kiln/raw mill w/air heater	346,430	3,285,693	314.7	356	16.0	9.42	25.00
FR2_2E28	Airslides and bottom of airlift	346,395	3,285,686	42.5	300	11.3	1.31	0.14
FR2_2E34	Bin 2E30	346,403	3,285,693	100.0	300	7.5	1.31	0.09
FR2_2G07	Top of airlift and homogenizing silo	346,412	3,285,694	240.6	200	14.3	2.61	0.81
FR2_2H08	Homogenizing silo to preheater feed	346,515	3,285,729	50.5	200	7.5	1.31	0.11
FR2_2K15	Clinker cooler + coal mill gases after ESP	346,490	3,285,716	197.8	480	13.7	9.00	8.75
FR2_2L03	Cooler discharge	346,388	3,285,697	38.0	300	8.6	1.50	0.14
FR2_2L13	Clinker transport (2L20, 2L08)	346,538	3,285,777	190.0	300	9.1	1.46	0.14
FR2_2L15	Clinker transport (2L20, 2L01, 2L08, 2L09)	346,546	3,285,756	189.5	300	20.9	1.36	0.28
FR2_2L16	Clinker transport (2L01, 2L20)	346,554	3,285,726	189.5	300	13.9	1.36	0.19
FR2_2L18	Clinker into quadrated silo	346,522	3,285,753	189.5	212	13.9	1.36	0.21
FR2_2M07	Clinker from quadrated silo	346,526	3,285,730	16.5	212	13.9	1.36	0.21
FR2_2M08	Clinker/additives to Mill #2	346,526	3,285,717	44.0	212	13.9	1.36	0.21
FR2_2N93	Finish mill #2 air separator	346,528	3,285,669	130.7	158	14.7	7.50	6.43
FR2_2N94	Finish mill #2	346,538	3,285,691	130.7	203	14.2	4.00	1.64
FR2_2N91	Airlift to separator	346,539	3,285,669	44.5	200	18.3	1.46	0.32
FR2_2N36	Cement to fringe silo	346,544	3,285,659	63.8	130	15.7	1.29	0.24
FR2_2Q25	Cement to silo #6	346,657	3,285,776	191.6	150	11.4	2.61	0.70
FR2_2Q26	Cement to silo #7	346,672	3,285,779	191.6	150	11.4	2.61	0.70
FR2_2Q14	Loadout from silos 6/7	346,661	3,285,771	29.8	150	8.6	1.50	0.17
FR2_2S17	Coal mill #2	346,484	3,285,727	197.8	150	1.9	9.00	1.67
FR2_2S21	Pulverized coal bin	346,515	3,285,729	68.0	150	7.5	1.31	0.15

[a] Derived from Koogler & Associates November 8, 2004 PSD analysis for Florida Rock Industries, Inc.

APPENDIX C

SAC GEP ANALYSIS FOR PSD AND NAAQS

BEE-Line Software Version: 9.30

Input File - SAC_PSDPM10.GPW

Input File - SAC_PSDPM10.PIP

Output File - SAC_PSDPM10.TAB

**** Output File - SAC_PSDPM10.SUM ****

Output File - SAC_PSDPM10.SO

BPIP (Dated: 04112)

DATE : 2/ 9/2005
TIME : 16:16:39
C:\050430.0001\SAC_PSDPM10.bst BEESTWin GEP Files 2/9/2005 4:16:39 PM

==========
BPIP PROCESSING INFORMATION:
==========

The ST flag has been set for preparing downwash data for an ISCST run.

Inputs entered in METERS will be converted to meters using a conversion factor of 1.0000. Output will be in meters.

The UTMP variable is set to UTMY. The input is assumed to be in UTM coordinates. BPIP will move the UTM origin to the first pair of UTM coordinates read. The UTM coordinates of the new origin will be subtracted from all the other UTM coordinates entered to form this new local coordinate system.

Plant north is set to 0.00 degrees with respect to True North.

C:\050430.0001\SAC_PSDPM10.bst BEESTWin GEP Files 2/9/2005 4:16:39 PM

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
E21_01	96.01	0.00	144.26	144.26
E28_01	17.07	0.10	152.43	152.43
G07_01	73.76	0.00	152.53	152.53
H08_01	15.24	-0.10	152.63	152.63
L03_01	11.28	-0.10	142.47	142.47
L06_01	58.52	-0.10	142.34	142.34
M08_01	5.79	-0.20	142.44	142.44

S21_01	18.29	-0.10	144.12	144.12
K15_01	65.23	-0.10	142.34	142.34
E34_01	15.24	-0.10	152.63	152.63
H08A_01	10.67	-0.20	152.73	152.73
U05_01	36.58	0.20	144.06	144.06
N09_01	53.34	-0.20	142.44	142.44
N12_01	39.93	-0.20	142.44	142.44
N36_01	19.81	-0.20	142.44	142.44
N91_01	14.33	-0.20	142.44	142.44
P03_01	16.46	-0.20	142.44	142.44
P11_01	59.44	-0.20	142.44	142.44
Q14_01	8.84	-0.20	142.44	142.44
Q17_01	11.89	-0.20	142.44	142.44
Q24_01	17.37	-0.20	142.44	142.44
S17_01	30.48	0.00	143.66	143.66
E28_02	17.07	0.00	152.53	152.53
E34_02	15.24	-0.20	152.73	152.73
G07_02	73.76	-0.10	152.63	152.63
H08_02	15.24	-0.20	152.73	152.73
H08A_02	10.67	-0.20	152.73	152.73
U05_02	36.58	0.20	144.06	144.06
E21_02	96.01	0.10	151.81	151.81
L03_02	11.28	-0.20	151.90	151.90
L06_02	58.52	0.10	146.79	146.79
L25_02	24.99	-0.10	143.28	143.28
M08_02	5.79	0.00	145.68	145.68
M09_02	3.05	-0.10	143.42	143.42
N09_02	53.34	-0.20	142.44	142.44
N12_02	53.34	-0.20	142.44	142.44
N36_02	19.81	-0.20	142.44	142.44
N91_02	14.33	-0.20	142.44	142.44
P03_02	16.46	-0.20	142.44	142.44
P11_02	59.44	-0.20	142.44	142.44
Q17_02	11.89	-0.20	142.44	142.44
S17_02	30.48	0.00	144.26	144.26
S21_02	18.29	0.00	144.26	144.26

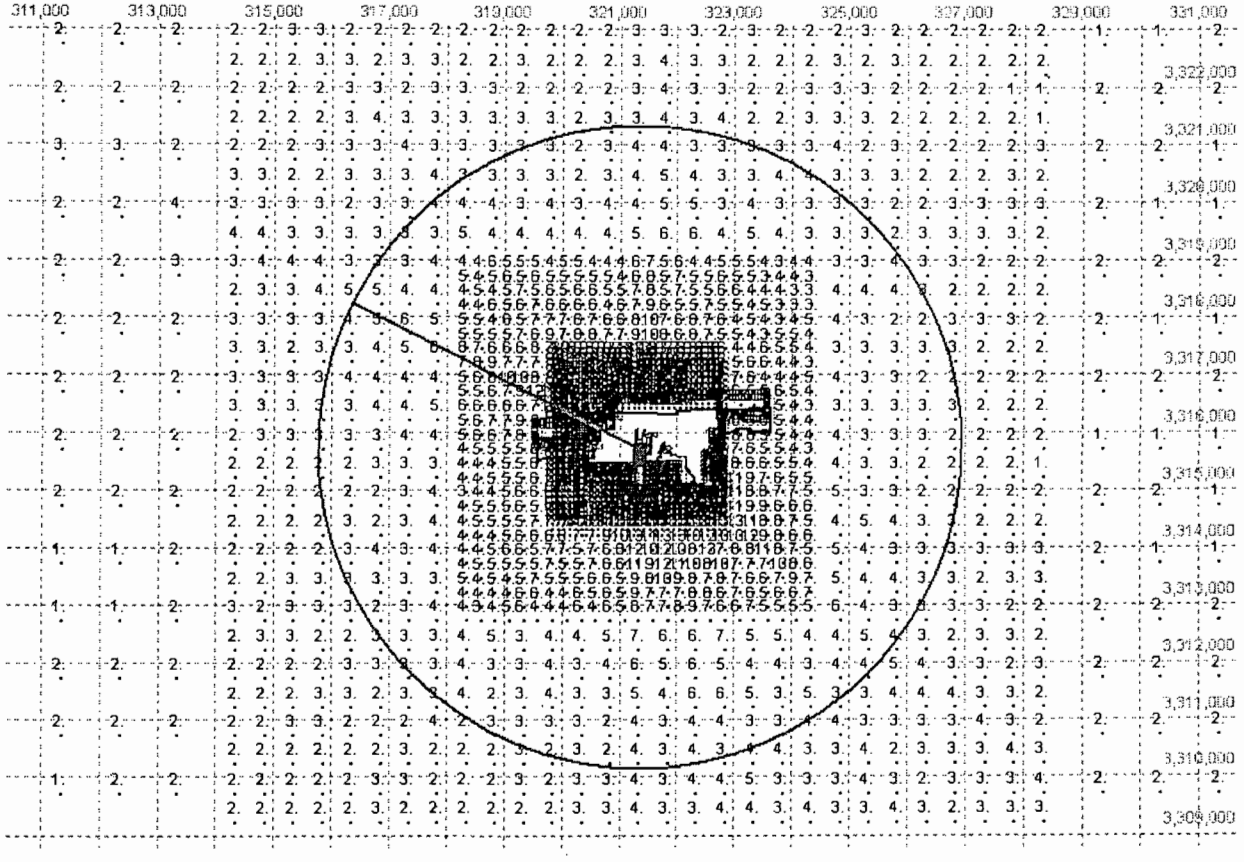
* Results are based on Determinants 1 & 2 on pages 1 & 2 of the GEP Technical Support Document. Determinant 3 may be investigated for additional stack height credit. Final values result after Determinant 3 has been taken into consideration.

** Results were derived from Equation 1 on page 6 of GEP Technical Support Document. Values have been adjusted for any stack-building base elevation differences.

Note: Criteria for determining stack heights for modeling emission limitations for a source can be found in Table 3.1 of the GEP Technical Support Document.

APPENDIX D

SIGNIFICANT IMPACT AREA FOR PM_{10}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APPENDIX E

POTENTIAL EMISSION INCREASES

Emission Increases										
EU No.	EU Description	PM tons/yr	PM_{10} tons/yr	SO_2 tons/yr	NO_X tons/yr	CO tons/yr	VOC tons/yr	HCl tons/yr	Lead tons/yr	Mercury tons/yr
	Contemporaneous Point Sources									
2-1	Raw Material Processing	1.75	1.49							
	New Point Sources									
2-2	Raw Material Processing	8.03	6.83							
4-2	Kiln System	116.30	98.41	142.49	1,055.47	2,110.93	63.33	15.38	0.040	0.061
6-2	Clinker & Cement Processing	65.11	55.34							
8-2	Coal Mill System	8.23	7.00							
10-2	Emergency Generator	0.07	0.06	0.55	2.31	0.43	0.08			
	Modified Fugitive Sources									
1	Primary Crushing & Stone Conveyors	2.96	1.37							
3	Raw Material Conveying	0.47	0.22							
9	Coal Conveying	0.03	0.02							
11	Storage Piles	0.23	0.11							
12	Plant Roads - Paved	20.99	4.07							
13	Quarry Roads - Unpaved	4.49	1.28							
	Total	228.67	176.19	143.04	1,057.78	2,111.37	63.41	15.378	0.040	0.061

Emission Rate Increases

EU No.	EU Description	PM lb/hr	PM_{10} lb/hr	SO_2 lb/hr	NO_X lb/hr	CO lb/hr	VOC lb/hr	HCl lb/hr	Lead lb/hr	Mercury lb/hr
	Contemporaneous Point Sources									
2-1	Raw Material Processing	0.40	0.34							
	New Point Sources									
2-2	Raw Material Processing	1.83	1.56							
4-2	Kiln System	27.95	23.65	34.24	253.60	507.20	15.22	7.37	0.010	0.015
6-2	Clinker & Cement Processing	14.87	12.64							
8-2	Coal Mill System	1.88	1.60							
10-2	Emergency Generator	0.48	0.43	3.79	15.90	2.97	0.55			
	Modified Fugitive Sources									
1	Primary Crushing & Stone Conveyors	0.68	0.31							
3	Raw Material Conveying	0.11	0.05							
9	Coal Conveying	0.01	0.00							
11	Storage Piles	0.05	0.02							
12	Plant Roads - Paved	4.79	0.93							
13	Quarry Roads - Unpaved	1.03	0.29							
	Total	**54.07**	**41.82**	**38.03**	**269.50**	**510.17**	**15.77**	**7.37**	**0.010**	**0.015**
	Total Without Emergency Generator*	**53.59**	**41.39**	**34.24**	**253.60**	**507.20**	**15.22**	**7.37**	**0.010**	**0.015**

* Emissions from the generator would only occur during a power outage (other sources would be shut down) or for short-term testing

Throughput Data

Material	Existing Throughput (tons/yr)	Proposed Throughput (tons/yr)	Increase (tons/yr)	Existing Rate (tons/hr)	Proposed Rate (tons/hr)	Increase (tons/hr)	Comments
Limestone crushed	1,679,000	3,450,000	1,771,000	NA	NA	NA	
Base Rock	44,384	100,000	55,616	NA	NA	NA	Quarry sales
Limestone - raw material	1,634,616	3,350,000	1,715,384	NA	NA	NA	
Sand	31,956	72,000	40,044	NA	NA	NA	
Iron Ore	31,956	72,000	40,044	NA	NA	NA	
Fly Ash	199,728	450,000	250,272	NA	NA	NA	
Raw Material Total	1,898,257	3,944,000	2,045,743	NA	NA	NA	
Coal Total	127,896	277,896	150,000	NA	NA	NA	
Coal Auxillary Storage	19,184	37,500	18,316	NA	NA	NA	15% of coal
Raw Mill - Kiln 1	1,352,728	1,352,728	-	NA	NA	NA	
Raw Mill - Kiln 2	0	1,695,060	1,695,060	NA	NA	NA	
Kiln 1 Preheater Feed	1,427,880	1,427,880	-	178	178	-	Includes recycle
Kiln 2 Preheater Feed	0	1,789,230	1,789,230	0	215	215	Includes recycle
Total Kiln Feed	1,427,880	3,217,110	1,789,230	178	393	215	
Clinker - Kiln 1	839,500	839,500	-	105	105	-	
Clinker - Kiln 2	0	1,055,467	1,055,467	0	126.8	126.8	
Total Clinker	839,500	1,894,967	1,055,467	105	231.8	126.8	
Gypsum	75,000	150,000	75,000	NA	NA	NA	
Cement - Mill 1	1,191,360	1,191,360	-	150	150	-	
Cement - Mill 2	0	1,191,360	1,191,360	0	175	175	
Total Cement	1,191,360	2,382,720	1,191,360	150	325	175	

Existing PM Emission Points (No Emissions Increase)

														Stack Parameters >>			
EU No.	Equip. No.	Description	Flow ACFM	Temp. deg F	Moisture %	Flow DSCFM	Operating Hours	PM gr/dscf	PM-10 gr/dscf	PM lb/hr	PM-10 lb/hr	PM tons/yr	PM-10 tons/yr	Height ft	Diam. ft	Velocity fpm	Orien-tation
2	E28-01	Aeropol @ Homogenizing Silo	3,000	300	2%	2,043	0	0.01	0.0085	0.00	0.00	0.00	0.00	56	1.0	3820	H
2	E34-01	Off Spec. Feed Handling	2,000	300	2%	1,362	0	0.01	0.0085	0.00	0.00	0.00	0.00	50	1.0	2546	H
2	G07-01	Homogenizing Silo Inlet	15,000	200	2%	11,760	0	0.01	0.0085	0.00	0.00	0.00	0.00	242	2.2	3946	H
2	H08-01	Poldos Homogenizing Silo Outlet	2,000	200	2%	1,568	0	0.01	0.0085	0.00	0.00	0.00	0.00	50	1.0	2546	H
2	**Subtotal Raw Material Processing**		**22,000**			**16,732**				**0.00**	**0.00**	**0.00**	**0.00**				
4	E21-01	Kiln/Raw Mill Baghouse Stack	220,000	215	15%	146,276	0	N/A	N/A	0.0	0.0	0.00	0.00	315	9.42	3157	V
4	**Subtotal Kiln System**		**220,000**			**146,276**				**0.00**	**0.00**	**0.00**	**0.00**				
5	K15-01	Clinker Cooler ESP Stack	160,000	300	10%	100,042	0	N/A	N/A	0.0	0.0	0.00	0.00	214	7.0	4158	V
5	**Subtotal Clinker Cooler**		**160,000**			**100,042**				**0.00**	**0.00**	**0.00**	**0.00**				
6	L03-01	Clinker Cooler Con./Breaker	3,000	300	2%	2,043	0	0.01	0.0085	0.00	0.00	0.00	0.00	37	1.0	3820	H
6	L06-01	Clinker Silo, Inlet	11,390	300	2%	7,755	0	0.01	0.0085	0.00	0.00	0.00	0.00	192	1.1	11985	H
6	L25-01	Relocated/Mod (see New Points)	0	90	2%	0	0	0.01	0.0085	0.00	0.00	0.00	0.00	82	1.0	0	H
6	M08-01	Clinker Silo Outlet Conveyor	6,000	212	2%	4,620	0	0.01	0.0085	0.00	0.00	0.00	0.00	19	1.1	6314	H
6	M09-01	Relocated/Mod (see New Points)	0	90	2%	0	0	0.01	0.0085	0.00	0.00	0.00	0.00	10	1.1	0	H
6	N09-01	Finish Mill BH Sepol No.1 (W)	128,600	198	3%	100,097	0	0.01	0.0085	0.00	0.00	0.00	0.00	175	4.0	10234	V
6	N12-01	Finish Mill BH-Mill No.2 (E)	35,000	198	4.6%	26,793	0	0.01	0.0085	0.00	0.00	0.00	0.00	131	3.0	4951	V
6	N36-01	Fringe Cement Bin	4,000	130	2%	3,508	0	0.01	0.0085	0.00	0.00	0.00	0.00	65	1.4	2598	H
6	N91-01	Finish Mill Baghouse No. 3 (S)	6,000	200	2%	4,704	0	0.01	0.0085	0.00	0.00	0.00	0.00	47	1.4	3898	H
6	P03-01	Cement Transport Conveyor	3,000	130	2%	2,631	0	0.01	0.0085	0.00	0.00	0.00	0.00	54	1.0	3820	H
6	P11-01	Cement Silo Input	15,000	130	2%	13,155	0	0.01	0.0085	0.00	0.00	0.00	0.00	195	2.0	4775	H
6	Q14-01	Truck Load-out No. 1 (W)	3,000	130	2%	2,631	0	0.01	0.0085	0.00	0.00	0.00	0.00	29	1.0	3820	H
6	Q17-01	Truck Load-out No. 2 (E)	3,000	130	2%	2,631	0	0.01	0.0085	0.00	0.00	0.00	0.00	39	1.0	3820	H
6	Q24-01	Railcar Load-out	5,000	130	2%	4,385	0	0.01	0.0085	0.00	0.00	0.00	0.00	57	1.0	6366	H
6	**Subtotal Clinker & Cement Processing**		**222,990**			**174,953**				**0.00**	**0.00**	**0.00**	**0.00**				
8	S17-01	Coal Mill East/West BH	25,000	150	6.5%	20,233	0	0.01	0.0085	0.00	0.00	0.00	0.00	100	3.0	7074	V
8	S21-01	Pulverized Coal Bin	2,000	150	2%	1,697	0	0.01	0.0085	0.00	0.00	0.00	0.00	60	1.0	2546	H
8	**Subtotal Coal System**		**27,000**			**21,929**				**0.00**	**0.00**	**0.00**	**0.00**				
	Total Point Sources									**0.00**	**0.00**	**0.00**	**0.00**				

Permitted New PM Emission Points

													Stack Parameters >>			
EU No.	Equip. No.	Description	Flow ACFM	Temp. deg F	Moisture %	Flow DSCFM	Operating Hours	PM gr/dscf	PM-10 gr/dscf	PM lb/hr	PM-10 lb/hr	PM tons/yr	PM-10 tons/yr	Height ft	Diam. ft	Velocity fpm	Orien-tation
2	H08A-01	Hydrated Lime Silo*	2,700	140	2%	2,328	8,760	0.01	0.0085	0.20	0.17	0.87	0.74	35	1.2	2387	H
2	U05-01	Fly Ash Silo*	2,700	140	2%	2,328	8,760	0.01	0.0085	0.20	0.17	0.87	0.74	120	1.2	2387	H
2	**Subtotal Raw Material Processing**		**5,400**			**4,657**				**0.40**	**0.34**	**1.75**	**1.49**				
	Total Point Sources									**0.40**	**0.34**	**1.75**	**1.49**				

* Source is currently permitted but not yet constructed (contemporaneous emission increase)

Proposed New PM Emission Points

														Stack Parameters >>			
EU No.	Equip. No.	Description	Flow ACFM	Temp. deg F	Moisture %	Flow DSCFM	Operating Hours	PM gr/dscf	PM-10 gr/dscf	PM lb/hr	PM-10 lb/hr	PM tons/yr	PM-10 tons/yr	Height ft	Diam. ft	Velocity fpm	Orien-tation
2	E28-02	Raw Mill - Aeropol	3,000	300	2%	2,043	8,760	0.01	0.0085	0.18	0.15	0.77	0.65	56	1.0	3820	H
2	E34-02	Off Spec. Feed Handling	2,000	300	2%	1,362	8,760	0.01	0.0085	0.12	0.10	0.51	0.43	50	1.0	2546	H
2	G07-02	Homogenizing Silo Inlet	15,000	200	2%	11,760	8,760	0.01	0.0085	1.01	0.86	4.42	3.75	242	2.2	3946	H
2	H08-02	Poldos Homogenizing Silo Outlet	2,000	200	2%	1,568	8,760	0.01	0.0085	0.13	0.11	0.59	0.50	50	1.0	2546	H
2	H08A-02	Hydrated Lime Silo	2,700	140	2%	2,328	8,760	0.01	0.0085	0.20	0.17	0.87	0.74	35	1.2	2387	H
2	U05-02	Fly Ash Silo	2,700	140	2%	2,328	8,760	0.01	0.0085	0.20	0.17	0.87	0.74	120	1.2	2387	H
2	**Subtotal Raw Material Processing**		**27,400**			**21,389**				**1.83**	**1.56**	**8.03**	**6.83**				
4	E21-02	Kiln/Raw Mill Baghouse Stack	333,000	215	15%	221,408	8,760	N/A	N/A	28.0	23.7	116.30	98.41	315	9.42	4778	V
4	**Subtotal Kiln System**		**333,000**			**221,408**				**27.95**	**23.65**	**116.30**	**98.41**				
6	L03-02	Clinker Pan Conveyor	3,000	300	2%	2,043	8,760	0.01	0.0085	0.18	0.15	0.77	0.65	37	1.0	3820	H
6	L06-02	Clinker Silo Inlet	11,390	300	2%	7,755	8,760	0.01	0.0085	0.66	0.56	2.91	2.47	192	1.1	11985	H
6	L25-02	Gyp/OS Clinker Transport (Relocated	6,000	90	2%	5,645	8,760	0.01	0.0085	0.48	0.41	2.12	1.80	82	1.0	7639	H
6	M08-02	Clinker Silo Outlet Conveyor	6,000	212	2%	4,620	8,760	0.01	0.0085	0.40	0.34	1.73	1.47	19	1.1	6314	H
6	M09-02	Gyp/OS Clinker Silo Outlet (Relocate	4,500	90	2%	4,234	8,760	0.01	0.0085	0.36	0.31	1.59	1.35	10	1.1	4735	H
6	N09-02	Finish Mill Separator	128,600	198	3%	100,097	8,760	0.01	0.0085	8.58	7.29	37.58	31.94	175	4.0	10234	V
6	N12-02	Finish Mill BH	35,000	198	4.6%	26,793	8,760	0.01	0.0085	2.30	1.95	10.06	8.55	175	3.0	4951	V
6	N36-02	Fringe Cement Bin	4,000	130	2%	3,508	8,760	0.01	0.0085	0.30	0.26	1.32	1.12	65	1.4	2598	H
6	N91-02	Finish Mill Baghouse No. 3 (S)	6,000	200	2%	4,704	8,760	0.01	0.0085	0.40	0.34	1.77	1.50	47	1.4	3898	H
6	P03-02	Cement Transport Conveyor	3,000	130	2%	2,631	8,760	0.01	0.0085	0.23	0.19	0.99	0.84	54	1.0	3820	H
6	P11-02	Cement Silos	10,000	130	2%	8,770	8,760	0.01	0.0085	0.75	0.64	3.29	2.80	195	2.0	3183	H
6	Q17-02	Truck Load-out No. 3	3,000	130	2%	2,631	8,760	0.01	0.0085	0.23	0.19	0.99	0.84	39	1.0	3820	H
6	**Subtotal Clinker & Cement Processing**		**220,490**			**173,430**				**14.87**	**12.64**	**65.11**	**55.34**				
8	S17-02	Coal Mill No. 1 & 2 BH	25,000	150	6.5%	20,233	8,760	0.01	0.0085	1.73	1.47	7.60	6.46	100	3.0	7074	V
8	S21-02	Pulverized Coal Bin	2,000	150	2%	1,697	8,760	0.01	0.0085	0.15	0.12	0.64	0.54	60	1.0	2546	H
8	**Subtotal Coal System**		**27,000**			**21,929**				**1.88**	**1.60**	**8.23**	**7.00**				
	Total Point Sources									**46.53**	**39.44**	**197.67**	**167.58**				

Kiln System Emissions

Hourly Emissions:

EU No.	EU Description	Kiln Feed lbs/hr	Clinker lbs/hr	PM lbs/hr	PM_{10} lbs/hr	SO2 lbs/hr	NO_X lbs/hr	CO lbs/hr	VOC lbs/hr	HCl lbs/hr	Lead lbs/hr	Mercury lbs/hr
4-1	Existing Kiln System	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000
4-2	New Kiln System	215	126.8	27.95	23.65	34.24	253.60	507.20	15.22	7.37	0.010	0.015
	Total	215	127	27.95	23.65	34.24	253.60	507.20	15.22	7.37	0.010	0.015

Annual Emissions:

EU No.	EU Description	Kiln Feed tons/yr	Clinker tons/yr	PM tons/yr	PM_{10} tons/yr	SO2 tons/yr	NO_X tons/yr	CO tons/yr	VOC tons/yr	HCl tons/yr	Lead tons/yr	Mercury tons/yr
4-1	Existing Kiln System	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000
4-2	New Kiln System	1,789,230	1,055,467	116.30	98.41	142.49	1,055.47	2,110.93	63.33	15.38	0.040	0.061
	Total	1,789,230	1,055,467	116.30	98.41	142.49	1,055.47	2,110.93	63.33	15.38	0.040	0.061

Emissions Basis:

Existing Kiln

Pollutant	Emission Factor	Emission Factor Units	Source of Emission Factor
PM	0.13	lb/ton dry feed	Existing permit/BACT
PM_{10}	0.11	lb/ton dry feed	Existing permit/BACT
SO_2	0.27	lb/ton clinker	Existing permit/BACT
NO_X	2.9	lb/ton clinker	Existing permit/BACT
CO	3.6	lb/ton clinker	Existing permit/BACT
VOC	0.12	lb/ton clinker	Existing permit/BACT
HCl (short term)	0.0581	lb/ton clinker	Stack test (mill off)
HCl (annual)	0.0291	lb/ton clinker	Stack test (80% mill on))
Lead	7.50E-05	lb/ton clinker	AP-42 Table 11.6-9
Mercury	1.16E-04	lb/ton clinker	Existing permit

Proposed Kiln

Pollutant	Emission Factor	Emission Factor Units	Source of Emission Factor
PM	0.13	lb/ton dry feed	Proposed BACT
PM_{10}	0.11	lb/ton dry feed	Proposed BACT
SO_2	0.27	lb/ton clinker	Proposed BACT
NO_X	2.0	lb/ton clinker	Proposed BACT
CO	4.0	lb/ton clinker	Proposed BACT
VOC	0.12	lb/ton clinker	Proposed BACT
HCl (short term)	0.0581	lb/ton clinker	Stack test (mill off)
HCl (annual)	0.0291	lb/ton clinker	Stack test (80% mill on))
Lead	7.50E-05	lb/ton clinker	AP-42 Table 11.6-9
Mercury	1.16E-04	lb/ton clinker	Existing permit

Clinker Cooler Emissions

EU No.	EU Description	Kiln Feed lbs/hr	Clinker lbs/hr	Kiln Feed tons/yr	Clinker tons/yr	PM lbs/hr	PM10 lbs/hr	PM tons/yr	PM10 tons/yr
5-1	Existing Clinker Cooler	0	0	0	0	0.00	0.00	0.00	0.00
N/A	New Clinker Cooler	215	126.8	1,789,230	1,055,467	0.00	0.00	0.00	0.00
	Total	215	127	1,789,230	1,055,467	0.00	0.00	0.00	0.00

Emissions Basis: Existing Cooler

Pollutant	Emission Factor	Emission Factor Units	Source of Emission Factor
PM	0.07	lb/ton dry feed	Existing permit/BACT
PM10	0.06	lb/ton dry feed	Existing permit/BACT

Note: Clinker cooler gases for the new kiln system will be vented through the raw mills and main kiln stack.

Emergency Generator Emissions

Hourly Emissions:

EU No.	EU Description	Size	Fuel Rate gal/hr	Heat Input MMBtu/hr	Output hp-hr	PM lbs/hr	PM_{10} lbs/hr	SO2 lbs/hr	NO_X lbs/hr	CO lbs/hr	VOC lbs/hr
10-1	Existing Generator	750 kW	0.0	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00
10-2	New Generator	750 kW	54.8	7.51	1,006	0.48	0.43	3.79	15.90	2.97	0.55
	Total		54.8	7.51	1,006	0.48	0.43	3.79	15.90	2.97	0.55

Annual Emissions:

EU No.	EU Description	Operating Hours	Fuel Rate gal/yr	Heat Input MMBtu/yr	Output hp-hr/yr	PM tons/yr	PM_{10} tons/yr	SO2 tons/yr	NO_X tons/yr	CO tons/yr	VOC tons/yr
10-1	Existing Generator	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00
10-2	New Generator	291	15,947	2,185	292,673	0.07	0.06	0.55	2.31	0.43	0.08
	Total	291	15,947	2,185	292,673	0.07	0.06	0.55	2.31	0.43	0.08

Notes: The emergency generators operate during testing and power outages only.
In the event of a power outage, fuel to the kiln is cut off and the generator is the only combustion source operating.
Generators are diesel fuel-fired. Assume 137,000 Btu/gal heat value of fuel and sulfur content of 0.5 percent.
Total diesel fuel consumed by both emergency generators will not exceed 32,000 gal/yr (permit exemption level).

