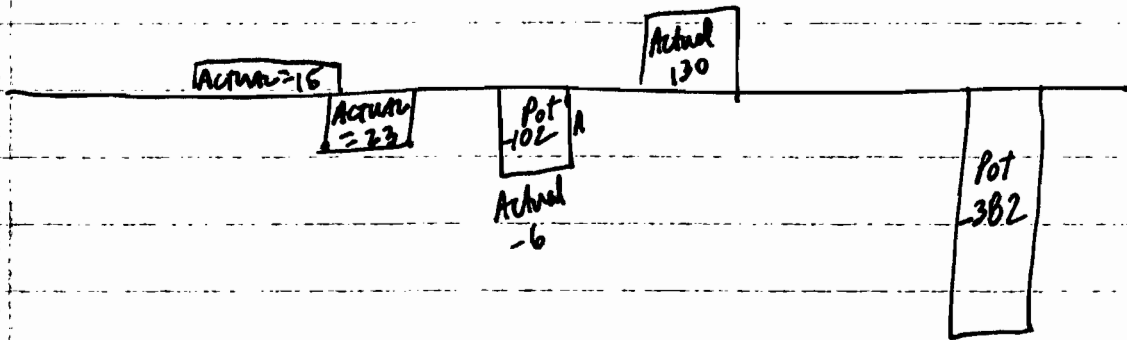


1999 2000 2001 / 2002 2003 2004 2005



$$PTE \Delta = -382 - 102 = -484$$

$$Actual \Delta = ~~15~~ - ~~382~~$$

$$-382 + 130 - 6 - 23 + 15 = -266$$



**Pennsuco Cement
Control Equipment**

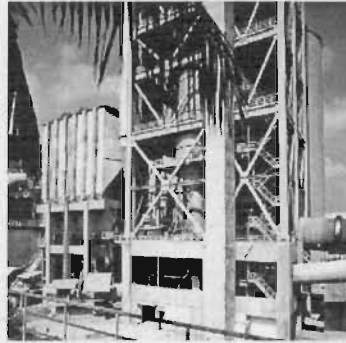
PK5 Units

EU ID		Coal System							
Unit ID	Equip.MFG	Model	Bag#	CFM	Cloth Area (sqft)	A/C Ratio	Vent Size	Vent AGL	
461.BF130	FLS Airtech	36TAX10FM	36	1400	469	3.0:1	9"x10"	126	
461.BF230	FLS Airtech	36TAX10FM	36	1400	469	3.0:1	9"x10"	126	
461.BF350	FLS Airtech	121CX10	121	5550	1575	3.5:1	12"x15"	75	
461.BF500	FLS Airtech	735SX12	735	54500	13855	3.9:1	main stack	420	
461.BF650	FLS Airtech	800/7	9	294	75	3.9:1	5"	67	
461.BF750	FLS Airtech	800/7	9	294	75	3.9:1	5"	67	

EU ID		Pyroprocessing							
Unit ID	Equip.MFG	Model	Bag#	CFM	Cloth Area (sqft)	A/C Ratio	Vent Size	Vent AGL	
331.BF200	FLS Airtech	M5C690D16(16)	6900	605000	173397	3.0:1	14'	420	
331.BF645	Midwest	MVL54H	36	3500	1167	3.9:1	10"	46	
331.BF740	FLS Airtech	100C10	100	4250	1302	3.3:1	12"x15"	125	
341.BF350	FLS Airtech	64C10	64	3760	833	4.5:1	11"x13"	241	
351.BF410	FLS Airtech	64C10	64	4000	833	4.8:1	11"x13"	84	
351.BF440	FLS Airtech	100C10	100	4760	1320	3.7:1	12"x15"	45	
351.BF470	FLS Airtech	100C10	100	4100	1302	3.2:1	12"x15"	353	

EU ID		Clinker Handling & Storage							
Unit ID	Equip.MFG	Model	Bag#	CFM	Cloth Area (sqft)	A/C Ratio	Vent Size	Vent AGL	
441.BF540	FLS Airtech	100C10	100	4600	1302	3.5:1	12"x15"	53	
481.BF140	FLS Airtech	196C10	196	12000	2552	4.7:1	19"x23"	185	
481.BF330	FLS Airtech	100C10	100	6100	1302	4.7:1	16"x19"	103	
481.BF540	FLS Airtech	100C10	100	4700	1302	3.6:1	12"x15"	44	
481.BF640	FLS Airtech	100C10	100	4700	1302	3.6:1	12"x15"	42	
481.BF730	FLS Airtech	304C10	304	18700	3958	4.7:1	23"x33"	113	
481.BF930	FLS Airtech	304C10	304	15000	3958	3.8:1	20"x30"	113	

EU ID		Raw Mill Feed & Grinding							
Unit ID	Equip.MFG	Model	Bag#	CFM	Cloth Area (sqft)	A/C Ratio	Vent Size	Vent AGL	
311.BF650	FLS Airtech	144C10	144	8500	1875	4.5:1	19"x19"	98	
311.BF750	FLS Airtech	144C10	144	7750	1875	4.5:1	18"x27"	17	
311.BF950	FLS Airtech	225C10	225	11700	2930	4.0:1	20"x30"	68	
321.BF470	FLS Airtech	225C10	225	10800	2930	3.7:1	17"x21"	100	



There are three main point sources of dust emissions from cement plants.

Kiln systems, clinker coolers and cement mills.

Custom-made solutions will ensure that your emission level always is kept. F.L.Smidth Airtech will guarantee a clean environment.

A Clean Solution for Cement Plants

Problems facing Cement Producers

Cement production is characterized by varying operating conditions of the production machines. Start and stop of machines in the process gives changes in the gas and dust composition, this requires that not only the filter, but also cooling devices, dust transportation, ID fans and dampers are designed in relation to each other and in relation to the process conditions.

We know the problems:

- very fine dust particles from the kiln
- variation in outlet temperature from kiln and cooler
- wet bottom in the cooling tower
- sticky dust from kiln by-pass

Typical solutions

A complete process line for removal of dust and sulphur from a cement kiln could consist of: A cooling device (cooling tower or heat exchanger), a filter (electrostatic precipitators, or fabric filter), gas absorption equipment, dust removal systems, ducts and fan and a water treatment plant. De-dusting of clinker coolers and cement and coal mills are often done with electrostatic precipitators or bag filters in combination with a heat exchanger.

Who are we ?

F.L.Smidth Airtech has deep roots within the cement industry. Being a part of the F.L.Smidth Group gives you the benefit of working with a company who have in-depth knowledge of all the processes involved in cement production. We employ more than 200 extremely competent and well-educated engineers. We know the cement production process inside out.

Your benefits

In F.L.Smidth Airtech we supply custom made solutions. This means that we deliver a clean environment for your plant. You will get custom designed total solutions - considering both economical and technical aspects - based on our experience from more than 2,100 installations in the Cement industry. You will get a guarantee of performance as well as of the time for implementation, giving a minimum disturbance to the production.

Solution examples

We are proud to be a partner to the Cement industry. F.L.Smith Airtech has a rich history of working with some of the largest cement companies in the world.



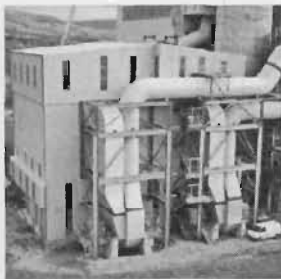
ENCI, Holland

A total turnkey solution including a large four field electrostatic precipitator for de-dusting of the kiln and dryer. The ESP is guaranteed for an emission of max. 10 mg/Nm³ dry gas, but is operating well below that level.



NORCEM, Norway

A 3,500 tpd cement kiln burning hazardous waste. Emissions must be below 10 mg/Nm³ for dust and 50 micro g/Nm³ for mercury. Two fabric filters are installed after an electrostatic precipitators. The plant can operate with only the ESPs, or when burning hazardous waste, the fabric filters are connected. Mercury collection is ensured by injection of activated carbon. For optimum adsorption of mercury the existing gas conditioning tower was rebuilt to reduce the outlet temperature to 135 °C.



Blue Circle, Hope Cement, UK / Fabric Filters

Two fabric filters for de-dusting of the kiln gases. The guaranteed emission from these filters is 10 mg/Nm³. Flow rate is 594,000 Nm³/h at a max. temperature of 260 °C.



Aalborg Portland, Denmark, Scrubbers

A solution for sulphur dioxide removal, including two wet scrubber systems. The scrubbers are part of a new heat recuperation system, which utilises the heat in the gases for the city's district heating system. The scrubbers produce gypsum, which is used in the cement mills.



APMC Rawang, Malaysia,

Clinker Cooler, Fabric filter with heat exchanger

A 5,800 tpd grate cooler de-dusted by a fabric filter preceded by a tube heat exchanger.

FLSMIDTH
AIRTECH

F.L.Smith Airtech supplies Air Pollution Control equipment: Electrostatic precipitators • FabriClean pulse-jet fabric filters • Gas conditioning towers • Desulphurization systems • COROMAX pulse systems • PIACS microprocessor controllers and other advanced electrical control systems • Dust transport and storage equipment • All kinds of auxiliary equipment like fans, flue gas ducts, cyclones etc. • We supply new equipment or upgrading of existing equipment - no matter whether the existing equipment is supplied by us or not.

