TECHNICAL EVALUATION

AND

PRELIMINARY DETERMINATION

CEMEX Construction Materials Florida, LLC

Line 2 Production Increase

CEMEX Brooksville South Cement Plant

Hernando County

DEP File No. 0530021-033-AC

PSD-FL-351D

Department of Environmental Protection
Division of Air Resource Management
Bureau of Air Regulation
Special Projects Section

May 25, 2011

1. GENERAL PROJECT INFORMATION

Facility Description and Location

The facility consists of the CEMEX Brooksville South Cement Plant owned by CEMEX Construction Materials Florida, LLC (CEMEX) and the Central Power and Lime (CP&L) Power Plant owned by Arroyo Energy. The two plants operate under a single facility Title V Air Operation Permit. The facility is located at the site indicated in Figure 1 below in Hernando County at 10311 Cement Plant Road in Brooksville, Florida. The UTM coordinates are Zone 17; 360.0 km East and 3162.5 km North. This site is in an area that is in attainment (or designated as unclassifiable) for all air pollutants subject to a National Ambient Air Quality Standard (NAAQS).

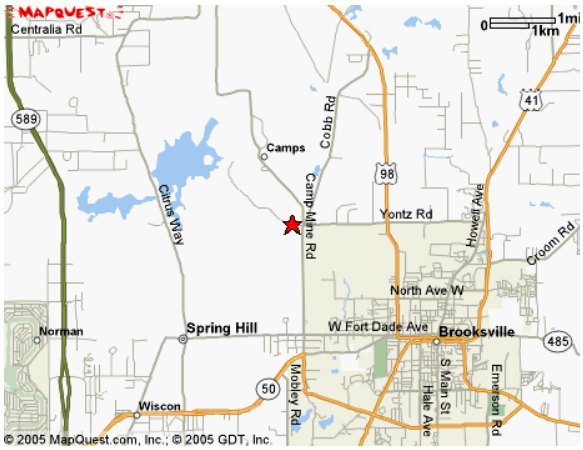

Figure 1. Facility location, Brooksville, Florida. Figure 2. Baghouse and stack for Line 1 and CP&L.

The cement plant consists of two portland cement lines (Lines 1 and 2) including associated kilns (Kilns 1 and 2) and clinker coolers (Coolers 1 and 2). The cement plant is categorized under Standard Industrial Classification (SIC) Code No. 3241. Line 1 and the CP&L Power Plant share a common baghouse and stack that are shown in Figure 2 above. Line 2, the subject of the present evaluation, initially commenced operation in November 2008 and has a separate stack and pollution control equipment.

Facility Regulatory Categories

The existing facility is identified as a major source of hazardous air pollutants (HAP).

The existing facility is a Title V major source of air pollution in accordance with Chapter 213, Florida Administrative Code (F.A.C.)

The existing facility is a major stationary source with respect to the rules for the Prevention of Significant Deterioration (PSD) at Rule 62-212.400, F.A.C.

Background

Cement Line 2, with a current permitted capacity of 2,800 tons per day of clinker, was constructed pursuant to permit No. 0530021-009-AC (PSD-FL-351) issued in 2005 to the previous owner, Rinker. However, based on the final selected equipment supplier, F.L. Smidth (FLS), the original permit was modified by permit No. 0530021-018-AC (PSD-FL-351C), which was issued in 2010 to reflect the FLS "as built" configuration. A review for the Prevention of Significant Deterioration (PSD) and a determination of Best Available Control Technology (BACT) were conducted for Line 2 in the original PSD permit. This project is to issue an air construction permit to increase the production capacity for the previously permitted and constructed Portland Cement Line 2 to better reflect the design capacity of the FLS equipment. To accommodate the requested production increase, CEMEX proposed a corresponding decrease in allowable emissions rates to avoid triggering a PSD review.

Line 2 began operation in November 2008 and compliance with the BACT requirements and other applicable emission regulations was demonstrated in the first half of 2009. The key BACT emission limits from Kiln 2 and Clinker Cooler 2 (the main emissions units) are based on the following controls:

- Staged combustion calciner and raw material selection for the control of volatile organic compounds (VOC), carbon monoxide (CO) and nitrogen oxides (NO_X);
- Selective non-catalytic reduction (SNCR) by ammonia injection to further control NO_X;
- Dry scrubbing in the calciner and contact with moist limestone in the raw mill to control sulfur dioxide (SO_2);
- Raw material and fuel selection to minimize mercury (Hg) emissions; and
- Fabric filter baghouses to control particulate matter (PM/PM_{10}).