Emissions Basis:

Pollutant	Emission Factor	EF Units	Source of EF
PM	0.215	lb/hp-hr	Generator specifications
PM_{10}	0.0573	lb/MMBtu	AP-42 Table 3.4-2
SO_2	0.505	lb/MMBtu	AP-42 Table 3.4-1
NO_X	7.17	lb/hp-hr	Generator specifications
CO	1.34	lb/hp-hr	Generator specifications
VOC	0.25	lb/hp-hr	Generator specifications

Material Conveying & Processing - Fugitive Emissions

Source Number	Description	Material	Throughput Increase: Annual Qty (ton/yr)	Throughput Increase: Moisture Content (%)	Emission Factor (lb/ton)	Emission Factor Reference	Number of Transfer Points	Control Efficiency (%)[1]	Control Type	Annual PM Emissions (tons/year)	PM10 Fraction	Annual PM10 Emissions (tons/year)	Hourly PM Emissions (lb/hr)	Hourly PM10 Emissions (lb/hr)
FQ1	**Quarry Crusher Area**													
	Loader to Crusher	Limestone	1,771,000	17	1.63E-04	AP-42 Section 13.2.4, 1/95	1			0.14	0.47	0.07	0.03	0.02
	Primary Crusher Operation	Limestone	1,771,000	17	1.20E-03	AP-42 Table 11.19.2-2, 8/0	1			1.06	0.45	0.48	0.24	0.11
	Conveyors B01 thru B08	Limestone	1,771,000	17	1.63E-04	AP-42 Section 13.2.4, 1/95	8			1.16	0.47	0.54	0.26	0.12
								Total		**2.36**		**1.09**	**0.54**	**0.25**
FQ2	**Quarry Conveyors**													
	B08 to B20	Limestone	1,771,000	17	1.63E-04	AP-42 Section 13.2.4, 1/95	1			0.14	0.47	0.07	0.03	0.02
	B20 to B21	Limestone	1,771,000	17	1.63E-04	AP-42 Section 13.2.4, 1/95	1			0.14	0.47	0.07	0.03	0.02
	B21 to B22	Limestone	1,771,000	17	1.63E-04	AP-42 Section 13.2.4, 1/95	1			0.14	0.47	0.07	0.03	0.02
	B22 to B24[2]	Base Rock	55,616	17	1.63E-04	AP-42 Section 13.2.4, 1/95	1			0.00	0.47	0.00	0.00	0.00
	B24 to B27[2]	Base Rock	55,616	17	1.63E-04	AP-42 Section 13.2.4, 1/95	1			0.00	0.47	0.00	0.00	0.00
	B27 to Radial Stacker[2]	Base Rock	55,616	17	1.63E-04	AP-42 Section 13.2.4, 1/95	1			0.00	0.47	0.00	0.00	0.00
	B22 to B40	Limestone	1,715,384	17	1.63E-04	AP-42 Section 13.2.4, 1/95	1			0.14	0.47	0.07	0.03	0.02
	B40 to C01	Limestone	1,715,384	17	1.63E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.01	0.47	0.01	0.00	0.00
								Total		**0.60**		**0.28**	**0.14**	**0.06**
FR1	**Raw Material Storage Building**													
	C01 to C02-01 (to piles)	Limestone	1,715,384	17	1.63E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.01	0.47	0.01	0.00	0.00
	Piles to reclaim belts	Limestone	1,715,384	10	3.43E-04	AP-42 Section 13.2.4, 1/95	1	60%	Enclosure	0.12	0.47	0.06	0.03	0.01
	Reclaim belts to D01-01	Limestone	1,715,384	10	3.43E-04	AP-42 Section 13.2.4, 1/95	1	60%	Enclosure	0.12	0.47	0.06	0.03	0.01
	Loader to Hopper	Iron Ore	40,044	6.5	6.27E-04	AP-42 Section 13.2.4, 1/95	1	60%	Enclosure	0.01	0.47	0.00	0.00	0.00
	Loader to Hopper	Sand	40,044	16	1.78E-04	AP-42 Section 13.2.4, 1/95	1	60%	Enclosure	0.00	0.47	0.00	0.00	0.00
	Hopper belt D03-01 to D01-01	Iron Ore, Sand	80,087	11.25	2.91E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.00	0.47	0.00	0.00	0.00
	D01-01 to D02-01 & D02-02	LS, Iron, Sand	1,795,471	10.1	3.40E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.03	0.47	0.01	0.01	0.00
								Total		**0.29**		**0.14**	**0.07**	**0.03**

Material Conveying & Processing - Fugitive Emissions

Source Number	Description	Material	Throughput Increase: Annual Qty (ton/yr)	Throughput Increase: Moisture Content (%)	Emission Factor (lb/ton)	Emission Factor Reference	Number of Transfer Points	Control Efficiency (%)[1]	Control Type	Annual PM Emissions (tons/year)	PM10 Fraction	Annual PM10 Emissions (tons/year)	Hourly PM Emissions (lb/hr)	Hourly PM10 Emissions (lb/hr)
FR2	**Fly Ash Storage Building**													
	Truck to Hopper	Fly Ash	250,272	21.5	1.17E-04	AP-42 Section 13.2.4, 1/95	1			0.01	0.47	0.01	0.00	0.00
	Hopper belt C12-01 to C13-01	Fly Ash	250,272	21.5	1.17E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.00	0.47	0.00	0.00	0.00
	C13-01 to C15-01 (to pile)	Fly Ash	250,272	21.5	1.17E-04	AP-42 Section 13.2.4, 1/95	1	60%	Enclosure	0.01	0.47	0.00	0.00	0.00
	Pile to reclaim	Fly Ash	250,272	21.5	1.17E-04	AP-42 Section 13.2.4, 1/95	1	60%	Enclosure	0.01	0.47	0.00	0.00	0.00
	Reclaim to D51-01	Fly Ash	250,272	21.5	1.17E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.00	0.47	0.00	0.00	0.00
								Total		**0.03**		**0.01**	**0.01**	**0.00**
FR3A	**Raw Storage Bins (Existing)**													
	D02-01 to Limestone Bin 01	Limestone	0	10	3.43E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.00	0.47	0.00	0.00	0.00
	D02-01 to D03-01	Iron Ore, Sand	0	11.25	2.91E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.00	0.47	0.00	0.00	0.00
	D03-01 to Sand Bin 01	Sand	0	16	1.78E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.00	0.47	0.00	0.00	0.00
	D03-01 to Iron Ore Bin 01	Iron Ore	0	6.5	6.27E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.00	0.47	0.00	0.00	0.00
	D51-01 to Fly Ash Bin 01	Fly Ash	0	21.5	1.17E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.00	0.47	0.00	0.00	0.00
	Limestone Feeder to D09-01	Limestone	0	10	3.43E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.00	0.47	0.00	0.00	0.00
	Sand Feeder to D13-01	Sand	0	16	1.78E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.00	0.47	0.00	0.00	0.00
	Iron Ore Feeder to D40-01	Iron Ore	0	6.5	6.27E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.00	0.47	0.00	0.00	0.00
	Fly Ash Feeder to D40-01	Fly Ash	0	21.5	1.17E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.00	0.47	0.00	0.00	0.00
	D40-01 to D41-01	Raw Mix	0	10	3.43E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.00	0.47	0.00	0.00	0.00
	D41-01 to Raw Mill 01	Raw Mix	0	10	3.43E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.00	0.47	0.00	0.00	0.00
								Total		**0.00**		**0.00**	**0.00**	**0.00**
FR3B	**Raw Storage Bins (New)**													
	D02-02 to Limestone Bin 02	Limestone	1,715,384	10	3.43E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.03	0.47	0.01	0.01	0.00
	D02-02 to D03-02	Iron Ore, Sand	80,087	11.25	2.91E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.00	0.47	0.00	0.00	0.00
	D03-02 to Sand Bin 02	Sand	40,044	16	1.78E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.00	0.47	0.00	0.00	0.00
	D03-02 to Iron Ore Bin 02	Iron Ore	40,044	6.5	6.27E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.00	0.47	0.00	0.00	0.00
	D51-02 to Fly Ash Bin 02	Fly Ash	250,272	21.5	1.17E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.00	0.47	0.00	0.00	0.00
	Limestone Feeder to D09-02	Limestone	1,715,384	10	3.43E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.03	0.47	0.01	0.01	0.00
	Sand Feeder to D13-02	Sand	40,044	16	1.78E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.00	0.47	0.00	0.00	0.00
	Iron Ore Feeder to D40-02	Iron Ore	40,044	6.5	6.27E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.00	0.47	0.00	0.00	0.00
	Fly Ash Feeder to D40-02	Fly Ash	250,272	21.5	1.17E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.00	0.47	0.00	0.00	0.00
	D40-01 to D41-02	Raw Mix	2,045,743	10	3.43E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.04	0.47	0.02	0.01	0.00
	D41-01 to Raw Mill 02	Raw Mix	2,045,743	10	3.43E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.04	0.47	0.02	0.01	0.00
								Total		**0.14**		**0.06**	**0.03**	**0.01**

Material Conveying & Processing - Fugitive Emissions

Source Number	Description	Material	Throughput Increase: Annual Qty (ton/yr)	Throughput Increase: Moisture Content (%)	Emission Factor (lb/ton)	Emission Factor Reference	Number of Transfer Points	Control Efficiency (%)[1]	Control Type	Annual PM Emissions (tons/year)	PM10 Fraction	Annual PM10 Emissions (tons/year)	Hourly PM Emissions (lb/hr)	Hourly PM10 Emissions (lb/hr)
FR4	**Gypsum Transfer**													
	Loader to Hopper	Gypsum	75,000	8.5	4.31E-04	AP-42 Section 13.2.4, 1/95	1			0.02	0.47	0.01	0.00	0.00
	Hopper Belt to Elevator	Gypsum	75,000	8.5	4.31E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.00	0.47	0.00	0.00	0.00
								Total		**0.02**		**0.01**	**0.00**	**0.00**
FF1	**Coal Handling**													
	Truck to Hopper	Coal	150,000	8	4.69E-04	AP-42 Section 13.2.4, 1/95	1	60%	Enclosure	0.01	0.47	0.01	0.00	0.00
	Hopper Belt S02 to S03-10	Coal	150,000	8	4.69E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.00	0.47	0.00	0.00	0.00
	Loader to Hopper (to S03-10)	Coal	18,316	8	4.69E-04	AP-42 Section 13.2.4, 1/95	1			0.00	0.47	0.00	0.00	0.00
	S03-10 to Elevator S05-01	Coal	168,316	8	4.69E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.00	0.47	0.00	0.00	0.00
	Elev S05-01 to Coal Bins 01	Coal	0	8	4.69E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.00	0.47	0.00	0.00	0.00
	Elev S05-01 to Coal Conv 02	Coal	150,000	8	4.69E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.00	0.47	0.00	0.00	0.00
	Coal Conv 02 to Coal Bins 02	Coal	150,000	8	4.69E-04	AP-42 Section 13.2.4, 1/95	1	90%	Enclosure	0.00	0.47	0.00	0.00	0.00
								Total		**0.03**		**0.02**	**0.01**	**0.00**
								Total		**3.47**		**1.61**	**0.79**	**0.37**

Notes:

[1] A control efficiency of 60% was used to account for reduction of fugitives due to building enclosures

A control efficiency of 90% was used to account for reduction of fugitives due to enclosed conveyor transfer points, enclosed bins, and below ground transfer

[2] Base rock conveyors and stacker only operate when limestone for cement is not being processed

Storage Piles - Fugitive Emissions

ID NO.	Description	Material	Surface Area (Acres)	Active Days (n) (days/yr)	Silt Content (s) percent	Material Moisture (%)	Throughput Increase (T/yr)	Average Wind Speed (mph)	Wind Speed > 12 mph (f) percent	Rain Days (p) (days/yr)	Enclosure Control Efficiency (%)	TSP Transfer Factor (lb/Ton)	TSP Transfer Emissions (T/yr)	TSP Wind Emissions (T/yr)	PM10 Transfer Factor (lb/Ton)	PM10 Transfer Emissions (T/yr)	PM10 Wind Emissions (T/yr)
SP1	Stone Pile	Limestone	3.0	365	3.9	17	1,771,000	6.4	0.00	129	0	1.63E-04	0.14	0.00	7.72E-05	0.07	0.00
SP2	Base Rock Pile	Limestone	3.0	365	3.9	17	55,616	6.4	0.00	129	0	1.63E-04	0.00	0.00	7.72E-05	0.00	0.00
SP3	Limestone Storage	Limestone	2.0	365	3.9	17	1,715,384	6.4	0.00	0	60	1.63E-04	0.06	0.00	7.72E-05	0.03	0.00
SP4	Sand Storage	Sand	0.2	365	2.6	16	40,044	6.4	0.00	0	60	1.78E-04	0.00	0.00	8.40E-05	0.00	0.00
SP5	Iron Ore Storage	Iron Ore	0.2	365	3.8	6.5	40,044	6.4	0.00	0	60	6.27E-04	0.01	0.00	2.96E-04	0.00	0.00
SP6	Ash Storage	Fly Ash	0.5	365	8.0	21.5	250,272	6.4	0.00	0	60	1.17E-04	0.01	0.00	5.55E-05	0.00	0.00
SP7	Gypsum Storage	Gypsum	0.2	365	3.9	8.5	75,000	6.4	0.00	0	60	4.31E-04	0.01	0.00	2.04E-04	0.00	0.00
SP8	Coal Storage	Coal	0.3	365	4.6	8	18,316	6.4	0.00	0	60	4.69E-04	0.00	0.00	2.22E-04	0.00	0.00
												TOTALS	0.23	0.00		0.11	0.00

NOTES: Above emissions include material transfer onto the piles. There is no increase in wind erosion from storage piles.

Material transfer to piles
TSP transfer factors from AP-42 Section 13.2.4-3 (Aggregate Handling and Storage Piles, 1/95).

E = k * 0.0032 * (U/5)^1.3 / (M/2)^1.4

E = transfer emission factor (lb/ton)
k = particle size multiplier — k (<30 um) = 0.74
U = mean wind speed (mph) — k (<10 um) = 0.35
M = material moisture content (%)

Wind Erosion
Reference: Control of Open Fugitive Dust Sources, EPA-450/3-88-008, p. 4-17

Ef = 1.7*(s/1.5)*(f/15)*((365-p)/235)*(1-(C/100)) — TSP (lbs/acre/day)
E = A*n*Ef/2000 — TSP (tons/yr)
PM10 fraction = 0.5

Typical silt contents of materials from AP-42 Table 13.2.4-1

s = Silt content of the aggregate (%)
f = Percent of time that the unobstructed wind speed exceeds 12 mph at the mean pile height
p = Number of days with >= 0.01 in. of precipitation per year
C = Overall control efficiency (%)
A = Size of the pile (acres)
n = Number of days per year the pile is continuously active

Storage Piles - Fugitive Emissio

ID NO.	Description	Material	TSP Total Emissions (T/yr)	PM10 Total Emissions (T/yr)	TSP Hourly Emissions (lb/hr)	PM10 Hourly Emissions (lb/hr)
SP1	Stone Pile	Limestone	0.14	0.07	0.033	0.016
SP2	Base Rock Pile	Limestone	0.00	0.00	0.001	0.000
SP3	Limestone Storage	Limestone	0.06	0.03	0.013	0.006
SP4	Sand Storage	Sand	0.00	0.00	0.000	0.000
SP5	Iron Ore Storage	Iron Ore	0.01	0.00	0.001	0.001
SP6	Ash Storage	Fly Ash	0.01	0.00	0.001	0.001
SP7	Gypsum Storage	Gypsum	0.01	0.00	0.001	0.001
SP8	Coal Storage	Coal	0.00	0.00	0.000	0.000
			0.23	**0.11**	**0.05**	**0.02**

NOTES:

Paved Road Emission Summary

Segment No.	Segment Length (mi)	Silt Loading (g/m2)	Material Trips (#/yr)	Total Mileage (Mi/yr)	Maximum Annual Emissions: TSP E Factor lb/VMT	Maximum Annual Emissions: PM10 E Factor lb/VMT	Maximum Annual Emissions: TSP Emissions (Ton/yr)	Maximum Annual Emissions: PM10 Emissions (Ton/yr)	Hourly Emissions: TSP Emissions (lb/hr)	Hourly Emissions: PM10 Emissions (lb/hr)
1A	0.42	0.15	184,826	77,627	0.27	0.05	10.30	2.00	2.352	0.456
1	0.42	0.15	88,177	37,034	0.29	0.06	5.46	1.06	1.246	0.242
2	0.03	0.15	24,611	1,477	0.11	0.02	0.08	0.02	0.019	0.004
3	0.16	0.15	24,611	5,539	0.18	0.03	0.50	0.10	0.114	0.022
4	0.21	0.15	14,600	3,066	0.01	0.00	0.01	0.00	0.002	0.000
5	0.20	0.15	10,011	4,004	0.38	0.07	0.77	0.15	0.176	0.034
6	0.09	0.15	88,177	7,936	0.29	0.06	1.17	0.23	0.267	0.052
7	0.02	0.15	63,566	1,590	0.23	0.04	0.18	0.04	0.042	0.008
8	0.07	0.15	59,858	5,044	0.22	0.04	0.57	0.11	0.130	0.025
9	0.08	0.15	47,654	3,812	0.38	0.07	0.73	0.14	0.167	0.033
10	0.06	0.15	12,203	1,464	0.38	0.07	0.28	0.05	0.064	0.012
11	0.08	0.15	3,000	480	0.38	0.07	0.09	0.02	0.021	0.004
12	0.02	0.15	3,203	128	0.38	0.07	0.02	0.00	0.006	0.001
13	0.11	0.15	6,000	660	0.38	0.07	0.13	0.02	0.029	0.006
14	0.21	0.15	3,708	1,557	0.28	0.06	0.22	0.04	0.051	0.010
15	0.27	0.15	3,708	1,001	0.28	0.06	0.14	0.03	0.033	0.006
16	0.03	0.15	10,000	600	0.41	0.08	0.12	0.02	0.028	0.005
17	0.12	0.15	3,000	360	0.41	0.08	0.07	0.01	0.017	0.003
18	0.06	0.15	10,678	641	0.41	0.08	0.13	0.03	0.030	0.006
TOTAL	1.97			154,021			20.99	4.07	4.79	0.93

Paved Road Segments

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Truck Weights Loaded (Tons)	Truck Weights Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
1A	0.42	Coal/Fuels	0.15	15	25	40	27.5		X	27.5	25	277,896	11,116	0	4,669	4,669	128,388				
1A	0.42	Flyash	0.15	15	25	40	27.5		X	27.5	25	450,000	18,000	0	7,560	7,560	207,900				
1A	0.42	Sand, Iron Ore	0.15	15	25	40	27.5		X	27.5	25	144,000	5,760	0	2,419	2,419	66,528				
1A	0.42	Gypsum	0.15	15	25	40	27.5		X	27.5	25	150,000	6,000	0	2,520	2,520	69,300				
1A	0.42	Cement	0.15	15	25	40	27.5	X		27.5	25	2,382,720	95,309	40,030	0	40,030	1,100,817				
1A	0.42	Base Rock (Limestone)	0.15	15	15	30	22.5	X		22.5	15	100,000	6,667	2,800	0	2,800	63,000				
1A	0.42	Employee Vehicles	0.15	1.75	0	1.75	1.75	X		1.8	0	41,975	41,975	17,630	0	17,630	30,852				
1A	0.42	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
1A	0.42	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					72,000	0	0	0	0					
1A	0.42	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					150,000	0	0	0	0					
1A	0.42	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					41,684	0	0	0	0					
1A	0.42	SUBTOTAL	0.15							21.5			184,826	60,459	17,168	77,627	1,666,784	0.27	0.05	10.30	2.00

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Truck Weights Loaded (Tons)	Truck Weights Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
1	0.42	Coal/Fuels	0.15	15	25	40	27.5	X		27.5	25	150,000	6,000	2,520	0	2,520	69,300				
1	0.42	Flyash	0.15	15	25	40	27.5	X		27.5	25	250,272	10,011	4,205	0	4,205	115,626				
1	0.42	Sand, Iron Ore	0.15	15	25	40	27.5	X		27.5	25	80,087	3,203	1,345	0	1,345	37,000				
1	0.42	Gypsum	0.15	15	25	40	27.5	X		27.5	25	75,000	3,000	1,260	0	1,260	34,650				
1	0.42	Cement	0.15	15	25	40	27.5		X	27.5	25	1,191,360	47,654	0	20,015	20,015	550,408				
1	0.42	Base Rock (Limestone)	0.15	15	15	30	22.5		X	22.5	15	55,616	3,708	0	1,557	1,557	35,038				
1	0.42	Employee Vehicles	0.15	1.75	0	1.75	1.75		X	1.8	0	14,600	14,600	0	6,132	6,132	10,731				
1	0.42	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
1	0.42	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
1	0.42	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
1	0.42	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
1	0.42	SUBTOTAL	0.15							23.0			88,177	9,330	27,704	37,034	852,753	0.29	0.06	5.46	1.06

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Truck Weights Loaded (Tons)	Truck Weights Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
2	0.03	Coal/Fuels	0.15	15	25	40	27.5					150,000	0	0	0	0					
2	0.03	Flyash	0.15	15	25	40	27.5	X	X	27.5	25	250,272	10,011	300	300	601	16,518				
2	0.03	Sand, Iron Ore	0.15	15	25	40	27.5					80,087	0	0	0	0					
2	0.03	Gypsum	0.15	15	25	40	27.5					75,000	0	0	0	0					
2	0.03	Cement	0.15	15	25	40	27.5					1,191,360	0	0	0	0					
2	0.03	Base Rock (Limestone)	0.15	15	15	30	22.5					55,616	0	0	0	0					
2	0.03	Employee Vehicles	0.15	1.75	0	1.75	1.75	X	X	1.8	0	14,600	14,600	438	438	876	1,533				
2	0.03	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
2	0.03	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
2	0.03	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
2	0.03	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
2	0.03	SUBTOTAL	0.15							12.2			24,611	738	738	1,477	18,051	0.11	0.02	0.08	0.02

Paved Road Segments

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Truck Weights Loaded (Tons)	Truck Weights Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
3	0.16	Coal/Fuels	0.15	15	25	40	27.5					150,000	0	0	0	0					
3	0.16	Flyash	0.15	15	25	40	27.5	X	X	27.5	25	250,272	10,011	1,602	1,602	3,203	88,096				
3	0.16	Sand, Iron Ore	0.15	15	25	40	27.5					80,087	0	0	0	0					
3	0.16	Gypsum	0.15	15	25	40	27.5					75,000	0	0	0	0					
3	0.16	Cement	0.15	15	22	37	26					1,191,360	0	0	0	0					
3	0.16	Base Rock (Limestone)	0.15	15	15	30	22.5					55,616	0	0	0	0					
3	0.16	Employee Vehicles	0.15	1.75	0	1.75	1.75		X	1.8	0	14,600	14,600	0	2,336	2,336	4,088				
3	0.16	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
3	0.16	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
3	0.16	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
3	0.16	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
3	0.16	SUBTOTAL	0.15							16.6			24,611	1,602	3,938	5,539	92,184	0.18	0.03	0.50	0.10

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Truck Weights Loaded (Tons)	Truck Weights Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
4	0.21	Coal/Fuels	0.15	15	25	40	27.5					150,000	0	0	0	0					
4	0.21	Flyash	0.15	15	25	40	27.5					250,272	0	0	0	0					
4	0.21	Sand, Iron Ore	0.15	15	25	40	27.5					80,087	0	0	0	0					
4	0.21	Gypsum	0.15	15	25	40	27.5					75,000	0	0	0	0					
4	0.21	Cement	0.15	15	25	40	27.5					1,191,360	0	0	0	0					
4	0.21	Base Rock (Limestone)	0.15	15	15	30	22.5					55,616	0	0	0	0					
4	0.21	Employee Vehicles	0.15	1.75	0	1.75	1.75		X	1.8	0	14,600	14,600	0	3,066	3,066	5,366				
4	0.21	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
4	0.21	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
4	0.21	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
4	0.21	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
4	0.21	SUBTOTAL	0.15							1.8			14,600	0	3,066	3,066	5,366	0.01	0.00	0.01	0.00

Paved Road Segments

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Truck Weights Loaded (Tons)	Truck Weights Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
5	0.20	Coal/Fuels	0.15	15	25	40	27.5					150,000	0	0	0	0					
5	0.20	Flyash	0.15	15	25	40	27.5	X	X	27.5	25	250,272	10,011	2,002	2,002	4,004	110,120				
5	0.20	Sand, Iron Ore	0.15	15	25	40	27.5					80,087	0	0	0	0					
5	0.20	Gypsum	0.15	15	25	40	27.5					75,000	0	0	0	0					
5	0.20	Cement	0.15	15	25	40	27.5					1,191,360	0	0	0	0					
5	0.20	Base Rock (Limestone)	0.15	15	15	30	22.5					55,616	0	0	0	0					
5	0.20	Employee Vehicles	0.15	1.75	0	1.75	1.75					14,600	0	0	0	0					
5	0.20	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
5	0.20	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
5	0.20	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
5	0.20	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
5	0.20	SUBTOTAL	0.15							27.5			10,011	2,002	2,002	4,004	110,120	0.38	0.07	0.77	0.15

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Truck Weights Loaded (Tons)	Truck Weights Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
6	0.09	Coal/Fuels	0.15	15	25	40	27.5		X	27.5	25	150,000	6,000	0	540	540	14,850				
6	0.09	Flyash	0.15	15	25	40	27.5		X	27.5	25	250,272	10,011	0	901	901	24,777				
6	0.09	Sand, Iron Ore	0.15	15	25	40	27.5		X	27.5	25	80,087	3,203	0	288	288	7,929				
6	0.09	Gypsum	0.15	15	25	40	27.5		X	27.5	25	75,000	3,000	0	270	270	7,425				
6	0.09	Cement	0.15	15	25	40	27.5		X	27.5	25	1,191,360	47,654	0	4,289	4,289	117,945				
6	0.09	Base Rock (Limestone)	0.15	15	15	30	22.5		X	22.5	15	55,616	3,708	0	334	334	7,508				
6	0.09	Employee Vehicles	0.15	1.75	0	1.75	1.75	X		1.8	0	14,600	14,600	1,314	0	1,314	2,300				
6	0.09	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
6	0.09	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
6	0.09	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
6	0.09	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
6	0.09	SUBTOTAL	0.15							23.0			88,177	1,314	6,622	7,936	182,733	0.29	0.06	1.17	0.23

Paved Road Segments

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
7	0.02	Coal/Fuels	0.15	15	25	40	27.5	X	X	27.5	25	150,000	6,000	120	120	240	6,600				
7	0.02	Flyash	0.15	15	25	40	27.5					250,272	0	0	0	0					
7	0.02	Sand, Iron Ore	0.15	15	25	40	27.5	X	X	27.5	25	80,087	3,203	64	64	128	3,524				
7	0.02	Gypsum	0.15	15	25	40	27.5	X	X	27.5	25	75,000	3,000	60	60	120	3,300				
7	0.02	Cement	0.15	15	25	40	27.5	X		15.0	25	1,191,360	47,654	953	0	953	14,296				
7	0.02	Base Rock (Limestone)	0.15	15	15	30	22.5	X	X	22.5	15	55,616	3,708	74	74	148	3,337				
7	0.02	Employee Vehicles	0.15	1.75	0	1.75	1.75					14,600	0	0	0	0					
7	0.02	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
7	0.02	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
7	0.02	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
7	0.02	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
7	0.02	SUBTOTAL	0.15							19.5			63,566	1,271	318	1,590	31,057	0.23	0.04	0.18	0.04

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
8	0.07	Coal/Fuels	0.15	15	25	40	27.5	X	X	27.5	25	150,000	6,000	420	420	840	23,100				
8	0.07	Flyash	0.15	15	25	40	27.5					250,272	0	0	0	0					
8	0.07	Sand, Iron Ore	0.15	15	25	40	27.5	X	X	27.5	25	80,087	3,203	224	224	448	12,333				
8	0.07	Gypsum	0.15	15	25	40	27.5	X	X	27.5	25	75,000	3,000	210	210	420	11,550				
8	0.07	Cement	0.15	15	25	40	27.5	X		15.0	25	1,191,360	47,654	3,336	0	3,336	50,037				
8	0.07	Base Rock (Limestone)	0.15	15	15	30	22.5					55,616	0	0	0	0					
8	0.07	Employee Vehicles	0.15	1.75	0	1.75	1.75					14,600	0	0	0	0					
8	0.07	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
8	0.07	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
8	0.07	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
8	0.07	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
8	0.07	SUBTOTAL	0.15							19.2			59,858	4,190	854	5,044	97,021	0.22	0.04	0.57	0.11

Paved Road Segments

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
9	0.08	Coal/Fuels	0.15	15	25	40	27.5					150,000	0	0	0	0					
9	0.08	Flyash	0.15	15	25	40	27.5					250,272	0	0	0	0					
9	0.08	Sand, Iron Ore	0.15	15	25	40	27.5					80,087	0	0	0	0					
9	0.08	Gypsum	0.15	15	25	40	27.5					75,000	0	0	0	0					
9	0.08	Cement	0.15	15	25	40	27.5		X	27.5	25	1,191,360	47,654	0	3,812	3,812	104,840				
9	0.08	Base Rock (Limestone)	0.15	15	15	30	22.5					55,616	0	0	0	0					
9	0.08	Employee Vehicles	0.15	1.75	0	1.75	1.75					14,600	0	0	0	0					
9	0.08	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
9	0.08	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
9	0.08	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
9	0.08	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
9	0.08	SUBTOTAL	0.15							27.5			47,654	0	3,812	3,812	104,840	0.38	0.07	0.73	0.14

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
10	0.06	Coal/Fuels	0.15	15	25	40	27.5	X	X	27.5	25	150,000	6,000	360	360	720	19,800				
10	0.06	Flyash	0.15	15	25	40	27.5					250,272	0	0	0	0					
10	0.06	Sand, Iron Ore	0.15	15	25	40	27.5	X	X	27.5	25	80,087	3,203	192	192	384	10,572				
10	0.06	Gypsum	0.15	15	25	40	27.5	X	X	27.5	25	75,000	3,000	180	180	360	9,900				
10	0.06	Cement	0.15	15	25	40	27.5					1,191,360	0	0	0	0					
10	0.06	Base Rock (Limestone)	0.15	15	15	30	22.5					55,616	0	0	0	0					
10	0.06	Employee Vehicles	0.15	1.75	0	1.75	1.75					14,600	0	0	0	0					
10	0.06	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
10	0.06	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
10	0.06	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
10	0.06	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
10	0.06	SUBTOTAL	0.15							27.5			12,203	732	732	1,464	40,272	0.38	0.07	0.28	0.05

Paved Road Segments

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
11	0.08	Coal/Fuels	0.15	15	25	40	27.5					150,000	0	0	0	0					
11	0.08	Flyash	0.15	15	25	40	27.5					250,272	0	0	0	0					
11	0.08	Sand, Iron Ore	0.15	15	25	40	27.5					80,087	0	0	0	0					
11	0.08	Gypsum	0.15	15	25	40	27.5	X	X	27.5	25	75,000	3,000	240	240	480	13,200				
11	0.08	Cement	0.15	15	25	40	27.5					1,191,360	0	0	0	0					
11	0.08	Base Rock (Limestone)	0.15	15	15	30	22.5					55,616	0	0	0	0					
11	0.08	Employee Vehicles	0.15	1.75	0	1.75	1.75					14,600	0	0	0	0					
11	0.08	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
11	0.08	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
11	0.08	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
11	0.08	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
11	0.08	SUBTOTAL	0.15							27.5			3,000	240	240	480	13,200	0.38	0.07	0.09	0.02

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
12	0.02	Coal/Fuels	0.15	15	25	40	27.5					150,000	0	0	0	0					
12	0.02	Flyash	0.15	15	25	40	27.5					250,272	0	0	0	0					
12	0.02	Sand, Iron Ore	0.15	15	25	40	27.5	X	X	27.5	25	80,087	3,203	64	64	128	3,524				
12	0.02	Gypsum	0.15	15	25	40	27.5					75,000	0	0	0	0					
12	0.02	Cement	0.15	15	25	40	27.5					1,191,360	0	0	0	0					
12	0.02	Base Rock (Limestone)	0.15	15	15	30	22.5					55,616	0	0	0	0					
12	0.02	Employee Vehicles	0.15	1.75	0	1.75	1.75					14,600	0	0	0	0					
12	0.02	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
12	0.02	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
12	0.02	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
12	0.02	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
12	0.02	SUBTOTAL	0.15							27.5			3,203	64	64	128	3,524	0.38	0.07	0.02	0.00

Paved Road Segments

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
13	0.11	Coal/Fuels	0.15	15	25	40	27.5		X	27.5	25	150,000	6,000	0	660	660	18,150				
13	0.11	Flyash	0.15	15	25	40	27.5					250,272	0	0	0	0					
13	0.11	Sand, Iron Ore	0.15	15	25	40	27.5					80,087	0	0	0	0					
13	0.11	Gypsum	0.15	15	25	40	27.5					75,000	0	0	0	0					
13	0.11	Cement	0.15	15	25	40	27.5					1,191,360	0	0	0	0					
13	0.11	Base Rock (Limestone)	0.15	15	15	30	22.5					55,616	0	0	0	0					
13	0.11	Employee Vehicles	0.15	1.75	0	1.75	1.75					14,600	0	0	0	0					
13	0.11	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
13	0.11	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
13	0.11	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
13	0.11	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
13	0.11	SUBTOTAL	0.15							27.5			6,000	0	660	660	18,150	0.38	0.07	0.13	0.02

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
14	0.21	Coal/Fuels	0.15	15	25	40	27.5					150,000	0	0	0	0					
14	0.21	Flyash	0.15	15	25	40	27.5					250,272	0	0	0	0					
14	0.21	Sand, Iron Ore	0.15	15	25	40	27.5					80,087	0	0	0	0					
14	0.21	Gypsum	0.15	15	25	40	27.5					75,000	0	0	0	0					
14	0.21	Cement	0.15	15	22	37	26					1,191,360	0	0	0	0					
14	0.21	Base Rock (Limestone)	0.15	15	15	30	22.5	X	X	22.5	15	55,616	3,708	779	779	1,557	35,038				
14	0.21	Employee Vehicles	0.15	1.75	0	1.75	1.75					14,600	0	0	0	0					
14	0.21	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
14	0.21	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
14	0.21	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
14	0.21	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
14	0.21	SUBTOTAL	0.15							22.5			3,708	779	779	1,557	35,038	0.28	0.06	0.22	0.04

Paved Road Segments

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
15	0.27	Coal/Fuels	0.15	15	25	40	27.5					150,000	0	0	0	0					
15	0.27	Flyash	0.15	15	25	40	27.5					250,272	0	0	0	0					
15	0.27	Sand, Iron Ore	0.15	15	25	40	27.5					80,087	0	0	0	0					
15	0.27	Gypsum	0.15	15	25	40	27.5					75,000	0	0	0	0					
15	0.27	Cement	0.15	15	25	40	27.5					1,191,360	0	0	0	0					
15	0.27	Base Rock (Limestone)	0.15	15	15	30	22.5		X	22.5	15	55,616	3,708	0	1,001	1,001	22,525				
15	0.27	Employee Vehicles (75/day)	0.15	1.75	0	1.75	1.75					14,600	0	0	0	0					
15	0.27	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
15	0.27	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
15	0.27	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
15	0.27	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
15	0.27	SUBTOTAL	0.15							22.5			3,708	0	1,001	1,001	22,525	0.28	0.06	0.14	0.03

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
16	0.03	Coal/Fuels	0.15	15	25	40	27.5					150,000	0	0	0	0					
16	0.03	Flyash	0.15	15	25	40	27.5					250,272	0	0	0	0					
16	0.03	Sand, Iron Ore	0.15	15	25	40	27.5					80,087	0	0	0	0					
16	0.03	Gypsum	0.15	15	25	40	27.5					75,000	0	0	0	0					
16	0.03	Cement	0.15	15	25	40	27.5					1,191,360	0	0	0	0					
16	0.03	Base Rock (Limestone)	0.15	15	15	30	22.5					55,616	0	0	0	0					
16	0.03	Employee Vehicles	0.15	1.75	0	1.75	1.75					14,600	0	0	0	0					
16	0.03	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
16	0.03	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
16	0.03	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75	X	X	28.8	7.5	75,000	10,000	300	300	600	17,250				
16	0.03	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
16	0.03	SUBTOTAL	0.15							28.8			10,000	300	300	600	17,250	0.41	0.08	0.12	0.02

Paved Road Segments

Segment No.	Segment Length (mi)	Material	Silt Loading (g/m2)	Truck Weights Empty (Tons)	Truck Weights Capacity	Loaded (Tons)	Avg (Tons)	Truck Trips Empty	Truck Trips Loaded	Truck Weight	Material Net (Tons)	Material (T/yr)	Material Trips (#/yr)	Empty Mileage (Mi/yr)	Loaded Mileage (Mi/yr)	Total Mileage (Mi/yr)	Weight x Mileage	TSP E Factor lb/VMT	PM10 E Factor lb/VMT	TSP Emissions (Ton/yr)	PM10 Emissions (Ton/yr)
17	0.12	Coal/Fuels	0.15	15	25	40	27.5					150,000	0	0	0	0					
17	0.12	Flyash	0.15	15	25	40	27.5					250,272	0	0	0	0					
17	0.12	Sand, Iron Ore	0.15	15	25	40	27.5					80,087	0	0	0	0					
17	0.12	Gypsum	0.15	15	25	40	27.5					75,000	0	0	0	0					
17	0.12	Cement	0.15	15	25	40	27.5					1,191,360	0	0	0	0					
17	0.12	Base Rock (Limestone)	0.15	15	15	30	22.5					55,616	0	0	0	0					
17	0.12	Employee Vehicles	0.15	1.75	0	1.75	1.75					14,600	0	0	0	0					
17	0.12	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
17	0.12	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75					40,044	0	0	0	0					
17	0.12	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
17	0.12	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75		X	28.8	7.5	22,500	3,000	0	360	360	10,350				
17	0.12	SUBTOTAL	0.15							28.8			3,000	0	360	360	10,350	0.41	0.08	0.07	0.01
18	0.06	Coal/Fuels	0.15	15	25	40	27.5					150,000	0	0	0	0					
18	0.06	Flyash	0.15	15	25	40	27.5					250,272	0	0	0	0					
18	0.06	Sand, Iron Ore	0.15	15	25	40	27.5					80,087	0	0	0	0					
18	0.06	Gypsum	0.15	15	25	40	27.5					75,000	0	0	0	0					
18	0.06	Cement	0.15	15	25	40	27.5					1,191,360	0	0	0	0					
18	0.06	Base Rock (Limestone)	0.15	15	15	30	22.5					55,616	0	0	0	0					
18	0.06	Employee Vehicles	0.15	1.75	0	1.75	1.75					14,600	0	0	0	0					
18	0.06	Front End Loader 1 Sand	0.15	25	7.5	32.5	28.75		X	28.8	7.5	40,044	5,339	0	320	320	9,210				
18	0.06	Front End Loader 2 Iron Ore	0.15	25	7.5	32.5	28.75		X	28.8	7.5	40,044	5,339	0	320	320	9,210				
18	0.06	Front End Loader 3 Gypsum	0.15	25	7.5	32.5	28.75					75,000	0	0	0	0					
18	0.06	Front End Loader 4 Coal	0.15	25	7.5	32.5	28.75					22,500	0	0	0	0					
18	0.06	SUBTOTAL	0.15							28.8			10,678	0	641	641	18,420	0.41	0.08	0.13	0.03
		GRAND TOTAL														116,987				20.99	4.07

Paved Road Segments						
	Notes:					
		Emissions based on AP-42 Section 13.2.1 (12/03), Equation (2).				
		E = [k * (sL/2)^0.65 * (W/3)^1.5 - C] * (1 - P/4N)				
	where	E = emission factor, lb/VMT	k (PM-30) =	0.082	lb/VMT	
		k = particle size multiplier	k (PM-10) =	0.016	lb/VMT	
		sL = road surface silt loading, g/m^2				
		W = average vehicle weight, tons	C (PM-30) =	0.00047	lb/VMT	
		C = 1980's vehicle exhaust, brake & tire wear, lb/VMT	C (PM-10) =	0.00047	lb/VMT	
		P = number of days with >= 0.01 in precipitation				
		N = number of days in the averaging period (365)	P =	129	days (Gainesville average)	
		Silt loading of 0.15 g/m2 or less will be maintained by use of vacuum sweeping				

Unpaved Road Emission Summary

Segment No.	Trip Length (mi)	Silt Content (%)	Material Trips (#/yr)	Total Mileage (Mi/yr)	Maximum Annual Emissions TSP E Factor lb/VMT	Maximum Annual Emissions PM10 E Factor lb/VMT	Maximum Annual Emissions TSP Emissions (Ton/yr)	Maximum Annual Emissions PM10 Emissions (Ton/yr)	Hourly Emissions TSP Emissions (lb/hr)	Hourly Emissions PM10 Emissions (lb/hr)
19	0.11	8.3	236,133	25,975	6.77	1.92	4.39	1.25	1.003	0.285
20	0.08	8.3	7,415	593	6.77	1.92	0.10	0.03	0.023	0.007
TOTAL	0.19			26,568			4.49	1.28	1.03	0.29

Unpaved Roads

Segment No.	Material Hauled	Annual Material Throughput (tons)	Total Miles (Round Trip)	Average Load per Vehicle (tons)	Unloaded Vehicle Weight (tons)	Mean Vehicle Weight (tons) (W)	Surface Material Silt Content (%) (s)	VMT (miles/ year)	PM Emission Factor (lb/VMT)[1]	PM10 Emission Factor (lb/VMT)[1]	Control Efficiency (%)[2]	PM Emissions (tons/year)	PM10 Emissions (tons/year)
19	Front End Loaders-Limestone	1,771,000	0.11	7.5	25	28.75	8.3	25,975	6.77	1.92	95%	4.39	1.25
20	Front End Loader-Base Rock	55,616	0.08	7.5	25	28.75	8.3	593	6.77	1.92	95%	0.10	0.03
											Total Emissions	4.49	1.28

Notes:

$E = k * (s/12)^a * (W/3)^b * (365 - P)/365$ for industrial unpaved roads

where E = emission factor, lb/VMT
k = particle size multiplier
s = surface material silt content, %
W = average vehicle weight, tons
P = number of days with >= 0.01 in precipitation
a, b = constants for specific partical size

Constant	PM-30	PM-10
k	4.9	1.5
a	0.7	0.9
b	0.45	0.45
P =	129	days (Gainesville average)

[1] Based on AP-42 Section 13.2.2 (12/03), Equations (1a) & (2). Silt content based on default stone quarrying haul road (Table 13.2.2-1).