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AOR PM EMISSIONS - TARMAC PENNSUCO 0250020

EU ID	EU DESCRIPTION	scc	1996	1997	1998	1999	2000	2001	2002	2003
3	23 TON MILL FOR 23 TPH COAL HANDLING SYSTEM	30510103	4.21	5.4		15.81	14.52	15.64	16.17	15.3
		30510303	0		12.64	15.81	14.52	15.6		
4	41 TPH KILN #2 W/DOUBLE CHAMBER E.S.P.	30500706	78.9	34.05	56.06	54.54	46.41	37.78	30.43	51.83
5	25 TPH COOLER #2 W/MULTICLONE & DUAL CHAMBER E.S.P.	30500714	16.193	50.96	87.21	66.91	45.7	39.89	46.88	54.7
6	142 TPH KILN #3 W/DROPOUT BOX & DUAL CHAMBER E.S.P.	30500706	80.54	159.97	48.25	45.26	46.08	23.65	5.75	99.16
7	88 TPH COOLER#3 W/DROPOUT BOX & BAGHOUSE	30500714	252.4	20.78	13.78	22.52	41.75	25.61	30.18	37.22
8	CLINKER HANDLING & STORAGE SYSTEM FOR KILNS #1&2	30500716	0.99	0.97	1.01	1.02	1.01	3.5	2.03	2.02
9	CLINKER HANDLING & STORAGE SYSTEM FOR KILN #3	30500716	3.2	3.12		3.08	3.06	3.3	4.76	4.42
		30510202			3.16		3.06			
10	25 TPH FINISH MILL #1 W/AIRSLIDE, CONVEYOR & BGHS	30500717	2.66	2.36	2.55	1.05	4.1	4.37	4.58	5.97
11	25 STPH FINISH MILL #2 W/AIRSLIDE, CONVEYOR & BGHS	30500717	2.99	3.25	2.78	3.17	5.93	2.58	1.32	2.89
12	84 TPH FINISH MILL #3 W/AIRSLIDE, CONVEYOR & BGHS	30500717	4.53	4.36	5.39	5.29	9.45	6.39	7.73	7.26
13	113 TPH FINISH MILL #4 W/AIRSLIDE, CONVEYOR & BGHS	30500717	4	5.58	4.16	3.9	12.23	41.62	45.64	43.64
14	CEMENT STORAGE SILOS #1-12 SERVING MILLS#1-4	30500718	10.72	11.66	9.98	11.36	16.16	16.14	16.14	16.14
15	CEMENT DISTRIBUTION-RAIL AND TRUCK LOADOUTS	30500719	1.48	1.58	2.26	1.85	1.78	1.88	2.04	1.64
16	CEMENT DISTRIBUTION-PACKHOUSE W/2 BAGGERS	30500719	1.68	1.49	1.62	1.65	1.88	1.98	2.18	2.13
17	15 TON MILL FOR COAL HANDLING SYSTEM FOR KILN #2.	30510303	4.21							
18	FEEDBIN AND ELEVATOR FOR 23 TPH COAL HANDLING SYSTEM.	30500712	8.47	5.4			0.05			
19	HOPPER AND WEIGHT FEEDER FOR 23 TPH COAL HANDLING SYSTEM.	30500712	4.21	5.4			0.5			
20	125 ton per hour slag dryer	30500613			0.2	0.52	0.44	0.76	0.71	2
21	INSUFFLATION SYSTEM - SERVING KILN SYSTEM 2 AND 3	30500699		2.01						
		30500799						4.88	4.88	4.88
22	Nonmetallic Mineral Processing (Aggregate) Plant	30500707							17.98	18.67

FACILITY TOTAL 481.383 318.34 251.05 253.74 268.63 245.57 239.4 369.87

POTENTIAL PM EMISSIONS - TARMAC PENNSUCO 0250020

EU ID	EU DESCRIPTION	scc	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
3	23 TON MILL FOR 23 TPH COAL HANDLING SYSTEM	30510103 Conveyors	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1		0	
		Open Stockpiles											0
4	41 TPH KILN #2 W/DOUBLE CHAMBER E.S.P.	30500706	56.76	56.76	56.76	56.76	56.76	56.76	53.2	53.2	53.2	0	
5	25 TPH COOLER #2 W/MULTICLONE & DUAL CHAMBER E.S.P.	30500714	115.7	115.7	115.7	115.7	115.7	115.7	17.7	17.7	17.7	0	
6	142 TPH KILN #3 W/DROPOUT BOX& DUAL CHAMBER E.S.P.	30500706	186.6	186.6	186.6	186.6	186.6	186.6	186.6	186.6	186.6	0	
7	88 TPH COOLER#3 W/DROPOUT BOX & BAGHOUSE	30500714	62.2	62.2	62.2	62.2	62.2	62.2	62.2	62.2	62.2	0	
8	CLINKER HANDLING & STORAGE SYSTEM FOR KILNS #1&2	30500716										0	
9	CLINKER HANDLING & STORAGE SYSTEM FOR KILN #3	30500716	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7		0	
		30510202											0
10	25 TPH FINISH MILL #1 W/AIRSLIDE, CONVEYOR & BGHS	30500717	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7		8.94	115.7
11	25 TPH FINISH MILL #2 W/AIRSLIDE, CONVEYOR & BGHS	30500717	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7		8.94	115.7
12	84 TPH FINISH MILL #3 W/AIRSLIDE, CONVEYOR & BGHS	30500717	153.9	153.9	153.9	153.9	153.9	153.9	153.9	153.9		35.87	15.58
13	113 TPH FINISH MILL #4 W/AIRSLIDE, CONVEYOR & BGHS	30500717	25.14	25.14	25.14	25.14	25.14	25.14	25.14	25.14		25.14	
14	CEMENT STORAGE SILOS #1-12 SERVING MILLS#1-4	30500718	16.15	16.15	16.15	16.15	16.15	16.15	16.15	16.15		16.15	
15	CEMENT DISTRIBUTION-RAIL AND TRUCK LOADOUTS	30500719	5.64	5.64	5.64	5.64	5.64	5.64	5.64	5.64		5.64	
16	CEMENT DISTRIBUTION-PACKHOUSE W/2 BAGGERS	30500719	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2		5.2	
17	15 TON MILL FOR COAL HANDLING SYSTEM FOR KILN #2.	30510303										0	
18	FEEDBIN AND ELEVATOR FOR 23 TPH COAL HANDLING SYSTEM.	30500712										0	
19	HOPPER AND WEIGHT FEEDER FOR 23 TPH COAL HANDLING SYSTEM.	30500712										0	
20	125 ton per hour slag dryer	30500613			7.44	7.44	7.44	7.44	7.44	7.44		7.44	9.12 Ap. Table
21	INSUFFLATION SYSTEM - SERVING KILN SYSTEM 2 AND 3	30500699										0	
		30500799										0	
22	Nonmetallic Mineral Processing (Aggregate) Plant	30500707										35.4	
23	Nonmetallic Mineral Processing (Aggregate) Plant - Not Subject to Subpart OOO												
24	CONCRETE BLOCK PLANT												
25	READY MIX PLANT												
26	COAL HANDLING SYSTEM											16.73	
27	CLINKER HANDLING AND STORAGE											6.15	
28	RAW MILL AND PYROPROCESSIN SYSTEM											183.86	
29	RAW MATERIAL HANDLING											13.01	
30	UNREGULATED UNITS												30.44 Ap. Table
	FINISH MILL NO. 6											38.46	