The tables below are included at this point to put into better perspective the present application and changes requested by CEMEX. Table 1 was included in the original permit authorizing construction of Line 2. It was based on information submitted in the original application to construct Line 2. This table is being updated by this project, adding the 2010 and 2011 columns to show the change in proposed potential emissions. The 2005 column indicating maximum emissions is an estimate of the potential-to-emit (PTE) in tons per year (TPY) per the original Line 2 application. The 2010 column indicates the PTE in tons per year per the "as-built" permit modification project. The 2011 column represents the proposed PTE in tons per year following the requested production increase. The maximum emissions include contributions from Kiln 2 and Clinker Cooler 2 as well as all of the raw materials and product storage, handling and conveyance operations.

Table 1. Cement Line 2 Project PSD Applicability Calculations and Potential to Emit.

POLLUTANT	PSD SIGNIFICANCE LEVELS (TPY)	MAXIMUM EMISSIONS (TPY)			THIS PROJECT SUBJECT TO PSD REVIEW?
		2005	**2010**	**2011**	
PM/PM_{10}	25/15	256.4	214.1/171.1	192.7/154.8	No
SO_2	40	122.7	128.74	120.2	No
NO_X	40	1,126.2	1,106.6	1,003.5	No
CO	100	2,133.6	1,993	1,841.9	No
VOC (Ozone)	40	105.3	68.7	61.7	No
Mercury (Hg)	200 pounds per year (lb/yr)	122 lb/yr	122 lb/yr	122 lb/yr	No

For reference, all of the SO_2, NO_X, CO, VOC and Hg are emitted from the single baghouse and stack that handle the combined emissions from Raw Mill 2, Kiln 2 and Clinker Cooler 2. PM/PM_{10} are also emitted from Kiln 2 and Clinker Cooler 2 but are also emitted from the materials and product handling, storage and conveyance operations. Table 2 is a comparison of the stack compliance tests conducted during February 2011 with the BACT emission limits in the existing permit. The values are in pounds per ton of clinker (lb/ton clinker) and in pounds per hour (lb/hr).

Table 2. 2011 Compliance Emissions Testing for Common Kiln 2/Clinker Cooler 2 Exhaust Stack.

Pollutant	BACT Limits (lb/ton clinker)	Emissions Tests (lb/ton clinker)	BACT Limit (lb/hr)	Emissions Tests (lb/hr)
PM/PM_{10}	0.23/0.20	0.04	28.8/25.0	4.84
SO_2	0.23	0.004	28.8	0.49
NO_X	1.95	1.29	243.75	147
CO	3.6	0.68	450.0	68.2
VOC	0.12	0.03	15.0	3.15

The results include both Kiln 2 and Clinker Cooler 2 that exhaust through a single stack. As a general observation, the PTE PM/PM_{10} from Kiln 2 and Clinker Cooler 2 comprise on the order of half of the PTE for PM/PM_{10} from all of Line 2.

The annual continuous emissions monitoring systems (CEMS) data for 2010 found that emissions for NO_X, CO, VOC and SO_2 averaged 1.77; 1.33; 0.05 and 0.01 lb/ton clinker, respectively. The kiln performed very well with respect to the conventional PSD pollutants.

The company also conducted tests for Hg and dioxin/furan (D/F) required by 40 Code of Federal Regulations (CFR) Part 60, Subpart LLL - National Emission Standards for Hazardous Air Pollutants (NESHAP) From the Portland Cement Manufacturing Industry (Subpart LLL).

Table 3. D/F and Hg Testing for Common Kiln 2/Clinker Cooler 2 Exhaust Stack.

Pollutant	Hg (µg/dscm [1])		D/F (ng TEQ/dscm [2])	
Mode	Test	LLL	Test	LLL
Raw Mill On	0.07	41	0.0018	0.2
Raw Mill Off	8.48	41	0.0444	0.4

1. micrograms per dry standard cubic meter (µg/dscm)
2. nanograms total toxic equivalent per dry standard cubic meter (ng TEQ/dscm)

The D/F tests were conducted in May 2010. The D/F results are excellent and are several orders of magnitude less than the respective limits. The Hg tests were conducted in August 2010.

Kiln 2 at the Brooksville South Cement Plant is the first project in Florida (and possibly the U.S.) that actually has an applicable mercury standard pursuant to 40 CFR 63, Subpart LLL, since construction commenced after December 2, 2005. The applicable standard of 41 µg Hg/dscm was revised on September 9, 2010. According to Subpart LLL, any source defined as an existing source in §63.1351, and that was subject to a PM, mercury, total hydrocarbons (THC), D/F, or opacity emissions limit prior to September 9, 2010, must continue to meet the limits stated in Table 2 of §62.1343 under Subpart LLL until September 9, 2013.