[2] A control efficiency of 95% was used to account for high natural surface moisture in the quarry and/or watering at an equivalent moisture ratio of 5 (Figure 13.2.2-2). This control efficiency also reflects the slow travel speed of the loaders (<10 mph).

Assumes average round trip distance for limestone loader is 600 ft and for base rock loader is 400 ft.

Material	Amount of Material (Throughput Increase)		Truck/Loader Weight (Empty)		Truck/Loader Capacity		Total Trips
Cement	1,191,360	tons/year	15	tons	25	tons	47,654
Fly Ash	250,272	tons/year	15	tons	25	tons	10,011
Sand	40,044	tons/year	15	tons	25	tons	1,602
Iron Ore	40,044	tons/year	15	tons	25	tons	1,602
Coal	150,000	tons/year	15	tons	25	tons	6,000
Gypsum	75,000	tons/year	15	tons	25	tons	3,000
Employee Traffic	40	employees/day	3,500	lbs	1	employee	14,600
Front End Loader 1 Sand	40,044	tons/year	25	tons	7.5	tons	5,339
Front End Loader 2 Iron Ore	40,044	tons/year	25	tons	7.5	tons	5,339
Front End Loader 3 Gypsum	75,000	tons/year	25	tons	7.5	tons	10,000
Front End Loader 4 Coal	22,500	tons/year	25	tons	7.5	tons	3,000
Quarry							
Front End Loaders Limestone	1,771,000	tons/year	25	tons	7.5	tons	236,133
Base Rock (Limestone)	55,616	tons/year	25	tons	7.5	tons	7,415

5505 5515

MS#_____ MC Acct #_____

Department of Environmental Protection
2600 Blair Stone Rd
Tallahassee FL 32399-2400

7000 1670 0013 3110 0611

5505 5515

RETURN TO SENDER
MOVED, LEFT NO ADDRESS
NOT DELIVERABLE AS ADDRESSED
UNABLE TO FORWARD
ATTEMPTED - NOT KNOWN
UNCLAIMED REFUSED
NO SUCH STREET NUMBER
INSUFFICIENT ADDRESS
NO MAIL RECEPTACLE DECEASED

RECEIVED
MAR 27 2006
BUREAU OF AIR REGULATION

Mr. Charles M. Yagel, President
Suwannee Industrial Solution, LLC
26841 CR 49
Branford, Florida [redacted]

1210465-014-AC

2-18-06 TC
2nd NOTICE 3-8
RETURNED

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Charles W. Yagel, President
Suwannee Industrial Solution, LLC
26841 CR 49
Branford, Florida 32008

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number
(Transfer from service label) 7000 1670 0013 3110 0611

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

FINAL DETERMINATION

PERMITTEE

Suwannee American Cement, L.L.C.
Branford Cement Plant
5117 US Highway 27
Branford, FL 32008

PERMITTING AUTHORITY

Florida Department of Environmental Protection
Division of Air Resource Management
Bureau of Air Regulation, Air Permitting North Program
2600 Blair Stone Road, MS #5505
Tallahassee, Florida 32399-2400

PROJECT

Project No. 1210465-014-AC
Air Permit No. PSD-FL-352

Suwannee American Cement, LLC operates the Branford Cement Plant, which is an existing portland cement manufacturing plant (SIC No. 3241). The plant is located at 5117 US Highway 27 in Suwannee County, Florida. This project involves the construction of a new cement manufacturing line (Kiln Line No. 2) at the existing facility.

NOTICE AND PUBLICATION

The Department distributed an "Intent to Issue Permit" package on November 8, 2005. The applicant published the "Public Notice of Intent to Issue" in The Suwannee Democrat on November 16, 2005. The Department received the proof of publication on November 28, 2005. No petitions for administrative hearings or extensions of time to petition for an administrative hearing were filed.

COMMENTS RECEIVED

The following section discusses comments received regarding the proposed Draft Permit during the 30-day public comment period.

Comments from the Applicant

On December 2, 2005, the Department received written comments from the applicant concerning the Draft Permit. The applicant's comments are summarized below with the Department's response.

1. *Condition 4, Section 3A (Page 6 of 21)*: The applicant requests the following change to the first sentence of this condition: "The dry preheater feed material rate (~~including~~ excluding dry fly ash) to the kiln shall not exceed 1,789,230 tons during any consecutive 12 months." The same change is also needed in the "permitting note" following the condition. The applicant believes this is necessary to clarify that fly ash may be introduced through the preheater tower with other "kiln feed material" or directly into the calciner. In bullet #1 of this condition, the applicant also requests that "Poldos control system" be changed to "~~Poldos~~ kiln feed control system" because "Poldos" is a specific vendor name and the vendor has not yet been selected.

   Response: The purpose of the text "including dry fly ash" was to indicate that this material could be introduced through the preheater tower with other feed materials. Condition 5d (Page 7 of 21) of the permit specifically states that fly ash may be introduced through the preheater tower with other "kiln feed material" or directly into the calciner. The kiln feed control system is used to monitor all materials introduced through the preheater tower. Dry fly ash injected directly into the calciner is monitored separately as shown in the equation for clinker production that follows the restrictions on kiln process and production rate limitations. Therefore, the specified dry preheater feed material rate includes dry fly ash introduced through the preheater tower, but does not include dry fly ash directly injected to the calciner. This is supported by the original information presented in the application. This will be clarified in Condition 4 by revising to read, "... (~~including~~ excluding dry fly ash injected directly into the calciner). Also, the Department agrees to remove the vendor name of the kiln feed control system as requested. The entire condition is revised to:

   "4. Kiln Process and Production Rate Limitations: The dry preheater feed material rate (~~including~~ excluding dry fly

ash injected directly into the calciner) to the kiln shall not exceed 1,789,230 tons during any consecutive 12 months. The clinker production rate of the kiln shall not exceed 127 tons per hour (24-hour rolling average) and 1,055,500 tons during any consecutive 12-months. The clinker production rate shall be determined by the following equation:

Clinker Production = [(Kiln Feed) (Kiln Feed LOI Factor) + (Fly Ash Injection) (Fly Ash LOI Factor)]

Where:

- Kiln Feed as determined by ~~Poldos~~ kiln feed control system
- "FIy Ash Injection" as determined from the rotary feed system or equivalent.
- The "Kiln Feed LOI Factor" and the "Fly Ash LOI Factor" shall be based on a 30 operating-day block average of daily measurements. For purposes of this requirement, an operating day is any day that the kiln produces clinker or fires fuel.

{Permitting Note: For reference, the kiln will be designed to process approximately 215 tons per hour of dry preheater feed material (~~including~~ excluding dry fly ash injected directly into the calciner) through the kiln.} [Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.; Application No. 1210465-014-AC]

2. *Condition 10 Section 3A (Page 8 of 21)*: Due to process fluctuations, the applicant agrees that a 30-day averaging period is appropriate for the CO limit. However, due to a lack of experience with the continuous demonstration of compliance for CO emissions, the applicant requests that the numerical portion of the Best Available Control Technology (BACT) standard be increased from 2.90 to 3.0 lb/ton of clinker (381 lb/hour) with no data exclusion for process upsets.

   Response: The permit allows limited CO data (30 hours/month) to be excluded due to equipment malfunctions, which do not include process upsets as these are a normal part of cement production. It is noted that the applicant's request is within approximately 3% of the Department's BACT determination. The Department's rationale for the CO BACT standard is presented in the Technical Evaluation and Preliminary Determination issued along with the draft permit. No changes were made.

3. *Condition 4, Section 3C (Page 18 of 21)*: The applicant notes that this condition regulates visible emissions from all sources under Emissions Unit 021 that are controlled by a baghouse to no more than 5% opacity. This would include the finish mill separator (Point No. N-09-02) and the finish mill vent (Point No. N-12-02). However, NESHAP Subpart LLL specifies a limit of 10% opacity for these two emissions points. The applicant requests a visible emission limit of 10% for the finish mill separator (Point No. N-09-02) and the finish mill vent (Point No. N-12-02).

   Response: It is noted that the baghouse design specifications are all the same (0.0085 grains/dscf of exhaust). The Department established the lower visible emissions standard as BACT for all emissions points controlled by a baghouse including the finish mill separator (Point No. N-09-02) and the finish mill vent (Point No. N-12-02). No changes were made.

4. *Section 4, Appendix E (Page E-2)*: In the first paragraph under "Miscellaneous Particulate Matter Sources", the baghouse design specification is listed as "0.007 grains/dscf". The permit application identified this specification as "0.0085 grains/dscf". The applicant requests that the baghouse design specifications in Appendix E be corrected from "0.007 to 0.0085 grains/dscf".

   Response: Condition 2 in Section 3C of the permit (Page 17 of 21) correctly identifies the baghouse design specification as "0.0085 grains/dscf". Therefore, the reference on page E-2 will be corrected as requested. This correction was also made on page E-3 for the baghouse specifications under the finish mill separator and the coal mill.

Comments from EPA Region 4

On November 23, 2005, EPA Region 4 notified the Department (email) that it had no comments after review of the PSD Draft Permit.

Fish and Wildlife Service

The Department worked with the federal Fish and Wildlife Service (FWS) while processing this application. In a letter dated September 21, 2005, the FWS concluded, "Upon examining the information presented, including the amount and type of emissions from this project, the distance to the Class I area, and the magnitude of visibility impact in this specific case, FWS does not anticipate this project will have a significant impact on the three Class I refuges." The FWS provided no

comments on the Draft Permit during the 30-day comment period.

Comments from the Public

During the original 30-day comment period, the Department received approximately 17 written comments from the public by letter, facsimile, and email. Based on a request, the Department held a public meeting after the 30-day comment period at which it received additional written and oral comments. The following summary provides a general discussion of the comments related to air emissions and the draft permit.

Equipment and Fuels

1. *Where will the second kiln be located?*

   Response: The second kiln will be located between the main office building and the existing kiln.

2. *Will the new cement kiln be used as an "unregulated incinerator" to burn tires, battery casings, diapers, roof tiles, and hazardous wastes?*

   Response: The authorized fuels for this project include coal, petroleum coke, tires, natural gas, oil, and on-specification used oil. Due to the high kiln temperatures (~2000° F), tire combustion can effectively displace some coal firing. No more than 15% of the total heat input would come from whole or chipped tires. Tires may also be gasified and burned as a synthetic gas. No more than 40% of the total heat input would come from gasified tires. Metals in the tires are generally bound into the cement clinker product. The plant is specifically prohibited from firing hazardous wastes and municipal solid wastes such as battery casings, diapers, and roof tiles.

Mercury

3. *Will the project result in an increase in mercury emissions from the plant to 450 pounds per year?*

   Response: Mercury will be emitted because it is present both in the raw materials used to produce cement as well as the coal used as the primary fuel. Mercury emissions will increase because the project will increase the use of raw materials and coal. In the recent Federal Register notice of revisions to NESHAP Subpart LLL for portland cement plants (Federal Register, Volume 70, No. 231, December 2nd, 2005), EPA reported the following:

   - "...The mercury content of limestone has been reported by the United States Geological Survey to range from 0.01 to 0.1 parts per million (ppm) and by the United States Bureau of Mines to range from 0.02 to 2.3 ppm."
   - "The mercury content of coal ranges from 0.0 to 1.3 micrograms per gram (μg/g) with an average of approximately 0.09 μg/g." (This is equivalent to a range of 0 to 1.3 ppm and an average of 0.09 ppm.)
   - "Based on average mercury concentrations of feed materials and coal, the largest contribution of mercury to kilns is from feed materials, which account for between 55 percent and 70 percent of the mercury. Contributions of mercury from coal account for between 30 percent (model precalciner kiln) and 45 percent (model wet kiln) of the mercury input to kilns."

   As required by permit, the existing Branford Cement Plant analyzes samples of the coal and raw materials for mercury content. The coal used at the Branford Cement Plant typically contains 0.035 ppm, which is on the low end of the range indicated by EPA. The mercury content of limestone mined at the Branford site is identified as 0.023 ppm, which is near the limit of detection for the laboratory analytical method. The plant estimates that approximately 80% of the limestone samples are actually below the detection limit. Whenever this occurs, the detection limit is used to conservatively estimate the maximum mercury content of the limestone.

   Considering the maximum raw material and coal usage for the new project, approximately 10% of the potential mercury emissions will come from coal (12 pounds) while approximately 67% of the potential mercury emissions will come from limestone (79 pounds). The remainder comes from other raw materials. For the new kiln system, the permit restricts the total maximum mercury throughput from these materials into the kiln to no more than 117.5 pounds per year. The plant is required to manage its operations to comply with the mercury limitation. The existing kiln system is restricted by permit to a mercury throughput rate of no more than 97 pounds per year. So, the total mercury throughput from the plant is limited to 214.5 pounds per year. Based on the sampling and analysis procedures required by permit, the plant reports a mercury throughput of approximately 65 pounds for the existing kiln in 2004.

4. *Why isn't the project required to install the "best available technology" for controlling mercury emissions?*

Response: Rule 62-212.400 in the Florida Administrative Code (F.A.C.) establishes preconstruction review requirements for the Prevention of Significant Deterioration of Air Quality for specific pollutants, which is commonly referred to as "PSD". Based on this rule, the existing cement plant is classified as a "PSD-major facility". Therefore, emissions increases from the new project must be reviewed in accordance with the significant emission rate thresholds for PSD pollutants (including mercury) identified in Table 62-212.400-2, F.A.C. If a project's potential emissions for a given pollutant are greater than the specified thresholds, the Department must establish an emissions standard that represents the Best Available Control Technology (BACT). By rule, the Department must consider control equipment costs, energy impacts, and other environmental impacts when establishing a BACT standard. The project will result in PSD-significant emissions increases for carbon monoxide (CO), nitrogen oxides (NOx), particulate matter (PM/PM10), sulfur dioxide (SO2), and volatile organic compounds (VOC). However, the maximum potential mercury emission rate from the new kiln system is 117.5 tons per year, which is less than the 200 pounds per year significant emission rate threshold established by rule for mercury. Therefore, a BACT determination is not imposed by this rule.

5. *Why weren't the mercury emissions from the existing plant aggregated with the expansion project for comparison with the PSD significant emission rate for mercury?*

   Response: The PSD significant emission rates apply to each new separate and distinct project. The original air permit application was submitted in 1999 and the existing kiln system began operation in February of 2003. Construction on the new kiln system will likely begin in 2007 and initial startup some time in 2009. In addition, there was a recognizable demand increase in the market for cement as evidenced by the other kiln expansion projects and applications for three new cement plants within the same time frame. For these reasons, the Department considers the expansion project to be a separate and distinct project.

6. *Will the new kiln system include a baghouse with an inlet temperature of less than 120° F to reduce mercury emissions?*

   Response: The new kiln system will include a baghouse control system. The flue gas temperature through the baghouse will be approximately 215° F. The baghouse will be designed for a particulate matter control efficiency of 99.9% or greater.

7. *Will the new kiln system use "low mercury" coal?*

   Response: As indicated above, the mercury content of coal ranges from approximately 0 to 1.3 ppm with an average of 0.09 ppm. The coal used at the Branford Cement Plant typically contains 0.035 ppm, which would place it at the lower end of the range.

8. *Why doesn't the new kiln system use coal gasification to reduce mercury emissions?*

   Response: Mercury emissions are below the PSD-significant emission rate which would require a Best Available Control Technology review.

9. *Why didn't EPA require more stringent controls when it recently revised NESHAP Subpart LLL for portland cement plants? Why did EPA consider mercury controls to be cost prohibitive?*

   Response: The United States EPA established National Emissions Standards for Hazardous Air Pollutants (NESHAP) for portland cement plants in Title 40, Part 63, Subpart LLL of the Code of Federal Regulations. The emissions standards are based on the Maximum Achievable Control Technology (MACT) for this industry. The Department adopted these standards by reference in Rule 62-204.800, F.A.C. In a recent Federal Register notice of revisions to this rule (Federal Register, Volume 70, No. 231, December 2nd, 2005), EPA stated the following with regard to mercury and controls.

   - "Metal concentrations in limestone (all metals, not just mercury) vary widely both within-quarry and quarry-to-quarry. Given this significant variation in concentration of metals in limestone for a given area, we believe it is implausible to assume the existence of any consistently low-mercury quarry sites ... Due to this variability, and the lack of data showing the general availability of low-mercury limestone, it is infeasible to set an emission limit (floor or otherwise) based on switching to low-mercury feed materials, or to establish some type of work practice mandating use of raw material with some specified properties relating to mercury."
   - "The mercury content of coal ranges from 0.0 to 1.3 micrograms per gram (μg/g) with an average of approximately 0.09 μg/g. ... EPA does not consider the use of a low mercury coal by the portland cement industry a feasible practice, or that any standard based on such a practice would be achievable over time due to constant,

uncontrollable variability."

- "Although considered a metal HAP, mercury's volatile nature precludes its control through application of typical PM {particulate matter} controls such as fabric filters (FF) or electrostatic precipitators (ESP)."
- "We evaluated a mercury beyond-the-floor standard for new and existing cement kilns based on use of activated carbon injection (ACI) with an additional PM control device. The total capital cost of an ACI system is estimated to range from $761,000 to $5.5 million per kiln. The total annual costs of an ACI system are estimated to range from $477,000 to $3.7 million per kiln. These costs include the carbon injection system and an additional baghouse necessary to collect the carbon separately from the CKD. The cost per ton of mercury reduction for ACI applied to cement kilns ranges from $22.4 million to $56 million."
- "We also note that the application of ACI would generate additional solid waste and increase energy use. We estimate that the per kiln impacts would be 95 to 1,600 tons per year (tpy) of solid waste and 526,200 to 9.3 million kilowatt hours (kWhr) of electricity demand."
- "Based on the relatively low levels of existing mercury emissions from individual non-hazardous waste cement kilns, the high costs (on both a dollars-per-year and a dollars-per-ton basis) of reducing these emissions by ACI, and the negative non-air environmental impacts, we are proposing that this beyond-the-MACT floor option for reducing mercury from new and existing non-hazardous waste kilns is not justified."

10. *What about mercury control technology from Mazyck Technologies Solutions (MTS) and Techinomics?*

Response: The Department's regulations do not impose a review of the Best Available Control technology for mercury emissions because the new kiln project is below the regulatory threshold. The Department has obtained information regarding these technologies.

11. *Does the federal "Clean Air Mercury Rule" apply to cement kilns?*

Response: No, the Clean Air Mercury Rule (CAMR) establishes performance standards only for new and existing coal-fired electric utility steam generating units.

BACT Determinations

12. *Are stringent pollution controls required for this project?*

Response: The Department has established stringent emission limits and monitoring requirements for numerous air pollutants. The permit requires installation of the following air pollution control equipment on the kiln system: a selective non-catalytic reduction (SNCR) system for the control of nitrogen oxides (NOx); a baghouse control system for the control of particulate matter (PM/PM10) emissions; and a hydrated lime injection system for the control of SO_2 emissions. The NOx emissions standard is one of the lowest in the nation. The Branford Cement Plant will remain the most closely monitored facility in Florida. The existing kiln system is required to continuously monitor and record nitrogen oxides, sulfur dioxide, and total hydrocarbons as well as stack opacity. In addition to these pollutants, the new kiln system will include a continuous monitoring system for carbon monoxide.

13. *How can the application certify compliance with the BACT emissions standards for particulate matter and nitrogen oxides when vendors for the baghouse and SNCR control systems have not yet been selected?*

Response: The applicant has provided the Department with "reasonable assurance" of compliance based on their preliminary designs of production and control equipment, test results, existing monitoring results, and operation of the existing equipment. The final permit will establish the emissions standards and/or performance specifications that the equipment vendors must achieve.

14. *Why is the CO standard higher for this project than for some other plants?*

Response: The CO standard encompasses several conditions: the expected capability of the proposed kiln; the variability of the raw materials; normal fluctuations in kiln operating conditions; the potential for slightly higher CO emissions related to ammonia injection to control emissions of nitrogen oxides; and that compliance will be demonstrated by continuous emissions monitor. Each plant's combination of raw materials, production equipment, and controls can create unique circumstances resulting in different case-by-case determinations. In addition, standards for other plants are often based on a single 3-hour stack test conducted once per year or specify a long-term, 12-month average. The CO standard for this project is based on a 30-day average with compliance demonstrated by a continuous emissions monitor.

Air Dispersion Modeling Analysis

15. *Why was PM10 analyzed and not PM2.5?*

Response: EPA has not yet developed the necessary comprehensive modeling system to evaluate PM2.5 impacts. Therefore, current EPA guidance provides for the interim use of PM10 as a surrogate for PM2.5 in meeting new source review (NSR) requirements, including prevention of significant deterioration of air quality (PSD).

16. *Why did the DEP accept the FWS "guesstimate" that there was no need for a full analysis even though the Calpuff Screening Model predicted several PM10 impacts over the acceptable thresholds in the Class 1 Area?*

Response: One of the federal land manager's tools for evaluating regional haze impacts is the use of the CALPUFF model in the screening mode, which is purposefully very conservative. If the model predicts PM10 impacts over the screening threshold, the federal land manager evaluates the impacts on a case-by-case basis, and determines whether further modeling is warranted. For the expansion project, there was one predicted exceedance of the 5% threshold at the Okefenokee Class I area, which is 80 km away. The federal land manager for this area (Fish and Wildlife Service) determined that no further modeling was necessary due to the conservative nature of the model and the single occurrence. In such cases, the Department typically defers to their expertise in determining regional haze impacts in Class I areas, which is a federal land manager program.

17. *Why was "older" meteorological data used?*

Response: The meteorological data used in the modeling analysis covered a 5-year period from 1992 to 1996. This is the best available national weather service data for use in the modeling analysis. The purpose of this data is to provide representative meteorological data for the project, which is why 5 years of data are used and not just a single year.

18. *Why was meteorological data used from Waycross, Georgia and Jacksonville, Florida?*

Response: The meteorological data set included "surface data" from Gainesville, Florida and "upper air" data from Waycross, Georgia (1992-1993) as well as Jacksonville, Florida (1994-1996). The ISCST model uses processed national weather service data as meteorological inputs. Upper air data is only collected at certain locations. The data the applicant used is the best representative national weather service data available, and it's also the closest weather service data available.

19. *Why weren't humidity and rainfall inputs included in the modeling analysis?*

Response: These inputs aren't typically included in the EPA and DEP-approved ISCST model because they would lower PM10 impacts through wet deposition causing plume depletion. Therefore, the applicant's modeling analysis was conservative.

20. *Why isn't SAC required to raise the stack height to meet GEP stack height?*

Response: "Good engineering practice (GEP)" stack height assures that plume downwash resulting from nearby buildings and structures is properly considered in the modeling analysis. It also establishes a maximum stack height, which is the highest of 65 m or a GEP stack established by a formula, which can be used in an air dispersion analysis to prevent plants from constructing unusually high stacks to obtain satisfactory modeling impact results. The stacks in this project are less than GEP stack height. If a stack height is less than "GEP", it simply means that plume downwash must be accounted for in the modeling analysis. Most stacks are not "GEP" stacks. For this project, the applicant accounted for downwash in the air dispersion modeling analysis.

21. *Who paid for Enviroplan to conduct the modeling analysis?*

Response: The applicant's consultant conducted the required modeling analysis in accordance with EPA-approved regulatory models and methods and Department protocols. Based on the required analyses, the applicant provided reasonable assurance that the proposed project, as described in the modeling report and subject to the conditions of approval proposed in the draft permit, will not cause or significantly contribute to a violation of any AAQS or PSD increment. The Department retained Enviroplan Consulting to co-review the modeling analysis because of the number of cement kiln projects being reviewed. Enviroplan Consulting reviewed the applicant's air quality modeling analysis and concurred with the Department's conclusion.

22. *Referring to page 30 of the Technical Evaluation and Preliminary Determination, why are different averaging periods used in these tables?*

Response: There are two tables on this page. The first table summarizes the significant impact analysis for the nearby Class I areas. For the pollutants identified in the tables, Rule 62-204.200(29), F.A.C. specifies the following averaging periods for evaluation: sulfur dioxide (3-hour, 24-hour, and annual); particulate matter less than 10 microns in diameter, PM10 (24-hour and annual); and nitrogen oxides (annual). The second table summarizes the PSD increment analysis required for particulate matter (PM10) for the expansion project. Rule 62-204.260, F.A.C. specifies a 24-hour and annual average for the PM10 Class II increments.

23. *Was an analysis conducted to determine whether nitrogen oxide emissions from the kiln would form nitrates, which would end up in the rivers?*

Response: The Department's PSD preconstruction review modeling requirements do not include nitrate deposition modeling.

Fugitive Emissions

24. *How is raw material mined at this site and how is dust from the mining operations controlled?*

Response: The existing plant mines approximately 10 feet of limestone above the water table and approximately 50 feet below the water table using a dragline. The plant does not de-water to mine material. The two sources of limestone are mixed and sent to the storage shed through the conveying system. The limestone from both locations is similar in chemistry and high in water content (10% to 20%), which minimizes dust emissions when handling.

25. *Why are the allowable opacity standards for operations with no control devices twice the opacity standards for operations with control devices?*

Response: Many of the material handling activities, such as storage, do require baghouse controls. Activities without such controls are considered "fugitive" dust sources, such as raw material storage piles, material transfer points (drops) from one conveyor to another, etc. In general, these types of activities are difficult to confine and control. The plant is required to take reasonable precautions to prevent fugitive dust emissions, which may include such activities as wetting dry materials or removing dust from work areas. For this facility, raw materials are mined wet and maintain relatively high moisture contents during handling (10% to 20%), which inhibits fugitive dust emissions.

26. *Why is truck dumping of raw materials onto screening operations exempt from opacity regulation?*

Response: Dumping of raw materials onto a screening operation is difficult to control, but is also typically very brief in duration. This activity could occur near the crusher operation, but it would have no off-site impacts due to the location of the crusher. Raw materials can also be dumped from a truck into the covered raw material storage area, which is enclosed on two sides. This is considered a "fugitive dust" activity and the plant must take reasonable precautions to prevent these emissions.

27. *Why isn't opacity better controlled from coal processing and conveying?*

Response: For activities not confined and controlled by a baghouse, the standard is 20% opacity from any coal processing and conveying equipment or coal storage system. This is based on the applicable federal New Source Performance Standard for coal plant in 40 CFR Subpart Y. However, no coal activities are completely unconfined. Coal is stored in a mostly enclosed storage hall with three walls and one opening for trucks to dump inside of the shed. The coal storage area also has a hopper where trucks dump the coal directly before being transferred to the storage shed or the day bins. The dumping and loading of hoppers all have roof and side enclosures. All conveyors are enclosed and the storage shed is roofed and enclosed.

28. *Will more tuck trips result from this expansion?*

Response: The existing plant estimates a maximum of approximately 50,000 cement trucks trips per year. The expansion project will double that maximum amount.

29. *Were truck emissions included in the modeling analysis?*

Response: Fugitive dust emissions from trucks on paved and unpaved roads were included in the analysis.

In-Stack Monitoring

30. *Why aren't more frequent monitoring and testing required for the existing plant?*

Response: As required by permit, the existing plant continuously monitors the stack exhaust for: opacity, nitrogen

oxides, sulfur dioxides, and total hydrocarbons. The plant is required to continuously stream "real-time" monitoring data (telemetry) directly to the compliance staff at the Department's Northeast District Office. The plant must also update their publicly accessible web site (http://www.suwanneecement.com) with current air emissions data. This was the first time telemetry and web site updates were placed on any type of plant in Florida. This is the most closely monitored facility in Florida. The new kiln system is subject to these same monitoring requirements plus carbon monoxide.

31. *What is the frequency of the monitoring for the new kiln system?*

Response: The permit for the new kiln system requires continuous monitoring for the following pollutants: carbon monoxide, nitrogen oxides, sulfur dioxides, and total hydrocarbons. An annual stack test is required for particulate matter; however, the stack opacity is continuously monitored to ensure proper operation of the baghouse control system. In accordance with the federal regulations, dioxin/furan emissions must be tested at least once every 30 months.

32. *Isn't the use of in-stack continuous emissions monitoring systems really just the "fox guarding the henhouse"?*

Response: No, the requirement to install, calibrate, operate, and maintain emissions monitoring systems requires a significant investment in equipment and trained personnel. The regulations prescribe detailed quality control and quality assurance procedures that must be completed, documented and reported. Equipment calibrations are required for most pollutants on a daily basis. Each year, monitoring equipment must pass a thorough relative accuracy test assessment that is conducted by a third party consultant. Failure to properly maintain and operate the monitoring systems would be an enforceable violation of the permit requirements.

Ambient Monitoring

33. *What pollutants does DEP monitor for in the ambient air?*

Response: The Department maintains an extensive ambient monitoring network of over 200 monitors throughout the state concentrated on the six regulated criteria pollutants: carbon monoxide, lead, nitrogen oxides, ozone, sulfur dioxide, and particulate matter. More information on the monitoring network can be found on the Department's web site at: http://www.dep.state.fl.us/Air/monitoring.htm.

34. *What ambient monitors are located near the Branford Cement Plant in Suwannee County?*

Response: Based on the 2003 Air Quality Technical Report, there are ambient monitoring sites in the following nearby counties: Alachua (one PM10 monitor, two PM2.5 monitors, and two ozone monitors); Baker (one ozone monitor); Columbia (one ozone monitor); and Hamilton (one SO2 monitor and one PM10 monitor). As part of the original air construction permit for this plant, Suwannee American Cement maintains two PM10 monitors; one is located near the western fence line of the facility in Suwannee County and the other is located near the Ichetuknee Springs State Park about 6 kilometers away in Columbia County. The monitoring data indicates a highest second high value of 61 $\mu g/m^3$ (24-hour average) and an annual average value of 24 $\mu g/m^3$. This compares to regulatory Ambient Air Quality Standards for PM10 of 150 $\mu g/m^3$ (24-hour average) and an annual average of 50 $\mu g/m^3$.

Noise

35. *Does the Department regulate noise from the plant?*

Response: No, the Department does not regulate noise.

36. *Will the new kiln project double the plant noise?*

Response: No, the new kiln system will likely generate the same level of noise and it will not be additive. However, there will be more activity, which may generate more incidents of noise such as truck traffic. The coal mill stack currently exhausts downward, which adds to ground-level noise. In 2005, the plant installed a muffler on the coal mill stack which provided some reduction in noise level. With the kiln expansion project, the plant intends to re-orient the coal mill stack to exhaust upward, which should further reduce plant noise.

Compliance Status

37. *What is the compliance status of the Branford Cement Plant?*

Response: Based on the Department's Air Resource Management System database and discussions with the NED Office, the existing facility is currently in compliance with the terms of its Title V air operation permit. In addition,

Spectrum Environmental Services conducted a site inspection of the existing facility in January and submitted a summary report. The purpose of the inspection was to perform a 3rd party audit of the overall plant condition including a review of: process and production equipment, emissions control equipment, continuous monitoring systems, O & M plans and records, operator training procedures and records, compliance with emissions standards, etc. The plant was found to be well maintained, in good working order, and in compliance with the emissions standards.

Permit Process

38. *Could the plant apply for a third production line in 3 years?*

Response: Yes, although this is highly unlikely. Regional cement production capacity would have to fall short of demand to create this scenario. This is unlikely in such a short period because there are currently two other recent kiln expansion projects under construction and at least two new cement plants under construction. This is in addition to four other existing Florida cement plants.

39. *Why is the Department allowing further expansion at this site?*

Response: The Department is required to process applications in accordance with the applicable rules and regulations. Pursuant to Rule 62-4.070(1), F.A.C., a permit must be issued when an applicant provides the Department with "... reasonable assurance based on plans, test results, installation of pollution control equipment, or other information, that the construction, expansion, modification, operation, or activity of the installation will not discharge, emit, or cause pollution in contravention of Department standards or rules."