FACILITY TOTAL

883.49 883.49 873.83 890.93 890.93 890.93 789.37 789.37 406.93
883.49 789.37

102.295

CLP 10/25/04

AOR PM EMISSIONS - TARMAC PENNSUCO 0250020

EU ID	EU DESCRIPTION	scc	1996 Actual	1997 Actual	1998 Actual	1999 Actual	2000 Actual	2001 Actual	2002 Actual	2003 Actual	2004	2005 Potential	
3	23 TON MILL FOR 23 TPH COAL HANDLING SYSTEM	30510103	4.21	5.4		15.81	14.52	15.64	16.17	15.3		0	
		30510303	0		12.64	15.81	14.52	15.6				0	
4	41 TPH KILN #2 W/DOUBLE CHAMBER E.S.P.	30500706	56.76	34.05	56.06	54.54	46.41	37.78	30.43	51.83		0	
5	25 TPH COOLER #2 W/MULTICLONE & DUAL CHAMBER E.S.P.	30500714	16.193	50.96	87.21	66.91	45.7	39.89	46.88	54.7		0	
6	142 TPH KILN #3 W/DROPOUT BOX& DUAL CHAMBER E.S.P.	30500706	80.54	159.97	48.25	45.26	46.08	23.65	5.75	99.16		0	
7	88 TPH COOLER#3 W/DROPOUT BOX & BAGHOUSE	30500714	62.2	20.78	13.78	22.52	41.75	25.61	30.18	37.22		0	
8	CLINKER HANDLING & STORAGE SYSTEM FOR KILNS #1&2	30500716	0.99	0.97	1.01	1.02	1.01	3.5	2.03	2.02		0	
		30510202	3.2	3.12		3.08	3.06	3.3	4.76	4.42		0	
9	CLINKER HANDLING & STORAGE SYSTEM FOR KILN #3	30510202			3.16		3.06					0	
10	25 TPH FINISH MILL #1 W/AIRSLIDE, CONVEYOR & BGHS	30500717	2.66	2.36	2.55	1.05	4.1	4.37	4.58	5.97		8.94	115.7
11	25 STPH FINISH MILL #2 W/AIRSLIDE, CONVEYOR& BGHS	30500717	2.99	3.25	2.78	3.17	5.93	2.58	1.32	2.89		8.94	115.7
12	84 TPH FINISH MILL #3 W/AIRSLIDE, CONVEYOR & BGHS	30500717	4.53	4.36	5.39	5.29	9.45	6.39	7.73	7.26		35.87	15.58
13	113 TPH FINISH MILL #4 W/AIRSLIDE, CONVEYOR & BGHS	30500717	4	5.58	4.16	3.9	12.23	41.62	45.64	43.64		25.14	
14	CEMENT STORAGE SILOS #1-12 SERVING MILLS#1-4	30500718	10.72	11.66	9.98	11.36	16.16	16.14	16.14	16.14		16.15	
15	CEMENT DISTRIBUTION-RAIL AND TRUCK LOADOUTS	30500719	1.48	1.58	2.26	1.85	1.78	1.88	2.04	1.64		5.64	
16	CEMENT DISTRIBUTION-PACKHOUSE W/2 BAGGERS	30500719	1.68	1.49	1.62	1.65	1.88	1.98	2.18	2.13		5.2	
17	15 TON MILL FOR COAL HANDLING SYSTEM FOR KILN #2.	30510303	4.21									0	
18	FEEDBIN AND ELEVATOR FOR 23 TPH COAL HANDLING SYSTEM.	30500712	8.47	5.4			0.05					0	
19	HOPPER AND WEIGHT FEEDER FOR 23 TPH COAL HANDLING SYSTEM.	30500712	4.21	5.4			0.5					0	
20	125 ton per hour slag dryer	30500613			0.2	0.52	0.44	0.76	0.71	2		7.44	9.12 Ap. Table
21	INSUFFLATION SYSTEM - SERVING KILN SYSTEM 2 AND 3	30500699		2.01								0	
		30500799						4.88	4.88	4.88		0	
22	Nonmetallic Mineral Processing (Aggregate) Plant	30500707							17.98	18.67		35.4	
23	Nonmetallic Mineral Processing (Aggregate) Plant - Not Subject to Subpart OOO												
24	CONCRETE BATCH PLANT												
25	READY MIX PLANT												
26	COAL HANDLING SYSTEM											16.73	
27	CLINKER HANDLING AND STORAGE											6.15	
28	RAW MILL AND PYROPROCESSIN SYSTEM											183.86	
29	RAW MATERIAL HANDLING											13.01	
30	UNREGULATED UNITS												30.44 Ap. Table
	FINISH MILL NO. 6											38.46	

FACILITY TOTAL

269.043	318.34	251.05	253.74	268.63	245.57	239.4	369.87	406.93
293.6915						304.635		

102.295

CLP 10/25/04

AOR PM EMISSIONS - TARMAC PENNSUCO 0250020

EU ID	EU DESCRIPTION	scc	1996 Actual	1997 Actual	1998 Actual	1999 Actual	2000 Actual	2001 Actual	2002 Actual	2003 Actual	2004	2005 Potential	
3	23 TON MILL FOR 23 TPH COAL HANDLING SYSTEM	30510103	4.21	5.4		15.81	14.52	15.64	16.17	15.3		0	
		30510303	0		12.64	15.81	14.52	15.6					0
4	41 TPH KILN #2 W/DOUBLE CHAMBER E.S.P.	30500706	78.9	34.05	56.06	54.54	46.41	37.78	30.43	51.83		0	
5	25 TPH COOLER #2 W/MULTICLONE & DUAL CHAMBER E.S.P.	30500714	16.193	50.96	87.21	66.91	45.7	39.89	46.88	54.7		0	
6	142 TPH KILN #3 W/DROPOUT BOX& DUAL CHAMBER E.S.P.	30500706	80.54	159.97	48.25	45.26	46.08	23.85	5.75	99.16		0	
7	88 TPH COOLER#3 W/DROPOUT BOX & BAGHOUSE	30500714	252.4	20.76	13.78	22.52	41.75	25.61	30.18	37.22		0	
8	CLINKER HANDLING &STORAGE SYSTEM FOR KILNS #1&2	30500716	0.99	0.97	1.01	1.02	1.01	3.5	2.03	2.02		0	
9	CLINKER HANDLING &STORAGE SYSTEM FOR KILN #3	30500716	3.2	3.12		3.06	3.06	3.3	4.76	4.42		0	
		30510202			3.16		3.06					0	
10	25 TPH FINISH MILL #1 W/AIRSLIDE,CONVEYOR & BGHS	30500717	2.66	2.36	2.55	1.05	4.1	4.37	4.58	5.97			115.7
11	25 STPH FINISH MILL #2 W/AIRSLIDE,CONVEYOR& BGHS	30500717	2.99	3.25	2.78	3.17	5.93	2.58	1.32	2.89			115.7
12	84 TPH FINISH MILL #3 W/AIRSLIDE,CONVEYOR &BGHS	30500717	4.53	4.36	5.39	5.29	9.45	6.39	7.73	7.26		15.58	(153.9 D.6.b)
13	113 TPH FINISH MILL #4 W/AIRSLIDE,CONVEYOR &BGHS	30500717	4	5.58	4.16	3.9	12.23	41.62	45.64	43.64		25.14	
14	CEMENT STORAGE SILOS #1-12 SERVING MILLS#1-4	30500718	10.72	11.66	9.98	11.36	16.16	16.14	16.14	16.14		16.15	
15	CEMENT DISTRIBUTION-RAIL AND TRUCK LOADOUTS	30500719	1.48	1.58	2.26	1.85	1.78	1.88	2.04	1.64		5.64	
16	CEMENT DISTRIBUTION-PACKHOUSE W/2 BAGGERS	30500719	1.68	1.49	1.62	1.65	1.88	1.98	2.18	2.13		5.2	
17	15 TON MILL FOR COAL HANDLING SYSTEM FOR KILN #2.	30510303	4.21									0	
18	FEEDBIN AND ELEVATOR FOR 23 TPH COAL HANDLING SYSTEM.	30500712	8.47	5.4			0.05					0	
19	HOPPER AND WEIGHT FEEDER FOR 23 TPH COAL HANDLING SYSTEM.	30500712	4.21	5.4			0.5					0	
20	125 ton per hour slag dryer	30500613			0.2	0.52	0.44	0.76	0.71	2		7.44	9.12 Ap. Table
21	INSUFFLATION SYSTEM - SERVING KILN SYSTEM 2 AND 3	30500699		2.01								0	
		30500799						4.88	4.88	4.88		0	
22	Nonmetallic Mineral Processing (Aggregate) Plant	30500707							17.98	18.67			35.4
23	Nonmetallic Mineral Processing (Aggregate) Plant - Not Subject to Subpart OOO												
24	CONCRETE BATCH PLANT												
25	READY MIX PLANT												
26	COAL HANDLING SYSTEM												16.73
27	CLINKER HANDLING AND STORAGE												6.15
28	RAW MILL AND PYROPROCESSIN SYSTEM												183.86
29	RAW MATERIAL HANDLING												13.01
30	UNREGULATED UNITS												

FACILITY TOTAL	481.383	318.34	251.05	253.74	268.63	245.57	239.4	369.87	330.3
							304.635		
									25.665

POTENTIAL PM EMISSIONS - TARMAC PENNSUCO 0250020

EU ID	EU DESCRIPTION	scc	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
3	23 TON MILL FOR 23 TPH COAL HANDLING SYSTEM	30510103 Conveyors	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1		0	
		Open Stockpiles											0
4	41 TPH KILN #2 W/DOUBLE CHAMBER E.S.P.	30500706	56.76	56.76	56.76	56.76	56.76	56.76	53.2	53.2	53.2	0	
5	25 TPH COOLER #2 W/MULTICLONE & DUAL CHAMBER E.S.P.	30500714	115.7	115.7	115.7	115.7	115.7	115.7	17.7	17.7	17.7	0	
6	142 TPH KILN #3 W/DROPOUT BOX& DUAL CHAMBER E.S.P.	30500706	186.6	186.6	186.6	186.6	186.6	186.6	186.6	186.6	186.6	0	
7	88 TPH COOLER#3 W/DROPOUT BOX & BAGHOUSE	30500714	62.2	62.2	62.2	62.2	62.2	62.2	62.2	62.2	62.2	0	
8	CLINKER HANDLING & STORAGE SYSTEM FOR KILNS #1&2	30500716										0	
9	CLINKER HANDLING & STORAGE SYSTEM FOR KILN #3	30500716	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7		0	
		30510202											0
10	25 TPH FINISH MILL #1 W/AIRSLIDE, CONVEYOR & BGHS	30500717	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7		8.94	115.7
11	25 STPH FINISH MILL #2 W/AIRSLIDE, CONVEYOR& BGHS	30500717	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7		8.94	115.7
12	84 TPH FINISH MILL #3 W/AIRSLIDE, CONVEYOR & BGHS	30500717	153.9	153.9	153.9	153.9	153.9	153.9	153.9	153.9		35.87	15.58
13	113 TPH FINISH MILL #4 W/AIRSLIDE, CONVEYOR & BGHS	30500717	25.14	25.14	25.14	25.14	25.14	25.14	25.14	25.14		25.14	
14	CEMENT STORAGE SILOS #1-12 SERVING MILLS#1-4	30500718	16.15	16.15	16.15	16.15	16.15	16.15	16.15	16.15		16.15	
15	CEMENT DISTRIBUTION-RAIL AND TRUCK LOADOUTS	30500719	5.64	5.64	5.64	5.64	5.64	5.64	5.64	5.64		5.64	
16	CEMENT DISTRIBUTION-PACKHOUSE W/2 BAGGERS	30500719	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2		5.2	
17	15 TON MILL FOR COAL HANDLING SYSTEM FOR KILN #2.	30510303										0	
18	FEEDBIN AND ELEVATOR FOR 23 TPH COAL HANDLING SYSTEM.	30500712										0	
19	HOPPER AND WEIGHT FEEDER FOR 23 TPH COAL HANDLING SYSTEM.	30500712										0	
20	125 ton per hour slag dryer	30500613			7.44	7.44	7.44	7.44	7.44	7.44		7.44	9.12 Ap. Table
21	INSUFFLATION SYSTEM - SERVING KILN SYSTEM 2 AND 3	30500699										0	
		30500799										0	
22	Nonmetallic Mineral Processing (Aggregate) Plant	30500707										35.4	
23	Nonmetallic Mineral Processing (Aggregate) Plant - Not Subject to Subpart OOO												
24	CONCRETE BLOCK PLANT												
25	READY MIX PLANT												
26	COAL HANDLING SYSTEM											16.73	
27	CLINKER HANDLING AND STORAGE											6.15	
28	RAW MILL AND PYROPROCESSIN SYSTEM											183.86	
29	RAW MATERIAL HANDLING											13.01	
30	UNREGULATED UNITS												
	FINISH MILL NO. 6											38.46	30.44 Ap. Table

