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February 7, 2005

RECEIVED <sup>0537511</sup>

FEB 08 2005

Florida Department of Environmental Protection  
Bureau of Air Regulation  
2600 Blair Stone Road, MS #5505

BUREAU OF AIR REGULATION

Attention: Ms. Cindy Phillips, P.E.

RE: Air Construction Permit Project No.: 0250020-016-AC  
Request for Revision to Air Construction Permit No.: 0250020-010-AC  
Tarmac Pennusco Cement Plant, Medley, Miami-Dade County

Dear Ms. Phillips:

Based on discussions at our meeting on December 15, 2004, and subsequent phone conversations with you concerning revision of Air Construction Permit No. 0250020-010-AC, Tarmac Pennusco Cement Plant (Tarmac) is submitting the attached revisions to its pending construction permit application. The revised application reflects the following changes:

1. Revised emission rate calculation tables (see Attachment A) reflecting several facility or operational modifications as described below:
  - Emissions from the Coal Mill, Kiln, Cooler, and Raw Mill are all vented through the Main Stack, which has a PM/PM<sub>10</sub> emission limit of 0.125 lb/ton of kiln feed. Previously, however, PM/PM<sub>10</sub> emissions from the Coal Mill have been calculated separately than those for the Main Stack. Based on the results of recent compliance tests for the Main Stack (see Attachment B), PM emissions from the Main Stack, during concurrent operation of the Kiln, Cooler, Raw Mill, and Coal Mill, are well below the permit limit of 0.125 lb/ton of kiln feed. As such, Tarmac requests that the permit limit for the Main Stack include emissions from the Coal Mill. Since the emission limit for the Main Stack is a function of the kiln feed rate, and Tarmac may operate the Coal Mill when the kiln is not operating, Tarmac requests that the Coal Mill be permitted to operate an additional 400 hours per year when the Kiln/Cooler/Raw Mill is not operating. PM emissions from the Coal Mill will still be vented from the Main Stack during these 400 hours. PM/PM<sub>10</sub> emissions resulting from operation of the Coal Mill, while the Kiln/Cooler/Raw Mill is down, are presented in Table 2-1. Tables 2-4 and 2-5 have been revised to indicate that the Main Stack emissions include emissions from the Coal Mill.
  - Removal of baghouses K347 and K447 associated with the Clinker Handling System (Table 2-2).
  - Modification of the finish mill operation to include Finish Mill Nos. 1, 3, 4, and 6 (i.e., Finish Mill No. 2 has been eliminated and Finish Mill No. 6 has been added). Note that Air Construction Permit No. 0250020-010-AC allowed construction of Finish Mill No. 6, but required both Finish Mill Nos. 1 and 2 to be shutdown upon startup of Finish Mill No. 6. The specifications and emissions for Finish Mill No. 6 are the same as those contained in Permit No. 0250020-010-AC.

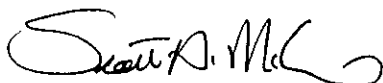


- Limitation of the operating hours of all finish mills to 7,884 hours per year each (Table 2-3).
  - Shutdown of the existing Slag Dryer (Emission Unit ID No. 020).
2. Revised Prevention of Significant Deterioration (PSD) Applicability Determination tables (see Attachment C) showing that New Source Review under PSD regulations is not triggered by this project.
  3. Revised permit application forms reflecting the facility and operational modifications described above (Attachment D).
  4. A description of the operation of the Finish Mill No. 3 O-Sepa Separator (Attachment E).

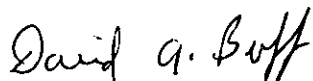
Thank you for consideration of this additional information. Please call or email me if you have any questions regarding this information at (352) 336-5600 or [dbuff@golder.com](mailto:dbuff@golder.com).

Sincerely,

GOLDER ASSOCIATES INC.



Scott A. McCann, P.E.  
Associate Engineer



David A. Buff, P.E., Q.E.P.  
Principal Engineer

DB/dmw

Enclosures

cc: A.A. Linero, DEP  
S. Quaas, Tarmac America  
P. Wong, DERM

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**ATTACHMENT A**

**EMISSION RATE CALCULATION TABLES**

Table 2-1. Coal Handling System (EU ID No. 001) Potential Emission Rates

Emission Unit	Equipment ID No.	New or Existing	Operating Hours (hr/yr)	Exhaust Flow Rate		Temperature (°F)	Potential PM/PM <sub>10</sub> Emission Rate <sup>a</sup>		
				(acfm)	(dscfm)		(gr/dscf)	(lb/hr)	(TPY)
Coal transfer	461.BF130	New	4,000	1,400	1,339	92	0.0095	0.11	0.22
Coal transfer	461.BF230	New	4,000	1,400	1,339	92	0.0095	0.11	0.22
Coal mill	461.BF300	New	7,884	54,500	45,245	176	0.01	3.88	0.78 <sup>b</sup>
Coal feeder	461.BF650	New	7,884	294	243	178	0.0095	0.02	0.08
Coal feeder	461.BF750	New	7,884	294	243	178	0.0095	0.02	0.08
Coal mill feed	461.BF350	New	7,884	5,500	5,261	92	0.01	0.45	1.78
<b>Revised Potential Emission Rates =</b>							<b>4.59</b>	<b>3.15</b>	

<sup>a</sup> PM<sub>10</sub> emission rate calculated as 100 percent of PM emission rate.

<sup>b</sup> The existing emission limit for the Main Stack (see Tables 2-4 and 2-5 for emissions from the Raw Mill and Pyroprocessing) of 0.125 lb/ton of dry clinker, includes emissions from the Coal Mill which are also vented to the atmosphere through the Main Stack. So that Tarmac may operate the coal mill when the Raw Mill and Pyroprocessing are down, 400 hours of emissions from the Coal Mill operating alone are included here. The emissions associated with the additional 7,484 hours of operation for the Coal Mill are included with the potential emissions for the Main Stack.

Table 2-2. Clinker Handling and Storage System (EU ID No. 002) Potential Emission Rates

Emission Unit	Equip. ID No.	New or Existing	Operating Hours (hr/yr)	Exhaust Flow Rate		Temperature (°F)	Potential PM/PM <sub>10</sub> Emission Rate <sup>a</sup>			
				(acfm)	(dscfm)		(gr/dscf)	(gr/acf)	(lb/hr)	(TPY)
Clinker Silos 21-23 & 26-28	F633	Existing	8,760	6,000	--	77	--	0.01	0.51	2.25
Clinker transfer	441.BF540	New	7,884	4,600	3,421	250	0.0095	--	0.28	1.10
Clinker silo	481.BF140	New	7,884	12,000	8,924	250	0.0095	--	0.73	2.86
Clinker transfer	481.BF540	New	8,760	4,700	3,495	250	0.0095	--	0.28	1.25
Clinker bins	481.BF330	New	8,760	6,100	4,536	250	0.0095	--	0.37	1.62
Clinker transfer	481.BF640	New	8,760	4,700	3,495	250	0.0095	--	0.28	1.25
Clinker transfer	481.BF730	New	8,760	18,700	13,906	250	0.0095	--	1.13	4.96
Clinker transfer	481.BF930	New	8,760	15,000	11,155	250	0.0095	--	0.91	3.98
<b>Revised Potential Emission Rates =</b>									<b>4.50</b>	<b>19.26</b>

<sup>a</sup> PM<sub>10</sub> emission rate calculated as 100 percent of PM emission rate.