Table 4. 2010 Compliance Emissions Testing for Finish Mill (and process heater) Exhaust Stack.

Pollutant	BACT Permit Limits (lb/hr)	Emissions Tests (lb/hr and/or grains (gr)/dscf)	Annualized Limits (TPY)
PM/PM_{10} [1]	8.6/6.0	1.20 lb/hr heater on [3] 1.67 lb/hr heater off [3]	37.7/26.3
PM/PM_{10} [1]	0.01/0.007 grains/dscf	0.002 gr/dscf heater on [3] 0.005 gr/dscf heater off [3]	37.7/26.3
NO_X	30.92	0.5 lb/hr [2]	38.7
CO	17.84	0.2 lb/hr [2]	22.3
VE	5% opacity	0% opacity [2]	
SO_2	2.1	non stack test[4]	2.63

Notes:
[1] PM/PM_{10} limits (same limit with the heater on/off) as stated in the "as-built" permit No. 0530021-018-AC.
[2] Emissions stack tests for NO_X, CO, and VE conducted on June 30, 2010.
[3] Emissions stack tests for PM/PM_{10} conducted on October 8 and 21, 2010.
[4] Compliance with sulfur limits based on ASTM Methods.

Table 5. Existing and New proposed limits for Finish Mill (EU 052).

Pollutant	BACT 2009 Permit Limits (lb/hr)	BACT 2009 Permit Limits (grains/dscf)	Proposed 2011 BACT Limit	Proposed Annualized Limits (TPY)
PM/PM_{10}	8.6/6.0	0.01/0.007	0.029/0.020 lb/ton feed $_{FM}$	25.7/18
SO_2	2.1	N/A	2.10 lb/hr	2.63
NO_X	30.92	N/A	5.40 lb/hr	6.80
CO	17.84	N/A	1.40 lb/hr	1.88
VOC/THC	N/A	N/A	0.30 lb/hr	0.40
VE	5% opacity	5% opacity	10% opacity	

Note: Proposed PM/PM_{10} emissions limits based on 7,500 hr/yr and a finish mill feed rate of 240 tons/hr. Compliance with these emissions limits have already been demonstrated.

Table 6. Existing and New proposed limits for Kiln/Raw Mill/Cooler (EU 044).

POLLUTANT	EMISSION LIMITS			
	EXISTING	PROPOSED	EXISTING	PROPOSED
PM	0.136 lb/ton of dry preheater feed; 0.230 lb/ton of clinker	0.112 lb/ton of dry preheater feed; 0.185 lb/ton of clinker	28.8 lb/hr	28.8 lb/hr
PM_{10}	0.118 lb/ton of dry preheater feed; 0.200 lb/ton of clinker	0.097 lb/ton of dry preheater feed; 0.160 lb/ton of clinker	25.0 lb/hr	25.0 lb/hr
SO_2	0.23 lb/ton of clinker	0.185 lb/ton of clinker	28.8 lb/hour	28.8 lb/hour
NO_X	1.95 lb/ton of clinker	1.56 lb/ton of clinker	243.75 lb/hour	243.75 lb/hour
CO	3.6 lb/ton of clinker	2.88 lb/ton of clinker	450.0 lb/hour	450.0 lb/hour
VOC	0.12 lb/ton of clinker	0.096 lb/ton of clinker	15.0 lb/hour	15.0 lb/hour
VE	10% opacity	10% opacity		
Mercury	41 µg/dscm	41 µg/dscm		
		122 lb/yr	122 lb/yr	122 lb/yr

Averaging Time: No changes in the averaging time of each pollutant from existing permit.

Project Description

CEMEX requests an increase in its daily clinker permitted production limit from 2,800 tons per day (TPD) to 3,500 TPD and an annual production increase from 1,022,000 tons per year (TPY) to 1,277,500 TPY, along with several other process rate increases. The company proposes reductions in allowable emission limits per unit of production (lb/ton of clinker) such that there will be no short-term equivalent or annual emission limit increases. The production limit increase is approximately 25 percent.

In addition to the production increase, CEMEX is requesting authorization for: a minor equipment reconfiguration in the design of the Raw Mill material input feeder; a change in the format of the finish mill PM/PM_{10} emissions limits for Line 2; an increase in the allowable opacity limit for the finish mill stack from 5% to 10% to match the opacity limit from the Line 2 Kiln stack; and, the authorization to inject tires or tire derived fuel directly into the calciner at multiple locations. The applicant's rationale for these requests follows below.