FACILITY TOTAL

883.49 883.49 873.83 890.93 890.93 890.93 789.37 789.37
883.49 789.37

406.93

102.295

CLP 10/26/04

POTENTIAL PM EMISSIONS - TARMAC PENNSUCO 0250020

EU ID	EU DESCRIPTION	scc	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
3	23 TON MILL FOR 23 TPH COAL HANDLING SYSTEM	30510103 Conveyors	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1		0	
		Open Stockpiles											0
4	41 TPH KILN #2 W/DOUBLE CHAMBER E.S.P.	30500708	56.76	56.76	56.76	56.76	56.76	56.76	53.2	53.2	53.2	0	
5	25 TPH COOLER #2 W/MULTICLONE & DUAL CHAMBER E.S.P.	30500714	115.7	115.7	115.7	115.7	115.7	115.7	17.7	17.7	17.7	0	
6	142 TPH KILN #3 W/DROPOUT BOX& DUAL CHAMBER E.S.P.	30500706	186.6	186.6	186.6	186.6	186.6	186.6	186.6	186.6	186.6	0	
7	88 TPH COOLER#3 W/DROPOUT BOX & BAGHOUSE	30500714	62.2	62.2	62.2	62.2	62.2	62.2	62.2	62.2	62.2	0	
8	CLINKER HANDLING &STORAGE SYSTEM FOR KILNS #1&2	30500716										0	
9	CLINKER HANDLING &STORAGE SYSTEM FOR KILN #3	30500716	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7		0	
		30510202											0
10	25 TPH FINISH MILL #1 W/AIRSLIDE,CONVEYOR & BGHS	30500717	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7		8.94	115.7
11	25 STPH FINISH MILL #2 W/AIRSLIDE,CONVEYOR& BGHS	30500717	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7		8.94	115.7
12	84 TPH FINISH MILL #3 W/AIRSLIDE,CONVEYOR &BGHS	30500717	153.9	153.9	153.9	153.9	153.9	153.9	153.9	153.9		35.87	15.58
13	113 TPH FINISH MILL #4 W/AIRSLIDE,CONVEYOR &BGHS	30500717	25.14	25.14	25.14	25.14	25.14	25.14	25.14	25.14		25.14	
14	CEMENT STORAGE SILOS #1-12 SERVING MILLS#1-4	30500718	16.15	16.15	16.15	16.15	16.15	16.15	16.15	16.15		16.15	
15	CEMENT DISTRIBUTION-RAIL AND TRUCK LOADOUTS	30500719	5.64	5.64	5.64	5.64	5.64	5.64	5.64	5.64		5.64	
16	CEMENT DISTRIBUTION-PACKHOUSE W/2 BAGGERS	30500719	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2		5.2	
17	15 TON MILL FOR COAL HANDLING SYSTEM FOR KILN #2.	30510303										0	
18	FEEDBIN AND ELEVATOR FOR 23 TPH COAL HANDLING SYSTEM.	30500712										0	
19	HOPPER AND WEIGHT FEEDER FOR 23 TPH COAL HANDLING SYSTEM.	30500712										0	
20	125 ton per hour slag dryer	30500613			7.44	7.44	7.44	7.44	7.44	7.44		7.44	9.12 Ap. Table
21	INSUFFLATION SYSTEM - SERVING KILN SYSTEM 2 AND 3	30500699										0	
		30500799										0	
22	Nonmetallic Mineral Processing (Aggregate) Plant	30500707										35.4	
23	Nonmetallic Mineral Processing (Aggregate) Plant - Not Subject to Subpart OOO												
24	CONCRETE BLOCK PLANT												
25	READY MIX PLANT												
26	COAL HANDLING SYSTEM											16.73	
27	CLINKER HANDLING AND STORAGE											6.15	
28	RAW MILL AND PYROPROCESSIN SYSTEM											183.86	
29	RAW MATERIAL HANDLING											13.01	
30	UNREGULATED UNITS												30.44 Ap. Table
	FINISH MILL NO. 6											38.46	

FACILITY TOTAL

883.49 883.49 873.83 890.93 890.93 890.93 789.37 789.37 406.93
 883.49 789.37

102.295

CLP 10/26/04

POTENTIAL PM EMISSIONS - TARMAC PENNSUCO 0250020

EU ID	EU DESCRIPTION	scc	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
3	23 TON MILL FOR 23 TPH COAL HANDLING SYSTEM	30510103 Conveyors	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1		0	
		Open Stockpiles											0
4	41 TPH KILN #2 W/DOUBLE CHAMBER E.S.P.	30500706	56.76	56.76	56.76	56.76	56.76	56.76	53.2	53.2	53.2	0	
5	25 TPH COOLER #2 W/MULTICLONE & DUAL CHAMBER E.S.P.	30500714	115.7	115.7	115.7	115.7	115.7	115.7	17.7	17.7	17.7	0	
6	142 TPH KILN #3 W/DROPOUT BOX& DUAL CHAMBER E.S.P.	30500706	186.6	186.6	186.6	186.6	186.6	186.6	186.6	186.6	186.6	0	
7	88 TPH COOLER#3 W/DROPOUT BOX & BAGHOUSE	30500714	62.2	62.2	62.2	62.2	62.2	62.2	62.2	62.2	62.2	0	
8	CLINKER HANDLING &STORAGE SYSTEM FOR KILNS #1&2	30500716										0	
9	CLINKER HANDLING &STORAGE SYSTEM FOR KILN #3	30500716	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7		0	
		30510202											0
10	25 TPH FINISH MILL #1 W/AIRSLIDE,CONVEYOR & BGHS	30500717	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7		8.94	115.7
11	25 STPH FINISH MILL #2 W/AIRSLIDE,CONVEYOR& BGHS	30500717	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7		8.94	115.7
12	84 TPH FINISH MILL #3 W/AIRSLIDE,CONVEYOR &BGHS	30500717	153.9	153.9	153.9	153.9	153.9	153.9	153.9	153.9		35.87	15.58
13	113 TPH FINISH MILL #4 W/AIRSLIDE,CONVEYOR &BGHS	30500717	25.14	25.14	25.14	25.14	25.14	25.14	25.14	25.14		25.14	
14	CEMENT STORAGE SILOS #1-12 SERVING MILLS#1-4	30500718	16.15	16.15	16.15	16.15	16.15	16.15	16.15	16.15		16.15	
15	CEMENT DISTRIBUTION-RAIL AND TRUCK LOADOUTS	30500719	5.64	5.64	5.64	5.64	5.64	5.64	5.64	5.64		5.64	
16	CEMENT DISTRIBUTION-PACKHOUSE W/2 BAGGERS	30500719	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2		5.2	
17	15 TON MILL FOR COAL HANDLING SYSTEM FOR KILN #2.	30510303										0	
18	FEEDBIN AND ELEVATOR FOR 23 TPH COAL HANDLING SYSTEM.	30500712										0	
19	HOPPER AND WEIGHT FEEDER FOR 23 TPH COAL HANDLING SYSTEM.	30500712										0	
20	125 ton per hour slag dryer	30500613			7.44	7.44	7.44	7.44	7.44	7.44		7.44	9.12 Ap. Table
21	INSUFFLATION SYSTEM - SERVING KILN SYSTEM 2 AND 3	30500699										0	
		30500799										0	
22	Nonmetallic Mineral Processing (Aggregate) Plant	30500707										35.4	
23	Nonmetallic Mineral Processing (Aggregate) Plant - Not Subject to Subpart OOO												
24	CONCRETE BLOCK PLANT												
25	READY MIX PLANT												
26	COAL HANDLING SYSTEM											16.73	
27	CLINKER HANDLING AND STORAGE											6.15	
28	RAW MILL AND PYROPROCESSIN SYSTEM											183.86	
29	RAW MATERIAL HANDLING											13.01	
30	UNREGULATED UNITS												30.44 Ap. Table
	FINISH MILL NO. 6											38.46	