Table 2-3. Finish Mills (EU ID No. 003) Potential Emission Rates

Emission Unit	Equipment ID No.	New or Existing	Operating Hours (hr/yr)	Exhaust Flow Rate		Temperature (°F)	Potential PM/PM <sub>10</sub> Emission Rate <sup>a</sup>			
				(acfm)	(dscfm)		(gr/dscf)	(gr/acf)	(lb/hr)	(TPY)
Finish Mill No. 1 Baghouse	F113	Existing	7,884	11,800	--	--	--	0.01	1.01	3.99
Finish Mill No. 1 Baghouse	F130	Existing	7,884	12,000	--	--	--	0.01	1.03	4.05
Finish Mill No. 3 Baghouse	F330	Existing	7,884	20,000	--	--	--	0.01	1.71	6.76
Finish Mill No. 3 Baghouse	F332	Existing	7,884	13,500	--	--	--	0.01	1.16	4.56
Finish Mill No. 3 Baghouse	533.BF340	New	7,884	77,800	65,307	169	0.0095	--	5.32	20.96
Finish Mill No. 4 Baghouse	F432	Existing	7,884	17,000	--	--	--	0.01	1.46	5.74
Finish Mill No. 4 Baghouse	F605	Existing	7,884	4,000	--	--	--	0.01	0.34	1.35
Finish Mill No. 4 Baghouse	F603	Existing	7,884	8,000	--	--	--	0.01	0.69	2.70
Finish Mill No. 4 Baghouse	F430	Existing	7,884	30,000	--	--	--	0.01	2.57	10.14
Finish Mill No. 4 Baghouse	F604	Existing	7,884	8,000	--	--	--	0.01	0.69	2.70
Finish Mill No. 6 Baghouse	531.BF01	New	7,884	97,300	80,905	--	0.0095	--	6.59	25.97
Finish Mill No. 6 Baghouse	531.BF02	New	7,884	25,900	21,536	--	0.0095	--	1.75	6.91
<b>Revised Potential Emission Rates =</b>									<b>24.31</b>	<b>95.85</b>

<sup>a</sup> PM<sub>10</sub> emission rate calculated as 100 percent of PM emission rate.

Table 2-4. Raw Mill and Pyroprocessing Unit System (EU ID No. 005) Potential Emission Rates

Equip. ID No.	New or Existing	Operating Hours (hr/yr)	Exhaust Flow Rate		Temperature (°F)	Potential PM Emission Rate			Potential PM <sub>10</sub> Emission Rate	
			(acfm)	(dscfm)		(gr/dscf)	(lb/hr)	(TPY)	(lb/hr)	(TPY)
331.BF200	New	7,884	515,000	360,637	294	<sup>a</sup>	50.0 <sup>d</sup>	175.0 <sup>d</sup>	42.0 <sup>b,d</sup>	147.0 <sup>b,d</sup>
331.BF740	New	7,884	4,250	2,953	300	0.0095	0.24	0.95	0.24 <sup>c</sup>	0.95 <sup>c</sup>
341.BF350	New	8,760	3,760	3,112	178	0.0095	0.25	1.11	0.25 <sup>c</sup>	1.11 <sup>c</sup>
351.BF410	New	7,884	4,000	3,310	178	0.0095	0.27	1.06	0.27 <sup>c</sup>	1.06 <sup>c</sup>
351.BF440	New	7,884	4,760	3,939	178	0.0095	0.32	1.26	0.32 <sup>c</sup>	1.26 <sup>c</sup>
351.BF470	New	7,884	4,100	3,409	175	0.0095	0.28	1.09	0.28 <sup>c</sup>	1.09 <sup>c</sup>
331.BF645	New	7,884	3,500	2,910	175	0.0095	0.24	0.93	0.24 <sup>c</sup>	0.93 <sup>c</sup>
<b>Revised Potential Emission Rates =</b>						<b>51.60</b>		<b>181.41</b>	<b>43.60</b>	<b>153.41</b>
<b>Revised Potential Emission Rates without Kiln/Cooler/Raw Mill =</b>						<b>1.6</b>		<b>6.4</b>	<b>1.6</b>	<b>6.4</b>

<sup>a</sup> Emission note based on an emission factor of 0.125 lb/ton of dry kiln feed. See Table 2-5.

<sup>b</sup> PM<sub>10</sub> emission rate calculated as 84 percent of PM emission rate.

<sup>c</sup> PM<sub>10</sub> emission rate calculated as 100 percent of PM emission rate.

<sup>d</sup> Includes emissions from the Coal Mill (EU ID No. 001) when the Kiln/Cooler/Raw Mill and Coal Mill are operating simultaneously.

Table 2-5. Dry Kiln, Cooler, and Raw Mill (EU ID No. 005) Potential Emissions Vented From the Main Stack

Activity Factors			
Kiln Feed (Dry KF)		Clinker Production (CP)	
24-hour Average (TPH)	Maximum Annual (TPY)	Annual Average (TPH)	Maximum Annual (TPY)
400	2,792,250	208 <sup>b</sup>	1,642,500

Particulate Matter			
Emission Factor		Emission Rate <sup>c</sup>	
24-Hour Average (lb/ton dry KF)	Annual Average (lb/ton dry KF)	(lb/hr)	(TPY)
0.125	0.125	50.0	175

Sulfur Dioxide			
Emission Factor		Emission Rate	
24-Hour Average (lb/ton CP)	Annual Average (lb/ton CP)	(lb/hr)	(TPY)
1.540	0.981	320 <sup>a</sup>	806 <sup>a</sup>

Nitrogen Oxides			
Emission Factor		Emission Rate	
24-Hour Average (lb/ton CP)	Annual Average (lb/ton CP)	(lb/hr)	(TPY)
3.46	2.38	720 <sup>a</sup>	1,953 <sup>a</sup>

Carbon Monoxide			
Emission Factor		Emission Rate	
24-Hour Average (lb/ton CP)	Annual Average (lb/ton CP)	(lb/hr)	(TPY)
2.76	1.77	576 <sup>a</sup>	1,457 <sup>a</sup>

Volatile Organic Compounds			
Emission Factor		Emission Rate	
24-Hour Average (lb/ton CP)	Annual Average (lb/ton CP)	(lb/hr)	(TPY)
0.190	0.189	40 <sup>a</sup>	155 <sup>a</sup>

Sulfuric Acid Mist			
Emission Factor		Emission Rate	
24-Hour Average (lb/ton CP)	Annual Average (lb/ton CP)	(lb/hr)	(TPY)
0.0108	0.0108	2.24	8.86

<sup>a</sup> Permitted Limit.

<sup>b</sup> Based on 7,884 hours per year of operation.

<sup>c</sup> Includes Coal Mill (EU ID No. 001) emissions during concurrent operation of Kiln/Cooler/Raw Mill and Coal Mill. For emissions due to Coal Mill operating when the Kiln/Cool/Raw Mill are shut down, see Table 2-1.



Table 2-6. Raw Material Handling and Storage System (EU ID No. 006) Potential Emission Rates

Emission Unit	Equip. ID No.	New or Existing	Operating Hours (hr/yr)	Exhaust Flow Rate		Temperature (°F)	Potential PM/PM <sub>10</sub> Emission Rate <sup>a</sup>			
				(acfm)	(dscfm)		(gr/dscf)	(lb/hr)	(TPY)	
Lime/gyp silos	232.BF01	New	4,000	5,170	5,170	68	0.0095	0.42	0.84	
Additives	311.BF650	New	7,884	8,500	8,130	92	0.0095	0.66	2.61	
Additives	311.BF750	New	7,884	7,750	7,413	92	0.0095	0.60	2.38	
Additives	321.BF470	New	7,884	10,800	10,039	108	0.0095	0.82	3.22	
Additives	311.BF950	New	7,884	11,700	10,876	108	0.0095	0.89	3.49	
<b>Revised Potential Emission Rates =</b>								<b>3.39</b>	<b>12.54</b>	

<sup>a</sup> PM<sub>10</sub> emission rate calculated as 100 percent of PM emission rate.