Table 7 lists the current and applicant-proposed rate increase for each emission unit.

Table 7. Current and Proposed Annual Throughput Rates and Operating Times.

Emission Unit No.	Name	Current Rates			Proposed Rated		
		Hourly (tph)	Annual (tpy)	Operating Factor (hr/yr)	Hourly (tph)	Annual (tpy)	Operating Factor (hr/yr)
Process: In-line Raw Mill, Kiln 2, Pre-Heater, Pre-Calciner and Clinker Cooler 2							
EU 044	Main Baghouse Throughput	30	262,800	8,760	37.5	328,500	8,760
	Raw Mill Grinding and Drying	225	1,971,000	8,760	246	2,107,875	8,760
Process: Raw Mix and Raw Meal Handling and Storage System							
EU 045	Filter Dust Bin	30	262,800	8,760	37.5	328,500	8,760
	Filter Dust Bin Loadout Spout	80	80,000	1,000	80	80,000	1,000
EU 046	Blend Silo – Input	300	2,628,000	8,760	300	2,628,000	8,760
EU 047	Blend Silo Discharge	241	2,111,160 1,686,300	8,760	258	2,107,875	8,760
	Kiln Feed Bin						
	Kiln Feed Transport						
Process: Clinker Handling and Storage							
EU 048	Clinker Transport	125	1,095,000	8,760	156	1,277,500	8,760
EU 050	Clinker Storage Silo Discharge 1	211	1,582,500	7,500	215	1,612,500	7,500
	Clinker Storage Silo Discharge 2	211	1,582,500	7,500	215	1,612,500	7,500
	Clinker Silo	125	1,095,000	8,760	156	1,277,500	8,760
Process: Finish Mill System							
EU 051	Finish Mill Additives Belt	127	953,250	7,500	127	953,250	7,500
EU 052	Finish Mill	240	1,800,000	7,500	240	1,800,000	7,500
EU 054	Finish Mill Bucket Elevator	106	795,000	7,500	106	795,000	7,500
EU 057	Finish Mill Cement Transport	240	1,800,000	7,500	240	1,800,000	7,500
	Finish Mill Rejects Transport	106	795,000		106	795,000	
Process: Cement Silos & Loadout							
EU 058	Cement Silo 5	240	2,102,400	8,760	240	2,102,400	8,760
	Cement Silo 5 Loading Bin	625	5,475,000	8,760	625	5,475,000	
	Cement Silo 5 Loadout Spout N	625	5,475,000	8,760	625	5,475,000	
	Cement Silo 5 Loadout Spout S	625	5,475,000	8,760	625	5,475,000	
EU 059	Multi-Cell Cement Silo	240	2,102,400	8,760	240	2,102,400	8,760
	Multi Cell Cement Silo Alleviator	240	2,102,400	8,760	240	2,102,400	8,760
	Multi Cell Loadout Transport	625	5,475,000	8,760	625	5,475,000	8,760
	Multi-Cell Silo Loadout	625	625,000	1,000	625	625,000	1,000
EU 060	Coal Mill	20.0	165,000	8,760	20.0	175,200	8,760
EU 061	Fine Coal Bin	20.0	175,200	8,760	20.0	175,200	8,760
EU 062	Packing Plant	200	1,752,000	8,760	200	1,752,000	8,760

<u>In-line Raw Mill (EU 044)</u>

The applicant proposes an equipment reconfiguration to the raw mill material feeder system with a projected cost of $150,000 to $250,000. According to the applicant, the raw mill was designed for a process rate of 246 tons per hour (dry basis) at a feed material moisture content of 14 percent. However, the system has not been able to consistently achieve this rate with a feed material moisture content over 11 percent. The applicant states the restriction (more prevalent during wet periods) is caused by the plugging of the raw material feed chute and

diverter gate that were designed to split a portion of the raw material feed between the flash dryer and the raw mill inlet. When this happens, the diverter gate fails to operate and all of the raw material is sent through the flash dryer, effectively overloading the drying capacity.

The two options that the applicant is considering to resolve this problem are:

- either a reconfiguration of the handling chute and diverter gate; or
- the installation of a screen that will split the raw material feed allowing the coarse fraction to enter the raw mill directly while the fine fraction passes through the flash dryer.