FACILITY TOTAL

883.49 883.49 873.83 890.93 890.93 890.93 789.37 789.37 406.93
 883.49 789.37

102.295

CLP 10/26/04

POTENTIAL PM EMISSIONS - TARMAC PENNSUCO 0250020

EU ID	EU DESCRIPTION	scc	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
3	23 TON MILL FOR 23 TPH COAL HANDLING SYSTEM	30510103 Conveyors	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1		0	
		Open Stockpiles											0
4	41 TPH KILN #2 W/DOUBLE CHAMBER E.S.P.	30500706	56.76	56.76	56.76	56.76	56.76	56.76	53.2	53.2	53.2	0	
5	25 TPH COOLER #2 W/MULTICLONE & DUAL CHAMBER E.S.P.	30500714	115.7	115.7	115.7	115.7	115.7	115.7	17.7	17.7	17.7	0	
6	142 TPH KILN #3 W/DROPOUT BOX& DUAL CHAMBER E.S.P.	30500706	186.6	186.6	186.6	186.6	186.6	186.6	186.6	186.6	186.6	0	
7	88 TPH COOLER#3 W/DROPOUT BOX & BAGHOUSE	30500714	62.2	62.2	62.2	62.2	62.2	62.2	62.2	62.2	62.2	0	
8	CLINKER HANDLING & STORAGE SYSTEM FOR KILNS #1&2	30500716										0	
9	CLINKER HANDLING & STORAGE SYSTEM FOR KILN #3	30500716	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7		0	
		30510202											0
10	25 TPH FINISH MILL #1 W/AIRSLIDE, CONVEYOR & BGHS	30500717	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7		8.94	115.7
11	25 STPH FINISH MILL #2 W/AIRSLIDE, CONVEYOR& BGHS	30500717	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7		8.94	115.7
12	84 TPH FINISH MILL #3 W/AIRSLIDE, CONVEYOR & BGHS	30500717	153.9	153.9	153.9	153.9	153.9	153.9	153.9	153.9		35.87	15.58
13	113 TPH FINISH MILL #4 W/AIRSLIDE, CONVEYOR & BGHS	30500717	25.14	25.14	25.14	25.14	25.14	25.14	25.14	25.14		25.14	
14	CEMENT STORAGE SILOS #1-12 SERVING MILLS#1-4	30500718	16.15	16.15	16.15	16.15	16.15	16.15	16.15	16.15		16.15	
15	CEMENT DISTRIBUTION-RAIL AND TRUCK LOADOUTS	30500719	5.64	5.64	5.64	5.64	5.64	5.64	5.64	5.64		5.64	
16	CEMENT DISTRIBUTION-PACKHOUSE W/2 BAGGERS	30500719	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2		5.2	
17	15 TON MILL FOR COAL HANDLING SYSTEM FOR KILN #2.	30510303										0	
18	FEEDBIN AND ELEVATOR FOR 23 TPH COAL HANDLING SYSTEM.	30500712										0	
19	HOPPER AND WEIGHT FEEDER FOR 23 TPH COAL HANDLING SYSTEM.	30500712										0	
20	125 ton per hour slag dryer	30500613			7.44	7.44	7.44	7.44	7.44	7.44		7.44	9.12 Ap. Table
21	INSUFFLATION SYSTEM - SERVING KILN SYSTEM 2 AND 3	30500699										0	
		30500799										0	
22	Nonmetallic Mineral Processing (Aggregate) Plant	30500707										35.4	
23	Nonmetallic Mineral Processing (Aggregate) Plant - Not Subject to Subpart OOO												
24	CONCRETE BLOCK PLANT												
25	READY MIX PLANT												
26	COAL HANDLING SYSTEM											16.73	
27	CLINKER HANDLING AND STORAGE											6.15	
28	RAW MILL AND PYROPROCESSIN SYSTEM											183.86	
29	RAW MATERIAL HANDLING											13.01	
30	UNREGULATED UNITS												30.44 Ap. Table
	FINISH MILL NO. 6											38.46	

FACILITY TOTAL

883.49 883.49 873.83 890.93 890.93 890.93 789.37 789.37 406.93
 883.49 789.37

102.295

CLP 10/26/04

POTENTIAL PM EMISSIONS - TARMAC PENNSUCO 0250020

EU ID	EU DESCRIPTION	scc	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
3	23 TON MILL FOR 23 TPH COAL HANDLING SYSTEM	30510103 Conveyors	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1		0	
		Open Stockpiles											0
4	41 TPH KILN #2 W/DOUBLE CHAMBER E.S.P.	30500706	56.76	56.76	56.76	56.76	56.76	56.76	53.2	53.2	53.2	0	
5	25 TPH COOLER #2 W/MULTICLONE & DUAL CHAMBER E.S.P.	30500714	115.7	115.7	115.7	115.7	115.7	115.7	17.7	17.7	17.7	0	
6	142 TPH KILN #3 W/DROPOUT BOX& DUAL CHAMBER E.S.P.	30500708	186.6	186.6	186.6	186.6	186.6	186.6	186.6	186.6	186.6	0	
7	88 TPH COOLER#3 W/DROPOUT BOX & BAGHOUSE	30500714	62.2	62.2	62.2	62.2	62.2	62.2	62.2	62.2	62.2	0	
8	CLINKER HANDLING &STORAGE SYSTEM FOR KILNS #1&2	30500718										0	
9	CLINKER HANDLING &STORAGE SYSTEM FOR KILN #3	30500718	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7		0	
		30510202											0
10	25 TPH FINISH MILL #1 W/AIRSLIDE,CONVEYOR & BGHS	30500717	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7		8.94	115.7
11	25 STPH FINISH MILL #2 W/AIRSLIDE,CONVEYOR& BGHS	30500717	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7		8.94	115.7
12	84 TPH FINISH MILL #3 W/AIRSLIDE,CONVEYOR &BGHS	30500717	153.9	153.9	153.9	153.9	153.9	153.9	153.9	153.9		35.87	15.58
13	113 TPH FINISH MILL #4 W/AIRSLIDE,CONVEYOR &BGHS	30500717	25.14	25.14	25.14	25.14	25.14	25.14	25.14	25.14		25.14	
14	CEMENT STORAGE SILOS #1-12 SERVING MILLS#1-4	30500718	16.15	16.15	16.15	16.15	16.15	16.15	16.15	16.15		16.15	
15	CEMENT DISTRIBUTION-RAIL AND TRUCK LOADOUTS	30500719	5.64	5.64	5.64	5.64	5.64	5.64	5.64	5.64		5.64	
16	CEMENT DISTRIBUTION-PACKHOUSE W/2 BAGGERS	30500719	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2		5.2	
17	15 TON MILL FOR COAL HANDLING SYSTEM FOR KILN #2.	30510303										0	
18	FEEDBIN AND ELEVATOR FOR 23 TPH COAL HANDLING SYSTEM.	30500712										0	
19	HOPPER AND WEIGHT FEEDER FOR 23 TPH COAL HANDLING SYSTEM.	30500712										0	
20	125 ton per hour slag dryer	30500613			7.44	7.44	7.44	7.44	7.44	7.44		7.44	9.12 Ap. Table
21	INSUFFLATION SYSTEM - SERVING KILN SYSTEM 2 AND 3	30500699										0	
		30500799										0	
22	Nonmetallic Mineral Processing (Aggregate) Plant	30500707										35.4	
23	Nonmetallic Mineral Processing (Aggregate) Plant - Not Subject to Subpart OOO												
24	CONCRETE BLOCK PLANT												
25	READY MIX PLANT												
26	COAL HANDLING SYSTEM											16.73	
27	CLINKER HANDLING AND STORAGE											6.15	
28	RAW MILL AND PYROPROCESSIN SYSTEM											183.86	
29	RAW MATERIAL HANDLING											13.01	
30	UNREGULATED UNITS												30.44 Ap. Table
	FINISH MILL NO. 6											38.46	