For the project under review, the primary applicable regulations for the kiln system are: Rule 62-212.400 (PSD Preconstruction Review); Rule 62-296.407 (Portland Cement Kilns); 40 CFR 60 Subpart F (New Source Performance Standards for Portland Cement Plants), Subpart Y (New Source Performance Standards for Coal Preparation Plants), and Subpart OOO (New Source Performance Standards for Nonmetallic Mineral Processing Plants); and 40 CFR 63 Subpart LLL (National Emissions Standards for Hazardous Air Pollutants for the Portland Cement Manufacturing Industry). In addition to a kiln system with staged combustion in the calciner, the permit requires installation a selective non-catalytic reduction (SNCR) system for the control of nitrogen oxides, a baghouse control system for the control of particulate matter, and a hydrated lime injection system for the control of SO_2 emissions. This combination of equipment will enable the new kiln system to achieve the applicable state and federal standards. To demonstrate compliance with the applicable standards, the permit requires continuous monitoring for emissions of carbon monoxide, nitrogen oxides, sulfur dioxide, total hydrocarbons, and opacity. In addition, emissions monitoring data must be transmitted in real-time to the Department's Northeast District Office and posted on an Internet web site accessible to the public. The applicant has provided reasonable assurance of compliance with the applicable regulations based on installation of the air pollution control equipment, plans, and actual data collected from the existing plant. Local planning and zoning officials determine land use. Zoning is not part of the air permit application review.

40. *Will the Department issue a final permit if Suwannee American Cement meets the regulatory requirements?*

Response: Yes, the Department is obligated by rule to issue a permit if the applicant is able to provide reasonable assurance of compliance with the applicable regulatory requirements.

CONCLUSION

The Department mailed the Notice of Intent to Issue Permit to more than twenty interested third parties. No petitions for administrative hearings or extensions of time to petition for an administrative hearing were filed. The applicant submitted comments and requested minor clarifications. EPA Region 4 and the federal Fish and Wildlife Service offered no comments on the draft permit. The comments received from the public were primarily related to mercury emissions and expansion of the plant.

As previously discussed, the permitted maximum emissions are almost half of the PSD significant emission rate for mercury. Therefore, no PSD preconstruction review is required for this pollutant. The permit does restrict the maximum mercury throughput for the new kiln and requires specific monitoring requirements to ensure compliance. With regard to the expansion, the Department believes the applicant has provided reasonable assurance of compliance with the applicable regulations. The comments received provide no specific technical or procedural rationale that would require revision of a proposed permit condition or lead to a different permitting decision. The final action of the Department is to issue the permit with the minor clarifications described above.

NOTICE OF FINAL PERMIT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

In the Matter of an
Application for Permit by:

Suwannee American Cement, L.L.C.
Branford Cement Plant
5117 US Highway 27
Branford, FL 32008

Air Permit No. PSD-FL-352
Project No. 1210465-014-AC
New Kiln Line No. 2 System

Authorized Representative:
Tom Messer, Plant Manager

Enclosed is the Final Permit authorizing construction of the new Kiln Line No. 2 system at the existing plant, which is located at 5117 US Highway 27 in Branford, Suwannee County, Florida. As noted in the attached Final Determination, only minor corrections and clarifications were made. This permit is issued pursuant to Chapter 403, Florida Statutes.

Any party to this order has the right to seek judicial review of it under Section 120.68 of the Florida Statutes by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel (Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000) and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within thirty (30) days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida.

Trina Vielhauer, Chief
Bureau of Air Regulation

NOTICE OF FINAL PERMIT

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Notice of Final Permit (including the Final Permit and Final Determination) was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 2/16/06 to the persons listed:

Tom Messer, SAC*
Celso Martini, SAC
Dan Fritz, SAC
Joe Horton, SAC
Larry Sellers, Esq.*
Stephanie Brooks, Brooks and Associates
Frank Darabi, Darabi and Associates*
Chris Kirts, NED
Jim Little, EPA Region 4
John Bunyak, NPS
Chair, Suwannee County BCC
Rob Brinkman, Sierra Club
Jim Stevenson
Tom Workman, DEP
Mark Latch, DEP
December McSherry
Svenn Lindskold
Tom Greenhalgh, Florida Geo.Survey*
Dave Bruderly
Chris Bird, Alachua Co. DER
Chair, Alachua Co. BCC*
J. Calvin Gaddy
Emily Casey
Annette Long, Save Our Suwannee
Patrice Boyes, Esq.*
Kathy Cantwell
Ralph Ashodian
Virginia Seacrist
Bob and Lynn Milner
Linda Pollini
Helen Beaty
Bessie Robinson
Craig Pittman, St. Petersberg Times
Chuck Yagel*
John Parrino

Clerk Stamp

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

Mary F. Harrison (Clerk) 2/16/06 (Date)

Department of Environmental Protection

Jeb Bush
Governor

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

Colleen M. Castille
Secretary

PERMITTEE:

Suwannee American Cement, L.L.C.
Branford Cement Plant
5117 US Highway 27
Branford, FL 32008

Authorized Representative:
Tom Messer, Plant Manager

Air Permit No. PSD-FL-352
Project No. 1210465-014-AC
New Kiln Line No. 2 System
Permit Expires: February 15, 2010

FACILITY AND LOCATION

Suwannee American Cement, LLC operates an existing portland cement manufacturing plant (SIC No. 3241), which is located at 5117 US Highway 27 in Suwannee County, Florida. The UTM coordinates are: Zone 17; 321.4 km E and 3315.9 km N.

STATEMENT OF BASIS

This permit authorizes the construction of a second dry process, preheater/precalciner kiln system with in-line raw mill at the existing plant. The permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.). The permittee is authorized to perform the proposed work in accordance with the conditions of this permit and as described in the application, approved drawings, plans, and other documents on file with the Department.

Michael G. Cooke, Director
Division of Air Resource Management

Effective Date: 02-15-06

FACILITY DESCRIPTION

The existing facility consists of a portland cement manufacturing plant, the associated quarry, and raw material and cement handling operations. The plant combines raw materials and utilizes a preheater/calciner kiln system with inline mill to produce cement clinker. The clinker is milled and combined with gypsum to produce portland cement. The existing plant has a capacity of 210 tons per hour of dry preheater feed materials, 120 tons per hour of clinker production, and 150 tons per hour of portland cement production. Annual production is limited to the following 12-month rolling totals: 1,648,578 tons per year of dry preheater feed materials; 965,425 tons per year of clinker production; and 1,191,360 tons per year of portland cement production. Fuel authorized for the pyroprocessing system includes natural gas, coal, petroleum coke, and whole or chipped tires. The plant also operates a coal processing operation to crush coal and petroleum coke with a monthly processing capacity of 13,360 tons of coal and/or petroleum coke, combined. The plant uses Selective Non-Catalytic Reduction (SNCR) to control NOx emissions from the existing pyroprocessing system.

REGULATORY CLASSIFICATION

Title III: The cement plant is a major source of hazardous air pollutants (HAP).

Title IV: The cement plant operates no units subject to the acid rain provisions of the Clean Air Act.

Title V: The cement plant is a Title V major source in accordance with Chapter 213, F.A.C.

PSD: The cement plant is a PSD-major facility in accordance with Rule 62-212.400, F.A.C. The proposed project is a major PSD modification.

NSPS: Portions of the cement plant are subject to the following New Source Performance Standards (NSPS) in 40 CFR 60: Subpart A (General Provisions); Subpart F (Portland Cement Plants); Subpart Y (Coal Preparation Plants); and Subpart OOO (Nonmetallic Mineral Processing).

NESHAP: Portions of the cement plant are subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) in 40 CFR 63: Subpart A (General Provisions); and Subpart LLL (Portland Cement Manufacturing Industry).

State Rules: The cement plant is subject to state Rule 62-296.407, F.A.C. (Portland Cement Plants).

PROJECT DESCRIPTION

This permit authorizes the construction of a new cement manufacturing line (Kiln Line No. 2) at the existing facility. The project will affect the following existing and new emissions units.

ID No.	Emissions Unit Description
001	(Existing) Primary crusher and associated belt conveyors
003	(Existing) Raw material processing with unenclosed conveyor transfer points - D conveyors
009	(Existing) Unenclosed coal conveying equipment - S Conveyors
011	(New) Clinker and cement handling and storage with baghouse controls for miscellaneous emissions points
012	(New) Coal mill and coal transfer system with baghouse controls for emissions points
013	(New) Dry process preheater/precalciner rotary kiln with in-line raw mill
014	(New) Raw material handling and storage with baghouse controls for miscellaneous emissions points
015	(New) Fugitive dust from storage piles, paved roads, and unpaved roads

Kiln Line No. 2 will have the following capacities: 215 tons per hour of dry preheater feed materials; 127 tons per hour of clinker production; and 175 tons per hour of portland cement production. The permit limits annual

clinker production from Kiln Line No. 2 to no more than 1,055,500 tons during any consecutive 12 months. This project is subject to preconstruction review for the Prevention of Significant Deterioration (PSD) of Air Quality for emissions of carbon monoxide (CO), nitrogen oxides (NOx), particulate matter (PM/PM_{10}), sulfur dioxide (SO_2), and volatile organic compounds (VOC). The permit includes emissions standards and work practices that represent determinations of the Best Available Control Technology (BACT) for each of these pollutants.

NOx emissions from the pyroprocessing system will be controlled with a Selective Non-Catalytic Reduction (SNCR) system. Particulate matter emissions from the kiln system will be controlled by a single baghouse control system. Authorized fuels for the pyroprocessing system include natural gas, fuel oil, on specification used oil fuel, coal, petroleum coke, and tires (whole, chipped, or gasified tires). The plant will also include a coal processing operation designed to crush coal and petroleum coke with an annual processing capacity of 150,000 tons per year of coal and/or petroleum coke.

CONTENTS

RELEVANT DOCUMENTS

The permit application, additional information received to make it complete, and the Department's Technical Evaluation and Preliminary Determination are not a part of this permit; however, this information is specifically related to the permitting action and is on file with the Department.

1. Permitting Authority: All documents related to PSD applications for permits to construct or modify emissions units shall be submitted to the Bureau of Air Regulation of the Florida Department of Environmental Protection (DEP) at 2600 Blair Stone Road (MS #5505), Tallahassee, Florida 32399-2400. All documents related to applications for permits to construct minor sources of air pollution or to operate the facility shall be submitted to the Air Resources Section of the Department's Northeast District Office at 7825 Baymeadows Way, Suite 200-B, Jacksonville, FL 32256-7590.

2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the Air Resources Section of the Department's Northeast District Office at 7825 Baymeadows Way, Suite 200-B, Jacksonville, FL 32256-7590.

3. Appendices: The following appendices are attached as a part of this permit: Appendix A (Citation Formats); Appendix B (General Conditions); Appendix C (Common State Rules); Appendix D (Used Oil Fuel Requirements); Appendix E (Summary of Final BACT Determinations); Appendix F (Quarterly Report); Appendix G (NSPS Subpart F Provisions - Portland Cement Plants); Appendix H (NSPS Subpart Y Provisions – Coal Preparation Plants); Appendix I (NSPS Subpart OOO Provisions – Nonmetallic Mineral Processing Plants); and Appendix J (NESHAP Subpart LLL Provisions – Portland Cement Manufacturing Industry).

4. Applicable Regulations, Forms and Application Procedures: Unless otherwise indicated in this permit, the construction and operation of the subject emissions unit shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of: Chapter 403 of the Florida Statutes (F.S.); Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.); and Title 40 of the Code of Federal Regulations (CFR) adopted by reference in Rule 62-204.800, F.A.C. The terms used in this permit have specific meanings as defined in the applicable chapters of the Florida Administrative Code. The permittee shall use the applicable forms listed in Rule 62-210.900, F.A.C. and follow the application procedures in Chapter 62-4, F.A.C. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations. [Rules 62-204.800, 62-210.300 and 62-210.900, F.A.C.]

5. Construction and Expiration: The permit expiration date includes sufficient time to complete construction, perform required testing, submit test reports, and submit an application for a Title V operation permit to the Department. Approval to construct shall become invalid for any of the following reasons: construction is not commenced within 18 months after issuance of this permit; construction is discontinued for a period of 18 months or more; or construction is not completed within a reasonable time. The Department may extend the 18-month period upon a satisfactory showing that an extension is justified. In conjunction with an extension of the 18-month period to commence or continue construction (or to construct the project in phases), the Department may require the permittee to demonstrate the adequacy of any previous determination of Best Available Control Technology (BACT) for emissions units regulated by the project. For good cause, the permittee may request that this PSD air construction permit be extended. Such a request shall be submitted to the Department's Bureau of Air Regulation at least sixty (60) days prior to the expiration of this permit. [Rules 62-4.070(4), 62-4.080, 62-210.300(1), and 62-212.400(6)(b), F.A.C.; 40 CFR 52.21(r)(2); 40 CFR 51.166(j)(4)]

6. New or Additional Conditions: For good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time. [Rule 62-4.080, F.A.C.]

7. Relaxations of Restrictions on Pollutant Emitting Capacity. If a previously permitted facility or modification becomes a facility or modification which would be subject to the preconstruction review

requirements of this rule if it were a proposed new facility or modification solely by virtue of a relaxation in any federally enforceable limitation on the capacity of the facility or modification to emit a pollutant (such as a restriction on hours of operation), which limitation was established after August 7,1980, then at the time of such relaxation the preconstruction review requirements of this rule shall apply to the facility or modification as though construction had not yet commenced on it. [Rule 62-212.400(2)(g), F.A.C.]

8. Modifications: No emissions unit or facility subject to this permit shall be constructed or modified without obtaining an air construction permit from the Department. Such permit shall be obtained prior to beginning construction or modification. [Rule 62-4.030 and Chapters 62-210 and 62-212, F.A.C.]

9. Title V Permit: This permit authorizes construction of the permitted emissions units and initial operation to determine compliance with Department rules. A Title V operation permit is required for regular operation of the permitted emissions unit. The permittee shall apply for a Title V operation permit at least 90 days prior to expiration of this permit, but no later than 180 days after commencing operation. To apply for a Title V operation permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall be submitted to the Air Resources Section of the Department's Northeast District Office at 7825 Baymeadows Way, Suite 200-B, Jacksonville, FL 32256-7590. [Rules 62-4.030, 62-4.050, 62-4.220 and Chapter 62-213, F.A.C.]

A. Kiln Line No. 2 System

The following specific conditions apply to the following emissions units after construction:

ID No.	Emissions Unit Description
013	Kiln Line No. 2 – Dry process preheater/precalciner rotary kiln with in-line raw mill

{Permitting Note: This emissions unit is subject to the following applicable requirements: NSPS Subpart A (General Provisions) and NSPS Subpart F (Portland Cement Plants) in 40 CFR 60; NESHAP Subpart A (General Provisions) and NESHAP Subpart LLL (Portland Cement Manufacturing Industry) in 40 CFR 63; and Rule 62-296.407, F.A.C. (Portland Cement Plants). This unit is also subject to the Best Available Control Technology (BACT) requirements in Rule 62-212.400, F.A.C. as specified in this section.}

PERFORMANCE REQUIREMENTS

1. Kiln Line No. 2: The permittee is authorized to install a second pyroprocessing system consisting of a dry process pre-heater/precalciner rotary kiln with in-line raw mill, clinker cooler, air heater (associated with raw mill), exhaust stack and other ancillary equipment subject to the capacities and maximum process rates specified in this permit. All exhaust from the pyroprocessing system (including the air heater) shall be controlled by a single baghouse and shall pass through a single stack (Emissions Point No. 2K-06). *{Permitting Note: The exhaust stack will be no more than 9.42 feet in diameter and no less than 315 feet tall.}* [Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.; Application No. 1210465-014-AC]
2. Hours of Operation: The hours of operation for this emissions unit are not limited (8760 hours per year). [Rule62-210.200(PTE), F.A.C.]
3. Facility Portland Cement Production: The facility shall (Kiln Line Nos. 1 and 2) not produce more than 2,382,720 tons of portland cement during any consecutive 12 months. [Rule 62-4.070(3), 62-212.200(PTE), and 62-212.400(BACT), F.A.C.]
4. Kiln Process and Production Rate Limitations: The dry preheater feed material rate (excluding dry fly ash injected directly into the calciner) to the kiln shall not exceed 1,789,230 tons during any consecutive 12 months. The clinker production rate of the kiln shall not exceed 127 tons per hour (24-hour rolling average) and 1,055,500 tons during any consecutive 12-months. The clinker production rate shall be determined by the following equation:

   Clinker Production = [(Kiln Feed) (Kiln Feed LOI Factor) + (Fly Ash Injection) (Fly Ash LOI Factor)]

   Where:

   - "Kiln Feed" as determined by kiln feed control system
   - "Fly Ash Injection" as determined from the rotary feed system or equivalent.
   - The "Kiln Feed LOI Factor" and the "Fly Ash LOI Factor" shall be based on a 30 operating-day block average of daily measurements. For purposes of this requirement, an operating day is any day that the kiln produces clinker or fires fuel.

   {Permitting Note: For reference, the kiln will be designed to process approximately 215 tons per hour of dry preheater feed material (excluding dry fly ash injected directly into the calciner) through the kiln.} [Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.; Application No. 1210465-014-AC]
5. Authorized Fuels: The maximum heat input rate to the pyroprocessing system (kiln and calciner) shall not exceed 364 MMBtu per hour. Only the following authorized fuels shall be fired: coal, petroleum coke, fly ash, gasified tires, whole or chipped tires, natural gas, distillate oil, and/or on-specification used oil fuel.
   a. The permittee is authorized to install a tire gasification system with an airlock on the feed mechanism. The maximum heat input rate from gasified tires shall not exceed 40% of the total pyroprocessing heat input rate (kiln and calciner) and shall not exceed 146 MMBtu per hour at any time. The remaining 60% of the total pyroprocessing heat input rate shall come from other authorized fuels. The permittee

shall provide details of the gasifier system within 30 days of finalizing the design.

b. The maximum heat input rate from firing whole or chipped tire derived fuel (TDF) shall not exceed 15% of the total pyroprocessing heat input rate (kiln and calciner) and shall not exceed 54.6 MMBtu per hour at any time. The remaining 85% of the total pyroprocessing heat input rate shall be from the firing of other authorized fuels. TDF shall be directly fed into the kiln system at the transition section between the base of the calciner and the point where gases exit the kiln. The tire feed mechanism shall be designed with an airlock/gate system. Tires shall be stored, handled and managed in accordance with the provisions of Chapter 62-711, F.A.C.

c. The firing of "on-specification" used oil fuel shall not exceed 1000 gallons per hour and 1,500,000 gallons during any consecutive 12 months. See Appendix D for "on-specification" used oil fuel requirements.

d. Fly ash may be introduced as a raw material supplement or a fuel through either the preheater tower or directly into the calciner. *{Permitting Note: "Fly ash" may consist of fly or bottom ash from a power plant.}*

e. The air heater shall fire only natural gas with a design maximum heat input rate of 32 MMBtu per hour.

The permittee may submit an application for an air construction permit requesting authorization to fire other additional fuels (non-hazardous solids and liquids) in the pyroprocessing system (kiln and calciner). [Rules 62-4.070(3) and 62-210.200(PTE), F.A.C.; Application No. 1210465-014-AC]

6. Prohibited Fuels and Materials: The owner or operator shall not introduce into any part of the process or emission control equipment (i.e., staged combustion in calciner) any of the following fuels and materials: hazardous wastes; petroleum contaminated soil or materials; oil, used oil, or solid fuels other than those allowed by this permit; or solid wastes other than tires as allowed by this permit. [Rule 62-4.070(3), F.A.C.]

7. Cement Kiln Dust: Cement kiln dust shall be recirculated in the process and shall not be directly discharged from process or emission control equipment unless authorized by the Department. Cement kiln dust removed from process equipment during maintenance and repair shall be confined and controlled at all times and shall be managed in accordance with the applicable provisions of 40 CFR 261. [Rule 62-4.070(3), F.A.C.]

8. Emissions Controls

a. *Nitrogen Oxides (NOx)*: The kiln system design shall incorporate staged combustion in the calciner (SCC) to reduce NOx emissions. An ammonia-based Selective Non-Catalytic Reduction (SNCR) system shall be installed to further control NOx emissions. The SNCR system consists of an ammonia tank, pumps, piping, compressed air delivery, injectors, control system, and other ancillary equipment. Ammonia solutions (i.e., 19% ammonia, urea, etc.) shall be injected at a location with an appropriate temperature profile to support the SNCR process. To prevent excessive ammonia slip, the ammonia injection rate shall not exceed a NH_3/NOx molar ratio of 1.0. The Title V air operation permit shall specify a maximum ammonia injection rate (gph) that represents a NH_3/NOx molar ratio of less than 1.0. SCC and/or SNCR shall be used to achieve the NOx emissions standards specified in this permit.

b. *Particulate Matter (PM/PM_{10})*: The permittee shall install a baghouse control system to remove particulate matter emissions from the exhaust gas stream (kiln/raw mill/clinker cooler) to achieve the PM/PM_{10} emissions standards specified in this permit.

c. *Sulfur Dioxide (SO_2)*: The owner or operator shall control SO_2 emissions through design and control of the clinker production process. In addition, the owner or operator shall install a hydrated lime injection system to reduce SO_2 emissions. The hydrated lime injection system shall be used as necessary to achieve the SO_2 emissions standards specified in this permit.

d. *Carbon Monoxide (CO) and Volatile Organic Compounds (VOC)*: The owner or operator shall control

CO and VOC emissions through design and control of the combustion process with good operating practices.

[Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

9. O&M Plan for Baghouse: The permittee shall prepare an operation and maintenance (O&M) plan to address the schedule for inspection and preventive maintenance of the baghouse control system. The O&M plan shall be submitted to the Compliance Authority prior to expiration of this permit. The permittee shall maintain records of the condition of the control equipment for each inspection and any maintenance activities performed. [Rule 62-4.070(3), F.A.C.]

EMISSION LIMITATIONS AND PERFORMANCE STANDARDS

10. Kiln Line No. 2: Emissions from the pyroprocessing system (including emissions from the air heater) shall not exceed the following emissions standards.

Pollutant	Emissions Standards		Averaging Time
Best Available Control Technology (BACT) - Rule 62-212.400(6), F.A.C.			
CO [a]	2.90 lb/ton of clinker	368.3 lb/hour	30-day rolling CEMS average
NOx [b]	1.95 lb/ton of clinker	247.7 lb/hour	30-day rolling CEMS average
NOx [b] (Initial Startup)	(3.0 lb/ton of clinker)	(381.0 lb/hour)	(30-day rolling CEMS average)
PM/PM10 [c, d]	0.10 lb/ton of dry PHFM	21.5 lb/hour	Average of three, 1-hour test runs
	10% opacity		6-minute block average w/COMS
SO2 [e]	0.20 lb/ton of clinker	25.4 lb/hour	24-hour rolling CEMS average
VOC [f]	0.12 lb/ton of clinker	15.2 lb/hour	30-day block CEMS average
PSD Preconstruction Review Avoidance – Rule 62-212.400(2)(g), F.A.C.			
Mercury [g]	117.5 pounds per consecutive 12 months		See permit Condition No. 19.
State Rule for Portland Cement Plants – Rule 62-296.407, F.A.C.			
PM (Kiln) [d]	0.3 lb/ton of dry PHFM		Average of three, 1-hour test runs
PM (Clinker Cooler) [d]	0.1 lb/ton of dry PHFM		Average of three, 1-hour test runs
NSPS Subpart F – 40 CFR 60.62 (See Appendix G in Section 4 of this permit for full requirements.)			
PM (Kiln) [h]	0.30 lb/ton of dry PHFM		Average of three, 1-hour test runs
	20% opacity		6-minute block average w/COMS
PM (Clinker Cooler) [h]	0.10 lb/ton of dry PHFM		Average of three, 1-hour test runs
	10% opacity		6-minute block average
NESHAP Subpart LLL – 40 CFR 63.1343 (See Appendix J in Section 4 of this permit for full requirements.)			
PM [i]	0.30 lb/ton of dry PHFM		Average of three, 1-hour test runs
Opacity [i]	20% opacity		6-minute block average w/COMS
Dioxin/Furan [i, j]	0.20 ng/dscm (TEQ) @ 7% oxygen		Average of three test runs
THC [i]	50 ppmvd (as propane) @ 7% oxygen		30-day block CEMS average

a. Compliance shall be demonstrated by CO CEMS.

b. Compliance shall be demonstrated by NOx CEMS. For an "initial startup" period, NOx emissions shall not exceed 3.0 lb/ton of clinker (381.0 lb/hour) based on a 30-day rolling average. The "initial startup" period shall begin after initial certification of the NOx CEMS and shall end when any of the following

conditions are met:

1) The Kiln Line No. 2 system produces 75,000 tons of clinker or more in any 30-day rolling period.

2) The Kiln Line No. 2 system produces 150,000 tons of clinker.

3) 365 days calendar days elapse after initial certification of the NOx CEMS.

After the "initial startup" period ends, NOx emissions shall not exceed 1.95 lb/ton of clinker (247.7 lb/hour) based on a 30-day rolling average. These requirements do not waive or vary any applicable NSPS or NESHAP monitoring or record keeping requirements.

c. Compliance with the opacity standard shall be demonstrated by COMS and/or EPA Method 9. Opacity shall be based on a 6-minute block average computed from at least one observation (measurement) every 15 seconds. For the COMS, the 6-minute block averages shall begin at the top of each hour.

d. "PHFM" means preheater feed material. Compliance with the particulate matter standard shall be demonstrated based on stack testing conducted in accordance with EPA Method 5. All PM emitted from baghouse exhaust is assumed to be PM_{10}. *{Permitting Note: The BACT standard is equivalent to approximately 0.17 lb of PM per ton of clinker and includes the clinker cooler emissions. The emissions limits for particulate matter and visible emissions imposed by Rule 62-212.400(BACT) are as stringent as or more stringent than the limits imposed by the applicable NSPS or NESHAP provisions. Nevertheless, the BACT requirements do not waive or vary any applicable NSPS or NESHAP monitoring or record keeping requirements.}*

e. Compliance shall be demonstrated by SO_2 CEMS.

f. Compliance shall be demonstrated by THC CEMS. VOC emissions shall be measured as total hydrocarbons (THC) and expressed as "propane" for the mass emissions rate. The 30-day block CEMS average shall be consistent with the averaging period specified in §63.1350(h).

g. The total mass of mercury compounds (expressed as Hg) introduced into the pyroprocessing system of the raw mill feed and fuels shall not exceed 117.5 pounds during any consecutive 12-month period. Compliance shall be demonstrated using the sampling, analysis, and calculation methods specified in permit Condition No. 19.

h. See Appendix G of this permit for the NSPS Subpart F requirements.

i. See Appendix J of this permit for the NESHAP Subpart LLL requirements.

j. Alternatively, dioxin/furans shall not exceed 0.40 ng/dscm (TEQ) @ 7% oxygen when the average of the performance test run average temperatures at the inlet to the particulate matter control device is 204° C (400° F) or less.

{Permitting Note: In combination with the annual raw material process rate limitation of 1,789,230 tons per year and annual clinker production limitation of 1,055,500 tons per year, the above emissions standards effectively limit annual potential emissions to: 89 tons/year of PM/PM_{10}; 106 tons/year of SO_2; 1029 tons/year of NOx (after year one); 1530 tons/year of CO; and 63 tons/year of VOC. Note that first year annual NOx emissions could be as high as 1583 tons/year.} [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

11. Excess Emissions: Continuous monitoring data collected during periods of startup, shutdown, and malfunction may be excluded from the compliance demonstrations only in accordance with the following requirements, provided that best operational practices to minimize emissions are adhered to and the duration of excess emissions are minimized. As provided by the authority in Rule 62-210.700(5), F.A.C., the following conditions replace the provisions in Rule 62-210.700(1), F.A.C.

a. *Definitions*: "Startup" means the commencement of operation of any emissions unit which has shut down or ceased operation for a period of time sufficient to cause temperature, pressure, chemical or pollution control device imbalances, which result in excess emissions. "Shutdown" means the cessation of the operation of an emissions unit for any purpose. "Malfunction" means any unavoidable

mechanical and/or electrical failure of air pollution control equipment or process equipment or of a process resulting in operation in an abnormal or unusual manner.

b. *CO Data*: Each 30-day rolling average shall include all periods of operation (including startup, shutdown, and malfunction), but may exclude limited periods due to equipment malfunctions. No more than 30 hours in any calendar month shall be excluded from the compliance determinations due to equipment malfunctions. Malfunctions do not include process upsets that occur as a normal part of cement production.

c. *NOx Data*: Each 30-day rolling average shall include all periods of operation (including startup, shutdown, and malfunction), but may exclude limited periods due to malfunctions of the SNCR system, which are defined as any unavoidable mechanical and/or electrical failure that prevents introduction of ammonia-based solutions into the kiln system. No more than 30 hours in any calendar month shall be excluded from the compliance determinations due to malfunctions of the SNCR system.

d. *SO_2 Data*: Each 24-hour rolling average shall include all periods of operation (including startup, shutdown, and malfunction), but may exclude limited periods due to malfunctions of the hydrated lime system, which are defined as any unavoidable mechanical and/or electrical failure that prevents introduction of lime into the kiln system. No more than 30 hours of data in any calendar month shall be excluded from the compliance determinations due to malfunctions of the hydrated lime system.

e. *Other Data*: All opacity and VOC data shall be included in the compliance determination.

Within one working day of occurrence, the owner or operator shall notify the Compliance Authority of any malfunction resulting in the exclusion of CEMS data. Excess emissions caused entirely or in part by poor maintenance, poor operation or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction shall be prohibited. All such reasonably preventable emissions shall be included in any CEMS compliance determinations. All valid emissions data (including data collected during startup, shutdown and malfunction) shall be used to report emissions for the Annual Operating Report.

[Rules 62-210.200, 62-212.400(BACT) and 62-210.700, F.A.C.]

CONTINUOUS MONITORING REQUIREMENTS

12. Continuous Emission Monitoring Systems (CEMS): The permittee shall install, calibrate, operate and maintain CEMS to measure and record concentrations of CO, NOx, SO_2, and VOC in the kiln system exhaust stack in a manner sufficient to demonstrate continuous compliance with the emissions standards specified in this permit. All continuous monitoring systems and monitoring devices shall be installed and operational prior to conducting initial performance tests. The permittee shall notify the Compliance Authority within one working day of discovering emissions in excess of a CEMS standard subject to the specified averaging period. Each monitoring system shall be installed, calibrated, and properly functioning prior to the initial stack tests.

a. *CO Monitor.* A monitor shall be installed to determine CO emissions from the stack and shall meet the requirements of Performance Specification 4 or 4A in Appendix B of 40 CFR 60. The required RATA tests shall be performed using EPA Method 10 in Appendix A of 40 CFR 60. Quality assurance procedures shall conform to the requirements of Appendix F in 40 CFR 60.

b. *NOx Monitor.* A monitor shall be installed to determine NOx emissions from the stack and shall meet the requirements of Performance Specification 2 in Appendix B of 40 CFR 60. The required RATA tests shall be performed using EPA Method 7E in Appendix A of 40 CFR 60. Quality assurance procedures shall conform to the requirements of Appendix F in 40 CFR 60.

c. *SO_2 Monitor.* A monitor shall be installed to determine SO_2 emissions from the stack and shall meet the requirements of Performance Specification 2 in Appendix B of 40 CFR 60. The required RATA

tests shall be performed using EPA Method 6C in Appendix A of 40 CFR 60. Quality assurance procedures shall conform to the requirements of Appendix F in 40 CFR 60.

d. *VOC Monitor.* A monitor shall be installed to determine THC emissions from the stack and shall meet the requirements of NESHAP Subpart LLL in 40 CFR 63 (§63.1349 and §63.1350). The THC monitor shall include provisions to determine the moisture content of the exhaust gas and an algorithm to enable correction of the monitoring results to a dry basis (0% moisture). An oxygen monitor shall also be installed at the THC monitor location to correct measured THC emissions to the required oxygen concentration.

e. *Emissions Data.* Each CEMS shall be designed and operated to sample, analyze, and record data evenly spaced over the hour at a minimum of one measurement per minute. All valid measurements collected during an hour shall be used to calculate a 1-hour block average that begins at the top of each hour. Each 1-hour block average shall be computed using at least one data point in each fifteen-minute quadrant of an hour, where the unit combusted fuel (or produced clinker) during that quadrant of an hour. Notwithstanding this requirement, a 1-hour average shall be computed from at least two data points separated by a minimum of 15 minutes. If less than two such data points are available, there is insufficient data and the 1-hour block average is not valid. Hours during which there is no kiln feed and no fuel fired are not valid hours. The CEMS shall express emissions in units of "pounds per ton of clinker produced" and "pounds per hour". THC emissions data shall also be expressed as "ppmvd (as propane) @ 7% oxygen".

f. *Emissions Averaging Periods.*

1) SO_2: Each 24-hour rolling average shall be the arithmetic average of the last 24 valid hourly averages. A new 24-hour rolling average shall be recomputed after every valid hour of operation for the new hour and the preceding 23 valid operating hours.

2) CO and NOx: Each 30-day rolling average shall be the arithmetic average of all valid hourly averages collected during the last 30 operating days. A new 30-day rolling average shall be recomputed after every day of operation for the new day and the preceding 29 operating days.

3) VOC: Each 30-day block average shall be the arithmetic average of all valid emissions data collected during the 30-day block of operation. Emissions data shall be collected at least once each minute of operation. A new 30-day block average shall be recomputed based on 30 new days of operation. This averaging period applies only to VOC emissions and shall be consistent with the averaging period specified in §63.1350(h) for THC emissions.

g. *Data Exclusion.* Except for monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments, each CEMS shall monitor and record emissions during all operations including episodes of startups, shutdowns, and malfunctions. Limited amounts of CEMS emissions data recorded during some of these episodes may be excluded from the corresponding compliance demonstration as provided by Condition No. 11 in this section. The permittee shall minimize the duration of data excluded for such episodes to the extent practicable.

h. *Availability.* Monitor availability for each CEMS shall be 95% or greater in any calendar quarter. Monitor availability shall be reported in the quarterly excess emissions report. In the event 95% availability is not achieved, the permittee shall provide the Department with a report identifying the problems in achieving 95% availability and a plan of corrective actions that will be taken to achieve 95% availability. The permittee shall implement the reported corrective actions within the next calendar quarter. Failure to take corrective actions or continued failure to achieve the minimum monitor availability shall be violations of this permit, except as otherwise authorized by the Compliance Authority.

CEMS are also subject to the General Provisions specified in Subpart A of 40 CFR 60 (CO, NOx, and SO_2) and Subpart A of 40 CFR 63 (THC/VOC). [Rules 62-4.070(3), 62-210.800, 62-212.400(BACT) and 62-297.520, F.A.C.]