**ATTACHMENT B**

**SUMMARY OF STACK TEST RESULTS  
FOR THE MAIN STACK**



**PM/PM10 Compliance Testing**  
**November 16-19, 2004**

**SUMMARY OF PARTICULATE MATTER EMISSION TEST DATA**

Plant : Titan American										
Source/Unit : Kiln - Raw Mill "ON"										
Date: November 17 and 18, 2004										
Run No.	Date	Time	Coal Mill	Dry Kiln Feed Rate (Tons/hr)	Stack Gas Flow Rate (SCFMD)	Stack Gas Temperature (F)	Stack Gas Moisture (%)	Particulate Matter		
								Conc. (gr/dscf)	Emission Rate (Lbs/Hr)	Emission Rate (lb/ton DKF)
1	11/17/04	0824 - 0930	On	320.0	323,969	197	14.2	0.0028	7.71	0.024
2	11/17/04	1449 - 1602	Off	334.8	334,223	200	12.9	0.0021	6.00	0.018
3	11/18/04	1858 - 2002	Off	313.5	344,055	211	15.2	0.0023	6.92	0.022
StdDev				10.9	10,044	7	1.1	0.0003	0.85	0.003
Average				322.8	334,082	203	14.1	0.0024	6.88	0.021



**PM/PM10 Compliance Testing**  
**November 16-19, 2004**

**SUMMARY OF PARTICULATE MATTER EMISSION TEST DATA**

Plant : Titan American										
Source/Unit : Kiln - Raw Mill "OFF"										
Date: November 16 and 18, 2004										
Run No.	Date	Time	Coal Mill	Process Weight Rate (Tons/hr)	Stack Gas Flow Rate (SCFMD)	Stack Gas Temperature (F)	Stack Gas Moisture (%)	Particulate Matter		
								Conc. (gr/dscf)	Emission Rate (Lbs/Hr)	Emission Rate (lb/ton DKF)
1	11/16/04	2005 - 2111	On	319.7	299,034	377	8.6	0.0040	10.23	0.032
2	11/18/04	0920 - 1027	On	314.3	353,523	352	8.3	0.0026	7.82	0.025
StdDev				3.8	38,530	17	0.2	0.0010	1.70	0.005
Average				317.0	326,278	365	8.5	0.0033	9.03	0.028

PM data extracted from: Koogler & Associates Test Report  
 Report Date: January 12, 2005

**ATTACHMENT C**

**PSD APPLICABILITY DETERMINATION TABLES**

Table 3-2. Future Maximum Annual Emissions From Material Handling Point Sources, Tarmac Pennsuco

Emission Unit	Emission Source	Point ID	Baghouse ID	Emission Basis	Potential Annual PM Emission Rate (TPY)	Potential Annual PM <sub>10</sub> Emission Rate (TPY)
001	Coal Handling/Coal Mill System	003	6 baghouses	See Table 2-1	3.15	3.15
002	Clinker Handling and Storage	008	8 Baghouses	See Table 2-2	19.26	19.26
003	Finish Mill Nos. 1, 3, 4, and 6	010 - 013	12 baghouses	See Table 2-3	95.85	95.85
004	Cement Storage, Packhouse, & Loadout	014 - 016	11 Baghouses	As Permitted in 0250020-010-AC	25.80	25.80
005	Raw Mill and Pyroprocessing without Kiln/Cooler/Raw Mill	021	7 Baghouses	See Table 2-4	6.40	6.40
006	Raw Material Handling and Storage	--	5 Baghouses	See Table 2-6	<u>12.54</u>	<u>12.54</u>
Total					163.00	163.00

Table 3-3. Summary of Quantifiable Fugitive Emissions for the New Cement Plant, Tarmac

Source	Estimated Annual Emissions (TPY)		Estimated Hourly Emissions (lb/hr) <sup>a</sup>	
	PM	PM <sub>10</sub>	PM	PM <sub>10</sub>
Coal Handling Facilities-Batch Drop	0.32	0.11	0.28	0.1
Coal Handling Facilities-Vehicular Traffic	27.46	9.61	26.4	9.24
Raw Material Blending Area <sup>b</sup>	<u>2.66</u>	<u>0.93</u>	<u>2.56</u>	<u>0.89</u>
Total	30.44	10.65	29.24	10.23

Notes:

<sup>a</sup> Based on average hourly emissions assuming 2,080 hr/yr actual operation.

<sup>b</sup> See Table A-1.

Table 3-7. Net Change in Emissions and PSD Significant Emission Rates, Tarmac Cement Plant Modification

Pollutant	PSD Baseline Emissions (TPY)						Future Potential Emissions (TPY)				Net Increase in Emissions (TPY)	PSD Significant Emission Rate (TPY)	PSD Review Applies?
	Kiln No. 2	Kiln No. 3	Material Handling Point Sources	Slag Dryer	Material Handling Fugitive Sources	Total	New Raw Mill Preheater/ Calciner/Kiln/ Cooler	Material Handling Point Sources	Material Handling Fugitive Sources	Total			
Particulate Matter [PM(TSP)]	33.15	112.01	167.87	9.12	43.96	366.1	175.0	163.0	30.44	368.4	2.3	25	No
Particulate Matter (PM <sub>10</sub> )	28.18	94.09	167.87	9.12	15.39	314.6	147.0	163.0	10.65	320.7	6.0	15	No
Sulfur Dioxide	14.38	1,399.76	--	18.19	--	1,432.3	806	--	--	806.0	-626.3	40	No
Nitrogen Dioxide	435.09	1,836.06	--	12.81	--	2,284.0	1,953	--	--	1,953.0	-331.0	40	No
Carbon Monoxide	52.65	1,312.25	--	3.20	--	1,368.1	1,457	--	--	1,457.0	88.9	100	No
Volatile Organic Compounds	7.03	123.13	--	0.34	--	130.5	155	--	--	155.0	24.5	40	No
Sulfuric Acid Mist	0.61	256.58	--	0.078	--	257.27	8.9	--	--	8.9	-248.4	7	No
Lead	0.00757	0.03096	--	0.00080	--	0.0393	0.0465	--	--	0.0465	0.0071	0.6	No
Mercury	0.00458	0.01875	--	0.00027	--	0.0236	0.0149	--	--	0.0149	-0.0087	0.1	No

NEG = Negligible.



**ATTACHMENT D**

**REVISED PERMIT APPLICATION FORMS**

**(Note: Forms for all emission units for PM/PM<sub>10</sub> are provided to be complete, although some emission units are not being revised.)**

# APPLICATION INFORMATION

## Professional Engineer Certification

1. Professional Engineer Name: <b>David A. Buff</b> Registration Number: <b>19011</b>
2. Professional Engineer Mailing Address... Organization/Firm: <b>Golder Associates Inc.**</b> Street Address: <b>6241 NW 23<sup>rd</sup> Street, Suite 500</b> City: <b>Gainesville</b> State: <b>FL</b> Zip Code: <b>32653-1500</b>
3. Professional Engineer Telephone Numbers... Telephone: <b>(352) 336 - 5600</b> ext. Fax: <b>(352) 336 - 6603</b>
4. Professional Engineer Email Address: <b>dbuff@golder.com</b>
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i>  <i>(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and</i>  <i>(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.</i>  <i>(3) If the purpose of this application is to obtain a Title V air operation permit (check here <input type="checkbox"/>, if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.</i>  <i>(4) If the purpose of this application is to obtain an air construction permit (check here <input checked="" type="checkbox"/>, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here <input type="checkbox"/>, if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.</i>  <i>(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here <input type="checkbox"/>, if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.</i>  <i>David A. Buff</i> _____ Signature  <i>2/7/05</i> _____ Date  (seal)

\* Attach any exception to certification statement.

\*\* Board of Professional Engineers Certificate of Authorization #00001670

**EMISSIONS UNIT INFORMATION**

**POLLUTANT DETAIL INFORMATION**

Section [1] of [5]  
Coal Handling System

Page [1] of [2]  
Particulate Matter - Total

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

(Optional for unregulated emissions units.)