The applicant adds that the raw mill itself (a F.L. Smidth ball mill) is capable of grinding the raw material necessary to support a clinker production rate of 3,500 tons per day and that it is only the feed system of the raw mill that will be reconfigured. These areas include the diverter box (that over-feeds the flash dryer when the moisture content of the raw materials is greater than 12% - thus overloading the dryer), drop pipes feeding out of the diverter box and possibly the installation of a short conveyor downstream of the diverter box that will feed from the diverter box to a drop pipe.

The Department concurs with the applicant that this equipment reconfiguration is not a modification or a reconstruction as defined in 40 CFR 60.14 and 40 CFR 60.15 of Subpart A, respectively. This concurrence is based upon reasonable assurance provided by CEMEX's consultant that this work can be accomplished without a capital expenditure (as defined in 40 CFR 60.2) and/or a fixed capital cost greater than 50% of the cost to rebuild the affected facility.

<u>Injection of tires and tire derived fuel (E.U. 044)</u>

The original permit for Line 2, Project No. 0530021-009-AC (PSD-FL-351), authorized the introduction of tires as an allowable fuel into the feed end (cold side) of the kiln amounting to 30% of the allowable heat input, by means of a tire feeder system designed with a double airlock. Project No. 0530021-015-AC (PSD-FL-351A), issued as a minor revision to Project No. 0530021-009-AC (PSD-FL-351), authorized the installation of a tire injection mechanism system (TIMS) near the product end (hot side) of the kiln, providing two possible injection points instead of one. CEMEX is now requesting the ability to inject tires or tire derived fuel at multiple locations within the calciner. The applicant claims that there will be no changes in actual emissions by injecting the tires at any location within the calciner, as the temperature and combustion characteristics are uniform throughout the calciner and are the same as the conditions at the feed end of the kiln, which was the original approved location. The applicant has proposed to use an equivalent double airlock design for any new injection ports that they might add to the calciner.

The Department concurs with the applicant that potential emissions will not be affected by injecting tires or tire derived fuel at different locations within the calciner and agrees to the request to install double airlock injection ports at multiple locations. The permitted rate of tire derived fuel will remain current rate of 30% of the allowable heat input.

<u>Finish Mill (E.U. 052)</u>

The applicant proposes to restate the PM/PM_{10} finish mill emission limits in terms of pounds per tons of finish mill feed rate (lb/ton $feed_{FM}$). This concept is analogous to relating the PM/PM_{10} emission limits for the kiln/raw mill/cooler to the preheater feed rate. According to the application, the size of the two baghouses are comparable but the dust loading to the finish mill baghouse is approximately 6.5 times greater than the maximum expected dust loading to the kiln/raw mill/clinker cooler baghouse (240 tons per hour vs. 37.5 tons per hour). It is believed that the operating conditions of the finish mill baghouse are considerably more severe. The applicant believes that the proposed PM/PM_{10} limits should be considered reasonable and acceptable as restated BACT limits in terms of lb/ton finish mill feed (lb/ton $feed_{FM}$).

The applicant's rationale for these requests follows below:

The F.L. Smidth finish mill is a vertical roller mill style with a throughput capacity of 240 tons per hour, of which, approximately 95% is clinker and 5% is gypsum. The roller mill is swept with an air stream of

approximately 270,000 actual cubic feet per minute (acfm) at a nominal temperature of 230° F and a nominal moisture content of five percent. This flow translates to a standard flow rate of approximately 200,000 dry standard cubic feet per minute (dscfm). The entire 240 tons per hour output of the finish mill is delivered to a baghouse dust collector for product recovery in the 270,000 acfm air stream. The recovered finished cement is delivered to cement silos while the airstream discharged from the baghouse is split with one fraction discharged to the atmosphere and the remaining fraction recirculated back to the finish mill. The fraction of the airstream re-circulated back to the finish mill varies depending upon the heat needed to supplement the finish mill's air heater. For the as-built permitting purposes (permit No. 0530021-018-AC (PSD-FL-351C), it was estimated that the maximum amount of air discharged to the atmosphere through the baghouse stack would be 50 percent of the flow through the baghouse; or 100,000 dry standard cubic feet per minute. This is the flow that was used to establish the equivalent PM/PM_{10} pound per hour limitations. It should be noted that the fractions of air leaving the baghouse that are discharged to the atmosphere and re-circulated (to recover the heat in the gas stream for purposes of energy conservation) back to the finish mill have no affect on the airflow through the baghouse or the dust loading to the baghouse.