13. Flow Monitoring: To support the CEMS monitoring data, a monitor shall be installed to determine the representative stack exhaust flow rate in accordance with Performance Specification No. PS-6 (Specifications and Test Procedures For Continuous Emission Rate Monitoring Systems in Stationary Sources) in Appendix B of 40 CFR 60. [Rules 62-4.070(3), F.A.C.; Appendix B in 40 CFR 60]

14. Continuous Opacity Monitoring System (COMS): A COMS shall be installed, calibrated, operated, and maintained in the kiln system exhaust stack after the baghouse in a manner sufficient to demonstrate continuous compliance with the opacity standards specified in this permit. The COMS shall meet the applicable requirements of §63.1350. [NESHAP Subpart LLL in 40 CFR 63]

15. CEMS/COMS Certification and Initial Startup: Each CEMS/COMS required by this permit shall be installed prior to startup. Within 60 calendar days of achieving an average daily clinker production rate of 105 tons per hour, but no later than 180 calendar days after initial startup, the owner or operator shall certify each CEMS/COMS. Upon certification of each CEMS/COMS, the owner or operator shall demonstrate compliance with all applicable standards as specified in this permit. [Rules 62-4.070(3), 62-210.800, 62-212.400(BACT) and 62-297.520, F.A.C.; 40 CFR 60.7(a), 60.13(b) and Appendix B; and 40 CFR 63.7(a)(2)]

16. Baghouse Temperature Monitor: A continuous temperature monitor shall be installed, calibrated, operated, and maintained at the inlet to the baghouse for the kiln system exhaust in accordance with the requirements of §63.1350(f). [NESHAP Subpart LLL in 40 CFR 63]

17. Ammonia Injection: A monitoring system to continuously monitor and record the ammonia injection rate of the SNCR system (1-hour block averages) shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

18. Continuous Monitor Data Retrieval System: At its sole expense, the owner or operator shall:

    a. Ensure all of the CEMS are operational, recording and continuously transmitting available data to the Compliance Authority.

    b. Provide the Compliance Authority with one personal computer equipped with a modem and software (as necessary), and corresponding hardware at the owner's facility, to enable the Compliance Authority at any time to connect to the CEMS and access the following: emissions data from the continuous monitors for CO, NOx, SO_2, and VOC expressed in terms of the units of the emission limiting standards of this permit; opacity data from the COMS; temperature data from the monitor at the inlet to the baghouse for the in-line kiln/raw mill system; ammonia injection rate data from the continuous monitor for the SNCR system; dry preheater feed material rate data; and clinker production rate data. The computer and software shall also: provide a numerical and graphical display of these data in real time pursuant to the averaging requirements of this permit; allow the Compliance Authority to electronically store, retrieve, and print such data; and allow the Compliance Authority to review the exception log for any previous period of time accessible through the continuous monitor data management system.

    c. Post emissions to an Internet web site, accessible to the Compliance Authority and public at any time via standard Internet browser software, the following data on a real-time basis: emissions data from the continuous monitors for CO, NOx, SO_2, and VOC expressed in terms of the units of the emission limiting standards of this permit; opacity data from the COMS; temperature data from the monitor at the inlet to the baghouse for the in-line kiln/raw mill system; and ammonia injection rate data from the

continuous monitor for the SNCR system.

[Rule 62-4.070(3), F.A.C]

COMPLIANCE TESTING REQUIREMENTS

19. Mercury Compliance Demonstration: The owner or operator shall demonstrate compliance with the mercury throughput limitation by material balance and maintaining records of the monthly and rolling 12-month mercury throughput. Samples of the raw mill feed, fly ash and all fuels shall be collected each day. A single composite daily sample shall be made from all samples collected during a day. A monthly composite sample shall be made from each of the daily composite samples. Each monthly composite sample shall be analyzed to determine the representative mercury concentration for the month. The analytical methods used to determine mercury concentration shall be EPA or ASTM methods such as EPA Method 7471A (Mercury in Solid or Semisolid Waste). No other methods may be used unless prior written approval is received from the Department. For samples with levels below the detection limit, the permittee shall report the detection limit as the corresponding level. For each composite sample, the mercury throughput rate (pounds per month) shall be the product of the mercury concentration from the monthly composite sample and the corresponding monthly processing rate. For each month, the mass of mercury introduced into the pyroprocessing system (pounds per month) shall be the sum of the monthly mercury throughput rates for the raw mill feed, fly ash and fuel. The consecutive 12-month mercury throughput rate shall be the sum of the individual monthly records for the current month and the preceding eleven months (pounds of mercury per consecutive 12-months). Such records, including calculations and data, shall be completed no later than 25 days following the month of the records. [Rules 62-4.070(3) and 62-212.400(2)(g), F.A.C.]

20. Test Methods: Any required stack tests shall be performed in accordance with the following methods.

EPA Method	Description of Method and Comments
1 - 4	Determination of Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content *Methods shall be performed as necessary to support other methods.*
5	Measurement of Particulate Matter Emissions *The minimum sample volume shall be 30 dry standard cubic feet.*
6C	Measurement of SO2 Emissions (Instrumental)
7E	Measurement of NOx Emissions (Instrumental) *NOx emissions testing shall be conducted with the air heater operating at the highest heat input possible during the test.*
9	Visual Determination of the Opacity
10	Measurement of Carbon Monoxide Emissions (Instrumental) *The method shall be based on a continuous sampling train.*
19	Calculation Method for NOx, PM, and SO2 Emission Rates
23	Measurement of Dioxin/Furan Emissions
25A	Measurement of Gaseous Organic Concentrations (Flame Ionization – Instrumental)

The methods are specified in Appendix A of 40 CFR 60, adopted by reference in Rule 62-204.800, F.A.C. No other methods may be used unless prior written approval is received from the Department. Tests shall be conducted in accordance with the appropriate test method and the applicable requirements specified in Appendix C of this permit, NSPS Subparts A and F in 40 CFR 60, and NESHAP Subparts A and LLL in 40 CFR 63. [Rules 62-204.800, F.A.C.; 40 CFR 60, Appendix A]

21. Initial and Subsequent Tests

a. *Pollutants*: In accordance with the test methods specified in this permit, the kiln system exhaust stack shall be tested to demonstrate compliance with the emission standards for particulate matter and dioxins/furans. Compliance with the permit standards for opacity and emissions of CO, NOx, SO_2, and VOC shall be demonstrated with data collected from the required continuous monitoring systems. Compliance with the mercury throughput limitation shall be demonstrated in accordance with the sampling, analysis, and record keeping requirements specified in Condition No. 19 of this permit. The permittee shall provide the Compliance Authority with any initial emissions performance tests conducted to satisfy vendor guarantees.

b. *Deadline for Tests*: Initial compliance stack tests shall be conducted within 60 days after achieving a daily average clinker production rate of 105 tons per hour, but not later than 180 days after the initial startup. Subsequent annual compliance stack tests for particulate matter shall be conducted during each federal fiscal year (October 1st to September 30th). Subsequent dioxins/furans tests shall be conducted in accordance with the provisions of §63.1349 and Condition No. 22 of this subsection.

c. *Test Conditions*: Initial tests shall be conducted between 90% and 100% of permitted capacity; otherwise, this permit shall be modified to reflect the true maximum capacity as constructed. Subsequent annual tests shall be conducted between 90% and 100% of permitted capacity in accordance with the requirements of Rule 62-297.310(2), F.A.C. Tests shall be conducted for each required pollutant under the fuel scenario representing the highest potential for generating emissions. In general, this fuel scenario is firing coal as the primary fuel and firing tires, petroleum coke, and fly ash as secondary fuels. If a secondary fuel listed above is not available at the time of testing, tests shall be based on the fuels that are available. If a secondary fuel is added later, additional tests shall be conducted with that fuel scenario within 60 days of first fire of the new secondary fuel.

d. *Monitoring Data*: CEMS and COMS data shall be reported and summarized for each required test run.

[Rules 62-212.400(5)(c) and 62-297.310(7)(a) and (b), F.A.C.; 40 CFR 60.8]

22. Supplemental Dioxin/Furan and PM/PM_{10} Tests: The owner or operator shall notify the Compliance Authority prior to initiating any significant change in the feed or fuel used in the most recent satisfactory compliance performance test for dioxin/furan or PM/PM_{10}. For purposes of this condition, significant means any of the following: a physical or chemical change in the feed or fuel; the use of a raw material not previously used; a change in the LOI of the fly ash; a change between non-beneficiated fly ash and beneficiated fly ash. Based on the information provided, the Compliance Authority will promptly determine if performance testing pursuant to §63.1349 will be required for the new feed or fuel. A significant change shall not include switching to a feed/fuel mix for which the permittee already tested in compliance with the dioxin/furan and PM/PM_{10} emission limits. [62-4.070(3), F.A.C.]

23. Special Compliance Tests: When the Department, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in a Department rule or in a permit issued pursuant to those rules is being violated, it shall require the owner or operator of the emissions unit to conduct compliance tests which identify the nature and quantity of pollutant emissions from the emissions unit and to provide a report on the results of said tests to the Department. [Rule 62-297.310(7)(b), F.A.C.]

REPORTING AND RECORD KEEPING REQUIREMENTS

24. Operational Records: To demonstrate compliance with the limitations specified in this section, the owner or operator shall maintain the following records on site.

a. For each 1-hour block of operation, continuously monitor and record: the dry preheater feed rate, clinker production rate, fuel firing rate, heat input rate (as determined by the representative heating

value of each fuel and the hourly fuel firing rate), and NH_3/NO_x molar ratio or ammonia injection rate. Records shall also document the dry preheater feed rate and clinker production rates for each 24-hour rolling period and consecutive 12 months.

b. No later than the 10th day of the following month, calculate and record the cement production rate (tons per month and tons per consecutive 12 months).

c. For each fuel delivery, maintain records of the quantity of fuel delivered and a representative analysis of the fuel. Records shall include the sulfur content, higher and lower heating value, proximate analysis, and ultimate analyses.

d. Maintain records demonstrating compliance with the mercury throughput limitation as required in Condition No. 19 of this permit.

e. Maintain the following records for each equipment malfunction resulting in excluded monitoring data: date and time of event, duration of event, suspected cause of event, and any corrective actions taken.

All records shall be made available to the Department and Compliance Authority upon request. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

25. Stack Test Reports: The owner or operator of an emissions unit for which a compliance test is required shall file a report with the Compliance Authority on the results of each such test. The required test report shall be filed with the Compliance Authority as soon as practical but no later than 45 days after the last sampling run of each test is completed. The test report shall provide sufficient detail on the emissions unit tested and the test procedures used to allow the Compliance Authority to determine if the test was properly conducted and the test results properly computed. As a minimum, the test report, other than for an EPA or DEP Method 9 test, shall provide the specified in Rule 62-297.310(8), F.A.C. [Rule 62-297.310(8), F.A.C.]

26. Malfunction Notifications: If temporarily unable to comply with any condition of the permit due to breakdown of equipment (malfunction) or destruction by hazard of fire, wind or by other cause, the permittee shall immediately (within one working day) notify the Compliance Authority. Notification shall include pertinent information as to the cause of the problem, and what steps are being taken to correct the problem and to prevent its recurrence, and where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with Department rules. If requested by the Compliance Authority, the owner or operator shall submit a quarterly written report describing the malfunction. [Rules 62-210.700(6) and 62-4.130, F.A.C.]

27. Quarterly Report: Within 30 days following the end of each calendar quarter, the permittee shall submit a report to the Compliance Authority summarizing: equipment malfunctions resulting in excluded CEMS data; mercury throughput rates; and the monitor availability of each CEMS. The report shall contain the information and follow the general format specified in Appendix F of this permit. [Rules 62-4.070(3), 62-4.130, and 62-212.400(BACT), F.A.C.]

NSPS SUBPART F OF 40 CFR 60 - PORTLAND CEMENT PLANTS

28. NSPS Subpart F: The affected emissions units are subject to the applicable requirements for Portland Cement Plants specified in NSPS Subpart F of 40 CFR 60. For the full NSPS provisions, see Appendix G in Section 4 of this permit. [40 CFR 60, Subparts A and F]

NESHAP SUBPART LLL OF 40 CFR 63 - PORTLAND CEMENT MANUFACTURING INDUSTRY

29. NESHAP Subpart LLL: The affected emissions units are subject to the applicable requirements for the Portland Cement Manufacturing Industry specified in NESHAP Subpart LLL of 40 CFR 63. For the full NESHAP provisions, see Appendix J in Section 4 of this permit. [40 CFR 63, Subparts A and LLL]

B. Primary Crusher

The specific conditions of this subsection apply to the following emissions unit after construction is complete.

ID	Emission Unit Description
001	(Existing) Primary crusher and associated belt conveyors

{Permitting Note: This emissions unit is subject to the following applicable requirements: NSPS Subpart A (General Provisions) and NSPS Subpart OOO (Nonmetallic Mineral Processing Plants) in 40 CFR 60. It was originally constructed in accordance with Permit No. PSD-FL-259. For this unit, the emissions limiting and performance standards specified in this section also satisfy the requirements of Best Available Control Technology (BACT) in Rule 62-212.400, F.A.C.}

PERFORMANCE REQUIREMENTS

1. Hours of Operation: The hours of operation of this emissions unit are not limited (8760 hours per year). [Rule62-210.200(PTE), F.A.C.]

2. Process Rate Limitation: The crusher shall not process more than 3,450,000 tons of raw materials during any consecutive 12 months. The permittee shall maintain written records of the monthly processing rate. Such records shall be recorded and available for inspection no later than 10 days following the end of the month. *{Permitting Note: The process rate is based on an estimated raw materials moisture content of 15% by weight and includes the weight of this moisture. This is an increase of 1,771,000 tons per year over the existing annual crushing capacity of 1,679,000 tons per year.}* [Rules 62-210.200(PTE) and 62-4.070(3), F.A.C.]

3. Opacity Standards: As determined in accordance with EPA Method 9 observations:

   a. Visible emissions from any crusher, at which a capture system is not used, shall not exceed 15% opacity.

   b. Visible emissions from any transfer point on belt conveyors or from any other affected facility shall not exceed 10% opacity.

   These opacity standards do not apply to truck dumping of nonmetallic minerals into any screening operation, feed hopper, or crusher.

   [Rule 62-212.400(BACT), F.A.C.]

TESTING REQUIREMENTS

4. Visible Emissions Tests: The permittee shall demonstrate compliance with the visible emission limits specified in this subsection by conducting tests in accordance with EPA Method 9. Initial tests shall be conducted within 60 days after achieving the maximum production rate at which the unit will be operated, but not later than 180 days after initial startup. Thereafter, the permittee shall demonstrate compliance during each federal fiscal year (October 1st to September 30th) for the primary crusher. Tests shall be conducted in accordance with the applicable requirements in Appendix C of this permit as well as the applicable NSPS. *{Permitting Note: Unless requested by the Compliance Authority, annual compliance tests for the conveyors are not required.}* [Rules 62-297.310(7)(a), F.A.C.]

5. Test Reports. For each test conducted, the permittee shall file a test report including the information specified in Rule 62-297.310(8), F.A.C. with the Department as soon as practical, but no later than 45 days after the last sampling run of each test is completed. [Rules 62-297.310(8), F.A.C.]

NSPS SUBPART OOO OF 40 CFR 60 - NONMETALLIC MINERAL PROCESSING PLANTS

6. NSPS Subpart OOO: The affected emissions units are subject to the applicable requirements for Nonmetallic Mineral Processing Plants specified in NSPS Subpart OOO of 40 CFR 60. For the full NSPS provisions, see Appendix I in Section 4 of this permit. [40 CFR 60, Subparts A and OOO]

C. Miscellaneous PM Sources – Handling/Storage of Raw Materials and Clinker

This section of the permit addresses the following emissions unit.

ID	Emission Unit Description	
003	(Existing) Raw material processing - unenclosed conveyor transfer points (D conveyors)	
011	(New) Clinker and cement processing with the following emissions points:	
	Point ID No.	*Description*
	L-03-02	Baghouse for clinker pan conveyor
	L-06-02	Baghouse for clinker silo inlet
	L-25-02	Baghouse for gypsum/off-specification clinker transport
	M-08-02	Baghouse for clinker silo outlet conveyor
	M-09-02	Baghouse for gypsum/off-spec. clinker silo outlet
	N-09-02	Baghouse for finish mill separator (1)
	N-12-02	Baghouse for finish mill vent (2)
	N-36-02	Baghouse for fringe cement bin
	N-91-02	Baghouse for finish mill (3)
	P-03-02	Baghouse for cement transport conveyor
	P-11-02	Baghouse for cement silos
	Q-17-02	Baghouse for cement truck load out No. 3
014	(New) Baghouses for raw material processing	
	Point ID No.	*Description*
	E28-02	Baghouse for raw mill
	E34-02	Baghouse for off-specification feed handling
	G07-02	Baghouse for homogenizing silo
	H08-02	Baghouse for Poldos homogenizing silo
	H08A-02	Baghouse for hydrated lime silo
	U-05-02	Baghouse for fly ash silo

{Permitting Note: These emissions units are subject to the following applicable requirements: NSPS Subpart A (General Provisions) and NSPS Subpart F (Portland Cement Plants) in 40 CFR 60; NESHAP Subpart A (General Provisions) and NESHAP Subpart LLL (Portland Cement Manufacturing Industry) in 40 CFR 63. EU-003 was originally constructed in accordance with Permit No. PSD-FL-259. For new units EU-011 and EU-014, the emissions limiting and performance standards specified in this section also satisfy the requirements of Best Available Control Technology (BACT) in Rule 62-212.400, F.A.C.}

PERFORMANCE REQUIREMENTS

1. Hours of Operation: The hours of operation of this emissions unit are not limited (8760 hours per year). [Rule62-210.200(PTE), F.A.C.]

2. Baghouse Controls (EU-011 and EU-014): Each emissions point identified for clinker and cement processing (EU-011) and raw material processing (EU-014) shall be controlled by a baghouse system. Each required baghouse shall be designed, operated, and maintained to achieve a particulate matter design specification of 0.0085 grains/dscf. For each new baghouse, the permittee shall prepare an operation and maintenance (O&M) plan to address: proper operation; parametric monitoring; and a regular schedule for conducting periodic inspections and preventive maintenance. Baghouse inspections and maintenance

activities shall be recorded in a written log. The O&M plan shall be submitted to the Compliance Authority prior to expiration of this permit. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

3. Particulate Matter Standard: For Emissions Point N-09-02 of Emissions Unit 011, particulate matter emissions shall not exceed 0.0085 grains/dscf based on a performance test conducted in accordance with EPA Method 5. *{Permitting Note: This emissions point is controlled by the largest baghouse of the group with a design flow rate of nearly 130,000 acfm.}* [Rule 62-212.400(BACT), F.A.C.]

4. Opacity Standards: As determined in accordance with EPA Method 9 observations, the following standards apply to each emissions point of Emissions Units 003, 011, and 014 including the finish mill system, raw mill, raw material storage, clinker storage, finished product storage, conveyor transfer points, bagging and bulk loading and unloading systems.

   a. Visible emissions from each baghouse exhaust point shall not exceed 5% opacity, and

   b. Visible emissions from any emissions point not controlled by a baghouse (i.e., conveyors) shall not exceed 10% opacity.

   [Rule 62-212.400(BACT), F.A.C.]

TESTING REQUIREMENTS

5. Particulate Matter Tests: The permittee shall demonstrate compliance with the particulate matter emission standard specified for Emissions Point N-09-02 of Emissions Unit 011 by conducting tests in accordance with EPA Method 5. Initial tests shall be conducted within 60 days after achieving the maximum production rate at which the unit will be operated, but not later than 180 days after initial startup. Thereafter, the permittee shall demonstrate compliance during 12 months prior to renewal of the operation permit. Tests shall be conducted in accordance with the applicable requirements in Appendix C of this permit as well as applicable NSPS and NESHAP provisions. [Rules 62-297.310(7)(a), F.A.C.]

6. Visible Emissions Tests: The permittee shall demonstrate compliance with the visible emission limits specified in this subsection by conducting EPA Method 9 tests. The initial tests shall be conducted within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup of such facility. Thereafter, the permittee shall demonstrate compliance during each federal fiscal year (October 1st to September 30th). Tests shall be conducted in accordance with the applicable requirements in Appendix C of this permit as well as the applicable NSPS and NESHAP provisions. [Rules 62-297.310(7)(a), F.A.C.]

7. Test Reports: For each test conducted, the permittee shall file a test report including the information specified in Rule 62-297.310(8), F.A.C. with the Department as soon as practical, but no later than 45 days after the last sampling run of each test is completed. [Rules 62-297.310(8), F.A.C.]

NSPS SUBPART F OF 40 CFR 60 - PORTLAND CEMENT PLANTS

8. NSPS Subpart F: The affected emissions units are subject to the applicable requirements for Portland Cement Plants specified in NSPS Subpart F of 40 CFR 60. For the full NSPS provisions, see Appendix G in Section 4 of this permit. [40 CFR 60, Subpart F]

NESHAP SUBPART LLL OF 40 CFR 63 - PORTLAND CEMENT MANUFACTURING INDUSTRY

9. NESHAP Subpart LLL: The affected emissions units are subject to the applicable requirements for the Portland Cement Manufacturing Industry specified in NESHAP Subpart LLL of 40 CFR 63. For the full NESHAP provisions, see Appendix J in Section 4 of this permit. [40 CFR 63, Subparts A and LLL]

D. Coal Mill and Conveying Equipment

The specific conditions of this subsection apply to the following emissions unit.

ID No.	Emissions Unit Description	
009	(Existing) Unenclosed coal conveying equipment	
012	(New) Coal mill and coal transfer system with the following emissions points:	
	Point ID No.	*Description*
	S-17-02	Baghouse for coal mill (1 and 2)
	S-21-02	Baghouse for pulverized coal bin

{Permitting Note: The above emissions units are subject to the following applicable requirements in 40 CFR 60: NSPS Subpart A (General Provisions) and NSPS Subpart Y (Coal Preparation Plants). Some equipment was originally constructed pursuant to Permit No. PSD-FL-259. The units are also subject to the Best Available Control Technology (BACT) requirements in Rule 62-212.400, F.A.C. as specified in this section.}

PERFORMANCE REQUIREMENTS

1. Hours of Operation: The hours of operation for this emissions unit are not limited (8760 hours per year). [Rule62-210.200(PTE), F.A.C.]

2. Process Rate Limitation: This permit authorizes construction of a new coal mill, which shall not crush more than 150,000 tons of coal and/or petroleum coke (combined) during any consecutive 12 months. The permittee shall maintain written records of the monthly processing rate. Such records shall be recorded and available for inspection no later than 10 days following the end of the month. [Rule 62-210.200(PTE), F.A.C.]

3. Baghouse Controls (EU-012): Each emissions point associated with the coal mill and coal transfer station (EU-012) shall be controlled by a baghouse system. Each required baghouse shall be designed, operated, and maintained to achieve a particulate matter design specification of 0.0085 grains per dscf. For each new baghouse, the permittee shall prepare an operation and maintenance (O&M) plan to address: proper operation; parametric monitoring; and a regular schedule for conducting periodic inspections and preventive maintenance. Baghouse inspections and maintenance activities shall be recorded in a written log. The O&M plan shall be submitted to the Compliance Authority prior to expiration of this permit. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

4. Particulate Matter Standards: As determined by EPA Method 5, particulate matter emissions from any thermal dryer shall not exceed 0.0085 grains per dscf of exhaust. "Thermal dryer" means any facility in which the moisture content of bituminous coal is reduced by contact with a heated gas stream which is exhausted to the atmosphere. [Rules 62-212.400(BACT), F.A.C.]

5. Opacity Standards: As determined by EPA Method 9:

   a. Visible emissions shall not exceed 5% opacity from any emissions point controlled by a baghouse.

   b. Visible emissions shall not exceed 20% opacity from any coal processing and conveying equipment or coal storage system.

   [Rule 62-212.400(BACT), F.A.C.]

TESTING REQUIREMENTS

6. Particulate Matter Tests (EU-012): The permittee shall conduct the stack tests in accordance with EPA Method 5 to demonstrate initial compliance with the particulate matter emissions standard for any coal mill thermal dryer. Initial tests shall be conducted within 60 days after achieving the maximum production rate at which the unit will be operated, but not later than 180 days after initial startup. Thereafter, the permittee

shall demonstrate compliance during 12 months prior to renewal of the operation permit. Tests shall be conducted in accordance with the applicable requirements in Appendix C of this permit as well as applicable NSPS and NESHAP provisions. [Rules 62-212.400(BACT), 62-297.310(7)(a), F.A.C.]

7. Visible Emissions Tests (EU-009 and EU-012): The permittee shall demonstrate compliance with the visible emission limits specified in this subsection by conducting test in accordance with EPA Method 9. Initial tests shall be conducted within 60 days after achieving the maximum production rate at which the unit will be operated, but not later than 180 days after initial startup. Thereafter, the permittee shall demonstrate compliance during each federal fiscal year (October 1st to September 30th). Tests shall be conducted in accordance with the applicable requirements in Appendix C of this permit as well as the applicable NSPS (initial tests). For each test conducted, the permittee shall file a test report including the information specified in Rule 62-297.310(8), F.A.C. with the Department as soon as practical, but no later than 45 days after the last sampling run of each test is completed. [Rules 62-297.310(7)(a), F.A.C.]

8. Test Reports: For each test conducted, permittee shall file a test report including the information specified in Rule 62-297.310(8), F.A.C. with the Department as soon as practical, but no later than 45 days after the last sampling run of each test is completed. [Rules 62-297.310(8), F.A.C.]

NSPS SUBPART Y OF 40 CFR 60 - COAL PREPARATION PLANTS

9. NSPS Subpart Y: The affected emissions units are subject to the applicable requirements for Coal Preparation Plants specified in NSPS Subpart Y of 40 CFR 60. For the full NSPS provisions, see Appendix H in Section 4 of this permit. [40 CFR 60, Subparts A and Y]

E. Miscellaneous Fugitive Emissions Sources

The following specific conditions apply to the following emissions units after construction.

ID No.	Emissions Unit Description
015	(New) Storage Piles, Paved Roads and Unpaved Roads

PERFORMANCE REQUIREMENTS

1. Unconfined Emissions of Particulate Matter

   a. No person shall cause, let, permit, suffer or allow the emissions of unconfined particulate matter from any activity without taking reasonable precautions to prevent such emissions. Such activities include, but are not limited to: vehicular movement; transportation of materials; construction, alteration, demolition or wrecking; or industrially related activities such as loading, unloading, storing or handling.

   b. Reasonable precautions shall include the following:

      (1) Landscaping and planting of vegetation.

      (2) Application of water to control fugitive dust from activities such as demolition of buildings, grading roads, construction, and land clearing.

      (3) Water supply lines, hoses and sprinklers shall be located near all stockpiles of raw materials, coal, and petroleum coke.

      (4) All plant operators shall be trained in basic environmental compliance and shall perform visual inspections of raw materials, coal and petroleum coke periodically and before handling. If the visual inspections indicate a lack of surface moisture, such materials shall be wetted with sprinklers. Wetting shall continue until the potential for unconfined particulate matter emissions are minimized.

      (5) Water spray 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.

      (6) As necessary, applications of asphalt, water, or dust suppressants to unpaved roads, yards, open stockpiles and similar activities.

      (7) Paving of access roadways, parking areas, and manufacture area.

      (8) Removal of dust from buildings, roads, and other paved areas under the control of the owner or operator of the facility to prevent particulate matter from becoming airborne.

      (9) A vacuum sweeper shall be used to remove dust from paved roads, parking, and other work areas.

      (10) Enclosure or covering of conveyor systems where practicably feasible.

      (11) All materials, coal, and petroleum coke shall be stored under roof on compacted clay or concrete, or in enclosed vessels.

      (12) Use of hoods, fans, filters, and similar equipment to contain, capture and/or vent particulate matter.

      (13) Confining abrasive blasting where possible.

   c. In determining what constitutes reasonable precautions for a particular source, the Department shall consider the cost of the control technique or work practice, the environmental impacts of the technique or practice, and the degree of reduction of emissions expected from a particular technique or practice.

   [Rules 62-212.400(BACT) and 62-296.320(4)(c), F.A.C.]

SECTION 4. APPENDICES

CONTENTS

SECTION 4. APPENDIX A
CITATION FORMATS

The following examples illustrate the format used in the permit to identify applicable permitting actions and regulations.

REFERENCES TO PREVIOUS PERMITTING ACTIONS

Old Permit Numbers

Example: Permit No. AC50-123456 or Air Permit No. AO50-123456

Where: "AC" identifies the permit as an Air Construction Permit
"AO" identifies the permit as an Air Operation Permit
"123456" identifies the specific permit project number

New Permit Numbers

Example: Permit Nos. 099-2222-001-AC, 099-2222-001-AF, 099-2222-001-AO, or 099-2222-001-AV

Where: "099" represents the specific county ID number in which the project is located
"2222" represents the specific facility ID number
"001"identifies the specific permit project
"AC" identifies the permit as an air construction permit
"AF" identifies the permit as a minor federally enforceable state operation permit
"AO" identifies the permit as a minor source air operation permit
"AV" identifies the permit as a Title V Major Source Air Operation Permit

PSD Permit Numbers

Example: Permit No. PSD-FL-317

Where: "PSD" means issued pursuant to the Prevention of Significant Deterioration of Air Quality
"FL" means that the permit was issued by the State of Florida
"317" identifies the specific permit project

RULE CITATION FORMATS

Florida Administrative Code (F.A.C.)

Example: [Rule 62-213.205, F.A.C.]

Means: Title 62, Chapter 213, Rule 205 of the Florida Administrative Code

Code of Federal Regulations (CFR)

Example: [40 CRF 60.7]

Means: Title 40, Part 60, Section 7

SECTION 4. APPENDIX B
GENERAL CONDITIONS

The permittee shall comply with the following general conditions from Rule 62-4.160, F.A.C.

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey and vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

   a. Have access to and copy and records that must be kept under the conditions of the permit;
   b. Inspect the facility, equipment, practices, or operations regulated or required under this permit, and,
   c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

   Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

   a. A description of and cause of non-compliance; and

   b. The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

   The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida

Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

    a. Determination of Best Available Control Technology;
    b. Determination of Prevention of Significant Deterioration; and
    c. Compliance with New Source Performance Standards.

14. The permittee shall comply with the following:

    a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

    b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application or this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

    c. Records of monitoring information shall include:

        a. The date, exact place, and time of sampling or measurements;
        b. The person responsible for performing the sampling or measurements;
        c. The dates analyses were performed;
        d. The person responsible for performing the analyses;
        e. The analytical techniques or methods used; and
        f. The results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

SECTION 4. APPENDIX C
COMMON STATE RULES

Unless otherwise specified in the permit, the following conditions apply to all emissions units and activities at the facility.

EMISSIONS AND CONTROLS

1. Plant Operation - Problems: If temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by fire, wind or other cause, the permittee shall notify each Compliance Authority as soon as possible, but at least within one working day, excluding weekends and holidays. The notification shall include: pertinent information as to the cause of the problem; steps being taken to correct the problem and prevent future recurrence; and, where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with the conditions of this permit or the regulations. [Rule 62-4.130, F.A.C.]
2. Circumvention: The permittee shall not circumvent the air pollution control equipment or allow the emission of air pollutants without this equipment operating properly. [Rule 62-210.650, F.A.C.]
3. Excess Emissions Allowed: Excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration. [Rule 62-210.700(1), F.A.C.]
4. Excess Emissions Prohibited: Excess emissions caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]
5. Excess Emissions - Notification: In case of excess emissions resulting from malfunctions, the permitee shall notify the Department or the appropriate Local Program in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department. [Rule 62-210.700(6), F.A.C.]
6. VOC or OS Emissions: No person shall store, pump, handle, process, load, unload or use in any process or installation, volatile organic compounds or organic solvents without applying known and existing vapor emission control devices or systems deemed necessary and ordered by the Department. [Rule 62-296.320(1), F.A.C.]
7. Objectionable Odor Prohibited: No person shall cause, suffer, allow or permit the discharge of air pollutants, which cause or contribute to an objectionable odor. An "objectionable odor" means any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonably interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance. [Rules 62-296.320(2) and62-210.200(203), F.A.C.]
8. General Visible Emissions: No person shall cause, let, permit, suffer or allow to be discharged into the atmosphere the emissions of air pollutants from any activity equal to or greater than 20 percent opacity. This regulation does not impose a specific testing requirement. [Rule 62-296.320(4)(b)1, F.A.C.]
9. Unconfined Particulate Emissions: During the construction period, unconfined particulate matter emissions shall be minimized by dust suppressing techniques such as covering and/or application of water or chemicals to the affected areas, as necessary. [Rule 62-296.320(4)(c), F.A.C.]

GENERAL COMPLIANCE TESTING REQUIREMENTS

The focal point of a compliance test is the stack or duct which vents process and/or combustion gases and air pollutants from an emissions unit into the ambient air. [Rule 62-297.310, F.A.C.]

10. Required Number of Test Runs: For mass emission limitations, a compliance test shall consist of three complete and separate determinations of the total air pollutant emission rate through the test section of the stack or duct and three complete and separate determinations of any applicable process variables corresponding to the three distinct time periods during which the stack emission rate was measured; provided, however, that three complete and separate determinations shall not be required if the process variables are not subject to variation during a compliance test, or if three determinations are not necessary in order to calculate the unit's emission rate. The three required test runs shall be completed within one consecutive five-day period. In the event that a sample is lost or one of the three runs must be discontinued because of circumstances beyond the control of the owner or operator, and a valid third run cannot be obtained within the five-day period allowed for the test, the Secretary or his or her designee may accept the results of two complete runs as proof of compliance, provided that the arithmetic mean of the two complete runs is at least 20% below the allowable emission limiting standard. [Rule 62-297.310(1), F.A.C.]

below the allowable emission limiting standard. [Rule 62-297.310(1), F.A.C.]

11. Operating Rate During Testing: Testing of emissions shall be conducted with the emissions unit operating at permitted capacity. If it is impractical to test at permitted capacity, an emissions unit may be tested at less than the maximum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test rate until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. [Rule 62-297.310(2), F.A.C.]
12. Calculation of Emission Rate: For each emissions performance test, the indicated emission rate or concentration shall be the arithmetic average of the emission rate or concentration determined by each of the three separate test runs unless otherwise specified in a particular test method or applicable rule. [Rule 62-297.310(3), F.A.C.]
13. Applicable Test Procedures [Rule 62-297.310(4), F.A.C.]
    a. *Required Sampling Time.*
        (1) Unless otherwise specified in the applicable rule, the required sampling time for each test run shall be no less than one hour and no greater than four hours, and the sampling time at each sampling point shall be of equal intervals of at least two minutes.
        (2) Opacity Compliance Tests. When either EPA Method 9 or DEP Method 9 is specified as the applicable opacity test method, the required minimum period of observation for a compliance test shall be sixty (60) minutes for emissions units which emit or have the potential to emit 100 tons per year or more of particulate matter, and thirty (30) minutes for emissions units which have potential emissions less than 100 tons per year of particulate matter and are not subject to a multiple-valued opacity standard. The opacity test observation period shall include the period during which the highest opacity emissions can reasonably be expected to occur. Exceptions to these requirements are as follows:
            (a) For batch, cyclical processes, or other operations which are normally completed within less than the minimum observation period and do not recur within that time, the period of observation shall be equal to the duration of the batch cycle or operation completion time.
            (b) The observation period for special opacity tests that are conducted to provide data to establish a surrogate standard pursuant to Rule 62-297.310(5)(k), F.A.C., Waiver of Compliance Test Requirements, shall be established as necessary to properly establish the relationship between a proposed surrogate standard and an existing mass emission limiting standard.
            (c) The minimum observation period for opacity tests conducted by employees or agents of the Department to verify the day-to-day continuing compliance of a unit or activity with an applicable opacity standard shall be twelve minutes.
    b. *Minimum Sample Volume.* Unless otherwise specified in the applicable rule or test method, the minimum sample volume per run shall be 25 dry standard cubic feet.
    c. *Calibration of Sampling Equipment.* Calibration of the sampling train equipment shall be conducted in accordance with the schedule shown in Table 297.310-1, F.A.C.
    d. *Calibration of Sampling Equipment.* Calibration of the sampling train equipment shall be conducted in accordance with the schedule shown in Table 297.310-1.
    e. *Allowed Modification to EPA Method 5.* When EPA Method 5 is required, the following modification is allowed: the heated filter may be separated from the impingers by a flexible tube.
14. Determination of Process Variables [Rule 62-297.310(5), F.A.C.]
    a. *Required Equipment.* The owner or operator of an emissions unit for which compliance tests are required shall install, operate, and maintain equipment or instruments necessary to determine process variables, such as process weight input or heat input, when such data are needed in conjunction with emissions data to determine the compliance of the emissions unit with applicable emission limiting standards.
    b. *Accuracy of Equipment.* Equipment or instruments used to directly or indirectly determine process variables, including devices such as belt scales, weight hoppers, flow meters, and tank scales, shall be calibrated and adjusted

to indicate the true value of the parameter being measured with sufficient accuracy to allow the applicable process variable to be determined within 10% of its true value.