**Potential/Estimated Fugitive Emissions**

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

1. Pollutant Emitted: <b>PM</b>	2. Total Percent Efficiency of Control:
3. Potential Emissions: <b>31.3 lb/hour                      31.0 tons/year</b>	4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year	
6. Emission Factor: <b>See note below</b>  Reference:	7. Emissions Method Code: <b>2</b>
8. Calculation of Emissions:  <b>Includes 4.6 lb/hr and 3.15 TPY from the baghouses and 26.7 lb/hr and 27.8 TPY from fugitive PM emissions. For hourly and annual emission calculations for the baghouses, see Table 2-1 in Part B. For fugitive PM emission calculations, see Appendix A of Part B.</b>	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: <b>Emissions from Coal Mill Baghouse are included in Main Stack emissions when operating concurrently with Kiln/Cooler/Raw Mill.</b>	

**EMISSIONS UNIT INFORMATION**

Section [1] of [5]  
Coal Handling System

**POLLUTANT DETAIL INFORMATION**

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Particulate Matter - Total

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

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

**Allowable Emissions** Allowable Emissions 1 of 2

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.0095 gr/dscf</b>	4. Equivalent Allowable Emissions: <b>4.6 lb/hour      3.2 tons/year</b>
5. Method of Compliance: <b>EPA Method 9 Test, except EPA Method 5 for the Coal Mill (461.BF300)</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Allowable in gr/dscf, applies to baghouses only, except for Coal Mill and Coal Mill feed baghouse. Allowable for these baghouses is 0.01 gr/dscf. Coal Mill allowable reflects 400 hr/yr operation when Kiln/Cooler/Raw Mill are shut down. See Table 2-1 in Part B for calculation of potential emissions.</b>	

**Allowable Emissions** Allowable Emissions 2 of 2

1. Basis for Allowable Emissions Code: <b>RULE</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>3.59 p<sup>0.62</sup></b>	4. Equivalent Allowable Emissions: <b>29.6 lb/hour      116.7 tons/year</b>
5. Method of Compliance: <b>EPA Method 9 test.</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Applies to Coal Mill only. Calculated based on maximum 24-hour block average usage rates of 30 TPH and 190,000 TPY. However, emissions from the coal mill are controlled using a baghouse to 3.88 lb/hr and 3.15 TPY (see Table 2-1 in Part B).</b>	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

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

**EMISSIONS UNIT INFORMATION**

**POLLUTANT DETAIL INFORMATION**

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Coal Handling System

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Particulate Matter – PM<sub>10</sub>

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

(Optional for unregulated emissions units.)

**Potential/Estimated Fugitive Emissions**

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

1. Pollutant Emitted: <b>PM<sub>10</sub></b>	2. Total Percent Efficiency of Control:
3. Potential Emissions: <b>14.0 lb/hour                      12.9 tons/year</b>	4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year	
6. Emission Factor: <b>See note below</b>  Reference:	7. Emissions Method Code: <b>2</b>
8. Calculation of Emissions:  <b>Includes 4.6 lb/hr and 3.15 TPY (same as PM) for baghouses and 9.35 lb/hr and 9.72 TPY from fugitive PM emissions. For hourly and annual emission calculations for the baghouses, see Table 2-1 in Part B. For fugitive PM emission calculations, see Appendix A of Part B.</b>	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: <b>Emission from Coal Mill Baghouse are included in Main Stack emissions when operating concurrently with Kiln/Cooler/Raw Mill.</b>	

**EMISSIONS UNIT INFORMATION**

Section [1] of [5]  
Coal Handling System

**POLLUTANT DETAIL INFORMATION**

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Particulate Matter – PM<sub>10</sub>

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

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

**Allowable Emissions** Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.0095 gr/dscf</b>	4. Equivalent Allowable Emissions: <b>4.6 lb/hour      3.2 tons/year</b>
5. Method of Compliance: <b>EPA Method 9</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Allowable in gr/dscf, applies to baghouses only, except for Coal Mill and Coal Mill feed baghouse. Allowable for these baghouses is 0.01 gr/dscf. Coal Mill allowable reflects 400 hr/yr operation when Kiln/Cooler/Raw Mill are shut down. See Table 2-1 in Part B for calculation of potential emissions.</b>	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

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

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

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

**EMISSIONS UNIT INFORMATION**

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Clinker Handling and Storage

**POLLUTANT DETAIL INFORMATION**

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

(Optional for unregulated emissions units.)

**Potential/Estimated Fugitive Emissions**

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

1. Pollutant Emitted: <b>PM</b>	2. Total Percent Efficiency of Control:
3. Potential Emissions: <b>4.50 lb/hour                      19.3 tons/year</b>	4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year	
6. Emission Factor: <b>See comment.</b>  Reference:	7. Emissions Method Code: <b>0</b>
8. Calculation of Emissions:  <b>Assumed as 100 percent of PM emissions. See Table 2-2 in Part B for emission calculations.</b>	
9. Pollutant Potential/Estimated Fugitive Emissions Comment:	

**EMISSIONS UNIT INFORMATION**

Section [2] of [5]  
Clinker Handling and Storage

**POLLUTANT DETAIL INFORMATION**

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Particulate Matter - Total

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

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

**Allowable Emissions** Allowable Emissions 1 of 2

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.0095 gr/dscf</b>	4. Equivalent Allowable Emissions: <b>3.99 lb/hour      17.0 tons/year</b>
5. Method of Compliance: <b>EPA Method 9</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Allowable in gr/dscf applies to all Baghouses except F633. See Table 2-2 in Part B for potential emission calculations.</b>	

**Allowable Emissions** Allowable Emissions 2 of 2

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.01 gr/dscf</b>	4. Equivalent Allowable Emissions: <b>0.51 lb/hour      2.25 tons/year</b>
5. Method of Compliance: <b>EPA Method 9</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Allowable in gr/dscf applies to Baghouse F633.</b>	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

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



**EMISSIONS UNIT INFORMATION**

**POLLUTANT DETAIL INFORMATION**

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Clinker Handling and Storage

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Particulate Matter – PM<sub>10</sub>

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

**(Optional for unregulated emissions units.)**

**Potential/Estimated Fugitive Emissions**

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

1. Pollutant Emitted: <b>PM<sub>10</sub></b>	2. Total Percent Efficiency of Control:
3. Potential Emissions: <b>4.50 lb/hour                      19.3 tons/year</b>	4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year	
6. Emission Factor: <b>See comment.</b>  Reference:	7. Emissions Method Code: <b>0</b>
8. Calculation of Emissions:  <b>Assumed as 100 percent of PM emissions. See Table 2-2 in Part B for emission calculations.</b>	
9. Pollutant Potential/Estimated Fugitive Emissions Comment:	

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Section [2] of [5]  
Clinker Handling and Storage

**POLLUTANT DETAIL INFORMATION**

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Particulate Matter – PM<sub>10</sub>

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

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

**Allowable Emissions** Allowable Emissions 1 of 2

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.0095 gr/dscf</b>	4. Equivalent Allowable Emissions: <b>3.99 lb/hour      17.0 tons/year</b>
5. Method of Compliance: <b>EPA Method 9</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Allowable in gr/dscf applies to Baghouse F633. See Table 2-2 in Part B for potential emission calculations.</b>	

**Allowable Emissions** Allowable Emissions 2 of 2

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.01 gr/dscf</b>	4. Equivalent Allowable Emissions: <b>0.51 lb/hour      2.25 tons/year</b>
5. Method of Compliance: <b>EPA Method 9</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Allowable in gr/dscf applies to Baghouse F633.</b>	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

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

**EMISSIONS UNIT INFORMATION**

**POLLUTANT DETAIL INFORMATION**

Section [3] of [5]  
 Finish Mill Nos. 1, 3, 4, and 6

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 Particulate Matter - Total

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

(Optional for unregulated emissions units.)

**Potential/Estimated Fugitive Emissions**

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

1. Pollutant Emitted: <b>PM</b>	2. Total Percent Efficiency of Control:
3. Potential Emissions: <b>24.31 lb/hour                      95.85 tons/year</b>	4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year	
6. Emission Factor: <b>See comment.</b>  Reference:	7. Emissions Method Code: <b>0</b>
8. Calculation of Emissions:  <b>See Part B, Table 2-3.</b>	
9. Pollutant Potential/Estimated Fugitive Emissions Comment:	

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**POLLUTANT DETAIL INFORMATION**

Section [3] of [5]  
 Finish Mill Nos. 1, 3, 4, and 6

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 Particulate Matter - Total

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
 ALLOWABLE EMISSIONS**

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

Allowable Emissions Allowable Emissions 1 of 2

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.01 gr/acf</b>	4. Equivalent Allowable Emissions: <b>10.65 lb/hour      42.0 tons/year</b>
5. Method of Compliance: <b>EPA Method 9.</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Applies to all baghouses except Finish Mill No. 3 Baghouse No. 533.BF340 and Finish Mill No. 6 Baghouse Nos. 531.BF01 and 531.BF02.</b>	

Allowable Emissions Allowable Emissions 2 of 2

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.0095 gr/dscf</b>	4. Equivalent Allowable Emissions: <b>13.66 lb/hour      53.8 tons/year</b>
5. Method of Compliance: <b>EPA Method 9.</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Permit limit applies to Finish Mill No. 3, Baghouse No. 533.BF340 and Finish Mill No. 6 Baghouse Nos. 531.BF01 and 531.BF02.</b>	