The applicant adds that the kiln/raw mill/cooler baghouse design airflow rate is 330,000 acfm at a temperature of 260° F and a moisture content of approximately 10 percent (220,000 dscfm). The flow diagram for this plant includes a cyclone separator located before the main baghouse with two outputs, one to the main baghouse and another one to the blend silo.

The applicant states that the required kiln/raw mill/cooler system baghouse and cyclone separator efficiency to meet its PM/PM_{10} emission limits is 99.91 percent and the equivalent PM/PM_{10} concentrations in the discharged gas stream (based on a flow of 220,000 dscfm) are 0.015 and 0.013 gr/dscm, respectively. In comparison, the efficiency required for the finish mill baghouse is 99.998 percent in order to meet the previously established BACT concentration limits of 0.01 and 0.007 gr/dscf (a PM_{10} limit approximately half the concentration limit required of the main baghouse). As presented above, it appears that the cyclonic separator is designed to remove approximately 86 percent of the 263 tons per hour of raw mill/kiln throughput capacity before entering the main baghouse leaving the remaining 14 percent of product, or approximately 37.5 tons/hour, dust loading to this system baghouse; in contrast to the entire dust loading of 240 ton/hr to the finish mill baghouse. In operation, the cyclone has actually been removing closer to 94 percent of the material, leaving only 6 percent for the baghouse to control.

The applicant further states that the original BACT concentration limits for PM/PM_{10} of 0.01/0.007 gr/dscf were a design specification that was guaranteed by the original equipment manufacturer, which was used as the basis for the original construction permit No. 0530021-009-AC (PSD-FL-351). Due to the substantial change in air flow and dust loading resulting from the as-built design reflected in permit No. 0530021-018-AC (PSD-FL-351C), the manufacturer of the installed equipment (FLS) has not provided a guarantee for this same design specification. However, the proposed PM/PM_{10} emission limits of 0.029/0.020 pounds per ton of finish mill feed (equivalent to pound per hour emission rates of 6.86/4.40) are based on the same BACT concentration limits of 0.01/0.007 gr/dscf and the same finish mill feed rate of 240 tons per hour, but on a lower stack gas discharge rate of 80,000 dscfm. The flow rate used to establish the proposed PM/PM_{10} emission limits was lowered from 100,000 dscfm to 80,000 dscfm based on actual operating data showing that more air is being recirculated than originally estimated.

Based on the above rationale, the Department concurs with the applicant's proposal to increase the clinker production rate and accepts the PM/PM_{10} limits for the finish mill to be expressed in terms of pound per ton of finish mill feed (lb/ton $feed_{FM}$). However, because the vast majority of the pollutant emissions from the finish mill stack are particulate matter (compared with predominantly combustion gasses from the kiln stack), the Department believes that the current 5% opacity limit from the finish mill baghouse is appropriate and will not increase the opacity limit for this stack as requested.

Processing Schedule

04/15/2011 Received the application for a minor source air pollution construction permit.

04/25/2011 Meeting between a Department's representative and CEMEX's consultant (Koogler and Associates).

05/06/2011 Telephone and electronic correspondence with CEMEX's consultant.

05/09/2011 Telephone and electronic correspondence with CEMEX's consultant.

05/10/2011 Meeting between a Department's representative and CEMEX's consultant.

05/25/2011 Department distributed draft Intent to Issue package.

2. APPLICABLE REGULATIONS

State Regulations

This project is subject to the applicable environmental laws specified in Section 403 of the Florida Statutes (F.S.). The Florida Statutes authorize the Department of Environmental Protection to establish rules and regulations regarding air quality as part of the F.A.C. The original Kiln 2 project was subject to the applicable rules and regulations defined in the following Chapters of the F.A.C.

Chapter	Description
62-4	Permits
62-204	Air Pollution Control – General Provisions
62-210	Stationary Sources of Air Pollution – General Requirements
62-212	Stationary Sources – Preconstruction Review
62-213	Operation Permits for Major Sources (Title V) of Air Pollution
62-296	Stationary Sources – Emission Standards
62-297	Stationary Sources – Emissions Monitoring

Federal Regulations

The original project was also subject to the applicable federal provisions regarding air quality as established by the Environmental Protection Agency (EPA) in the following sections of the Code of Federal Regulations (CFR).

Title 40, CFR	Description
Part 60	Subpart A - General Provisions for NSPS Sources NSPS Subpart F - Standards of Performance for Portland Cement Plants. NSPS Subpart Y - Standards of Performance for Coal Preparation Plants. NSPS Subpart OOO - New Source Performance Standards For Nonmetallic Mineral Processing Plants. Applicable Appendices
Part 63	NESHAP Subpart A - National Emission Standards for Hazardous Air Pollutants – General Provisions. NESHAP Subpart LLL - National Emission Standards for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry.