15. Sampling Facilities: The permittee shall install permanent stack sampling ports and provide sampling facilities that meet the requirements of Rule 62-297.310(6), F.A.C. Sampling facilities include sampling ports, work platforms, access to work platforms, electrical power, and sampling equipment support. All stack sampling facilities must also comply with all applicable Occupational Safety and Health Administration (OSHA) Safety and Health Standards described in 29 CFR Part 1910, Subparts D and E. [Rule 62-297.310(6), F.A.C.]

    a. *Permanent Test Facilities.* The owner or operator of an emissions unit for which a compliance test, other than a visible emissions test, is required on at least an annual basis, shall install and maintain permanent stack sampling facilities.

    b. *Temporary Test Facilities.* The owner or operator of an emissions unit that is not required to conduct a compliance test on at least an annual basis may use permanent or temporary stack sampling facilities. If the owner chooses to use temporary sampling facilities on an emissions unit, and the Department elects to test the unit, such temporary facilities shall be installed on the emissions unit within 5 days of a request by the Department and remain on the emissions unit until the test is completed.

    c. *Sampling Ports.*

        (1) All sampling ports shall have a minimum inside diameter of 3 inches.

        (2) The ports shall be capable of being sealed when not in use.

        (3) The sampling ports shall be located in the stack at least 2 stack diameters or equivalent diameters downstream and at least 0.5 stack diameter or equivalent diameter upstream from any fan, bend, constriction or other flow disturbance.

        (4) For emissions units for which a complete application to construct has been filed prior to December 1, 1980, at least two sampling ports, 90 degrees apart, shall be installed at each sampling location on all circular stacks that have an outside diameter of 15 feet or less. For stacks with a larger diameter, four sampling ports, each 90 degrees apart, shall be installed. For emissions units for which a complete application to construct is filed on or after December 1, 1980, at least two sampling ports, 90 degrees apart, shall be installed at each sampling location on all circular stacks that have an outside diameter of 10 feet or less. For stacks with larger diameters, four sampling ports, each 90 degrees apart, shall be installed. On horizontal circular ducts, the ports shall be located so that the probe can enter the stack vertically, horizontally or at a 45 degree angle.

        (5) On rectangular ducts, the cross sectional area shall be divided into the number of equal areas in accordance with EPA Method 1. Sampling ports shall be provided which allow access to each sampling point. The ports shall be located so that the probe can be inserted perpendicular to the gas flow.

    d. *Work Platforms.*

        (1) Minimum size of the working platform shall be 24 square feet in area. Platforms shall be at least 3 feet wide.

        (2) On circular stacks with 2 sampling ports, the platform shall extend at least 110 degrees around the stack.

        (3) On circular stacks with more than two sampling ports, the work platform shall extend 360 degrees around the stack.

        (4) All platforms shall be equipped with an adequate safety rail (ropes are not acceptable), toe board, and hinged floor-opening cover if ladder access is used to reach the platform. The safety rail directly in line with the sampling ports shall be removable so that no obstruction exists in an area 14 inches below each sample port and 6 inches on either side of the sampling port.

    e. *Access to Work Platform.*

        (1) Ladders to the work platform exceeding 15 feet in length shall have safety cages or fall arresters with a minimum of 3 compatible safety belts available for use by sampling personnel.

        (2) Walkways over free-fall areas shall be equipped with safety rails and toe boards.

    f. *Electrical Power.*

        (1) A minimum of two 120-volt AC, 20-amp outlets shall be provided at the sampling platform within 20 feet of each sampling port.

(2) If extension cords are used to provide the electrical power, they shall be kept on the plant's property and be available immediately upon request by sampling personnel.

g. *Sampling Equipment Support.*

(1) A three-quarter inch eyebolt and an angle bracket shall be attached directly above each port on vertical stacks and above each row of sampling ports on the sides of horizontal ducts.

(a) The bracket shall be a standard 3 inch × 3 inch × one-quarter inch equal-legs bracket which is 1 and one-half inches wide. A hole that is one-half inch in diameter shall be drilled through the exact center of the horizontal portion of the bracket. The horizontal portion of the bracket shall be located 14 inches above the centerline of the sampling port.

(b) A three-eighth inch bolt which protrudes 2 inches from the stack may be substituted for the required bracket. The bolt shall be located 15 and one-half inches above the centerline of the sampling port.

(c) The three-quarter inch eyebolt shall be capable of supporting a 500 pound working load. For stacks that are less than 12 feet in diameter, the eyebolt shall be located 48 inches above the horizontal portion of the angle bracket. For stacks that are greater than or equal to 12 feet in diameter, the eyebolt shall be located 60 inches above the horizontal portion of the angle bracket. If the eyebolt is more than 120 inches above the platform, a length of chain shall be attached to it to bring the free end of the chain to within safe reach from the platform.

(2) A complete monorail or dualrail arrangement may be substituted for the eyebolt and bracket.

(3) When the sample ports are located in the top of a horizontal duct, a frame shall be provided above the port to allow the sample probe to be secured during the test.

16. Frequency of Compliance Tests. The following provisions apply only to those emissions units that are subject to an emissions limiting standard for which compliance testing is required. [Rule 62-297.310(7), F.A.C.]

a. *General Compliance Testing.*

1. The owner or operator of a new or modified emissions unit that is subject to an emission limiting standard shall conduct a compliance test that demonstrates compliance with the applicable emission limiting standard prior to obtaining an operation permit for such emissions unit.

2. For excess emission limitations for particulate matter specified in Rule 62-210.700, F.A.C., a compliance test shall be conducted annually while the emissions unit is operating under soot blowing conditions in each federal fiscal year during which soot blowing is part of normal emissions unit operation, except that such test shall not be required in any federal fiscal year in which a fossil fuel steam generator does not burn liquid and/or solid fuel for more than 400 hours other than during startup.

3. The owner or operator of an emissions unit that is subject to any emission limiting standard shall conduct a compliance test that demonstrates compliance with the applicable emission limiting standard prior to obtaining a renewed operation permit. Emissions units that are required to conduct an annual compliance test may submit the most recent annual compliance test to satisfy the requirements of this provision. In renewing an air operation permit pursuant to sub-subparagraph 62-210.300(2)(a)3.b., c., or d., F.A.C., the Department shall not require submission of emission compliance test results for any emissions unit that, during the year prior to renewal:

(a) Did not operate; or

(b) In the case of a fuel burning emissions unit, burned liquid and/or solid fuel for a total of no more than 400 hours,

4. During each federal fiscal year (October 1 – September 30), unless otherwise specified by rule, order, or permit, the owner or operator of each emissions unit shall have a formal compliance test conducted for:

(a) a. Visible emissions, if there is an applicable standard;

(b) b. Each of the following pollutants, if there is an applicable standard, and if the emissions unit emits or has the potential to emit: 5 tons per year or more of lead or lead compounds measured as elemental lead; 30 tons per year or more of acrylonitrile; or 100 tons per year or more of any other regulated air pollutant; and

(c) c. Each NESHAP pollutant, if there is an applicable emission standard.

5. An annual compliance test for particulate matter emissions shall not be required for any fuel burning emissions unit that, in a federal fiscal year, does not burn liquid and/or solid fuel, other than during startup, for a total of more than 400 hours.
6. For fossil fuel steam generators on a semi-annual particulate matter emission compliance testing schedule, a compliance test shall not be required for any six-month period in which liquid and/or solid fuel is not burned for more than 200 hours other than during startup.
7. For emissions units electing to conduct particulate matter emission compliance testing quarterly pursuant to paragraph 62-296.405(2)(a), F.A.C., a compliance test shall not be required for any quarter in which liquid and/or solid fuel is not burned for more than 100 hours other than during startup.
8. Any combustion turbine that does not operate for more than 400 hours per year shall conduct a visible emissions compliance test once per each five-year period, coinciding with the term of its air operation permit.
9. The owner or operator shall notify the Department, at least 15 days prior to the date on which each formal compliance test is to begin, of the date, time, and place of each such test, and the test contact person who will be responsible for coordinating and having such test conducted for the owner or operator.
10. An annual compliance test conducted for visible emissions shall not be required for units exempted from air permitting pursuant to subsection 62-210.300(3), F.A.C.; units determined to be insignificant pursuant to subparagraph 62-213.300(2)(a)1., F.A.C., or paragraph 62-213.430(6)(b), F.A.C.; or units permitted under the General Permit provisions in paragraph 62-210.300(4)(a) or Rule 62-213.300, F.A.C., unless the general permit specifically requires such testing.

b. *Special Compliance Tests.* When the Department, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in a Department rule or in a permit issued pursuant to those rules is being violated, it shall require the owner or operator of the emissions unit to conduct compliance tests which identify the nature and quantity of pollutant emissions from the emissions unit and to provide a report on the results of said tests to the Department.

c. *Waiver of Compliance Test Requirements.* If the owner or operator of an emissions unit that is subject to a compliance test requirement demonstrates to the Department, pursuant to the procedure established in Rule 62-297.620, F.A.C., that the compliance of the emissions unit with an applicable weight emission limiting standard can be adequately determined by means other than the designated test procedure, such as specifying a surrogate standard of no visible emissions for particulate matter sources equipped with a bag house or specifying a fuel analysis for sulfur dioxide emissions, the Department shall waive the compliance test requirements for such emissions units and order that the alternate means of determining compliance be used, provided, however, the provisions of paragraph 62-297.310(7)(b), F.A.C., shall apply.

RECORDS AND REPORTS

17. Test Reports [Rule 62-297.310(8), F.A.C.]

a. The owner or operator of an emissions unit for which a compliance test is required shall file a report with the Department on the results of each such test.

b. The required test report shall be filed with the Department as soon as practical but no later than 45 days after the last sampling run of each test is completed.

c. The test report shall provide sufficient detail on the emissions unit tested and the test procedures used to allow the Department to determine if the test was properly conducted and the test results properly computed. As a minimum, the test report, other than for an EPA or DEP Method 9 test, shall provide the following information.

1. The type, location, and designation of the emissions unit tested.
2. The facility at which the emissions unit is located.
3. The owner or operator of the emissions unit.
4. The normal type and amount of fuels used and materials processed, and the types and amounts of fuels used and material processed during each test run.
5. The means, raw data and computations used to determine the amount of fuels used and materials processed, if necessary to determine compliance with an applicable emission limiting standard.

6. The type of air pollution control devices installed on the emissions unit, their general condition, their normal operating parameters (pressure drops, total operating current and GPM scrubber water), and their operating parameters during each test run.
7. A sketch of the duct within 8 stack diameters upstream and 2 stack diameters downstream of the sampling ports, including the distance to any upstream and downstream bends or other flow disturbances.
8. The date, starting time and duration of each sampling run.
9. The test procedures used, including any alternative procedures authorized pursuant to Rule 62-297.620, F.A.C. Where optional procedures are authorized in this chapter, indicate which option was used.
10. The number of points sampled and configuration and location of the sampling plane.
11. For each sampling point for each run, the dry gas meter reading, velocity head, pressure drop across the stack, temperatures, average meter temperatures and sample time per point.
12. The type, manufacturer and configuration of the sampling equipment used.
13. Data related to the required calibration of the test equipment.
14. Data on the identification, processing and weights of all filters used.
15. Data on the types and amounts of any chemical solutions used.
16. Data on the amount of pollutant collected from each sampling probe, the filters, and the impingers, are reported separately for the compliance test.
17. The names of individuals who furnished the process variable data, conducted the test, analyzed the samples and prepared the report.
18. All measured and calculated data required to be determined by each applicable test procedure for each run.
19. The detailed calculations for one run that relate the collected data to the calculated emission rate.
20. The applicable emission standard and the resulting maximum allowable emission rate for the emissions unit plus the test result in the same form and unit of measure.
21. A certification that, to the knowledge of the owner or his authorized agent, all data submitted are true and correct. When a compliance test is conducted for the Department or its agent, the person who conducts the test shall provide the certification with respect to the test procedures used. The owner or his authorized agent shall certify that all data required and provided to the person conducting the test are true and correct to his knowledge.

RECORDS AND REPORTS

18. Records Retention: All measurements, records, and other data required by this permit shall be documented in a permanent, legible format and retained for at least five (5) years following the date on which such measurements, records, or data are recorded. Records shall be made available to the Department upon request. [Rules 62-4.160(14) and 62-213.440(1)(b)2, F.A.C.]
19. Annual Operating Report: The permittee shall submit an annual report that summarizes the actual operating rates and emissions from this facility. Annual operating reports shall be submitted to the Compliance Authority by March 1st of each year. [Rule 62-210.370(2), F.A.C.]

SECTION 4. APPENDIX D
USED OIL FUEL REQUIREMENTS

1. "On-Specification" Used Oil Fuel: Used oil fuel shall meet the following specifications.

   a. Arsenic shall not exceed 5.0 ppm;
   b. Cadmium shall not exceed 2.0 ppm;
   c. Chromium shall not exceed 10.0 ppm;
   d. Lead shall not exceed 100.0 ppm;
   e. Total halogens shall not exceed 1000 ppm; and
   f. Flash point shall not be less than 100° F.

   Used oil fired as a fuel may be generated from on site sources or purchased from a vendor. Used oil shall not contain any PCB's. [40 CFR 279.61; 40 CFR 761.20(e); Rule 62-4.070(3), F.A.C.]

2. Analysis Required: For each shipment of used oil received, the owner or operator shall maintain records from the vendor certifying that the used oil meets the above requirements for "on-specification" used oil fuel. Records shall include the following parameters: arsenic, cadmium, chromium, lead, total halogens, flash point, PCBs, sulfur content, ash, and heating value. Otherwise, the owner or operator shall sample and analyze each shipment of used oil received for the above parameters. If vendor certifications are relied upon, the owner or operator shall analyze at least one sample obtained each calendar year for the above parameters. If analytical results show that the used oil does not meet the above requirements, the owner or operator shall immediately: cease burning of the used oil, and notify the Compliance Authority of the analytical results. The analysis shall be performed via with EPA-approved or ASTM methods. [Rule 62-4.070(3), F.A.C.]

3. Record Keeping: The permittee shall obtain, make, and keep the following records:

   a. Gallons of on-specification used oil received and burned each month;
   b. Name and address of all vendors delivering used oil to the facility;
   c. Copies of the vendor certifications, if obtained, and any supporting information; and
   d. Analytical results.

   The records shall be retained in a form suitable for inspection at the facility by the Department, and shall be retained permanently. [40 CFR 279.61; 40 CFR 761.20(e); Rule 62-4.070(3), F.A.C.]

SECTION 4. APPENDIX E
SUMMARY OF FINAL BACT DETERMINATIONS

Project Description

The existing facility consists of a portland cement manufacturing plant, the associated quarry, and raw material and cement handling operations. The plant combines raw materials and utilizes a preheater/calciner kiln (Kiln Line No. 1) system with in-line raw mill to produce cement clinker (120 tons per hour capacity). The clinker is milled and combined with gypsum to produce portland cement. Fuel authorized for the pyroprocessing system includes natural gas, coal, petroleum coke, and whole or chipped tires. The plant also operates a coal processing operation to crush coal and petroleum coke. The plant uses Selective Non-Catalytic Reduction (SNCR) to control NOx emissions from the existing pyroprocessing system and hydrated lime injection to control SO_2 emissions.

This permit authorizes the construction of a new cement manufacturing line (Kiln Line No. 2) at the existing facility. The project will affect the following existing and new emissions units.

ID No.	Emissions Unit Description
001	(Existing) Primary crusher and associated belt conveyors
003	(Existing) Raw material processing with unenclosed conveyor transfer points - D conveyors
009	(Existing) Unenclosed coal conveying equipment - S Conveyors
011	(New) Clinker and cement handling and storage with baghouse controls for miscellaneous emissions points
012	(New) Coal mill and coal transfer system with baghouse controls for emissions points
013	(New) Dry process preheater/precalciner rotary kiln with in-line raw mill
014	(New) Raw material handling and storage with baghouse controls for miscellaneous emissions points
015	(New) Fugitive dust from storage piles, paved roads, and unpaved roads

The Kiln Line No. 2 system will have a capacity of 127 tons per hour of clinker and 175 tons per hour of portland cement. In accordance with Rule 62-212.400, F.A.C., the project is subject to preconstruction review for the Prevention of Significant Deterioration (PSD) of Air Quality for emissions of carbon monoxide (CO), nitrogen oxides (NOx), particulate matter (PM/PM_{10}), sulfur dioxide (SO_2), and volatile organic compounds (VOC). The permit includes emissions standards and work practices that represent determinations of the Best Available Control Technology (BACT) for each of these pollutants. The following describes the control equipment required as well as the final BACT emissions limiting standards.

Kiln Line No. 2 System

New Emissions Unit 013 consists of a dry process preheater/precalciner rotary kiln with in-line raw mill. The kiln fires a variety of fuels to process raw materials into cement clinker. Emissions are controlled by the following equipment and techniques.

Nitrogen Oxides (NOx): The kiln system design shall incorporate staged combustion in the calciner (SCC) to reduce NOx emissions. An ammonia-based Selective Non-Catalytic Reduction (SNCR) system shall be installed to further control NOx emissions. The SNCR system consists of an ammonia tank, pumps, piping, compressed air delivery, injectors, control system, and other ancillary equipment. SCC and/or SNCR shall be used to achieve the NOx BACT emissions standards specified in this permit.

Particulate Matter (PM/PM_{10}): The owner or operator shall install a baghouse control system to remove particulate matter emissions from the exhaust gas stream (kiln/raw mill/clinker cooler) to achieve the PM/PM_{10} emissions standards specified in this permit.

Sulfur Dioxide (SO_2): The owner or operator shall control SO_2 emissions by selection and control of the raw materials. In addition, the owner or operator shall install a hydrated lime injection system to achieve the SO_2 emissions standards specified in this permit.

Carbon Monoxide (CO) and Volatile Organic Compounds (VOC): The owner or operator shall control CO and VOC emissions with a design providing sufficient time/temperature to oxidize these pollutants, good operating practices, and

careful attention to the raw material mix.

Table E-1. Final BACT Standards for the Kiln No. 2 System

Pollutant	Emissions Standards		Averaging Time
Best Available Control Technology (BACT) - Rule 62-212.400(6), F.A.C.			
CO	2.90 lb/ton of clinker	368.3 lb/hour	30-day rolling CEMS average
NOx	1.95 lb/ton of clinker	247.7 lb/hour	30-day rolling CEMS average
PM	0.10 lb/ton of dry PHFM	21.5 lb/hour	Average of three, 1-hour test runs
	10% opacity		6-minute block average w/COMS
SO2	0.20 lb/ton of clinker	25.4 lb/hour	24-hour rolling CEMS average
VOC	0.12 lb/ton of clinker	15.2 lb/hour	30-day block CEMS average

"PHFM" means preheater feed material.

Due to the typical break-in period for shakedown of a cement kiln, the permit specifies an initial NOx standard of 3.0 lb/ton of clinker (381.0 lb/hour). This temporary standard applies to the kiln upon initial certification of the NOx CEMS and ends when any of the following conditions are met:

- The Kiln Line No. 2 system produces 75,000 tons of clinker or more in any 30-day rolling period, or
- The Kiln Line No. 2 system produces 150,000 tons of clinker, or
- 365 calendar days elapse after initial certification of the NOx CEMS.

After one of these conditions is met, the NOx standard in the above table applies. These requirements do not waive or vary any applicable federal monitoring or record keeping requirements for cement plants in Subpart F of 40 CFR 60 and in Subpart LLL of 40 CFR 63.

The permit also limits the maximum mercury throughput to the pyroprocessing kiln to no more than 117.5 pounds per year. Therefore, potential mercury emissions are less than the PSD significant emissions rate of 200 pounds per year and the project is not subject to PSD preconstruction review for this pollutant.

Primary Crusher and Associated Belt Conveyors

The existing primary crusher (Emissions Unit 001) crushes raw materials prior to transfer to the conveyor system. As determined in accordance with EPA Method 9 observations, opacity from these activities is limited as follows.

- Visible emissions from any crusher, at which a capture system is not used, shall not exceed 15% opacity.
- Visible emissions from any transfer point on belt conveyors or from any other affected facility shall not exceed 10% opacity.

These opacity standards do not apply to truck dumping of nonmetallic minerals into any screening operation, feed hopper, or crusher.

Miscellaneous Particulate Matter Sources

The plant will operate a variety of miscellaneous sources of particulate matter including: existing Emissions Unit 003 (raw material processing with unenclosed conveyor transfer points, D conveyors); new Emissions Unit 011 (miscellaneous sources of clinker/cement handling and storage with baghouse controls; and new Emissions Unit 014 (miscellaneous sources of raw material handling and storage with baghouse controls). Each emissions point identified for clinker/cement processing (EU-011) and raw material processing (EU-014) shall be controlled by a baghouse system. Each required baghouse shall be designed, operated, and maintained to achieve a particulate matter design specification of 0.0085 grains/dscf. The following BACT standards apply to the affected units.

- As determined in accordance with EPA Method 9 observations, visible emissions from each baghouse exhaust point shall not exceed 5% opacity, and
- As determined in accordance with EPA Method 9 observations, visible emissions from any emissions point not

controlled by a baghouse (i.e., conveyors) shall not exceed 10% opacity.

- As determined in accordance with EPA Method 5, particulate matter emissions shall not exceed 0.0085 grains/dscf from the baghouse controlling the finish mill separator (Emissions Point N-09-02 of Emissions Unit 011). This emissions point represents the largest baghouse of the group with a design flow rate of nearly 130,000 acfm.

Coal Mill

A new coal mill and coal transfer system (Emissions Unit 012) will be installed for the Kiln Line No. 2 system, which will also use existing coal conveying equipment (Emissions Unit 009). Each emissions point associated with the coal mill and coal transfer station (EU-012) shall be controlled by a baghouse system. Each required baghouse shall be designed, operated, and maintained to achieve a particulate matter design specification of 0.0085 grains per dscf. The following BACT standards apply to the affected units.

- As determined by EPA Method 5, particulate matter emissions from any thermal dryer shall not exceed 0.0085 grains per dscf of exhaust.
- As determined by EPA Method 9, visible emissions from any emissions point controlled by a baghouse shall not exceed 5% opacity.
- As determined by EPA Method 9, visible emissions shall not exceed 20% from any coal processing and conveying equipment or coal storage system.

Fugitive Dust from Storage piles, Paved Roads, and Unpaved Roads

New and increased activities related to storage piles, paved roads, and unpaved roads (Emissions Unit 015) will increase fugitive dust emissions at the plant. The following work practices are determined to be BACT for controlling the fugitive dust emissions.

- Landscaping and planting of vegetation.
- Application of water to control fugitive dust from activities such as demolition of buildings, grading roads, construction, and land clearing.
- Water supply lines, hoses and sprinklers shall be located near all stockpiles of raw materials, coal, and petroleum coke.
- All plant operators shall be trained in basic environmental compliance and shall perform visual inspections of raw materials, coal and petroleum coke periodically and before handling. If the visual inspections indicate a lack of surface moisture, such materials shall be wetted with sprinklers. Wetting shall continue until the potential for unconfined particulate matter emissions are minimized.
- Water spray 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.
- As necessary, applications of asphalt, water, or dust suppressants to unpaved roads, yards, open stockpiles and similar activities.
- Paving of access roadways, parking areas, and manufacture area.
- Removal of dust from buildings, roads, and other paved areas under the control of the owner or operator of the facility to prevent particulate matter from becoming airborne.
- A vacuum sweeper shall be used to remove dust from paved roads, parking, and other work areas.
- Enclosure or covering of conveyor systems where practicably feasible.
- All materials, coal, and petroleum coke shall be stored under roof on compacted clay or concrete, or in enclosed vessels.
- Use of hoods, fans, filters, and similar equipment to contain, capture and/or vent particulate matter.
- Confining abrasive blasting where possible.

The above reasonable precautions will be taken as necessary to prevent and mitigate fugitive dust emissions.

SECTION 4. APPENDIX F
QUARTERLY REPORT

Within 30 days following the end of each quarter, the permittee shall submit a report to the Compliance Authority summarizing: each equipment malfunction resulting in excluded CEMS data; the mercury throughput rates (with supporting documentation); and the monitor availability of each CEMS. For each day with a malfunction resulting in excluded data, the following information shall be provided. In addition, the owner or operator shall identify the cause of any malfunction, the corrective action taken to restore normal operation, and the total hours of excluded CEMS data for the month.

Date of Event: _____ Begin Time: _____ End Time: _____

Hour	Clinker tons/hour	Ammonia gph	Hyd. Lime lb/hour	Baghouse Inlet, ° F	Emissions, lb/ton of clinker				Comment
					CO	NOx	SO_2	VOC	
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
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SECTION 4. APPENDIX G
NSPS SUBPART F PROVISIONS – PORTLAND CEMENT PLANTS

This section of the permit addresses the following emissions unit.

ID	Emission Unit Description	
003	(Existing) Raw material processing - unenclosed conveyor transfer points (D conveyors)	
011	(New) Clinker and cement processing with the following emissions points:	
	Point ID No.	*Description*
	L-03-02	Baghouse for clinker pan conveyor
	L-06-02	Baghouse for clinker silo inlet
	L-25-02	Baghouse for gypsum/off-specification clinker transport
	M-08-02	Baghouse for clinker silo outlet conveyor
	M-09-02	Baghouse for gypsum/off-spec. clinker silo outlet
	N-09-02	Baghouse for finish mill separator (1)
	N-12-02	Baghouse for finish mill vent (2)
	N-36-02	Baghouse for fringe cement bin
	N-91-02	Baghouse for finish mill (3)
	P-03-02	Baghouse for cement transport conveyor
	P-11-02	Baghouse for cement silos
	Q-17-02	Baghouse for cement truck load out No. 3
013	(New) Dry process preheater/precalciner rotary kiln with in-line raw mill	
014	(New) Baghouses for raw material processing	
	Point ID No.	*Description*
	E28-02	Baghouse for raw mill
	E34-02	Baghouse for off-specification feed handling
	G07-02	Baghouse for homogenizing silo
	H08-02	Baghouse for Poldos homogenizing silo
	H08A-02	Baghouse for hydrated lime silo
	U-05-02	Baghouse for fly ash silo

1. NSPS Subpart A: The affected emissions units are also subject to the applicable General Provisions in NSPS Subpart A of 40 CFR 60, as adopted by Rule 62-204.800(8), F.A.C. [40 CFR 60, Subpart A]
2. NSPS Subpart F: The affected emissions units are also subject to the applicable requirements for Portland Cement Plants specified in NSPS Subpart F of 40 CFR 60, as adopted by Rule 62-204.800(8), F.A.C. [40 CFR 60, Subpart F]

§ 60.60 Applicability and Designation of Affected Facility.

(a) The provisions of this subpart are applicable to the following affected facilities in portland cement plants: Kiln, clinker cooler, raw mill system, finish mill system, raw mill dryer, raw material storage, clinker storage, finished product storage, conveyor transfer points, bagging and bulk loading and unloading systems.

(b) Any facility under paragraph (a) of this section that commences construction or modification after August 17, 1971, is subject to the requirements of this subpart.

§ 60.61 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in subpart A of this part.

(a) *Portland cement plant* means any facility manufacturing portland cement by either the wet or dry process.

(b) *Bypass* means any system that prevents all or a portion of the kiln or clinker cooler exhaust gases from entering the main control device and ducts the gases through a separate control device. This does not include emergency systems designed to duct exhaust gases directly to the atmosphere in the event of a malfunction of any control device controlling kiln or clinker cooler emissions.

(c) *Bypass stack* means the stack that vents exhaust gases to the atmosphere from the bypass control device.

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

§ 60.62 Standard for Particulate Matter.

(a) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any kiln any gases which:

(1) Contain particulate matter in excess of 0.15 kg per metric ton of feed (dry basis) to the kiln (0.30 lb per ton).

(2) Exhibit greater than 20 percent opacity.

(b) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any clinker cooler any gases which:

(1) Contain particulate matter in excess of 0.050 kg per metric ton of feed (dry basis) to the kiln (0.10 lb per ton).

(2) Exhibit 10 percent opacity, or greater.

(c) On and after the date on which the performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility other than the kiln and clinker cooler any gases which exhibit 10 percent opacity, or greater.

§ 60.63 Monitoring of Operations.

(a) The owner or operator of any portland cement plant subject to the provisions of this part shall record the daily production rates and kiln feed rates.

(b) Except as provided in paragraph (c) of this section, each owner or operator of a kiln or clinker cooler that is subject to the provisions of this subpart shall install, calibrate, maintain, and operate in accordance with § 60.13 a continuous opacity monitoring system to measure the opacity of emissions discharged into the atmosphere from any kiln or clinker cooler. Except as provided in paragraph (c) of this section, a continuous opacity monitoring system shall be installed on each stack of any multiple stack device controlling emissions from any kiln or clinker cooler. If there is a separate bypass installed, each owner or operator of a kiln or clinker cooler shall also install, calibrate, maintain, and operate a continuous opacity monitoring system on each bypass stack in addition to the main control device stack. Each owner or operator of an affected kiln or clinker cooler for which the performance test required under § 60.8 has been completed on or prior to December 14, 1988, shall install the continuous opacity monitoring system within 180 days after December 14, 1988.

(c) Each owner or operator of a kiln or clinker cooler subject to the provisions of this subpart using a positive-pressure fabric filter with multiple stacks, or a negative-pressure fabric filter with multiple stacks, or an electrostatic precipitator with multiple stacks may, in lieu of installing the continuous opacity monitoring system required by § 60.63(b), monitor visible emissions at least once per day by using a certified visible emissions observer. If the control device exhausts gases through a monovent, visible emission observations in lieu of a continuous opacity monitoring system are required. These observations shall be taken in accordance with EPA Method 9. Visible emissions shall be observed during conditions representative of normal operation. Observations shall be recorded for at least three 6-minute periods each day. In the event that visible emissions are observed for a number of emission sites from the control device with multiple stacks, Method 9 observations shall be recorded for the emission site with the highest opacity. All records of visible emissions shall be maintained for a period of 2 years.

(d) For the purpose of reports under § 60.65, periods of excess emissions that shall be reported are defined as all 6-minute

periods during which the average opacity exceeds that allowed by § 60.62(a)(2) or § 60.62(b)(2).

(e) The provisions of paragraphs (a), (b), and (c) of this section apply to kilns and clinker coolers for which construction, modification, or reconstruction commenced after August 17, 1971.

§ 60.64 Test Methods and Procedures.

(a) In conducting the performance tests required in § 60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided in § 60.8(b).

(b) The owner or operator shall determine compliance with the particulate matter standard in § 60.62 as follows:

(1) The emission rate (E) of particulate matter shall be computed for each run using the following equation:

$E = (c_s Qsd)/(P K)$

where:

E = emission rate of particulate matter, kg/metric ton (lb/ton) of kiln feed.

C_s = concentration of particulate matter, g/dscm (gr/dscf).

Qsd = volumetric flow rate of effluent gas, dscm/hr (dscf/hr).

P = total kiln feed (dry basis) rate, metric ton/hr (ton/hr).

K = conversion factor, 1000 g/kg (7000 gr/lb).

(2) Method 5 shall be used to determine the particulate matter concentration (cs) and the volumetric flow rate (Qsd) of the effluent gas. The sampling time and sample volume for each run shall be at least 60 minutes and 0.85 dscm (30.0 dscf) for the kiln and at least 60 minutes and 1.15 dscm (40.6 dscf) for the clinker cooler.

(3) Suitable methods shall be used to determine the kiln feed rate (P), except fuels, for each run. Material balance over the production system shall be used to confirm the feed rate.

(4) Method 9 and the procedures in § 60.11 shall be used to determine opacity.

§ 60.65 Recordkeeping and Reporting Requirements.

(a) Each owner or operator required to install a continuous opacity monitoring system under § 60.63(b) shall submit reports of excess emissions as defined in § 60.63(d). The content of these reports must comply with the requirements in § 60.7(c). Notwithstanding the provisions of § 60.7(c), such reports shall be submitted semi-annually.

(b) Each owner or operator monitoring visible emissions under § 60.63(c) shall submit semi-annual reports of observed excess emissions as defined in § 60.63(d).

(c) Each owner or operator of facilities subject to the provisions of § 60.63(c) shall submit semi-annual reports of the malfunction information required to be recorded by § 60.7(b). These reports shall include the frequency, duration, and cause of any incident resulting in deenergization of any device controlling kiln emissions or in the venting of emissions directly to the atmosphere.

(d) The requirements of this section remain in force until and unless the Agency, in delegating enforcement authority to a State under section 111(c) of the Clean Air Act, 42 U.S.C. 7411, approves reporting requirements or an alternative means of compliance surveillance adopted by such States. In that event, affected sources within the State will be relieved of the obligation to comply with this section, provided that they comply with the requirements established by the State.

§ 60.66 Delegation of Authority.

(a) In delegating implementation and enforcement authority to a State under section 111(c) of the Act, the authorities contained in paragraph (b) of this section shall be retained by the Administrator and not transferred to a State.

(b) Authorities which will not be delegated to States: No restrictions.

SECTION 4. APPENDIX H
NSPS SUBPART Y PROVISIONS – COAL PREPARATION PLANTS

The specific conditions of this subsection apply to the following emissions unit.

ID No.	Emissions Unit Description	
009	(Existing) Coal Conveying Equipment	
012	(New) Coal mill and coal transfer station with the following emissions points:	
	Point ID No.	*Description*
	S-17-02	Baghouse for coal mill
	S-21-02	Baghouse coal transfer system

1. NSPS Subpart A: The affected emissions units are also subject to the applicable General Provisions in Subpart A of 40 CFR 60, as adopted by Rule 62-204.800(8), F.A.C. [40 CFR 60, Subpart A]
2. NSPS Subpart Y: The affected emissions units are also subject to the applicable requirements for Coal Preparation Plants specified in NSPS Subpart Y of 40 CFR 60, as adopted by Rule 62-204.800(8), F.A.C. [40 CFR 60, Subpart Y.]

{Permitting Note: Numbering of the original NSPS rules in the following conditions has been preserved for ease of reference with the rules. Paragraphs that are not applicable have been omitted for clarity and brevity. When used in 40 CFR 60, the term "Administrator" shall mean the Secretary or the Secretary's designee.}

§ 60.250 Applicability and Designation of Affected Facility.