Allowable Emissions Allowable Emissions \_\_\_\_ of \_\_\_\_

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

**EMISSIONS UNIT INFORMATION**

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Section [3] of [5]  
 Finish Mill Nos. 1, 3, 4, and 6

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

**(Optional for unregulated emissions units.)**

**Potential/Estimated Fugitive Emissions**

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

1. Pollutant Emitted: <b>PM<sub>10</sub></b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>24.31 lb/hour                      95.85 tons/year</b>		4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>See comment.</b>  Reference:		7. Emissions Method Code: <b>0</b>	
8. Calculation of Emissions:  <b>See Part B, Table 2-3.</b>			
9. Pollutant Potential/Estimated Fugitive Emissions Comment:			

**EMISSIONS UNIT INFORMATION**

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Section [3] of [5]  
 Finish Mill Nos. 1, 3, 4, and 6

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 Particulate Matter - PM<sub>10</sub>

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
 ALLOWABLE EMISSIONS**

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

**Allowable Emissions** Allowable Emissions 1 of 2

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.01 gr/lacf</b>	4. Equivalent Allowable Emissions: <b>10.65 lb/hour      42.0 tons/year</b>
5. Method of Compliance: <b>EPA Method 9.</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Applies to all baghouses except Finish Mill No. 3 Baghouse No. 533.BF340 and Finish Mill No. 6 Baghouse Nos. 531.BF01 and 531.BF02.</b>	

**Allowable Emissions** Allowable Emissions 2 of 2

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.0095 gr/dscf</b>	4. Equivalent Allowable Emissions: <b>13.66 lb/hour      53.8 tons/year</b>
5. Method of Compliance: <b>EPA Method 9.</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Permit limit applies to Finish Mill No. 3, Baghouse No. 533.BF340 and Finish Mill No. 6 Baghouse Nos. 531.BF01 and 531.BF02.</b>	

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

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

**EMISSIONS UNIT INFORMATION**

Section [4] of [5]  
Raw Mill and Pyroprocessing Unit

**POLLUTANT DETAIL INFORMATION**

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Particulate Matter - Total

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

(Optional for unregulated emissions units.)

**Potential/Estimated Fugitive Emissions**

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

1. Pollutant Emitted: <b>PM</b>	2. Total Percent Efficiency of Control:
3. Potential Emissions: <b>51.6 lb/hour                      181.4 tons/year</b>	4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year	
6. Emission Factor: <b>See Comment</b>  Reference:	7. Emissions Method Code: <b>0</b>
8. Calculation of Emissions:  <b>See Part B, Tables 2-4 and 2-5.</b>	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: <b>Includes emissions from the Coal Mill when operating concurrently with the Kiln/Cooler/Raw Mill.</b>	

**EMISSIONS UNIT INFORMATION**

Section **[4]** of **[5]**  
Raw Mill and Pyroprocessing Unit

**POLLUTANT DETAIL INFORMATION**

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Particulate Matter - Total

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

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

**Allowable Emissions** Allowable Emissions 1 of 4

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.125 lb/ton dry Kiln feed</b>	4. Equivalent Allowable Emissions: <b>50.0 lb/hour      175 tons/year</b>
5. Method of Compliance: <b>Annual Method 5</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Emission limit based on Permit No. 0250020-010-AC. Applies to emissions from Main Stack only, and includes emissions from Coal Mill (Emission Unit ID 001) when Kiln/Cooler/Raw Mill and Coal Mill are operating concurrently.</b>	

**Allowable Emissions** Allowable Emissions 2 of 4

1. Basis for Allowable Emissions Code: <b>RULE</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.1 lb/ton dry Kiln feed</b>	4. Equivalent Allowable Emissions: <b>40.0 lb/hour      139.6 tons/year</b>
5. Method of Compliance: <b>Annual EPA Method 5</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>MACT 40 CFR 63.1345(a)(1) for cooler only based on feed to kiln. Equivalent allowable emissions are emissions out the main stack.</b>	

**Allowable Emissions** Allowable Emissions 3 of 4

1. Basis for Allowable Emissions Code: <b>RULE</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.3 lb/ton dry Kiln feed</b>	4. Equivalent Allowable Emissions: <b>120.0 lb/hour      418.8 tons/year</b>
5. Method of Compliance: <b>Annual EPA Method 5</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Emission limit is MACT 40 CFR 63.1343(c)(1) for kiln only. Equivalent allowable emissions are emissions out main stack.</b>	



**EMISSIONS UNIT INFORMATION**

Section [4] of [5]  
Raw Mill and Pyroprocessing Unit

**POLLUTANT DETAIL INFORMATION**

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Particulate Matter - Total

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

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

**Allowable Emissions** Allowable Emissions 4 of 4

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.0095 gr/dscf</b>	4. Equivalent Allowable Emissions: <b>1.60 lb/hour          6.4 tons/year</b>
5. Method of Compliance: <b>Annual Method 5</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Emission limit requested by applicant. Applies to emissions from baghouses other than Kiln/Cooler/Raw Mill Baghouse No. 331.BF200. See Part B, Table 2-4.</b>	

**Allowable Emissions** Allowable Emissions     of    

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

**Allowable Emissions** Allowable Emissions     of    

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

**EMISSIONS UNIT INFORMATION**

**POLLUTANT DETAIL INFORMATION**

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Raw Mill and Pyroprocessing Unit

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

**(Optional for unregulated emissions units.)**

**Potential/Estimated Fugitive Emissions**

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

1. Pollutant Emitted: <b>PM<sub>10</sub></b>	2. Total Percent Efficiency of Control:
3. Potential Emissions: <b>43.6 lb/hour                      153.4 tons/year</b>	4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year	
6. Emission Factor:  Reference:	7. Emissions Method Code: <b>0</b>
8. Calculation of Emissions:  <b>See Part B, Table 2-4.</b>	
9. Pollutant Potential/Estimated Fugitive Emissions Comment: <b>Includes emissions from the Coal Mill when operating concurrently with the Kiln/Cooler/Raw Mill.</b>	

**EMISSIONS UNIT INFORMATION**

**POLLUTANT DETAIL INFORMATION**

Section [4] of [5]  
Raw Mill and Pyroprocessing Unit

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Particulate Matter – PM<sub>10</sub>

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

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

**Allowable Emissions** Allowable Emissions 1 of 2

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.105 lb/ton dry Kiln feed</b>	4. Equivalent Allowable Emissions: <b>42.0 lb/hour      147.0 tons/year</b>
5. Method of Compliance: <b>Annual Method 5</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Emission limit based on Permit No. 0250020-010-AC. Applies to emissions from Main Stack only, and includes emissions from Coal Mill (EU ID 001) when Kiln/Cooler/Raw Mill and Coal Mill are operating concurrently.</b>	

**Allowable Emissions** Allowable Emissions 2 of 2

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>100% of PM</b>	4. Equivalent Allowable Emissions: <b>1.6 lb/hour      6.4 tons/year</b>
5. Method of Compliance: <b>Annual Method 9</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Emission limit requested by applicant. Applies to emissions from baghouses not exhausting through Main Stack.</b>	

**Allowable Emissions** Allowable Emissions    of   

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

**EMISSIONS UNIT INFORMATION**

Section **[5]** of **[5]**  
Raw Material Handling

**POLLUTANT DETAIL INFORMATION**

Page **[1]** of **[2]**  
Particulate Matter - Total

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

**(Optional for unregulated emissions units.)**

**Potential/Estimated Fugitive Emissions**

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

1. Pollutant Emitted: <b>PM</b>	2. Total Percent Efficiency of Control:
3. Potential Emissions: <b>3.39 lb/hour                      12.5 tons/year</b>	4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year	
6. Emission Factor: <b>0.0095 gr/dscf</b>  Reference: <b>Applicant Request</b>	7. Emissions Method Code: <b>0</b>
8. Calculation of Emissions:  <b>See Part B, Table 2-6.</b>	
9. Pollutant Potential/Estimated Fugitive Emissions Comment:	

**EMISSIONS UNIT INFORMATION**

Section [5] of [5]  
Raw Material Handling

**POLLUTANT DETAIL INFORMATION**

Page [1] of [2]  
Particulate Matter - Total

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

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

**Allowable Emissions** Allowable Emissions \_ of \_

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.0095 gr/dscf</b>	4. Equivalent Allowable Emissions: <b>3.39 lb/hour      12.5 tons/year</b>
5. Method of Compliance: <b>EPA Method 9</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Applicant request.</b>	

**Allowable Emissions** Allowable Emissions \_\_ of \_\_

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

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

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

**EMISSIONS UNIT INFORMATION**

Section [5] of [5]  
Raw Material Handling

**POLLUTANT DETAIL INFORMATION**

Page [1] of [2]  
Particulate Matter – PM<sub>10</sub>

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

(Optional for unregulated emissions units.)