FACILITY TOTAL

883.49 883.49 873.83 890.93 890.93 890.93 789.37 789.37 406.93
 883.49 789.37

102.295

CLP 10/26/04

POTENTIAL PM EMISSIONS - TARMAC PENNSUCO 0250020

EU ID	EU DESCRIPTION	scc	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
3	23 TON MILL FOR 23 TPH COAL HANDLING SYSTEM	30510103 Conveyors	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1		0	
		Open Stockpiles											0
4	41 TPH KILN #2 W/DOUBLE CHAMBER E.S.P.	30500706	56.76	56.76	56.76	56.76	56.76	56.76	53.2	53.2	53.2	0	
5	25 TPH COOLER #2 W/MULTICLONE & DUAL CHAMBER E.S.P.	30500714	115.7	115.7	115.7	115.7	115.7	115.7	17.7	17.7	17.7	0	
6	142 TPH KILN #3 W/DROPOUT BOX& DUAL CHAMBER E.S.P.	30500706	186.6	186.6	186.6	186.6	186.6	186.6	186.8	186.6	186.6	0	
7	88 TPH COOLER#3 W/DROPOUT BOX & BAGHOUSE	30500714	62.2	62.2	62.2	62.2	62.2	62.2	62.2	62.2	62.2	0	
8	CLINKER HANDLING & STORAGE SYSTEM FOR KILNS #1&2	30500716										0	
9	CLINKER HANDLING & STORAGE SYSTEM FOR KILN #3	30500716	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7		0	
		30510202											0
10	25 TPH FINISH MILL #1 W/AIRSLIDE, CONVEYOR & BGHS	30500717	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7		8.94	115.7
11	25 STPH FINISH MILL #2 W/AIRSLIDE, CONVEYOR& BGHS	30500717	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7		8.94	115.7
12	84 TPH FINISH MILL #3 W/AIRSLIDE, CONVEYOR & BGHS	30500717	153.9	153.9	153.9	153.9	153.9	153.9	153.9	153.9		35.87	15.58
13	113 TPH FINISH MILL #4 W/AIRSLIDE, CONVEYOR & BGHS	30500717	25.14	25.14	25.14	25.14	25.14	25.14	25.14	25.14		25.14	
14	CEMENT STORAGE SILOS #1-12 SERVING MILLS#1-4	30500718	16.15	16.15	16.15	16.15	16.15	16.15	16.15	16.15		16.15	
15	CEMENT DISTRIBUTION-RAIL AND TRUCK LOADOUTS	30500719	5.64	5.64	5.64	5.64	5.64	5.64	5.64	5.64		5.64	
16	CEMENT DISTRIBUTION-PACKHOUSE W/2 BAGGERS	30500719	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2		5.2	
17	15 TON MILL FOR COAL HANDLING SYSTEM FOR KILN #2.	30510303										0	
18	FEEDBIN AND ELEVATOR FOR 23 TPH COAL HANDLING SYSTEM.	30500712										0	
19	HOPPER AND WEIGHT FEEDER FOR 23 TPH COAL HANDLING SYSTEM.	30500712										0	
20	125 ton per hour slag dryer	30500613			7.44	7.44	7.44	7.44	7.44	7.44		7.44	9.12 Ap. Table
21	INSUFFLATION SYSTEM - SERVING KILN SYSTEM 2 AND 3	30500699										0	
		30500799										0	
22	Nonmetallic Mineral Processing (Aggregate) Plant	30500707										35.4	
23	Nonmetallic Mineral Processing (Aggregate) Plant - Not Subject to Subpart OOO												
24	CONCRETE BLOCK PLANT												
25	READY MIX PLANT												
26	COAL HANDLING SYSTEM											16.73	
27	CLINKER HANDLING AND STORAGE											6.15	
28	RAW MILL AND PYROPROCESSIN SYSTEM											183.86	
29	RAW MATERIAL HANDLING											13.01	
30	UNREGULATED UNITS												30.44 Ap. Table
	FINISH MILL NO. 6											38.46	

FACILITY TOTAL

883.49	883.49	873.83	890.93	890.93	890.93	789.37	789.37	406.93
883.49						789.37		

102.295

CLP 10/26/04

POTENTIAL PM EMISSIONS - TARMAC PENNSUCO 0250020

EU ID	EU DESCRIPTION	scc	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
3	23 TON MILL FOR 23 TPH COAL HANDLING SYSTEM	30510103 Conveyors	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1		0	
		Open Stockpiles											0
4	41 TPH KILN #2 W/DOUBLE CHAMBER E.S.P.	30500706	56.76	56.76	56.76	56.76	56.76	56.76	53.2	53.2	53.2	0	
5	25 TPH COOLER #2 W/MULTICLONE & DUAL CHAMBER E.S.P.	30500714	115.7	115.7	115.7	115.7	115.7	115.7	17.7	17.7	17.7	0	
6	142 TPH KILN #3 W/DROPOUT BOX& DUAL CHAMBER E.S.P.	30500706	186.6	186.6	186.6	186.6	186.6	186.6	186.6	186.6	186.6	0	
7	88 TPH COOLER#3 W/DROPOUT BOX & BAGHOUSE	30500714	62.2	62.2	62.2	62.2	62.2	62.2	62.2	62.2	62.2	0	
8	CLINKER HANDLING & STORAGE SYSTEM FOR KILNS #1&2	30500716										0	
9	CLINKER HANDLING & STORAGE SYSTEM FOR KILN #3	30500716	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7		0	
		30510202											0
10	25 TPH FINISH MILL #1 W/AIRSLIDE, CONVEYOR & BGHS	30500717	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7		8.94	115.7
11	25 STPH FINISH MILL #2 W/AIRSLIDE, CONVEYOR& BGHS	30500717	115.7	115.7	115.7	115.7	115.7	115.7	115.7	115.7		8.94	115.7
12	84 TPH FINISH MILL #3 W/AIRSLIDE, CONVEYOR & BGHS	30500717	153.9	153.9	153.9	153.9	153.9	153.9	153.9	153.9		35.87	15.58
13	113 TPH FINISH MILL #4 W/AIRSLIDE, CONVEYOR & BGHS	30500717	25.14	25.14	25.14	25.14	25.14	25.14	25.14	25.14		25.14	
14	CEMENT STORAGE SILOS #1-12 SERVING MILLS#1-4	30500718	16.15	16.15	16.15	16.15	16.15	16.15	16.15	16.15		16.15	
15	CEMENT DISTRIBUTION-RAIL AND TRUCK LOADOUTS	30500719	5.64	5.64	5.64	5.64	5.64	5.64	5.64	5.64		5.64	
16	CEMENT DISTRIBUTION-PACKHOUSE W/2 BAGGERS	30500719	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2		5.2	
17	15 TON MILL FOR COAL HANDLING SYSTEM FOR KILN #2.	30510303										0	
18	FEEDBIN AND ELEVATOR FOR 23 TPH COAL HANDLING SYSTEM.	30500712										0	
19	HOPPER AND WEIGHT FEEDER FOR 23 TPH COAL HANDLING SYSTEM.	30500712										0	
20	125 ton per hour slag dryer	30500613			7.44	7.44	7.44	7.44	7.44	7.44		7.44	9.12 Ap. Table
21	INSUFFLATION SYSTEM - SERVING KILN SYSTEM 2 AND 3	30500699										0	
		30500799										0	
22	Nonmetallic Mineral Processing (Aggregate) Plant	30500707										35.4	
23	Nonmetallic Mineral Processing (Aggregate) Plant - Not Subject to Subpart OOO												
24	CONCRETE BLOCK PLANT												
25	READY MIX PLANT												
26	COAL HANDLING SYSTEM											16.73	
27	CLINKER HANDLING AND STORAGE											6.15	
28	RAW MILL AND PYROPROCESSIN SYSTEM											183.86	
29	RAW MATERIAL HANDLING											13.01	
30	UNREGULATED UNITS												30.44 Ap. Table
	FINISH MILL NO. 6											38.46	

FACILITY TOTAL

883.49 883.49 873.83 890.93 890.93 890.93 789.37 789.37 406.93
 883.49 789.37

102.295

CLP 10/26/04

0250020 Tarmac-Pennsuco Cement VE Compliance Test Report (Completed 1/1/99-9/20/04)

Emission Unit	Permit	Poll/VE	Test Dt	Next Test Dt	Result
003 - 23 Ton Mill For 23 Tph Coal Handling System	0250020008AC	VE05	12/16/2003	12/30/2004	P
004 - 41 Tph Kiln #2 W/Double Chamber E.S.P.	0250020007AC	VE20	5/21/2003	12/30/2003	P
004 - 41 Tph Kiln #2 W/Double Chamber E.S.P.	0250020007AC	VE20	4/25/2002	12/30/2002	P
004 - 41 Tph Kiln #2 W/Double Chamber E.S.P.	0250020007AC	VE20	6/22/2001	6/22/2002	P
004 - 41 Tph Kiln #2 W/Double Chamber E.S.P.	0250020007AC	VE20	8/16/2000	12/30/2001	P
005 - 25 Tph Cooler #2 W/Multiclone & Dual Chamber E.S.P.	0250020006AC	VE20	5/7/2003		P
005 - 25 Tph Cooler #2 W/Multiclone & Dual Chamber E.S.P.	0250020006AC	VE20	5/1/2002		P
005 - 25 Tph Cooler #2 W/Multiclone & Dual Chamber E.S.P.	0250020006AC	VE20	6/19/2001	6/22/2002	P
005 - 25 Tph Cooler #2 W/Multiclone & Dual Chamber E.S.P.	0250020006AC	VE20	4/12/1999	4/11/2000	P
006 - 142 Tph Kiln #3 W/Dropout Box& Dual Chamber E.S.P.	AO13238048	VE20	5/20/2003	12/30/2003	P
006 - 142 Tph Kiln #3 W/Dropout Box& Dual Chamber E.S.P.	AO13238048	VE20	4/23/2002	12/30/2002	P
006 - 142 Tph Kiln #3 W/Dropout Box& Dual Chamber E.S.P.	AO13238048	VE20	6/21/2001	12/31/2002	P
007 - 88 Tph Cooler#3 W/Dropout Box & Baghouse	AO13238048	VE20	5/6/2003	12/30/2003	P
007 - 88 Tph Cooler#3 W/Dropout Box & Baghouse	AO13238048	VE20	6/27/2002	12/30/2002	P
007 - 88 Tph Cooler#3 W/Dropout Box & Baghouse	AO13238048	VE20	6/21/2001	6/22/2002	P
007 - 88 Tph Cooler#3 W/Dropout Box & Baghouse	AO13238048	VE20	6/21/2001	6/22/2002	P
007 - 88 Tph Cooler#3 W/Dropout Box & Baghouse	AO13238048	VE20	4/12/1999	12/30/2000	P
008 - Clinker Handling &Storage System For Kilns #1&2	0250020008AC	VE20	12/11/2003	12/30/2004	P
020 - 125 Ton Per Hour Slag Dryer	0250020001AC	VE10	4/2/2003	7/1/2004	P
020 - 125 Ton Per Hour Slag Dryer	0250020001AC	VE10	6/27/2002	7/1/2003	P
020 - 125 Ton Per Hour Slag Dryer	0250020001AC	VE10	6/20/2001	6/22/2002	P
020 - 125 Ton Per Hour Slag Dryer	0250020001AC	VE10	4/14/1999	7/1/2000	P

Tarmac-Pennsuco Cement 0250020 Compliance Test Report (Completed 1/1/99-9/16/04)