(a) The provisions of this subpart are applicable to any of the following affected facilities in coal preparation plants which process more than 200 tons per day: thermal dryers, pneumatic coal cleaning equipment (air tables), coal processing and conveying equipment (including breakers and crushers), and coal storage systems.

§ 60.251 Definitions.

(a) *Coal preparation plant* means any facility (excluding underground mining operations) which prepares coal by one or more of the following processes: breaking, crushing, screening, wet or dry cleaning, and thermal drying.

(b) *Bituminous coal* means solid fossil fuel classified as bituminous coal by ASTM Designation D388-77, 90, 91, 95, or 98a (incorporated by reference; see § 60.17).

(c) *Coal* means all solid fossil fuels classified as anthracite, bituminous, sub bituminous, or lignite by ASTM Designation D388-77, 90, 91, 95, or 98a (incorporated by reference; see § 60.17).

(d) *Cyclonic flow* means a spiraling movement of exhaust gases within a duct or stack.

(e) *Thermal dryer* means any facility in which the moisture content of bituminous coal is reduced by contact with a heated gas stream which is exhausted to the atmosphere.

(f) *Pneumatic coal-cleaning equipment* means any facility which classifies bituminous coal by size or separates bituminous coal from refuse by application of air stream(s).

(g) *Coal processing and conveying equipment* means any machinery used to reduce the size of coal or to separate coal from refuse, and the equipment used to convey coal to or remove coal and refuse from the machinery. This includes, but is not limited to, breakers, crushers, screens, and conveyor belts.

(h) *Coal storage system* means any facility used to store coal except for open storage piles.

(i) *Transfer and loading system* means any facility used to transfer and load coal for shipment.

§ 60.252 Standards for Particulate Matter.

(a) On and after the date on which the performance test required to be conducted by 40 CFR 60.8 is completed, an owner or operator shall not cause to be discharged into the atmosphere from any thermal dryer gases which:

(1) Contain particulate matter in excess of 0.070 g/dscm (0.031 gr/dscf).

(2) Exhibit 20 percent opacity or greater.

(c) On and after the date on which the performance test required to be conducted by 40 CFR 60.8 is completed, an owner or operator shall not cause to be discharged into the atmosphere from any coal processing and conveying equipment or coal storage system, gases which exhibit 20 percent opacity or greater. [40 CFR 60.252(a) and (c)]

§ 60.253 Monitoring of Operations.

(a) The owner or operator of any thermal dryer shall install, calibrate, maintain, and continuously operate monitoring devices as follows:

(1) A monitoring device for the measurement of the temperature of the gas stream at the exit of the thermal dryer on a continuous basis. The monitoring device is to be certified by the manufacturer to be accurate within ±3° Fahrenheit.

(b) All monitoring devices under paragraph (a) of this section are to be recalibrated annually in accordance with procedures under 40 CFR 60.13(b). [40 CFR 60.253(a) and (b)]

§ 60.254 Test Methods and Procedures.

(a) In conducting the performance tests required in 40 CFR 60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided in 40 CFR 60.8(b).

(b) The owner or operator shall determine compliance with the particular matter standards in 40 CFR 60.252 as follows:

(1) Method 5 shall be used to determine the particulate matter concentration. The sampling time and sample volume for each run shall be at least 60 minutes and 0.85 dscm (30 dscf). Sampling shall begin no less than 30 minutes after startup and shall terminate before shutdown procedures begin.

(2) Method 9 and the procedures in 40 CFR 60.11 shall be used to determine opacity.

SECTION 4. APPENDIX I

NSPS SUBPART OOO PROVISIONS – NONMETALLIC MINERAL PROCESSING PLANTS

The provisions of this subsection apply to the following emissions unit.

ID	Emission Unit Description
001	(Existing) Primary crusher and associated belt conveyors

1. NSPS Subpart A: The affected emissions units are subject to the applicable General Provisions in NSPS Subpart A of 40 CFR 60, as adopted by Rule 62-204.800(8), F.A.C. [40 CFR 60, Subpart A]
2. NSPS Subpart OOO: The affected emissions units are subject to the applicable requirements for Nonmetallic Mineral Processing Plants specified in NSPS Subpart OOO of 40 CFR 60, as adopted by Rule 62-204.800(8), F.A.C. [40 CFR 60, Subpart OOO]

{Permitting Note: Numbering of the original NSPS rules in the following conditions has been preserved for ease of reference with the rules. Paragraphs that are not applicable have been omitted for clarity and brevity. When used in 40 CFR 60, the term "Administrator" shall mean the Secretary or the Secretary's designee.}

§ 60.670 Applicability and Designation of Affected Facility.

(a) (1) The provisions of 40 CFR 60 Subpart OOO are applicable to the following affected facilities in fixed or portable nonmetallic mineral processing plants: each belt conveyor or crusher.

§ 60.671 Definitions.

Belt conveyor means a conveying device that transports material from one location to another by means of an endless belt that is carried on a series of idlers and routed around a pulley at each end.

Crusher means a machine used to crush any nonmetallic materials, and includes, but is not limited to, the following types: jaw, gyratory, cone roll, rod mill, hammermill, and impactor.

§ 60.672 Standard for Particulate Matter.

(b) On and after the sixtieth day after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup as required under 40 CFR 60.11, no owner or operator shall cause to be discharged into the atmosphere from any transfer point on belt conveyors or from any other affected facility any fugitive emissions which exhibit greater than 10 percent opacity, except as provided in paragraph (c) and (d) of this section.

(c) On and after the sixtieth day after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup as required under 40 CFR 60.11, no owner or operator shall cause to be discharged into the atmosphere from any crusher, at which a capture system is not used, fugitive emissions which exhibit greater than 15 percent opacity.

(d) Truck dumping of nonmetallic minerals into any screening operation, feed hopper, or crusher is exempt from the requirements of this section.

§ 60.675 Test Methods and Procedures.

(a) In conducting the performance tests required in 40 CFR 60.8, the owner or operator shall use as reference methods and procedures the test methods in 40 CFR 60 Appendix A or other methods and procedures as specified in this section, except as provided in 40 CFR 60.8(b). Acceptable alternative methods and procedures are given in paragraph (e) of this section.

(c) (1) In determining compliance with the particulate matter standards in 40 CFR 60.672 (b) and (c), the owner or operator shall use Method 9 and the procedures in 40 CFR 60.11, with the following additions:

(i) The minimum distance between the observer and the emissions source shall be 4.57 meters (15 feet).

(ii) The observer shall, when possible, select a position that minimizes interference from other fugitive emissions units (e.g., road dust). The required observer position relative to the sun (Method 9, Section 2.1) must be followed.

(iii) For affected emissions units using wet dust suppression for particulate matter control, a visible mist is sometimes generated by the spray. The water mist must not be confused with particulate matter emissions and is not to be considered a visible emission. When a water mist of this nature is present, the observation of

emissions is to be made at a point in the plume where the mist is no longer visible.

(3) When determining compliance with the fugitive emissions standard for any affected facility described under Section 60.672(b) of this subpart, the duration of the Method 9 observations may be reduced from 3 hours (thirty 6-minute averages) to 1 hour (ten 6-minute averages) only if the following conditions apply:

(i) There are no individual readings greater than 10 percent opacity; and

(ii) There are no more than 3 readings of 10 percent for the 1-hour period.

(4) When determining compliance with the fugitive emissions standard for any crusher at which a capture system is not used as described under Section 60.672(c) of this subpart, the duration of the Method 9 observations may be reduced from 3 hours (thirty 6-minute averages) to 1 hour (ten 6- minute averages) only if the following conditions apply:

(i) There are no individual readings greater than 15 percent opacity; and

(ii) There are no more than 3 readings of 15 percent for the 1-hour period.

(e) The owner or operator may use the following as alternatives to the reference methods and procedures specified in this section:

(1) For the method and procedure of 40 CFR 60.675(c), if emissions from two or more facilities continuously interfere so that the opacity of fugitive emissions from an individual affected facility cannot be read, either of the following procedures may be used:

(i) Use for the combined emission stream the highest fugitive opacity standard applicable to any of the individual affected facilities contributing to the emissions stream.

(ii) Separate the emissions so that the opacity of emissions from each affected facility can be read.

(g) If, after 30 days notice for an initially scheduled performance test, there is a delay (due to operation problems, etc.) in conducting any rescheduled performance test required in this section, the owner or operator of an affected facility shall submit a notice to the Administrator at least 7 days prior to any rescheduled performance test.

§ 60.676 Reporting and Recordkeeping.

(f) The owner or operator of any affected facility shall submit written reports of the results of all performance tests conducted to demonstrate compliance with the standards set forth in 40 CFR 60.672, including reports of opacity observations made using Method 9 to demonstrate compliance with 40 CFR 60.672(b) and (c).

(h) The Subpart A requirement under 40 CFR 60.7(a)(2) for notification of the anticipated date of initial startup of an affected facility shall be waived for owners or operators of affected facilities regulated under this subpart.

(i) A notification of the actual date of initial startup of each affected facility shall be submitted to the Administrator.

(1) For a combination of affected facilities in a production line that begin actual initial startup on the same day, a single notification of startup may be submitted by the owner or operator to the Administrator. The notification shall be postmarked within 15 days after such date and shall include a description of each affected facility, equipment manufacturer, and serial number of the equipment, if available.

SECTION 4. APPENDIX J

NESHAP SUBPART LLL PROVISIONS – PORTLAND CEMENT MANUFACTURING INDUSTRY

The provisions of this subsection apply to the following emissions units.

ID	Emission Unit Description	
003	(Existing) Raw material processing - unenclosed conveyor transfer points (D conveyors)	
011	(New) Clinker and cement processing with the following emissions points:	
	Point ID No.	*Description*
	L-03-02	Baghouse for clinker pan conveyor
	L-06-02	Baghouse for clinker silo inlet
	L-25-02	Baghouse for gypsum/off-specification clinker transport
	M-08-02	Baghouse for clinker silo outlet conveyor
	M-09-02	Baghouse for gypsum/off-spec. clinker silo outlet
	N-09-02	Baghouse for finish mill separator (1)
	N-12-02	Baghouse for finish mill vent (2)
	N-36-02	Baghouse for fringe cement bin
	N-91-02	Baghouse for finish mill (3)
	P-03-02	Baghouse for cement transport conveyor
	P-11-02	Baghouse for cement silos
	Q-17-02	Baghouse for cement truck load out No. 3
013	(New) Dry process preheater/precalciner rotary kiln with in-line raw mill	
014	(New) Baghouses for raw material processing	
	Point ID No.	*Description*
	E28-02	Baghouse raw mill
	E34-02	Baghouse off-specification feed handling
	G07-02	Baghouse homogenizing silo
	H08-02	Baghouse Poldos homogenizing silo
	H08A-02	Baghouse hydrated lime silo
	U-05-02	Baghouse fly ash silo

1. NESHAP Subpart A: The affected emissions units are subject to the applicable General Provisions in NESHAP Subpart A of 40 CFR 63, as adopted by Rule 62-204.800(11), F.A.C. At the end of Appendix J, Table J-1 summarizes the portions of the NESHAP General Provisions that are applicable to the affected NESHAP Subpart LLL units. [40 CFR 63, Subpart A]
2. NESHAP Subpart LLL: The affected emissions units are subject to the applicable requirements for the Portland Cement Manufacturing Industry specified in NESHAP Subpart LLL of 40 CFR 63, as adopted by Rule 62-204.800(11), F.A.C. [40 CFR 63, Subpart LLL]

§ 63.1340 Applicability and Designation of Affected Sources.

(a) Except as specified in paragraphs (b) and (c) of this section, the provisions of this subpart apply to each new and existing portland cement plant which is a major source as defined in §63.2.

(b) The affected sources subject to this subpart are:

(1) Each kiln and each in-line kiln/raw mill at any major source, including alkali bypasses, except for kilns and in-line kiln/raw mills that burn hazardous waste and are subject to and regulated under subpart EEE of this part;

(2) Each clinker cooler at any portland cement plant which is a major source;

(3) Each raw mill at any portland cement plant which is a major source;

(4) Each finish mill at any portland cement plant which is a major source;

(5) Each raw material dryer at any portland cement plant which is a major source and each greenfield raw material dryer at any portland cement plant which is a major source;

(6) Each raw material, clinker, or finished product storage bin at any portland cement plant which is a major source;

(7) Each conveying system transfer point including those associated with coal preparation used to convey coal from the mill to the kiln at any portland cement plant which is a major source;

(8) Each bagging system at any portland cement plant which is a major source; and

(c) For portland cement plants with on-site nonmetallic mineral processing facilities, the first affected source in the sequence of materials handling operations subject to this subpart is the raw material storage, which is just prior to the raw mill. Any equipment of the on-site nonmetallic mineral processing plant which precedes the raw material storage is not subject to this subpart. In addition, the primary and secondary crushers of the on-site nonmetallic mineral processing plant, regardless of whether they precede the raw material storage, are not subject to this subpart. Furthermore, the first conveyor transfer point subject to this subpart is the transfer point associated with the conveyor transferring material from the raw material storage to the raw mill.

(d) The owner or operator of any affected source subject to the provisions of this subpart is subject to title V permitting requirements.

§ 63.1341 Definitions.

All terms used in this subpart that are not defined below have the meaning given to them in the CAA and in subpart A of this part.

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

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

Bin means a manmade enclosure for storage of raw materials, clinker, or finished product prior to further processing at a Portland cement plant.

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

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

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

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

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

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

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

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

separator associated with the finish mill.

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

Hazardous waste is defined in §261.3 of this chapter.

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

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

Kiln exhaust gas bypass means alkali bypass.

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

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

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

Portland cement plant means any facility manufacturing portland cement.

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

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

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

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

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

§ 63.1342 Standards - General.

(a) Table 1 to this subpart provides cross references to the 40 CFR part 63, subpart A, general provisions, indicating the applicability of the general provisions requirements to subpart LLL.

(b) Table 1 of this section provides a summary of emission limits and operating limits of this subpart.

Table 1 to § 63.1342. Emission Limits and Operating Limits.

Affected Source	Pollutant / Opacity	Emission and Operating Limit
All kilns and in-line kiln/raw mills at major sources (including alkali bypass)	PM	0.15 kg/Mg of feed (dry basis)
	Opacity	20 percent
All kilns and in-line kiln/raw mills at major sources (including alkali bypass)	D/F	0.20 ng TEQ/dscm corrected to 7 percent oxygen or 0.40 ng TEQ/dscm corrected to 7 percent oxygen when the average of the performance test run average

Affected Source	Pollutant / Opacity	Emission and Operating Limit
		particulate matter control device (PMCD) inlet temperatures is 204° C or less. Operate such that the three-hour rolling average PMCD inlet temperature is no greater than the temperature established at performance test. If activated carbon injection is used: Operate such that the three-hour rolling average activated carbon injection rate is no less than rate established at performance test. Operate such that either the carrier gas flow rate or carrier gas pressure drop exceeds the value established at performance test. Inject carbon of equivalent specifications to that used at performance test.
New greenfield kilns and in-line kiln/raw mills at major sources	THC	50 ppmvd, as propane, corrected to 7 percent oxygen
All clinker coolers at major sources	PM	0.050 kg/Mg of feed (dry basis)
	Opacity	10 percent
All raw mills and finish mills at major sources	Opacity	10 percent
New greenfield raw material dryers at major sources	THC	50 ppmvd, as propane, corrected to 7 percent oxygen
All raw material dryers and material handling points at major sources	Opacity	10 percent

§ 63.1343 Standards for Kilns and In-line Kiln/Raw Mills.

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

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

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

(2) Exhibit opacity greater than 20 percent.

(3) Contain D/F in excess of:

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

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

(c) *Greenfield/major sources.* No owner or operator that commences construction of a greenfield kiln or greenfield inline kiln/raw mill at a facility which is a major source subject to the provisions of this subpart shall cause to be discharged into the atmosphere from these affected sources any gases which:

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

the kiln or in-line kiln/raw mill and the bypass stack are subject to this emission limit.

(2) Exhibit opacity greater than 20 percent.

(3) Contain D/F in excess of:

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

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

(4) Contain total hydrocarbon (THC), from the main exhaust of the kiln or in-line kiln/raw mill, in excess of 50 ppmvd as propane, corrected to seven percent oxygen.

(d) *Reserved*

(e) *Rseserved*

§ 63.1344 Operating Limits for Kilns and In-line Kiln/Raw Mills.

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

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

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

(3) If the in-line kiln/raw mill is equipped with an alkali bypass, the applicable temperature limit for the alkali bypass specified in paragraph (b) of this section and established during the performance test, with or without the raw mill operating, is not exceeded.

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

(c) The owner or operator of an affected source subject to a D/F emission limitation under §63.1343 that employs carbon injection as an emission control technique must operate the carbon injection system in accordance with paragraphs (c)(1) and (c)(2) of this section.

(1) The three-hour rolling average activated carbon injection rate shall be equal to or greater than the activated carbon injection rate determined in accordance with §63.1349(b)(3)(vi).

(2) The owner or operator shall either:

(i) Maintain the minimum activated carbon injection carrier gas flow rate, as a three-hour rolling average, based on the manufacturer's specifications. These specifications must be documented in the test plan developed in accordance with §63.7(c) of this part, or

(ii) Maintain the minimum activated carbon injection carrier gas pressure drop, as a three-hour rolling average, based on the manufacturer's specifications. These specifications must be documented in the test plan developed in accordance with §63.7(c).

(d) Except as provided in paragraph (e) of this section, the owner or operator of an affected source subject to a D/F emission limitation under §63.1343 that employs carbon injection as an emission control technique must specify and use the brand and type of activated carbon used during the performance test until a subsequent performance test is conducted, unless the site-specific performance test plan contains documentation of key parameters that affect adsorption and the owner or operator establishes limits based on those parameters, and the limits on these parameters are maintained.

(e) The owner or operator of an affected source subject to a D/F emission limitation under §63.1343 that employs carbon injection as an emission control technique may substitute, at any time, a different brand or type of activated carbon provided that the replacement has equivalent or improved properties compared to the activated carbon specified in the site-specific performance test plan and used in the performance test. The owner or operator must maintain documentation that the substitute activated carbon will provide the same or better level of control as the original activated carbon.

§ 63.1345 Standards for Clinker Coolers.

(a) No owner or operator of a new or existing clinker cooler at a facility which is a major source subject to the provisions of this subpart shall cause to be discharged into the atmosphere from the clinker cooler any gases which:

(1) Contain particulate matter in excess of 0.050 kg per Mg (0.10 lb per ton) of feed (dry basis) to the kiln.

(2) Exhibit opacity greater than ten percent.

(b) [Reserved]

§ 63.1346 Standards for New and Reconstructed Raw Material Dryers.

(a) *Brownfield/major sources.* No owner or operator of a new or reconstructed brownfield raw material dryer at a facility which is a major source subject to this subpart shall cause to be discharged into the atmosphere from the new or reconstructed raw material dryer any gases which exhibit opacity greater than ten percent.

(b) *Reserved*

(c) *Greenfield/major sources.* No owner or operator of a greenfield raw material dryer at a facility which is a major source subject to this subpart shall cause to be discharged into the atmosphere from the greenfield raw material dryer any gases which:

(1) Contain THC in excess of 50 ppmvd, reported as propane, corrected to seven percent oxygen.

(2) Exhibit opacity greater than ten percent.

§ 63.1347 Standards for Raw and Finish Mills.

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

§ 63.1348 Standards for Affected Sources Other than Kilns; In-line Kiln/Raw Mills; Clinker coolers; New and Reconstructed Raw Material Dryers; and Raw and Finish Mills.

The owner or operator of each new or existing raw material, clinker, or finished product storage bin; conveying system transfer point; bagging system; and bulk loading or unloading system; and each existing raw material dryer, at a facility which is a major source subject to the provisions of this subpart shall not cause to be discharged any gases from these affected sources which exhibit opacity in excess of ten percent.

§ 63.1349 Performance Testing Requirements.

(a) The owner or operator of an affected source subject to this subpart shall demonstrate initial compliance with the emission limits of §63.1343 and §§63.1345 through 63.1348 using the test methods and procedures in paragraph (b) of this section and §63.7. Performance test results shall be documented in complete test reports that contain the information required by paragraphs (a)(1) through (a)(10) of this section, as well as all other relevant information. The plan to be followed during testing shall be made available to the Administrator prior to testing, if requested.

(1) A brief description of the process and the air pollution control system;

(2) Sampling location description(s);

(3) A description of sampling and analytical procedures and any modifications to standard procedures;

(4) Test results;

(5) Quality assurance procedures and results;

(6) Records of operating conditions during the test, preparation of standards, and calibration procedures;

(7) Raw data sheets for field sampling and field and laboratory analyses;

(8) Documentation of calculations;

(9) All data recorded and used to establish parameters for compliance monitoring; and

(10) Any other information required by the test method.

(b) Performance tests to demonstrate initial compliance with this subpart shall be conducted as specified in paragraphs (b)(1) through (b)(4) of this section.

(1) The owner or operator of a kiln subject to limitations on particulate matter emissions shall demonstrate initial compliance by conducting a performance test as specified in paragraphs (b)(1)(i) through (b)(1)(iv) of this section. The owner or operator of an in-line kiln/raw mill subject to limitations on particulate matter emissions shall demonstrate initial compliance by conducting separate performance tests as specified in paragraphs (b)(1)(i) through (b)(1)(iv) of this section while the raw mill of the in-line kiln/raw mill is under normal operating conditions and while the raw mill of the in-line kiln/raw mill is not operating. The owner or operator of a clinker cooler subject to limitations on particulate matter emissions shall demonstrate initial compliance by conducting a performance test as specified in paragraphs (b)(1)(i) through (b)(1)(iii) of this section. The opacity exhibited during the period of the Method 5 of Appendix A to part 60 of this chapter performance tests required by paragraph (b)(1)(i) of this section shall be determined as required in paragraphs (b)(1)(v) through (vi) of this section.

(i) Method 5 of appendix A to part 60 of this chapter shall be used to determine PM emissions. Each performance test shall consist of three separate runs under the conditions that exist when the affected source is operating at the representative performance conditions in accordance with Sec. 63.7(e). Each run shall be conducted for at least 1 hour, and the minimum sample volume shall be 0.85 dscm (30 dscf). The average of the three runs shall be used to determine compliance. A determination of the PM collected in the impingers ("back half") of the Method 5 particulate sampling train is not required to demonstrate initial compliance with the PM standards of this subpart. However, this shall not preclude the permitting authority from requiring a determination of the "back half" for other purposes.

(ii) Suitable methods shall be used to determine the kiln or inline kiln/raw mill feed rate, except for fuels, for each run.

(iii) The emission rate, E, of PM shall be computed for each run using equation 1:

$$E = (c_s Q_{sd}) / P \qquad \textbf{(Eq 1)}$$

Where:

E = emission rate of particulate matter, kg/Mg of kiln feed.

c_s = concentration of PM, kg/dscm.

Q_{sd} = volumetric flow rate of effluent gas, dscm/hr.

P = total kiln feed (dry basis), Mg/hr.

(iv) When there is an alkali bypass associated with a kiln or in-line kiln/raw mill, the main exhaust and alkali bypass of the kiln or in-line kiln/raw mill shall be tested simultaneously and the combined emission rate of particulate matter from the kiln or in-line kiln/raw mill and alkali bypass shall be computed for each run using equation 2,

$$E_c = (c_{sk}Q_{sdk} + c_{sb}Q_{sdb})/P \qquad \textbf{(Eq 2)}$$

Where:

E_c = the combined emission rate of particulate matter from the kiln or in-line kiln/raw mill and bypass stack, kg/Mg of kiln feed.

c_{sk} = concentration of particulate matter in the kiln or in-line kiln/raw mill effluent, kg/dscm.

Q_{sdk} = volumetric flow rate of kiln or in-line kiln/raw mill effluent, dscm/hr.

c_{sb} = concentration of particulate matter in the alkali bypass gas, kg/dscm.

Q_{sdb} = volumetric flow rate of alkali bypass gas, dscm/hr.

P = total kiln feed (dry basis), Mg/hr.

(v) Except as provided in paragraph (b)(1)(vi) of this section the opacity exhibited during the period of the Method 5 performance tests required by paragraph (b)(1)(i) of this section shall be determined through the use of a continuous opacity monitor (COM). The maximum six-minute average opacity during the three Method 5 test runs shall be determined during each Method 5 test run, and used to demonstrate initial compliance with the applicable opacity limits of §63.1343(b)(2), §63.1343(c)(2), or §63.1345(a)(2).

(vi) Each owner or operator of a kiln, in-line kiln/raw mill, or clinker cooler subject to the provisions of this subpart using a fabric filter with multiple stacks or an electrostatic precipitator with multiple stacks may, in lieu of installing the continuous opacity monitoring system required by paragraph (b)(1)(v) of this section, conduct an opacity test in accordance with Method 9 of appendix A to part 60 of this chapter during each Method 5 performance test required by paragraph (b)(1)(i) of this section. If the control device exhausts through a monovent, or if the use of a COM in accordance with the installation specifications of Performance Specification 1 (PS-1) of appendix B to part 60 of this chapter is not feasible, a test shall be conducted in accordance with Method 9 of appendix A to part 60 of this chapter during each Method 5 performance test required by paragraph (b)(1)(i) of this section. The maximum six-minute average opacity shall be determined during the three Method 5 test runs, and used to demonstrate initial compliance with the applicable opacity limits of §63.1343(b)(2), §63.1343(c)(2), or §63.1345(a)(2).

(2) The owner or operator of any affected source subject to limitations on opacity under this subpart that is not subject to paragraph (b)(1) of this section shall demonstrate initial compliance with the affected source opacity limit by conducting a test in accordance with Method 9 of appendix A to part 60 of this chapter. The performance test shall be conducted under the conditions that exist when the affected source is operating at the representative performance conditions in accordance with Sec. 63.7(e). The maximum 6-minute average opacity exhibited during the test period shall be used to determine whether the affected source is in initial compliance with the standard. The duration of the Method 9 performance test shall be 3 hours (30 6-minute averages), except that the duration of the Method 9 performance test may be reduced to 1 hour if the conditions of paragraphs (b)(2)(i) through (ii) of this section apply:

(i) There are no individual readings greater than 10 percent opacity;

(ii) There are no more than three readings of 10 percent for the first 1-hour period.

(3) The owner or operator of an affected source subject to limitations on D/F emissions under this subpart shall demonstrate initial compliance with the D/F emission limit by conducting a performance test using Method 23 of appendix A to part 60 of this chapter. The owner or operator of an in-line kiln/raw mill shall demonstrate initial compliance by conducting separate performance tests while the raw mill of the in-line kiln/raw mill is under normal operating conditions and while the raw mill of the in-line kiln/raw mill is not operating. The owner or operator of a kiln or in-line kiln/raw mill equipped with an alkali bypass shall conduct simultaneous performance tests of the kiln or in-line kiln/raw mill exhaust and the alkali bypass. However, the owner or operator of an in-line kiln/raw mill may conduct a performance test of the alkali bypass exhaust when the raw mill of the in-line kiln/raw mill is operating or not operating.

(i) Each performance test shall consist of three separate runs; each run shall be conducted under the conditions that exist when the affected source is operating at the representative performance conditions in accordance with Sec. 63.7(e). The duration of each run shall be at least 3 hours, and the sample volume for each run shall be at least 2.5 dscm (90 dscf). The concentration shall be determined for each run, and the arithmetic average of the concentrations measured for the three runs shall be calculated and used to determine compliance.

(ii) The temperature at the inlet to the kiln or in-line kiln/raw mill PMCD, and where applicable, the temperature at the inlet to the alkali bypass PMCD, must be continuously recorded during the period of the Method 23 test, and the continuous temperature record(s) must be included in the performance test report.

(iii) One-minute average temperatures must be calculated for each minute of each run of the test.

(iv) The run average temperature must be calculated for each run, and the average of the run average temperatures must be determined and included in the performance test report and will determine the applicable temperature limit in accordance with §63.1344(b).

(v) If activated carbon injection is used for D/F control, the rate of activated carbon injection to the kiln or in-line

kiln/raw mill exhaust, and where applicable, the rate of activated carbon injection to the alkali bypass exhaust, must be continuously recorded during the period of the Method 23 test, and the continuous injection rate record(s) must be included in the performance test report. In addition, the performance test report must include the brand and type of activated carbon used during the performance test and a continuous record of either the carrier gas flow rate or the carrier gas pressure drop for the duration of the test. Activated carbon injection rate parameters must be determined in accordance with paragraphs (b)(3)(vi) of this section.

(vi) The run average injection rate must be calculated for each run, and the average of the run average injection rates must be determined and included in the performance test report and will determine the applicable injection rate limit in accordance with §63.1344(c)(1).

(4) The owner or operator of an affected source subject to limitations on emissions of THC shall demonstrate initial compliance with the THC limit by operating a continuous emission monitor in accordance with Performance Specification 8A of appendix B to part 60 of this chapter. The duration of the performance test shall be three hours, and the average THC concentration (as calculated from the one-minute averages) during the three hour performance test shall be calculated. The owner or operator of an in-line kiln/raw mill shall demonstrate initial compliance by conducting separate performance tests while the raw mill of the in-line kiln/raw mill is under normal operating conditions and while the raw mill of the in-line kiln/raw mill is not operating.

(c) Except as provided in paragraph (e) of this section, performance tests required under paragraphs (b)(1) and (b)(2) of this section shall be repeated every five years, except that the owner or operator of a kiln, in-line kiln/raw mill or clinker cooler is not required to repeat the initial performance test of opacity for the kiln, in-line kiln/raw mill or clinker cooler.

(d) Performance tests required under paragraph (b)(3) of this section shall be repeated every 30 months.

(e) (1) If a source plans to undertake a change in operations that may adversely affect compliance with an applicable D/F standard under this subpart, the source must conduct a performance test and establish new temperature limit(s) as specified in paragraph (b)(3) of this section.

(2) If a source plans to undertake a change in operations that may adversely affect compliance with an applicable PM standard under Sec. 63.1343, the source must conduct a performance test as specified in paragraph (b)(1) of this section.

(3) In preparation for and while conducting a performance test required in paragraph (e)(1) of this section, a source may operate under the planned operational change conditions for a period not to exceed 360 hours, provided that the conditions in paragraphs (e)(3)(i) through (iv) of this section are met. The source shall submit temperature and other monitoring data that are recorded during the pretest operations.

(i) The source must provide the Administrator written notice at least 60 days prior to undertaking an operational change that may adversely affect compliance with an applicable standard under this subpart, or as soon as practicable where 60 days advance notice is not feasible. Notice provided under this paragraph shall include a description of the planned change, the emissions standards that may be affected by the change, and a schedule for completion of the performance test required under paragraph (e)(1) of this section, including when the planned operational change period would begin.

(ii) The performance test results must be documented in a test report according to paragraph (a) of this section.

(iii) A test plan must be made available to the Administrator prior to testing, if requested.

(iv) The performance test must be conducted, and it must be completed within 360 hours after the planned operational change period begins.

(f) Table 1 of this section provides a summary of the performance test requirements of this subpart.

TABLE 1 TO § 63.1349. SUMMARY OF PERFORMANCE TEST REQUIREMENTS

Affected Source and Pollutant	Performance Test
New and existing kiln and in-line kiln/raw mill[b,c] PM	EPA Method 5[a]
New and existing kiln and in-line kiln/raw mill[b,c] Opacity	COM if feasible[d,e] or EPA Method 9 visual opacity readings.

Affected Source and Pollutant	Performance Test
New and existing kiln and in-line kiln/raw mill[b,c,f,g] D/F	EPA Method 23[h]
New greenfield kiln and in-line kiln/raw mill[c] THC	THC CEM (EPA PS-8A)[i]
New and existing clinker cooler PM	EPA Method 5[a]
New and existing clinker cooler opacity	COM[d,j] or EPA Method 9 visual opacity readings
New and existing raw and finish mill opacity	EPA Method 9[a,j]
New and existing raw material dryer and materials handling processes (raw material storage, clinker storage, finished product storage, conveyor transfer points, bagging, and bulk loading and unloading systems) opacity	EPA Method 9[a,j]
New greenfield raw material dryer THC	THC CEM (EPA PS-8A)[i]

[a] Required initially and every 5 years thereafter.

[b] Includes main exhaust and alkali bypass.

[c] In-line kiln/raw mill to be tested with and without raw mill in operation.

[d] Must meet COM performance specification criteria. If the fabric filter or electrostatic precipitator has multiple stacks, daily EPA Method 9 visual opacity readings may be taken instead of using a COM.

[e] Opacity limit is 20 percent.

[f] Alkali bypass is tested with the raw mill operating or not operating.

[g] Temperature and (if applicable) activated carbon injection parameters determined separately with and without the raw mill operating.

[h] Required initially and every 30 months thereafter.

[i] EPA Performance Specification (PS)-8A of appendix B to part 60 of this chapter.

[j] Opacity limit is 10 percent.

§ 63.1350 Monitoring Requirements.

(a) The owner or operator of each portland cement plant shall prepare for each affected source subject to the provisions of this subpart, a written operations and maintenance plan. The plan shall be submitted to the Administrator for review and approval as part of the application for a part 70 permit and shall include the following information:

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

(2) Corrective actions to be taken when required by paragraph (e) of this section;

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

(4) Procedures to be used to periodically monitor affected sources subject to opacity standards under §63.1346 and §63.1348. Such procedures must include the provisions of paragraphs (a)(4)(i) through (a)(4)(iv) of this section.

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

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

consecutive monthly tests.

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

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

(v) The requirement to conduct Method 22 visible emissions monitoring under this paragraph shall not apply to any totally enclosed conveying system transfer point, regardless of the location of the transfer point. ``Totally enclosed conveying system transfer point'' shall mean a conveying system transfer point that is enclosed on all sides, top, and bottom. The enclosures for these transfer points shall be operated and maintained as total enclosures on a continuing basis in accordance with the facility operations and maintenance plan.

(vi) If any partially enclosed or unenclosed conveying system transfer point is located in a building, the owner or operator of the portland cement plant shall have the option to conduct a Method 22 visible emissions monitoring test according to the requirements of paragraphs (a)(4)(i) through (iv) of this section for each such conveying system transfer point located within the building, or for the building itself, according to paragraph (a)(4)(vii) of this section.

(vii) If visible emissions from a building are monitored, the requirements of paragraphs (a)(4)(i) through (iv) of this section apply to the monitoring of the building, and you must also test visible emissions from each side, roof and vent of the building for at least 1 minute. The test must be conducted under normal operating conditions.

(b) Failure to comply with any provision of the operations and maintenance plan developed in accordance with paragraph (a) of this section shall be a violation of the standard.

(c) The owner or operator of a kiln or in-line kiln/raw mill shall monitor opacity at each point where emissions are vented from these affected sources including alkali bypasses in accordance with paragraphs (c)(1) through (c)(3) of this section.

(1) Except as provided in paragraph (c)(2) of this section, the owner or operator shall install, calibrate, maintain, and continuously operate a continuous opacity monitor (COM) located at the outlet of the PM control device to continuously monitor the opacity. The COM shall be installed, maintained, calibrated, and operated as required by subpart A, general provisions of this part, and according to PS-1 of appendix B to part 60 of this chapter.