**Potential/Estimated Fugitive Emissions**

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

1. Pollutant Emitted: <b>PM<sub>10</sub></b>		2. Total Percent Efficiency of Control:	
3. Potential Emissions: <b>3.39 lb/hour                      12.5 tons/year</b>		4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): to                      tons/year			
6. Emission Factor: <b>0.0095 gr/dscf</b>  Reference: <b>Applicant Request</b>		7. Emissions Method Code: <b>0</b>	
8. Calculation of Emissions:  <b>See Part B, Table 2-6.</b>			
9. Pollutant Potential/Estimated Fugitive Emissions Comment:			

**EMISSIONS UNIT INFORMATION**

Section [5] of [5]  
Raw Material Handling

**POLLUTANT DETAIL INFORMATION**

Page [1] of [2]  
Particulate Matter – PM<sub>10</sub>

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -  
ALLOWABLE EMISSIONS**

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

**Allowable Emissions** Allowable Emissions \_ of \_

1. Basis for Allowable Emissions Code: <b>OTHER</b>	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units: <b>0.0095 gr/dscf</b>	4. Equivalent Allowable Emissions: <b>3.39 lb/hour      12.5 tons/year</b>
5. Method of Compliance: <b>EPA Method 9</b>	
6. Allowable Emissions Comment (Description of Operating Method): <b>Applicant request.</b>	

**Allowable Emissions** Allowable Emissions \_ of \_

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

**Allowable Emissions** Allowable Emissions \_\_\_\_ of \_\_\_\_

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

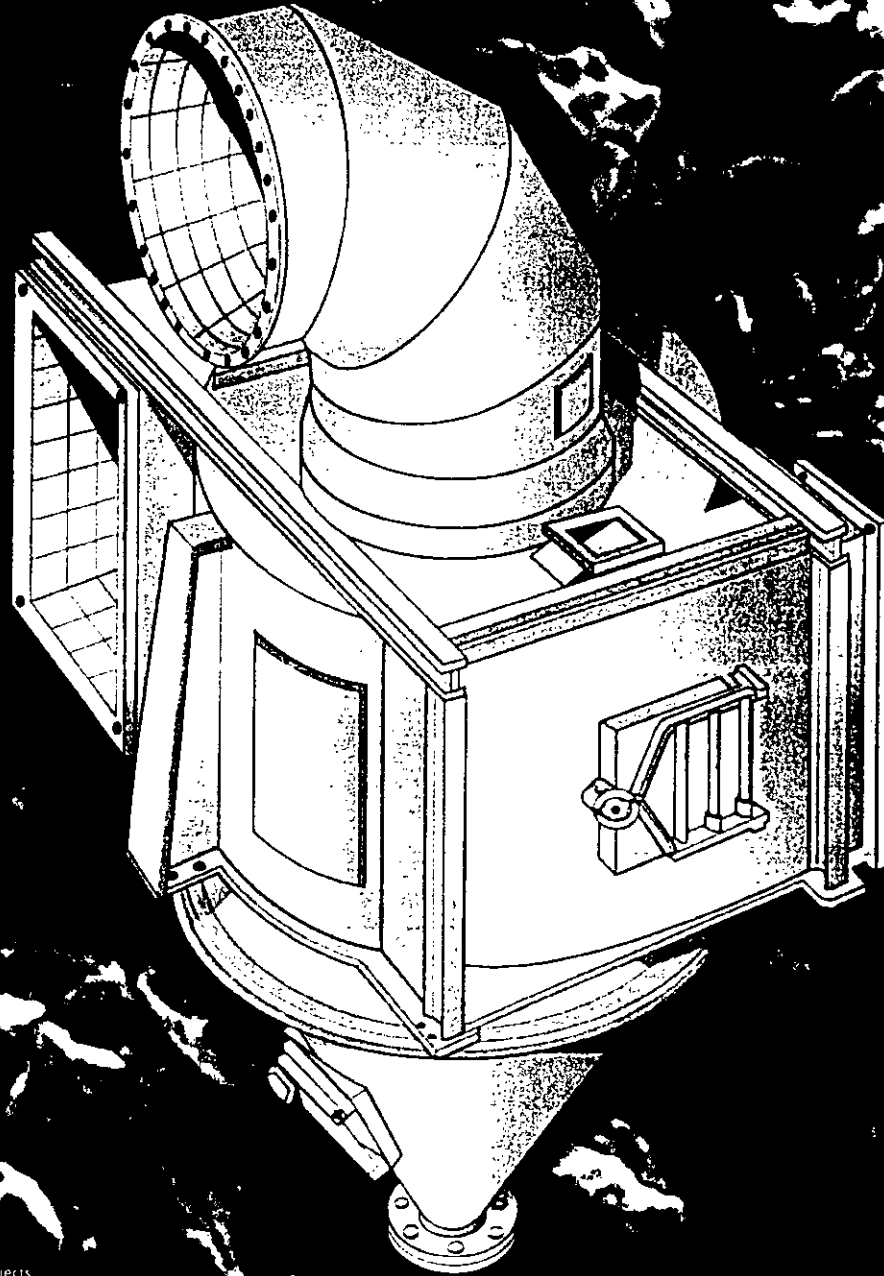
**ATTACHMENT E**

**O-SEPA SEPARATOR INFORMATION**



# O-Sepa® Separator

- Low Maintenance
- High Efficiency
- Simple Layout



Background shows O-Sepa separator rejects

**FLSMIDTH**

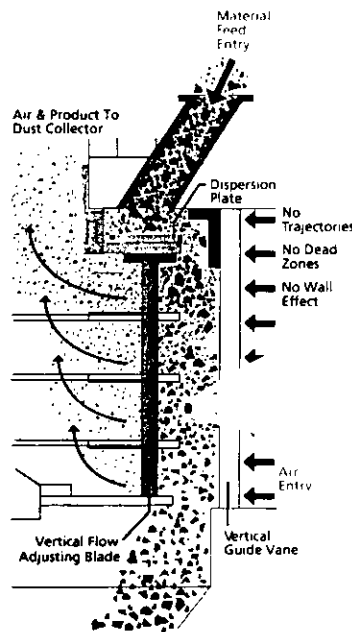
# Main Features

## MILL SYSTEMS

- Proven Reliability**
  - 25 years design and operating experience
  - Over 425 units worldwide
- Cost Savings**
  - Reduced specific power consumption
  - Increased grinding efficiency
  - Low maintenance
  - Integral cooling capability
- Low Maintenance**
  - Wear protection targets specific abrasion mechanisms for each separator component
  - Circulating oil lubrication system promotes exceptional bearing life
- Reduced Capital Cost**
  - Compact design
  - Simple Layout
  - Bolt together construction for low installation time
- Flexibility**
  - New and Retrofit installations
  - Raw and Cement Grinding
  - High Blaine operation
  - Standard and Mixed products
  - Compatible with Semi-finish Grinding
  - Full Gas recirculation optional
  - Full size range
- Stable operation**
  - Simple system control
  - Precise, uniform separation
  - Less fine returns to the mill
- Better product quality**
  - High separator efficiency
  - Improved product particle size distribution from first and second generation separators
  - Increased cement quality
  - Reduced coarse bypass in the product

The O-Sepa separator is the world standard in high-efficiency separation. F.L.Smidth has supplied O-Sepa separators since 1983. There are now over 425 units installed worldwide.