Emission Unit	Permit	STyp	Audit Type	Poll/VE	Test Dt	Next Test Dt	Result
004 - 41 Tph Kiln #2 W/Double Chamber E.S.P.	0250020007AC	M1		2 CO	5/21/2003	9/30/2004	P
004 - 41 Tph Kiln #2 W/Double Chamber E.S.P.	0250020007AC	M1		2 CO	4/25/2002	9/30/2003	P
004 - 41 Tph Kiln #2 W/Double Chamber E.S.P.	0250020007AC	M1		2 CO	6/22/2001	6/22/2002	P
004 - 41 Tph Kiln #2 W/Double Chamber E.S.P.	0250020007AC	M1		2 NOX	5/21/2003	2/27/2004	P
004 - 41 Tph Kiln #2 W/Double Chamber E.S.P.	0250020007AC	M1		2 NOX	4/25/2002	2/27/2003	P
004 - 41 Tph Kiln #2 W/Double Chamber E.S.P.	0250020007AC	M1		2 NOX	6/22/2001	6/22/2002	P
004 - 41 Tph Kiln #2 W/Double Chamber E.S.P.	0250020007AC	M1		2 PM	4/25/2002	2/27/2003	P
004 - 41 Tph Kiln #2 W/Double Chamber E.S.P.	0250020007AC	M1		2 PM	6/22/2001	6/22/2002	P
004 - 41 Tph Kiln #2 W/Double Chamber E.S.P.	0250020007AC	M1		2 PM	8/16/2000	2/27/2001	P
004 - 41 Tph Kiln #2 W/Double Chamber E.S.P.	0250020007AC	M1		2 PM10	4/25/2002	9/30/2003	P
004 - 41 Tph Kiln #2 W/Double Chamber E.S.P.	0250020007AC	M1		2 PM10	6/22/2001	6/22/2002	P
004 - 41 Tph Kiln #2 W/Double Chamber E.S.P.	0250020007AC	M1		2 SAM	4/25/2002	9/30/2003	P
004 - 41 Tph Kiln #2 W/Double Chamber E.S.P.	0250020007AC	M1		2 SAM	6/22/2001	6/22/2002	P
004 - 41 Tph Kiln #2 W/Double Chamber E.S.P.	0250020007AC	M1		2 SO2	5/21/2003	9/30/2004	P
004 - 41 Tph Kiln #2 W/Double Chamber E.S.P.	0250020007AC	M1		2 SO2	4/25/2002	9/30/2003	P
004 - 41 Tph Kiln #2 W/Double Chamber E.S.P.	0250020007AC	M1		2 SO2	6/22/2001	6/22/2002	P
004 - 41 Tph Kiln #2 W/Double Chamber E.S.P.	0250020007AC	M1		2 SO2	8/16/2000	2/27/2001	P
004 - 41 Tph Kiln #2 W/Double Chamber E.S.P.	0250020007AC	M1		2 VOC	5/21/2003	9/30/2004	P
004 - 41 Tph Kiln #2 W/Double Chamber E.S.P.	0250020007AC	M1		2 VOC	4/25/2002	9/30/2003	P
004 - 41 Tph Kiln #2 W/Double Chamber E.S.P.	0250020007AC	M1		2 VOC	6/22/2001	6/22/2002	P
005 - 25 Tph Cooler #2 W/Multiclone & Dual Chamber E.S.P.	0250020006AC	M1		2 PM	5/7/2003	12/30/2003	P
005 - 25 Tph Cooler #2 W/Multiclone & Dual Chamber E.S.P.	0250020006AC	M1		3 PM	5/2/2002	12/30/2002	P
005 - 25 Tph Cooler #2 W/Multiclone & Dual Chamber E.S.P.	0250020006AC	M1		3 PM	6/19/2001	6/22/2002	P
005 - 25 Tph Cooler #2 W/Multiclone & Dual Chamber E.S.P.	0250020006AC	M1		2 PM	4/12/1999	12/30/2000	P
005 - 25 Tph Cooler #2 W/Multiclone & Dual Chamber E.S.P.	0250020006AC	M1		2 PM	10/22/1998	12/30/1999	P
006 - 142 Tph Kiln #3 W/Dropout Box& Dual Chamber E.S.P.	AO13238048	1B		3 NOX	5/20/2003		P
006 - 142 Tph Kiln #3 W/Dropout Box& Dual Chamber E.S.P.	AO13238048	1B		2 NOX	4/24/2002		P

006 - 142 Tph Kiln #3 W/Dropout Box& Dual Chamber E.S.P.	AO13238048	1B	2	NOX	6/21/2001	12/31/2002	P
006 - 142 Tph Kiln #3 W/Dropout Box& Dual Chamber E.S.P.	AO13238048	1B	3	PM	5/20/2003	12/31/2003	P
006 - 142 Tph Kiln #3 W/Dropout Box& Dual Chamber E.S.P.	AO13238048	1B	2	PM	4/24/2002	12/31/2002	P
006 - 142 Tph Kiln #3 W/Dropout Box& Dual Chamber E.S.P.	AO13238048	1B	2	PM	6/21/2001	12/31/2002	P
006 - 142 Tph Kiln #3 W/Dropout Box& Dual Chamber E.S.P.	AO13238048	1B	3	SO2	5/20/2003	12/31/2003	P
006 - 142 Tph Kiln #3 W/Dropout Box& Dual Chamber E.S.P.	AO13238048	1B	2	SO2	4/24/2002	12/31/2002	P
006 - 142 Tph Kiln #3 W/Dropout Box& Dual Chamber E.S.P.	AO13238048	1B	2	SO2	6/21/2001	12/31/2002	P
007 - 88 Tph Cooler#3 W/Dropout Box & Baghouse	AO13238048	1B	3	PM	5/6/2003	12/30/2003	P
007 - 88 Tph Cooler#3 W/Dropout Box & Baghouse	AO13238048	1B	2	PM	6/27/2002	12/30/2002	P
007 - 88 Tph Cooler#3 W/Dropout Box & Baghouse	AO13238048	1B	2	PM	6/21/2001	6/22/2002	P
007 - 88 Tph Cooler#3 W/Dropout Box & Baghouse	AO13238048	1B	2	PM	4/12/1999	12/30/2000	P
020 - 125 Ton Per Hour Slag Dryer	0250020001AC	1A	2	PM	4/2/2003	7/1/2004	P
020 - 125 Ton Per Hour Slag Dryer	0250020001AC	1A	2	PM	6/27/2002	7/1/2003	P
020 - 125 Ton Per Hour Slag Dryer	0250020001AC	1A	3	PM	6/20/2001	6/22/2002	P
020 - 125 Ton Per Hour Slag Dryer	0250020001AC	1A	2	PM	4/12/1999	7/1/2000	P

Table 1- Emissions Unit Identification & Summary of Air Pollutant Standards for the Nonmetallic Mineral Processing Plant

NOTE: TP = Transfer Point		Size/	E.U. ID	NSPS	VE	F.A.C./CFR	
ID	Equipment	Capacity	No.	Source?	Limit	Rule Applicability	Process Description

Crusher Building 1

Y10	Truck Dump Hopper	280 TPH	025	N	20%	62-296.320(4)(b)1	Primary Crushing/Screening
Y11	Screen	168 ft ²	025	N	20%	62-296.320(4)(b)1	Primary Crushing/Screening
Y12	Screen	112 ft ²	025	N	20%	62-296.320(4)(b)1	Primary Crushing/Screening
Y13	Crusher	800 TPH	025	N	20%	62-296.320(4)(b)1	Primary Crushing/Screening
Y15	Belt Conveyor	72 inches	025	N	20%	62-296.320(4)(b)1	Primary Crushing/Screening

Transfer Tower #1

Y30	Surge Bin	75 TPH	025	N	20%	62-296.320(4)(b)1	Primary Crushing/Screening
Y31	Vibrating Feeder (TP Y31 to Y33)	2500 TPH	025	N	20%	62-296.320(4)(b)1	Primary Crushing/Screening
Y32	Vibrating Feeder (TP Y32 to Y33)	2500 TPH	025	N	20%	62-296.320(4)(b)1	Primary Crushing/Screening

Transfer Tower #2

Y33	Belt Conveyor (TP Y33 to Y34)	54 inches	025	N	20%	62-296.320(4)(b)1	Primary Crushing/Screening
Y34	Belt Conveyor (TP Y34 to Y35)	54 inches	025	N	20%	62-296.320(4)(b)1	Primary Crushing/Screening

Transfer Tower #3

Y35	Belt Conveyor (TP Y35 to Y36)	54 inches	025	N	20%	62-296.320(4)(b)1	Primary Crushing/Screening
Y36	Belt Conveyor (to Feed Storage Piles)	54 inches	025	N	20%	62-296.320(4)(b)1	Primary Crushing/Screening

Aggregate Plant Feed Storage Pile			025	N	20%	62-296.320(4)(b)1	Primary Crushing/Screening
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Cement Plant Feed Pile		35,000 TPH	025	N	20%	62-296.320(4)(b)1	Primary Crushing/Screening
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Aggregate & Cement Plant Feed Storage Pile			025	N	20%	62-296.320(4)(b)1	Primary Crushing/Screening
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Y48	Belt Conveyor (TP Y48 to Y49)	48 inches	025	N	20%	62-296.320(4)(b)1	Primary Crushing/Screening
Y49	Belt Conveyor (TP Y49 to Y50/Y60)	48 inches	025	N	20%	62-296.320(4)(b)1	Primary Crushing/Screening
Y110	Belt Conveyor (TP Y110 to Y49)	48 inches	025	N	20%	62-296.320(4)(b)1	Primary Crushing/Screening