PSD and BACT Applicability Review

The Department regulates major air pollution sources in accordance with Florida's PSD program, as approved by the EPA in Florida's State Implementation Plan and defined in Rule 62-212.400, F.A.C. A PSD review is required in areas currently in attainment with the state and federal Ambient Air Quality Standards (AAQS) or areas designated as "unclassifiable" for a given pollutant. A "major stationary source" with respect to PSD is defined in Rule 62-210.200, F.A.C. (Definition 195) if it emits or has the potential to emit:

- 250 TPY or more of any regulated air pollutant, or
- 100 TPY or of any regulated air pollutant and the stationary source belongs to one of categories given in Rule 62-210.200(195)(a)1., F.A.C.

For new projects at PSD-major sources, each regulated pollutant is reviewed for PSD applicability based on emissions thresholds known as the Significant Emission Rates (SER) listed in Rule 62-210.200(280)(a)1., F.A.C. Pollutant emissions from the project exceeding the respective SER are considered "significant" and the applicant must employ BACT to minimize emissions of each such pollutant and evaluate the air quality impacts.

The facility was a major stationary source prior to permitting of Line 2. The Line 2 project triggered the SER for NO_X, CO, SO_2, VOC and PM/PM_{10}. The applicant conducted ambient air quality modeling and the Department issued a BACT determination consisting of the controls and emission limits given in the original Line 2 permit (0530021-009-AC/PSD-FL-351).

Considering the proposed reductions in allowable emissions rates to offset the requested production increase, the requested revisions related to the production increase of Line 2 do not result in any significant emissions increases. The applicant believes this project is not subject to PSD preconstruction review.

Method of Estimating Emissions Increases and Decreases

As a major source, a physical modification or change in method of operation of this facility resulting in no significant net emissions increases is not subject to PSD review. It is clear that the production increase is a physical change or change in method of operation, because it involves relaxation of a federally enforceable production limit. Significant net emissions increase is defined in Rule 62-212.400, F.A.C as follows:

*Significant Net Emissions Increase – A significant net emissions increase of a pollutant regulated under the Act is a **net emissions increase** equal to or greater than the applicable significant emission rate listed in Rule 210.200, Regulated Air Pollutants – Significant Emission Rates.*

The significant emission rates are included in Table 8. The meaning of a net emissions increase is given in Rule 62-210.200, F.A.C. as:

*Net Emissions Increase - A modification to a facility results in a net emissions increase when, for a pollutant regulated under the Act, the sum of all of the contemporaneous creditable increases and decreases in the **actual emissions** of the facility, including the increase in emissions of the modification itself and any increases and decreases in quantifiable fugitive emissions, is greater than zero.*

The definition of actual emissions is given in Rule 62-210.200, F.A.C. (definitions) as follows:

Actual Emissions - The actual rate of emission of a pollutant from an emissions unit as determined in accordance with the following provisions:

(a) In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the emissions unit actually emitted the pollutant during a two year period which precedes the particular date and which is representative of the normal operation of the emissions unit. The Department may allow the use of a different time period upon a determination that it is more representative of the normal operation of the emissions unit. Actual emissions shall be calculated using the emissions unit's actual operating hours, production rates and types of materials processed, stored, or combusted during the selected time period.

(b) The Department may presume that unit-specific allowable emissions for an emissions unit are equivalent to the actual emissions of the emissions unit provided that, for any regulated air pollutant, such unit-specific allowable emissions limits are federally enforceable.

(c) For any emissions unit which has not begun normal operations on a particular date, actual emissions shall equal the potential emissions of the emissions unit on that date.

The Department does not consider the operation prior to 2011 to represent "normal operation under the present configuration and emission limits." Therefore, the Department will not rely upon emissions that occurred during the two-year period as "representative of normal operations" described in paragraph (a) above.

The Department will rely on paragraph (b) above in estimating actual emissions and presumes that these are equal to the federally-enforceable emission limits allowed by the present permit. Future emissions will be calculated in accordance with part (c) above based on allowable emissions proposed by the Department for the facility in association with the requested production increase.

Proposed Emissions Limits

The following table lists the emission limits proposed by the Department for comparison with the previously listed allowable emission limits applicable to Line 2:

Table 8. Proposed Emissions and Net Emissions Changes for Cement Line 2.