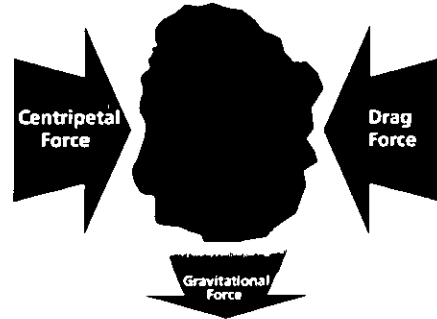
The O-Sepa separator's success, based on its innovative design, continues as a result of superior performance and optimization. There are numerous features that place the O-Sepa separator at the top of industry lists for both performance and mechanical integrity.



**Classification Zone**

## INSTALLATION

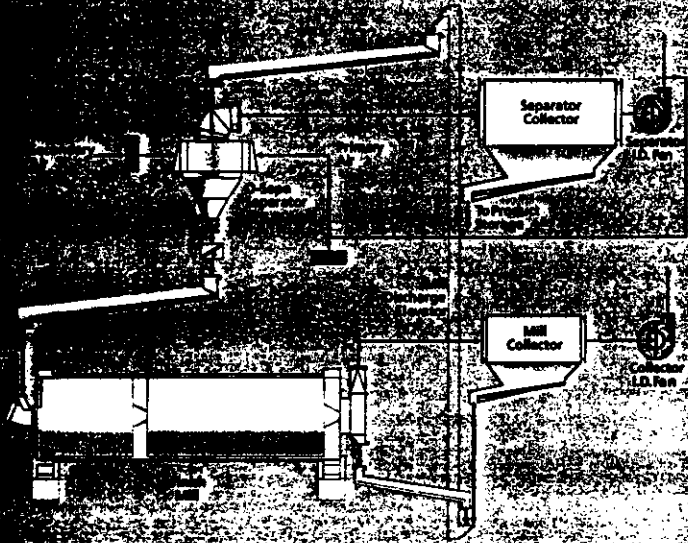
The O-Sepa separator has a compact design requiring minimal space for installation. Its simple circuit layout allows the highly flexible separator to be applied in a variety of systems and to fit any new process requirement or existing system. Installation time for the O-Sepa separator is minimized by its bolted-flange design.



## Balance of Forces

*The rotor's speed directly affects the centripetal force.  
The amount of airflow directly affects the drag force.*

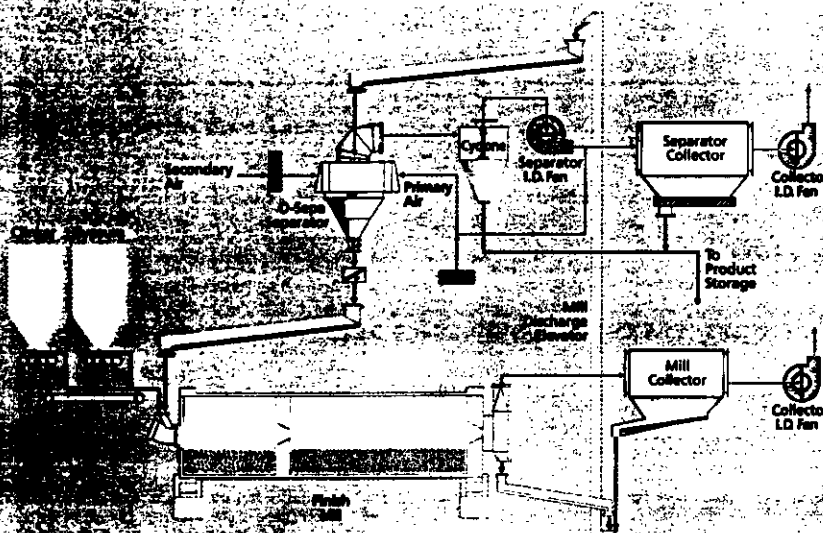
## Full Vent System



### Alternate Arrangement:

*The mill vent gases can be taken through the O-Sepa separator with either system design, thus eliminating one collector and fan.*

## Cyclone System



## FLEXIBILITY

The O-Sepa separator is installed for cement and non-cement applications. The O-Sepa separator can be retrofit into existing ball mill circuits or installed in new mill systems.

A system with dedusting cyclones on the outlet (product) stream can be beneficial for retrofits to existing systems. In this arrangement there is less exhaust gas which can be an advantage in obtaining environmental permits. This compact system, which requires a smaller bag collector, is very flexible and can require less overall space than other system designs.

For new installations where a simpler system containing less equipment and fewer drives is desired a full vent arrangement is possible. In this arrangement the separator fan handles clean gas which reduces maintenance and allows for a higher efficiency fan design. Any recycled air is therefore clean and does not limit the duct arrangement. The dust loading is higher, but of a coarser size, which reduces dust collection problems. This system gives the maximum air cooling or maximum system temperature for controlling product quality.

In either arrangement it is possible for all of the classifying air to come from atmosphere. Because of this feature the O-Sepa has a superior cooling capability. The ability to control recirculating material temperatures reduces the chance of ball coating and pack set problems in silos. Further, in either system arrangement it is possible to take the mill vent gases through the separator eliminating the need for a separate dust collector and fan.

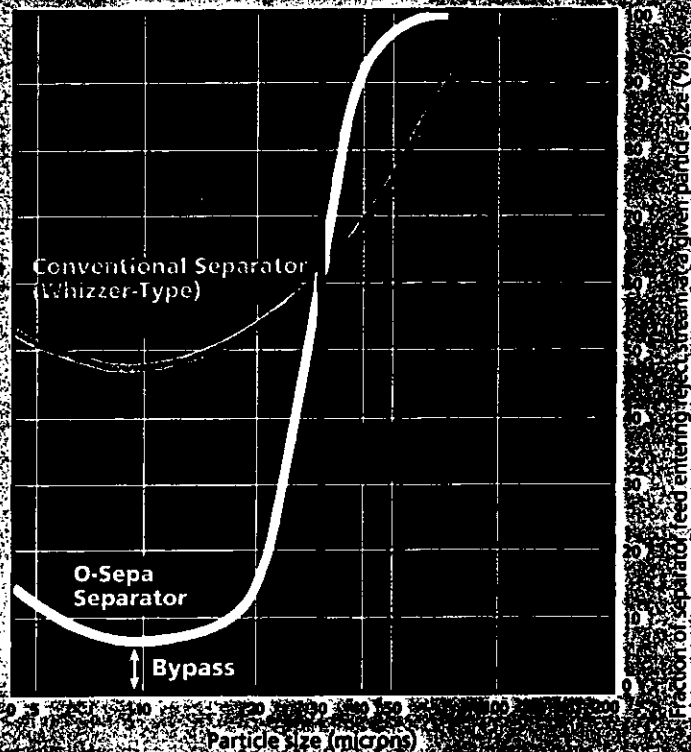
# Typical Separator Efficiency Curve (Tromp Curve)

The O-Sepa separator properly classifies a higher proportion of feed materials.

The Tromp curve is a plot of the probability of a given size of particle in the separator feed that will be returned to the mill. Thus better separation is indicated by higher probabilities for coarse material, and lower probabilities for fine material.

The Tromp curve is an effective tool when evaluating separator performance.

Calculations are based on separator feed, rejects, and product samples. The top side control, which can be determined from the curve, indicates if the seal is operating correctly. Also, the amount of bypass and the extent of the fines' tail can be determined. These parameters along with the separator inlet loading give an accurate depiction of the separator's performance in the circuit.



## OPERATION

### Low Cost Operation

Compared to other separator designs the O-Sepa separator offers improved efficiency. Higher separation efficiency results in less fine material returning to the mill, which in turn reduces the mill power consumption at a given product fineness. System capacity is maximized through the combination of superior grinding efficiency and better product size distribution.

Stable operation is easily achieved through simple system control and precise, uniform separation. The results of superior efficiency and stable operation are evident through increased cement strength and a reduced amount of coarse material present in the product.