(2) The owner or operator of a kiln or in-line kiln/raw mill subject to the provisions of this subpart using a fabric filter with multiple stacks or an electrostatic precipitator with multiple stacks may, in lieu of installing the continuous opacity monitoring system required by paragraph (c)(1) of this section, monitor opacity in accordance with paragraphs (c)(2)(i) through (ii) of this section. If the control device exhausts through a monovent, or if the use of a COM in accordance with the installation specifications of PS-1 of appendix B to part 60 of this chapter is not feasible, the owner or operator must monitor opacity in accordance with paragraphs (c)(2)(i) through (ii) of this section.

(i) Perform daily visual opacity observations of each stack in accordance with the procedures of Method 9 of appendix A to part 60 of this chapter. The Method 9 test shall be conducted while the affected source is operating at the representative performance conditions. The duration of the Method 9 test shall be at least 30 minutes each day.

(ii) Use the Method 9 procedures to monitor and record the average opacity for each six-minute period during the test.

(3) To remain in compliance, the opacity must be maintained such that the 6-minute average opacity for any 6-minute block period does not exceed 20 percent. If the average opacity for any 6-minute block period exceeds 20 percent, this shall constitute a violation of the standard.

(d) The owner or operator of a clinker cooler shall monitor opacity at each point where emissions are vented from the clinker cooler in accordance with paragraphs (d)(1) through (d)(3) of this section.

(1) Except as provided in paragraph (d)(2) of this section, the owner or operator shall install, calibrate, maintain, and continuously operate a COM located at the outlet of the clinker cooler PM control device to continuously monitor the opacity. The COM shall be installed, maintained, calibrated, and operated as required by subpart A, general provisions of this part, and according to PS-1 of appendix B to part 60 of this chapter.

(2) The owner or operator of a clinker cooler subject to the provisions of this subpart using a fabric filter with multiple stacks or an electrostatic precipitator with multiple stacks may, in lieu of installing the continuous opacity monitoring system required by paragraph (d)(1) of this section, monitor opacity in accordance with paragraphs (d)(2)(i) through (ii) of this section. If the control device exhausts through a monovent, or if the use of a COM in accordance with the installation specifications of PS-1 of appendix B to part 60 of this chapter is not feasible, the owner or operator must monitor opacity in accordance with paragraphs (d)(2)(i) through (ii) of this section.

(i) Perform daily visual opacity observations of each stack in accordance with the procedures of Method 9 of appendix A to part 60 of this chapter. The Method 9 test shall be conducted while the affected source is operating at the representative performance conditions. The duration of the Method 9 test shall be at least 30 minutes each day.

(ii) Use the Method 9 procedures to monitor and record the average opacity for each six-minute period during the test.

(3) To remain in compliance, the opacity must be maintained such that the 6-minute average opacity for any 6-minute block period does not exceed 10 percent. If the average opacity for any 6-minute block period exceeds 10 percent, this shall constitute a violation of the standard.

(e) The owner or operator of a raw mill or finish mill shall monitor opacity by conducting daily visual emissions observations of the mill sweep and air separator PMCD of these affected sources in accordance with the procedures of Method 22 of appendix A to part 60 of this chapter. The Method 22 test shall be conducted while the affected source is operating at the representative performance conditions. The duration of the Method 22 test shall be 6 minutes. If visible emissions are observed during any Method 22 visible emissions test, the owner or operator must:

(1) Initiate, within one-hour, the corrective actions specified in the site specific operating and maintenance plan developed in accordance with paragraphs (a)(1) and (a)(2) of this section; and

(2) Within 24 hours of the end of the Method 22 test in which visible emissions were observed, conduct a follow-up Method 22 test of each stack from which visible emissions were observed during the previous Method 22 test. If visible emissions are observed during the follow-up Method 22 test from any stack from which visible emissions were observed during the previous Method 22 test, conduct a visual opacity test of each stack from which emissions were observed during the follow up Method 22 test in accordance with Method 9 of appendix A to part 60 of this chapter. The duration of the Method 9 test shall be 30 minutes.

(f) The owner or operator of an affected source subject to a limitation on D/F emissions shall monitor D/F emissions in accordance with paragraphs (f)(1) through (f)(6) of this section.

(1) The owner or operator shall install, calibrate, maintain, and continuously operate a continuous monitor to record the temperature of the exhaust gases from the kiln, in-line kiln/raw mill and alkali bypass, if applicable, at the inlet to, or upstream of, the kiln, in-line kiln/raw mill and/or alkali bypass PM control devices.

(i) The recorder response range must include zero and 1.5 times either of the average temperatures established according to the requirements in §63.1349(b)(3)(iv).

(ii) The reference method must be a National Institute of Standards and Technology calibrated reference thermocouple-potentiometer system or alternate reference, subject to approval by the Administrator.

(2) The owner or operator shall monitor and continuously record the temperature of the exhaust gases from the kiln, in-line kiln/raw mill and alkali bypass, if applicable, at the inlet to the kiln, in-line kiln/raw mill and/or alkali bypass PMCD.

(3) The three-hour rolling average temperature shall be calculated as the average of 180 successive one-minute average temperatures.

(4) Periods of time when one-minute averages are not available shall be ignored when calculating three-hour rolling averages. When one-minute averages become available, the first one-minute average is added to the previous 179 values to calculate the three-hour rolling average.

(5) When the operating status of the raw mill of the in-line kiln/raw mill is changed from off to on, or from on to off the calculation of the three-hour rolling average temperature must begin anew, without considering previous recordings.

(6) The calibration of all thermocouples and other temperature sensors shall be verified at least once every three months.

(g) The owner or operator of an affected source subject to a limitation on D/F emissions that employs carbon injection as an emission control technique shall comply with the monitoring requirements of paragraphs (f)(1) through (f)(6) and (g)(1) through (g)(6) of this section to demonstrate continuous compliance with the D/F emission standard.

(1) Install, operate, calibrate and maintain a continuous monitor to record the rate of activated carbon injection. The accuracy of the rate measurement device must be ± 1 percent of the rate being measured.

(2) Verify the calibration of the device at least once every three months.

(3) The three-hour rolling average activated carbon injection rate shall be calculated as the average of 180 successive one-minute average activated carbon injection rates.

(4) Periods of time when one-minute averages are not available shall be ignored when calculating three-hour rolling averages. When one-minute averages become available, the first one-minute average is added to the previous 179 values to calculate the three-hour rolling average.

(5) When the operating status of the raw mill of the in-line kiln/raw mill is changed from off to on, or from on to off the calculation of the three-hour rolling average activated carbon injection rate must begin anew, without considering previous recordings.

(6) The owner or operator must install, operate, calibrate and maintain a continuous monitor to record the activated carbon injection system carrier gas parameter (either the carrier gas flow rate or the carrier gas pressure drop) established during the D/F performance test in accordance with paragraphs (g)(6)(i) through (g)(6)(iii) of this section.

(i) The owner or operator shall install, calibrate, operate and maintain a device to continuously monitor and record the parameter value.

(ii) The owner or operator must calculate and record three-hour rolling averages of the parameter value.

(iii) Periods of time when one-minute averages are not available shall be ignored when calculating three-hour rolling averages. When one-minute averages become available, the first one-minute average shall be added to the previous 179 values to calculate the three-hour rolling average.

(h) The owner or operator of an affected source subject to a limitation on THC emissions under this subpart shall comply with the monitoring requirements of paragraphs (h)(1) through (h)(3) of this section to demonstrate continuous compliance with the THC emission standard:

(1) The owner or operator shall install, operate and maintain a THC continuous emission monitoring system in accordance with Performance Specification 8A, of appendix B to part 60 of this chapter and comply with all of the requirements for continuous monitoring systems found in the general provisions, subpart A of this part.

(2) The owner or operator is not required to calculate hourly rolling averages in accordance with section 4.9 of Performance Specification 8A.

(3) Any thirty-day block average THC concentration in any gas discharged from a greenfield raw material dryer, the main exhaust of a greenfield kiln, or the main exhaust of a greenfield in-line kiln/raw mill, exceeding 50 ppmvd, reported as propane, corrected to seven percent oxygen, is a violation of the standard.

(i) The owner or operator of any kiln or in-line kiln/raw mill subject to a D/F emission limit under this subpart shall conduct an inspection of the components of the combustion system of each kiln or in-line kiln raw mill at least once per year.

(j) The owner or operator of an affected source subject to a limitation on opacity under §63.1346 or §63.1348 shall monitor opacity in accordance with the operation and maintenance plan developed in accordance with paragraph (a) of this section.

(k) The owner or operator of an affected source subject to a particulate matter standard under §63.1343 shall install,

calibrate, maintain and operate a particulate matter continuous emission monitoring system (PM CEMS) to measure the particulate matter discharged to the atmosphere. All requirements relating to installation, calibration, maintenance, operation or performance of the PM CEMS and implementation of the PM CEMS requirement are deferred pending further rulemaking.

(l) An owner or operator may submit an application to the Administrator for approval of alternate monitoring requirements to demonstrate compliance with the emission standards of this subpart, except for emission standards for THC, subject to the provisions of paragraphs (l)(1) through (l)(6) of this section.

(1) The Administrator will not approve averaging periods other than those specified in this section, unless the owner or operator documents, using data or information, that the longer averaging period will ensure that emissions do not exceed levels achieved during the performance test over any increment of time equivalent to the time required to conduct three runs of the performance test.

(2) If the application to use an alternate monitoring requirement is approved, the owner or operator must continue to use the original monitoring requirement until approval is received to use another monitoring requirement.

(3) The owner or operator shall submit the application for approval of alternate monitoring requirements no later than the notification of performance test. The application must contain the information specified in paragraphs (l)(3)(i) through (l)(3)(iii) of this section:

(i) Data or information justifying the request, such as the technical or economic infeasibility, or the impracticality of using the required approach;

(ii) A description of the proposed alternative monitoring requirement, including the operating parameter to be monitored, the monitoring approach and technique, the averaging period for the limit, and how the limit is to be calculated; and

(iii) Data or information documenting that the alternative monitoring requirement would provide equivalent or better assurance of compliance with the relevant emission standard.

(4) The Administrator will notify the owner or operator of the approval or denial of the application within 90 calendar days after receipt of the original request, or within 60 calendar days of the receipt of any supplementary information, whichever is later. The Administrator will not approve an alternate monitoring application unless it would provide equivalent or better assurance of compliance with the relevant emission standard. Before disapproving any alternate monitoring application, the Administrator will provide:

(i) Notice of the information and findings upon which the intended disapproval is based; and

(ii) Notice of opportunity for the owner or operator to present additional supporting information before final action is taken on the application. This notice will specify how much additional time is allowed for the owner or operator to provide additional supporting information.

(5) The owner or operator is responsible for submitting any supporting information in a timely manner to enable the Administrator to consider the application prior to the performance test. Neither submittal of an application, nor the Administrator's failure to approve or disapprove the application relieves the owner or operator of the responsibility to comply with any provision of this subpart.

(6) The Administrator may decide at any time, on a case-by-case basis that additional or alternative operating limits, or alternative approaches to establishing operating limits, are necessary to demonstrate compliance with the emission standards of this subpart.

(m) The requirements under paragraph (e) of this section to conduct daily Method 22 testing shall not apply to any specific raw mill or finish mill equipped with a continuous opacity monitor COM or bag leak detection system (BLDS). If the owner or operator chooses to install a COM in lieu of conducting the daily visual emissions testing required under paragraph (e) of this section, then the COM must be installed at the outlet of the PM control device of the raw mill or finish mill, and the COM must be installed, maintained, calibrated, and operated as required by the general provisions in subpart A of this part and according to PS-1 of appendix B to part 60 of this chapter. To remain in compliance, the opacity must be maintained such that the 6-minute average opacity for any 6-minute block period does not exceed 10 percent. If the average opacity for any 6-minute block period exceeds 10 percent, this shall constitute a violation of the standard. If the owner or operator chooses to install a BLDS in lieu of conducting the daily visual emissions testing required under paragraph (e) of this section, the requirements in paragraphs (m)(1) through (9) of this section apply to

each BLDS:

(1) The BLDS must be certified by the manufacturer to be capable of detecting PM emissions at concentrations of 10 milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less. ``Certify'' shall mean that the instrument manufacturer has tested the instrument on gas streams having a range of particle size distributions and confirmed by means of valid filterable PM tests that the minimum detectable concentration limit is at or below 10 milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less.

(2) The sensor on the BLDS must provide output of relative PM emissions.

(3) The BLDS must have an alarm that will activate automatically when it detects a significant increase in relative PM emissions greater than a preset level.

(4) The presence of an alarm condition should be clearly apparent to facility operating personnel.

(5) For a positive-pressure fabric filter, each compartment or cell must have a bag leak detector. For a negative-pressure or induced-air fabric filter, the bag leak detector must be installed downstream of the fabric filter. If multiple bag leak detectors are required for either type of fabric filter, detectors may share the system instrumentation and alarm.

(6) All BLDS must be installed, operated, adjusted, and maintained so that they are based on the manufacturer's written specifications and recommendations. The EPA recommends that where appropriate, the standard operating procedures manual for each bag leak detection system include concepts from EPA's ``Fabric Filter Bag Leak Detection Guidance'' (EPA-454/R-98-015, September 1997).

(7) The baseline output of the system must be established as follows:

(i) Adjust the range and the averaging period of the device; and

(ii) Establish the alarm set points and the alarm delay time.

(8) After initial adjustment, the range, averaging period, alarm set points, or alarm delay time may not be adjusted except as specified in the operations and maintenance plan required by paragraph (a) of this section. In no event may the range be increased by more than 100 percent or decreased by more than 50 percent over a 1 calendar year period unless a responsible official as defined in Sec. 63.2 certifies in writing to the Administrator that the fabric filter has been inspected and found to be in good operating condition.

(9) The owner or operator must maintain and operate the fabric filter such that the bag leak detector alarm is not activated and alarm condition does not exist for more than 5 percent of the total operating time in a 6-month block period. Each time the alarm activates, alarm time will be counted as the actual amount of time taken by the owner or operator to initiate corrective actions. If inspection of the fabric filter demonstrates that no corrective actions are necessary, no alarm time will be counted. The owner or operator must continuously record the output from the BLDS during periods of normal operation. Normal operation does not include periods when the BLDS is being maintained or during startup, shutdown or malfunction.

(n) A summary of the monitoring requirements of this subpart is given in Table 1 to this section.

Table 1 to §63.1350. Monitoring Requirements.

Affected Source/Pollutant or Opacity	Monitor Type/ Operation/Process	Monitoring Requirements
All affected sources	Operations and maintenance plan	Prepare written plan for all affected sources and control devices
All kilns and in-line kiln raw mills at major sources (including alkali bypass)/opacity	Continuous opacity monitor, if applicable	Install, calibrate, maintain and operate in accordance with general provisions and with PS-1
	Method 9 opacity test, if applicable	Daily test of at least 30-minutes, while kiln is at highest load or capacity level
Kilns and in-line kiln raw mills at major sources (including alkali bypass)/particulate matter	Particulate matter continuous emission monitoring system	Deferred

Affected Source/Pollutant or Opacity	Monitor Type/ Operation/Process	Monitoring Requirements
Kilns and in-line kiln raw mills at major sources (including alkali bypass)/ D/F	Combustion system inspection	Conduct annual inspection of components of combustion system
	Continuous temperature monitoring at PMCD inlet	Install, operate, calibrate and maintain continuous temperature monitoring and recording system; calculate three-hour rolling averages; verify temperature sensor calibration at least quarterly
Kilns and in-line kiln raw mills at major sources (including alkali bypass)/ D/F (continued)	Activated carbon injection rate monitor, if applicable	Install, operate, calibrate and maintain continuous activated carbon injection rate monitor; calculate three-hour rolling averages; verify calibration at least quarterly; install, operate, calibrate and maintain carrier gas flow rate monitor or carrier gas pressure drop monitor; calculate three-hour rolling averages; document carbon specifications
New greenfield kilns and in-line kiln raw mills at major sources/THC	Total hydrocarbon continuous emission monitor	Install, operate, and maintain THC CEM in accordance with PS-8A; calculate 30-day block average THC concentration
Clinker coolers at major sources/opacity	Continuous opacity monitor, if applicable	Install, calibrate, maintain and operate in accordance with general provisions and with PS-1
	Method 9 opacity test, if applicable	Daily test of at least 30-minutes, while kiln is at highest load or capacity level.
Raw mills and finish mills at major sources/opacity	Method 22 visible emissions test (This requirement does not apply to a raw mill or finish mill equipped with a continuous opacity monitor or bag leak detection system)	Conduct daily 6-minute Method 22 visible emissions test while mill is operating at highest load or capacity level; if visible emissions are observed, initiate corrective action within one hour and conduct 30-minute Method 9 test within 24 hours
	Continuous opacity monitoring, if appilicable	Install, operate, and maintain in accordance with general provisions and with PS-1. A six-minute average greater than 10% opacity is a violation
	Bag leak detection system, if applicable	Install, operate and maintain in accordance with Sec. 63.1350(m). Operate and maintain such that alarm is not activated and alarm condition does not exist for more than 4% of the total operating time in a 6-month period. If alarm sounds, initiate corrective action.
New greenfield raw material dryers at major sources/THC	Total hydrocarbon continuous emission monitor	Install, operate, and maintain THC CEM in accordance with PS-8A; calculate 30-day block average THC concentration
Raw material dryers; raw material, clinker, finished product storage bins; conveying system transfer points; bagging systems; and bulk loading and unloading systems at major sources/opacity	Method 22 visible emissions test	As specified in operation and maintenance plan

§ 63.1351 Compliance Dates.

(a) The compliance date for an owner or operator of an existing affected source subject to the provisions of this subpart is June 14, 2002.

(b) The compliance date for an owner or operator of an affected source subject to the provisions of this subpart that commences new construction or reconstruction after March 24, 1998 is June 14, 1999 or upon startup of operations, whichever is later.

§ 63.1352 Additional Test Methods.

(a) Owners or operators conducting tests to determine the rates of emission of hydrogen chloride (HCl) from kilns, in-line kiln/raw mills and associated bypass stacks at portland cement manufacturing facilities, for use in applicability determinations under §63.1340 are permitted to use Method 320 or Method 321 of appendix A of this part.

(b) Owners or operators conducting tests to determine the rates of emission of hydrogen chloride (HCl) from kilns, in-line kiln/raw mills and associated bypass stacks at portland cement manufacturing facilities, for use in applicability determinations under §63.1340 are permitted to use Methods 26 or 26A of appendix A to part 60 of this chapter.

(c) Owners or operators conducting tests to determine the rates of emission of specific organic HAP from raw material dryers, kilns and in-line kiln/raw mills at portland cement manufacturing facilities, for use in applicability determinations under §63.1340 of this subpart are permitted to use Method 320 of appendix A to this part, or Method 18 of appendix A to part 60 of this chapter.

§ 63.1353 Notification Requirements.

(a) The notification provisions of 40 CFR part 63, subpart A that apply and those that do not apply to owners and operators of affected sources subject to this subpart are listed in Table 1 of this subpart. If any State requires a notice that contains all of the information required in a notification listed in this section, the owner or operator may send the Administrator a copy of the notice sent to the State to satisfy the requirements of this section for that notification.

(b) Each owner or operator subject to the requirements of this subpart shall comply with the notification requirements in §63.9 as follows:

(1) Initial notifications as required by §63.9(b) through (d). For the purposes of this subpart, a Title V or 40 CFR part 70 permit application may be used in lieu of the initial notification required under §63.9(b), provided the same information is contained in the permit application as required by §63.9(b), and the State to which the permit application has been submitted has an approved operating permit program under part 70 of this chapter and has received delegation of authority from the EPA. Permit applications shall be submitted by the same due dates as those specified for the initial notification.

(2) Notification of performance tests, as required by §§63.7 and 63.9(e).

(3) Notification of opacity and visible emission observations required by §63.1349 in accordance with §§63.6(h)(5) and 63.9(f).

(4) Notification, as required by §63.9(g), of the date that the continuous emission monitor performance evaluation required by §63.8(e) of this part is scheduled to begin.

(5) Notification of compliance status, as required by §63.9(h).

§ 63.1354 Reporting Requirements.

(a) The reporting provisions of subpart A of this part that apply and those that do not apply to owners or operators of affected sources subject to this subpart are listed in Table 1 of this subpart. If any State requires a report that contains all of the information required in a report listed in this section, the owner or operator may send the Administrator a copy of the report sent to the State to satisfy the requirements of this section for that report.

(b) The owner or operator of an affected source shall comply with the reporting requirements specified in §63.10 of the general provisions of this part 63, subpart A as follows:

(1) As required by §63.10(d)(2), the owner or operator shall report the results of performance tests as part of the notification of compliance status.

(2) As required by §63.10(d)(3), the owner or operator of an affected source shall report the opacity results from tests required by §63.1349.

(3) As required by §63.10(d)(4), the owner or operator of an affected source who is required to submit progress reports as a condition of receiving an extension of compliance under §63.6(i) shall submit such reports by the dates specified in the written extension of compliance.

(4) As required by §63.10(d)(5), if actions taken by an owner or operator during a startup, shutdown, or malfunction of an affected source (including actions taken to correct a malfunction) are consistent with the procedures specified in the source's startup, shutdown, and malfunction plan specified in §63.6(e)(3), the owner or operator shall state such information in a semiannual report. Reports shall only be required if a startup, shutdown, or malfunction occurred during the reporting period. The startup, shutdown, and malfunction report may be submitted simultaneously with the excess emissions and continuous monitoring system performance reports; and

(5) Any time an action taken by an owner or operator during a startup, shutdown, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures in the startup, shutdown, and malfunction plan, the owner or operator shall make an immediate report of the actions taken for that event within 2 working days, by telephone call or facsimile (FAX) transmission. The immediate report shall be followed by a letter, certified by the owner or operator or other responsible official, explaining the circumstances of the event, the reasons for not following the startup, shutdown, and malfunction plan, and whether any excess emissions and/or parameter monitoring exceedances are believed to have occurred.

(6) As required by §63.10(e)(2), the owner or operator shall submit a written report of the results of the performance evaluation for the continuous monitoring system required by §63.8(e). The owner or operator shall submit the report simultaneously with the results of the performance test.

(7) As required by §63.10(e)(2), the owner or operator of an affected source using a continuous opacity monitoring system to determine opacity compliance during any performance test required under §63.7 and described in §63.6(d)(6) shall report the results of the continuous opacity monitoring system performance evaluation conducted under §63.8(e).

(8) As required by §63.10(e)(3), the owner or operator of an affected source equipped with a continuous emission monitor shall submit an excess emissions and continuous monitoring system performance report for any event when the continuous monitoring system data indicate the source is not in compliance with the applicable emission limitation or operating parameter limit.

(9) The owner or operator shall submit a summary report semiannually which contains the information specified in §63.10(e)(3)(vi). In addition, the summary report shall include:

(i) All exceedences of maximum control device inlet gas temperature limits specified in §63.1344(a) and (b);

(ii) All failures to calibrate thermocouples and other temperature sensors as required under §63.1350(f)(7) of this subpart; and

(iii) All failures to maintain the activated carbon injection rate, and the activated carbon injection carrier gas flow rate or pressure drop, as applicable, as required under §63.1344(c).

(iv) The results of any combustion system component inspections conducted within the reporting period as required under §63.1350(i).

(v) All failures to comply with any provision of the operation and maintenance plan developed in accordance with §63.1350(a).

(10) If the total continuous monitoring system downtime for any CEM or any continuous monitoring system (CMS) for the reporting period is ten percent or greater of the total operating time for the reporting period, the owner or operator shall submit an excess emissions and continuous monitoring system performance report along with the summary report.

§ 63.1355 Recordkeeping Requirements.

(a) The owner or operator shall maintain files of all information (including all reports and notifications) required by this section recorded in a form suitable and readily available for inspection and review as required by §63.10(b)(1). The files shall be retained for at least five years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent two years of data shall be retained on site. The remaining three years of data may be retained off site. The files may be maintained on microfilm, on a computer, on floppy disks, on magnetic tape, or on microfiche.

(b) The owner or operator shall maintain records for each affected source as required by §63.10(b)(2) and (b)(3) of this part; and

(1) All documentation supporting initial notifications and notifications of compliance status under §63.9 of this part;

(2) All records of applicability determination, including supporting analyses; and

(3) If the owner or operator has been granted a waiver under §63.8(f)(6), any information demonstrating whether a source is meeting the requirements for a waiver of recordkeeping or reporting requirements.

(c) In addition to the recordkeeping requirements in paragraph (b) of this section, the owner or operator of an affected source equipped with a continuous monitoring system shall maintain all records required by §63.10(c).

§ 63.1356 Exemption from New Source Performance Standards.

(a) Except as provided in paragraphs (a)(1) and (a)(2) of this section, any affected source subject to the provisions of this subpart is exempted from any otherwise applicable new source performance standard contained in subpart F or subpart OOO of part 60 of this chapter.

(1) Reserved

(2) Reserved

(b) The requirements of subpart Y of part 60 of this chapter, "Standards of Performance for Coal Preparation Plants", do not apply to conveying system transfer points used to convey coal from the mill to the kiln that are associated with coal preparation at a portland cement plant that is a major source under this subpart.

§ 63.1357 Temporary, Conditioned Exemption from Particulate Matter and Opacity Standards.

(a) Subject to the limitations of paragraphs (b) through (f) of this section, an owner or operator conducting PM CEMS correlation tests (that is, correlation with manual stack methods) is exempt from:

(1) Any particulate matter and opacity standards of part 60 or part 63 of this chapter that are applicable to cement kilns and in-line kiln/raw mills.

(2) Any permit or other emissions or operating parameter or other limitation on workplace practices that are applicable to cement kilns and in-line kiln raw mills to ensure compliance with any particulate matter and opacity standards of this part or part 60 of this chapter.

(b) The owner or operator must develop a PM CEMS correlation test plan. The plan must be submitted to the Administrator for approval at least 90 days before the correlation test is scheduled to be conducted. The plan must include:

(1) The number of test conditions and the number of runs for each test condition;

(2) The target particulate matter emission level for each test condition;

(3) How the operation of the affected source will be modified to attain the desired particulate matter emission rate; and

(4) The anticipated normal particulate matter emission level.

(c) The Administrator will review and approve or disapprove the correlation test plan in accordance with §63.7(c)(3)(i) and (iii). If the Administrator fails to approve or disapprove the correlation test plan within the time period specified in §63.7(c)(3)(iii), the plan shall be considered approved, unless the Administrator has requested additional information.

(d) The stack sampling team must be on-site and prepared to perform correlation testing no later than 24 hours after operations are modified to attain the desired particulate matter emissions concentrations, unless the correlation test plan documents that a longer period is appropriate.

(e) The PM and opacity standards and associated operating limits and conditions will not be waived for more than 96 hours, in the aggregate, for the purposes of conducting tests to correlate PM CEMS with manual method test results, including all runs and conditions, except as described in this paragraph. Where additional time is required to correlate a PM CEMS device, a source may petition the Administrator for an extension of the 96-hour aggregate waiver of compliance with the PM and opacity standards. An extension of the 96-hour aggregate waiver is renewable at the discretion of the Administrator.

(f) The owner or operator must return the affected source to operating conditions indicative of compliance with the applicable particulate matter and opacity standards as soon as possible after correlation testing is completed.

§ 63.1358 Implementation and Enforcement.

(a) This subpart can be implemented and enforced by the U.S. EPA, or a delegated authority such as the applicable State,

local, or Tribal agency. If the U.S. EPA Administrator has delegated authority to a State, local, or Tribal agency, then that agency, in addition to the U.S. EPA, has the authority to implement and enforce this subpart. Contact the applicable U.S. EPA Regional Office to find out if this subpart is delegated to a State, local, or Tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or Tribal agency under subpart E of this part, the authorities contained in paragraph (c) of this section are retained by the Administrator of U.S. EPA and cannot be transferred to the State, local, or Tribal agency.

(c) The authorities that cannot be delegated to State, local, or Tribal agencies are as specified in paragraphs (c)(1) through (4) of this section.

(1) Approval of alternatives to the requirements in Sec. Sec. 63.1340, 63.1342 through 63.1348, and 63.1351.

(2) Approval of major alternatives to test methods under Sec. 63.7(e)(2)(ii) and (f), as defined in Sec. 63.90, and as required in this subpart.

(3) Approval of major alternatives to monitoring under Sec. 63.8(f), as defined in Sec. 63.90, and as required in this subpart.

(4) Approval of major alternatives to recordkeeping and reporting under Sec. 63.10(f), as defined in Sec. 63.90, and as required in this subpart.

§ 63.1359 [Reserved]

Table J-1. Applicability of NESHAP Subpart A Provisions to Affected NESHAP Subpart LLL Units

Citation	Requirement	Applies?	Explanation
63.1(a)(1)–(4)	Applicability	Yes	
63.1(a)(5)		No	[Reserved]
63.1(a)(6)–(8)	Applicability	Yes	
63.1(a)(9)		No	[Reserved]
63.1(a)(10)–(14)	Applicability	Yes	
63.1(b)(1)	Initial Applicability Determination	No	§ 63.1340 specifies applicability.
63.1(b)(2)–(3)	Initial Applicability Determination	Yes	
63.1(c)(1)	Applicability After Standard Established	Yes	
63.1(c)(2)	Permit Requirements	Yes	Area sources must obtain Title V permits.
63.1(c)(3)		No	[Reserved]
63.1(c)(4)–(5)	Extensions, Notifications	Ye	
63.1(d)		No	[Reserved]
63.1(e)	Applicability of Permit Program	Yes	
63.2	Definitions	Yes	Additional definitions in § 63.1341.
63.3(a)–(c)	Units and Abbreviations	Yes	
63.4(a)(1)–(3)	Prohibited Activities	Yes	
63.4(a)(4)		No	[Reserved]
63.4(a)(5)	Compliance date	Yes	
63.4(b)–(c)	Circumvention, Severability	Yes	
63.5(a)(1)–(2)	Construction/Reconstruction	Yes	
63.5(b)(1)	Compliance Dates	Yes	
63.5(b)(2)		No	[Reserved]
63.5(b)(3)–(6)	Construction Approval, Applicability	Yes	
63.5(c)		No	[Reserved]
63.5(d)(1)–(4)	Approval of Construction/Reconstruction	Yes	
63.5(e)	Approval of Construction/Reconstruction	Yes	
63.5(f)(1)–(2)	Approval of Construction/Reconstruction	Yes	
63.6(a)	Compliance for Standards and Maintenance	Yes	
63.6(b)(1)–(5)	Compliance Dates	Yes	
63.6(b)(6)		No	[Reserved]
63.6(b)(7)	Compliance Dates	Yes	
63.6(c)(1)–(2)	Compliance Dates	Yes	
63.6(c)(3)–(4)		No	[Reserved]
63.6(c)(5)	Compliance Dates	Yes	
63.6(d)		No	[Reserved]
63.6(e)(1)–(2)	Operation & Maintenance	Yes	
63.6(e)(3)	Startup, Shutdown Malfunction Plan	Yes	
63.6(f)(1)–(3)	Compliance with Emission Standards	Yes	
63.6(g)(1)–(3)	Alternative Standard	Yes	
63.6(h)(1)–(2)	Opacity/VE Standards	Yes	
63.6(h)(3)	Opacity/VE Standards	No	[Reserved]
63.6(h)(4)–(h)(5)(i)	Opacity/VE Standards	Yes	
63.6(h)(5)(ii)–(iv)	Opacity/VE Standards	No	Test duration specified in subpart LLL.
63.6(h)(6)	Opacity/VE Standards	Yes	
63.6(h)(7)	Opacity/VE Standards	Yes	
63.6(i)(1)–(14)	Extension of Compliance	Yes	
63.6(i)(15)		No	[Reserved]
63.6(i)(16)	Extension of Compliance		Yes
63.6(j)	Exemption from Compliance	Yes	
63.7(a)(1)–(3)	Performance Testing Requirements	Yes	§ 63.1349 has specific requirements.
63.7(b)	Notification	Yes	
63.7(c)	Quality Assurance/Test Plan	Yes	

Citation	Requirement	Applies?	Explanation
63.7(d)	Testing Facilities	Yes	
63.7(e)(1)–(4)	Conduct of Tests	Yes	
63.7(f)	Alternative Test Method	Yes	
63.7(g)	Data Analysis	Yes	
63.7(h)	Waiver of Tests	Yes	
63.8(a)(1)	Monitoring Requirements	Yes	
63.8(a)(2)	Monitoring	No	§ 63.1350 includes CEMS requirements.
63.8(a)(3)	Monitoring	No	[Reserved]
63.8(a)(4)	Monitoring	No	Flares not applicable.
63.8(b)(1)–(3)	Conduct of Monitoring	Yes	
63.8(c)(1)–(8)	CMS Operation/Maintenance	Yes	PS supersedes requirements for THC CEMS. Temperature and activated carbon injection monitoring data reduction requirements given in Subpart LLL.
63.8(d)	Quality Control	Yes	
63.8(e)	Performance Evaluation for CMS	Yes	PS supersedes requirements for THC CEMS.
63.8(f)(1)–(5)	Alternative Monitoring Method	Yes	Additional requirements in § 63.1350(l).
63.8(f)(6)	Alternative to RATA Test	Yes	
63.8(g)	Data Reduction	Yes	
63.9(a)	Notification Requirements	Yes	
63.9(b)(1)–(5)	Initial Notifications	Yes	
63.9(c)	Request for Compliance Extension	Yes	
63.9(d)	New Source Notification for Special Compliance Req.	Yes	
63.9(e)	Notification of Performance Test	Yes	
63.9(f)	Notification of VE/Opacity Test	Yes	Notification not required under § 63.1350(e) and (j).
63.9(g)	Additional CMS Notifications	Yes	
63.9(h)(1)–(3)	Notification of Compliance Status	Yes	
63.9(h)(4)		No	[Reserved]
63.9(h)(5)–(6)	Notification of Compliance Status	Yes	
63.9(i)	Adjustment of Deadlines	Yes	
63.9(j)	Change in Previous Information	Yes	
63.10(a)	Recordkeeping/Reporting	Yes	
63.10(b)	General Requirements	Yes	
63.10(c)(1)	Additional CMS Recordkeeping	Yes	PS–8A supersedes requirements for THC CEMS.
63.10(c)(2)–(4)		No	[Reserved]
63.10(c)(5)–(8)	Additional CMS Recordkeeping	Yes	PS–8A supersedes requirements for THC CEMS.
63.10(c)(9)		No	[Reserved]
63.10(c)(10)–(15)	Additional CMS Recordkeeping	Yes	PS–8A supersedes requirements for THC CEMS.
63.10(d)(1)	General Reporting Requirements	Yes	
63.10(d)(2)	Performance Test Results	Yes	
63.10(d)(3)	Opacity or VE Observations	Yes	
63.10(d)(4)	Progress Reports	Yes	
63.10(d)(5)	Startup. Shutdown. Malfunction Reports	Yes	
63.10(e)(1)–(2)	Additional CMS Reports	Yes	
63.10(e)(3)	Excess Emissions and CMS Performance Reports	Yes	Exceedances are defined in subpart LLL.
63.10(f)	Waiver for Recordkeeping/Reporting	Yes	
63.11(a)–(b)	Control Device Requirements	No	Flares not applicable.
63.12(a)–(c)	State Authority and Delegations	Yes	
63.13(a)–(c)	State/Regional Addresses	Yes	
63.14(a)–(b)	Incorporation by Reference	Yes	
63.15(a)–(b)	Availability of Information	Yes	