Pollutant	Current Allowable Emissions		Proposed BACT Emissions Limits [2]		Change from Allowable Emissions [1]	SER
	lb/ton clinker	TPY	lb/ton clinker	TPY	TPY	TPY
PM	0.23	214	0.185	192.7	-21.4	25
PM_{10}	0.20	171	0.160	154.8	-16.3	15
SO_2	0.23	128.7	0.185	120.2	-8.5	40
NO_X	1.95	1,106.6	1.56	1003.5	-103	40
CO	3.6	1,993	2.88	1841.9	-151	100
VOC/THC	0.12	68.7	0.096	61.7	-7	40
Mercury	122 lb/yr		122 lb/yr 41 µg/dscm		0 lb/yr	0.1 ton/yr

Notes:

[1] Net change comparing allowable annual emissions and PSD Significant Emission Rates (SER) listed in Rule 210.200, F.A.C. Total tons per year allowable emissions include emissions from the Finish Mill Air Heater.

[2] The proposed tons per year SO_2, NO_X, CO, and VOC emission rates include fuel oil combustion emissions from the finish mill air heater. The finish mill system will operate 7,500 hours per year. The Air Heater will operate 2,500 hours per year.

PSD and BACT Applicability Determination

The Department reviewed the continuous emission monitoring system (CEMS) records indicating emissions 25% less, or even lower, than the permitted emission rates. The Department concurs with CEMEX that Kiln 2 can comply with the present mass emission rate limitations in terms of pounds per hour (lb/hr) given in the PSD permit while producing 3,500 TPD. The Department concludes that Kiln 2 can and will be required to comply with 25% lower BACT limits in terms of lb/ton of clinker compared with the values given in the original permit.

CEMEX closed the two kilns at its nearby Brooksville North facility in 2008 due to economic reasons. The older and less efficient Line 1 at the Brooksville South Plant generally now operates when Line 2 does not. The ability to operate Line 2 at a higher daily rate will further reduce the need to operate Line 1 to provide marginal amounts of clinker in the present market. Operating at higher daily rates until stocks are full will generally be followed by longer periods of clinker production down time.

Under the present circumstances the Department has determined that Line 2 has not begun normal operations. Furthermore, the Department may presume that unit-specific allowable emissions for an emissions unit are equivalent to the actual emissions of the emissions unit provided that such unit-specific allowable emissions limits are federally enforceable.

Based on the foregoing, the Department concludes that there will not be an increase in any PSD pollutant equal to or greater than the respective significant emission rate (SER) as defined in the Department rules and the project is not subject to PSD review. Although a new BACT determination is not required, the revised limits proposed in conjunction with the production increase are all more stringent than previous BACT determinations for this Line (Line 2).

The Department notes this PSD applicability determination applies strictly to this project and the exact circumstances and does not constitute guidance for any other project. The Department makes these determinations on a case-by-case basis.

In addition to the production increases and corresponding reductions to the previous BACT-established allowable emissions rates, BACT for the material handling emission sources is changed to be the control of particulate matter emissions using baghouses to meet the opacity limits stated in the permit. These opacity limits are based on the manufacturer design specifications of 0.01 and 0.007 grains per dry standard cubic foot for PM and PM_{10} emissions, respectively. Visible emissions from these sources shall not exceed 5 percent opacity, except that Emissions Unit 060 shall not exceed 10% opacity as determined in conjunction with the compliance demonstrations for the Line 2 kiln/raw mill/clinker cooler stack.

3. CHANGES TO PERMIT

This project is being processed as line-item changes to the previously issued conditions contained in permit No. 0530021-018-AC (PSD-FL-351C). The changes to the as-built permit are described in the project description and shown in the enclosed draft permit. They are generally highlighted in yellow (additions underlined or strikethrough deletions) and will be removed upon issuance of the final permit. The Department will incorporate directly into the permit the applicable updated 40 CFR 63, Subpart LLL in an attached Appendix.

4. PRELIMINARY DETERMINATION

The Department makes a preliminary determination that the production increase project will comply with all applicable state and federal air pollution regulations as conditioned by the draft permit. This determination is based on a technical review of the application, the limited reasonable assurances provided by the applicant, and the conditions specified in the draft permit. No air quality modeling analysis is required because the project does not result in a significant increase in PSD-pollutant emissions. Teresa Heron is the project engineer responsible for reviewing the application and drafting the permit. Jon Holtom, P.E., is the Air Permitting Supervisor responsible for reviewing and editing the proposed permit modification. Additional details of this analysis may be obtained by contacting the project engineer at the Department's Bureau of Air Regulation at Mail Station #5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.