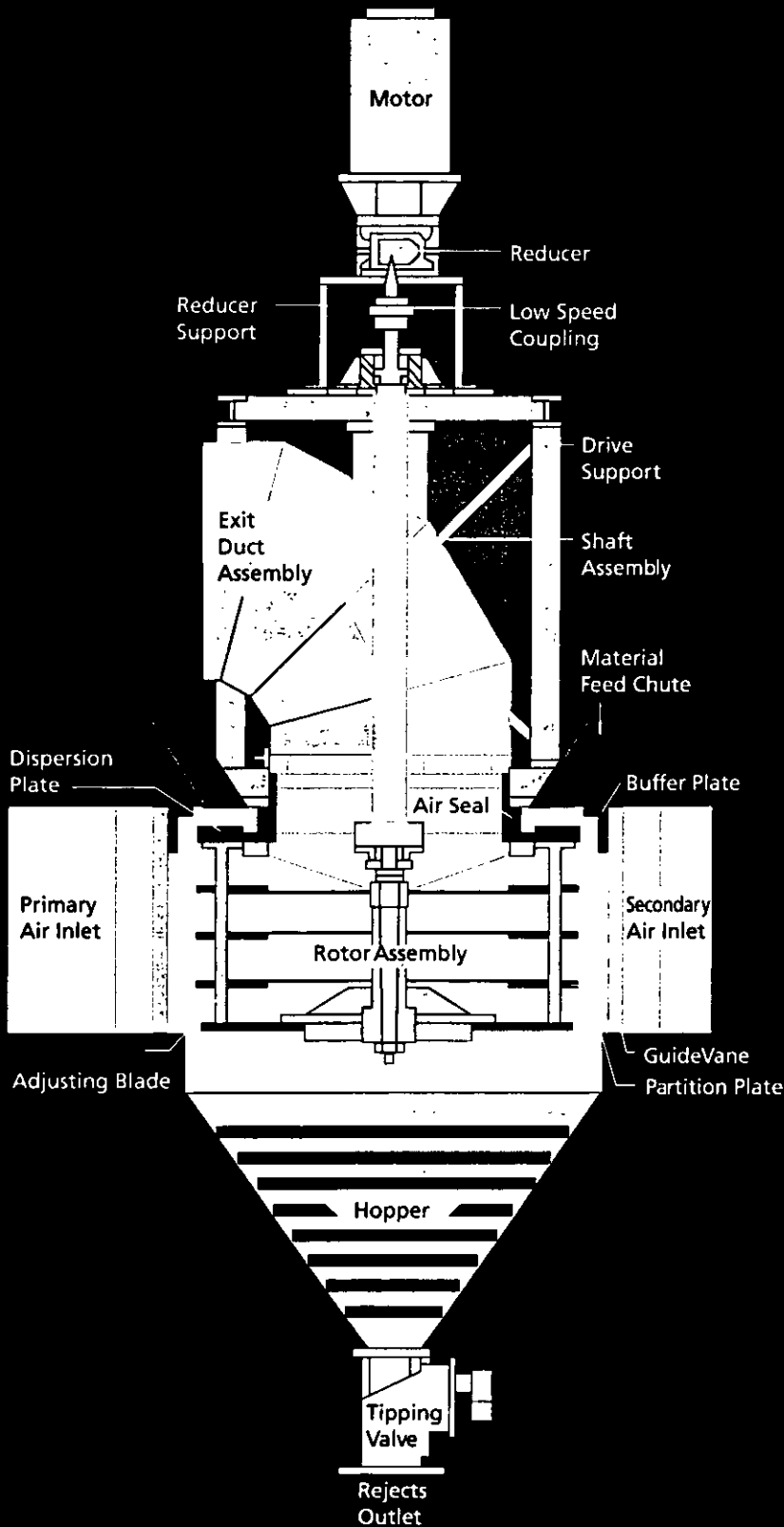
### Low Maintenance

Maintenance in the O-Sepa is reduced by specifically addressing the cause and mechanism of wear in each area of the







separator with the most effective wear protection materials. Ceramic tiles lining the separator inlet and exit ducts and the rotor shaft protect against jet abrasion from any dust entrained in the gas streams. The rotor vanes are coated with a spray ceramic for the same reason. The guide vanes around the rotor are made from chromium carbide bulk-welded plate to resist the impact of oversized material rejected from the rotor. The feed chutes are made from abrasion-resistant plate. The air seal and material distribution plate are made from impact and abrasion resistant NiHard castings. The use of dedicated wear materials reduces the maintenance requirements of the separator and saves overall operating costs.

To maximize the protection of the separator bearings the O-Sepa separator incorporates a standard circulating lubrication system. The use of circulating lubrication system ensures a long bearing life.

# Wear Protection

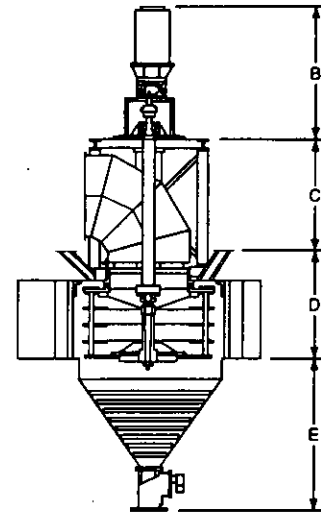
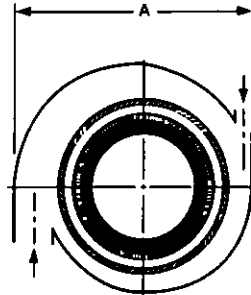
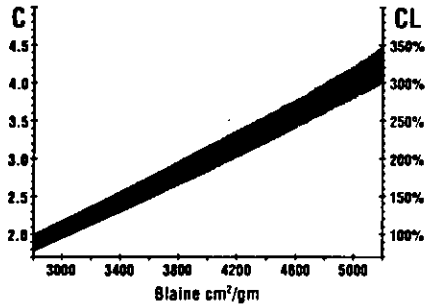


## Wear Protection Components

-  Ceramic tile on inlet ducts, outlet ducts, and shaft assembly
-  Spray ceramic coating on rotor
-  Chromium carbide bulk-welded plate for guide vanes
-  NiHard castings for air seal, distribution plate, and buffer ring
-  Abrasion-resistant plate in feed chutes
-  Autogenous hopper lining

# How to Size an O-Sepa Separator

- Predict circulation factor. Circulation factor =  $\left[ 1 + \frac{\text{Circulating Load (\%)}}{100\%} \right] = \frac{\text{separator feed}}{\text{production}}$
- Determine expected system production and feed rate to separator.  
( \_\_\_ mtp production x \_\_\_ Circulation factor = \_\_\_ mtp feed)
- Pick the separator size (from the chart below) that has rated feed and production which are greater than those expected. If separator will produce several types of cements, use maximum feed and production.



## Sizing Chart

Size	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	Typical Drive Type	Rotor Diameter (mm)	Rotor Height (mm)	Speed (rpm)	Motor (kW)	Air (m <sup>3</sup> /min)	Feed (mtp)	Production (mtp)
N-250	1522	2550	—	673	1604	V-belt	940	550	250-550	25	250	37.5	13
N-350	1757	1350	1190	798	1510	Vertical	1040	518	170-370	35	350	52.5	18
N-500	2109	1470	1396	956	1993	Vertical	1220	580	190-420	55	500	75	26
N-750	2517	1650	1676	1107	2310	Vertical	1460	730	170-360	75	750	112.5	38
N-1000	2714	1890	1693	1387	2505	Vertical	1660	850	150-320	90	1000	150	51
N-1500	3294	2220	2281	1434	2931	Vertical	2000	1060	120-260	110	1500	225	77
N-2000	3804	2500	2541	1643	2878	Vertical	2270	1240	105-230	150	2000	300	102
N-2500	4194	2590	2894	1791	3275	Vertical	2530	1390	95-205	185	2500	375	128
N-3000	4689	2610	3087	1933	3616	Horizontal	2760	1530	85-190	225	3000	450	153
N-3500	5154	2780	3408	2077	3861	Horizontal	2970	1660	80-175	260	3500	525	179
N-4000	5459	2880	3363	2515	4118	Horizontal	3150	1780	75-165	300	4000	600	204
N-4500	5750	2890	3744	2331	4171	Horizontal	3330	1900	70-155	335	4500	675	230
N-5000	6074	2900	3458	2806	4596	Horizontal	3480	2000	65-150	375	5000	750	255
N-5500	6300	3000	3454	3330	4900	Horizontal	3640	2100	60-145	410	5500	825	281
N-6000	6613	3010	3453	3607	5100	Horizontal	3850	2200	54-135	450	6000	900	306
N-7000	6991	3020	4736	3237	5500	Horizontal	4159	2371	50-125	525	7000	1050	357

\* with V-belt drive, value is B+C

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