Secondary Tower/Transfer Tower #5

Y50	Screen (TP Y50 to Y51/Y500)	144 ft ²	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
Y51	Crusher (TP Y51 to Y52)	600 TPH	024	Y	15%	40 CFR 60.672(c)	Secondary/Tertiary/Screening
Y52	Belt Conveyor (TP Y52 to Y53/Y55)	48 inches	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
Y60	Screen (TP Y60 to Y61/Y62/Y500)	144 ft ²	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
Y61	Crusher (TP Y61 to Y62)	600 TPH	024	Y	15%	40 CFR 60.672(c)	Secondary/Tertiary/Screening
Y62	Belt Conveyor (TP Y62 to Y63/Y65)	48 inches	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening

NOTE: TP = Transfer Point		Size/	E.U. ID	NSPS	VE	F.A.C./CFR	
ID	Equipment	Capacity	No.	Source?	Limit	Rule Applicability	Process Description

Tower #6 - Screening and Crushing

Y53	Screen (TP Y53 to Y54/Y571/Y71A)	168 ft ²	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
Y54	Crusher (TP Y54 to Y57)	400 TPH	024	Y	15%	40 CFR 60.672(c)	Secondary/Tertiary/Screening
Y55	Screen (TP Y55 to Y56/Y71/Y71A)	168 ft ²	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
Y56	Crusher (TP Y56 to Y57)	500 TPH	024	Y	15%	40 CFR 60.672(c)	Secondary/Tertiary/Screening
Y57	Belt Conveyor (TP Y57 to Y58)	42 inches	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
Y58	Belt Conveyor (TP Y58 to Y52/C-1)	36 inches	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
Y62A	Stick Conveyor (Y62A to Y62)	42 inches	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
Y63	Screen (TP Y63 to Y71/Y71A/SP 1)	168 ft ²	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
Y64	Crusher (TP Y64 to Y67)	500 TPH	024	Y	15%	40 CFR 60.672(c)	Secondary/Tertiary/Screening
Y65	Screen (TP Y65 to Y71/Y71A/SP 1)	168 ft ²	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
Y66	Crusher (TP Y66 to Y67)	400 TPH	024	Y	15%	40 CFR 60.672(c)	Secondary/Tertiary/Screening
Y67	Belt Conveyor (TP Y67 to Y68)	42 inches	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
Y68	Belt Conveyor (TP Y68 to Y62/C-1)	36 inches	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
Y71	Belt Conveyor (TP Y71 to Y73/Y80)	42 inches	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
Y71A	Belt Conveyor (TP Y71A to Y73/Y80)	42 inches	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
C-1	Belt Conveyor (TP C-1 to C-2)	48 inches	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
C-2	Belt Conveyor	48 inches	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening

Tower #6A

	Screens (TP to C-3/C-5/C-9)	192 ft ²	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
C-3	Belt Conveyor (TP C-3 to C-4)	36 inches	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
C-4	Belt Conveyor (Recycle back to Y50/Y60)	36 inches	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
C-5	Belt Conveyor (TP C-5 to C-6/C-8)	36 inches	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
C-6	Belt Conveyor (TP C-6 to C-7)	36 inches	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
C-7	Belt Conveyor	36 inches	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening

C-8	Belt Conveyor (TP C-8 to Y71A)	36 inches	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
YC-8A	Belt Conveyor (to Reclaim Hopper)	24 inches	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
C-9	Belt Conveyor (TP C-9 to C-10)	36 inches	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
C-10	Belt Conveyor (TP C-10 to C-11)	36 inches	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
C-11	Belt Conveyor	36 inches	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
	Screens (TP to C-3/C-5/C-9/SP 2)	192 ft ²	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
Y500	Stick Conveyor (TP Y500 to Y501)	42 inches	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
Y501	Radial Stacker (TP Y501 to Y502)	42 inches	025	N	20%	62-296.320(4)(b)1	Secondary/Tertiary/Screening
Y502	Elevated Conveyor	36 inches	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening

NOTE: TP = Transfer Point		Size/	E.U. ID	NSPS	VE	F.A.C./CFR	
ID	Equipment	Capacity	No.	Source?	Limit	Rule Applicability	Process Description

Transfer Tower #7

Y73	Belt Conveyor (TP Y73 to Y74)	42 inches	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
Y74	Radial Stacker	48 inches	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening

Cement Plant Blend Pile	--	025	N	20%	62-296.320(4)(b)1	Secondary/Tertiary/Screening
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Y76	Belt Conveyor (TP Y76 to Y78)	36 inches	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
Y76.1	Belt Conveyor (TP Y76.1 to Y76)	36 inches	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
	Hoppers	--	025	N	20%	62-296.320(4)(b)1	Secondary/Tertiary/Screening
Y77	Belt Conveyor (TP Y77 to Y79)	36 inches	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
Y77.1	Belt Conveyor (TP Y77.1 to Y77)	36 inches	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
Y78	Belt Conveyor (TP Y78 to Y79)	36 inches	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening
Y80	Belt Conveyor (TP Y80 to 80/80A/81)	42 inches	024	Y	0%	40 CFR 60.672(h)(1)	Secondary/Tertiary/Screening

Transfer Tower #9

Y79	Belt Conveyor (TP Y79 to Y102/Y210A)	36 inches	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
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Transfer Tower #10

Y102	Belt Conveyor	36 inches	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
Y210A	Belt Conveyor (TP Y210A to Y212W/Y212E)	30 inches	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant

Transfer Tower #80, 80A, 80B

80	Screen (TP 80 to 85/90A/95)	160 ft ²	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
80A	Screen (TP 80A to 84/89/95A)	160 ft ²	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
80B	Screen (80B to 95B/406/85/90A)	160 ft ²	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
81	Belt Conveyor (TP 81 to 80B)	36 inches	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
84	Belt Conveyor (TP 84 to 85/85A)	24 inches	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
85A	Belt Conveyor	36 inches	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
85B	Belt Conveyor	42 inches	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
89	Belt Conveyor (TP 89 to 90A)	24 inches	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
95	Belt Conveyor (TP 95 to 100)	24 inches	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
95A	Belt Conveyor (TP 95A to 100A)	24 inches	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
95B	Belt Conveyor	24 inches	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant

GR 57 (Storage Pile)	--	025	N	20%	62-296.320(4)(b)1	Finishing Plant
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Transfer Tower #100, 100A, 100B

100	Screen (100 to 105/110/115/117)	160 ft ²	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
100A	Screen (TP 100A to 104/109/114/117)	160 ft ²	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
100B	Screen (100B to 101/105/110/117)	160 ft ²	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant

NOTE: TP = Transfer Point							
ID	Equipment	Size/ Capacity	E.U. ID No.	NSPS Source?	VE Limit	F.A.C./CFR Rule Applicability	Process Description
101	Belt Conveyor (TP 101 to 115)	24 inches	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
104	Belt Conveyor (TP 104 to 105)	24 inches	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
109	Belt Conveyor (TP 109 to 109A)	24 inches	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
109A	Belt Conveyor	24 inches	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
114	Belt Conveyor (TP 114 to 115)	24 inches	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant

GR 16 (Storage Pile)	--	025	N	20%	62-296.320(4)(b)1	Finishing Plant
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85	Belt Conveyor	24 inches	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
85B	Belt Conveyor	42 inches	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
90A	Belt Conveyor (TP 90A to 90B/90C)	24 inches	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
90B	Belt Conveyor	24 inches	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
90C	Belt Conveyor	24 inches	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
105	Belt Conveyor	24 inches	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
110	Belt Conveyor	24 inches	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
115	Belt Conveyor	24 inches	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
210	Belt Conveyor (TP 210 to 212E/212W)	42 inches	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant

Product Storage Piles

	Pile "1/4", Basic 1 (TP to Y210)	--	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
	Pile "3/8", Basic 2 (TP to Y210)	--	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
	Pile "1/2", Basic 3 (TP to Y210)	--	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
	Pile "3/4", Basic 4 (TP to Y210)	--	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
	Pile "1", Basic 5 (TP to Y210)	--	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
	Pile Ballast, Basic 7 (TP to Y210)	--	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant

Transfer Tower #210

212E	Belt Conveyor (TP 212E to 215E)	42 inches	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
212W	Belt Conveyor	42 inches	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant

Transfer Tower #215

215E	Screens (TP 215E to 220/385N/385S/410)	160 ft ²	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
215W	Screen (TP 215W to 220/385S/385N/410)	192 ft ²	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
220	Belt Conveyor (TP 220 to 225)	36 inches	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
385N	Belt Conveyor (TP 385N to 385)	30 inches	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
385S	Belt Conveyor (TP 385S to 385)	30 inches	024	Y	0%	40 CFR 60.672(h)(1)	Finishing Plant
225	Five Position Turn Head (TP to 230)	--	025	N	20%	62-296.320(4)(b)1	Load Out
230	Belt Conveyor (to Storage Bins)	42 inches	024	Y	0%	40 CFR 60.672(h)(1)	Load Out
	Storage Bins	--	025	N	20%	62-296.320(4)(b)1	Load Out
290	Belt Conveyor (TP 290 to 296)	42 inches	024	Y	0%	40 CFR 60.672(h)(1)	Load Out
296	Belt Conveyor (TP 296 to 300)	24 inches	024	Y	0%	40 CFR 60.672(h)(1)	Load Out
295	Belt Conveyor (TP 295 to 297)	42 inches	024	Y	0%	40 CFR 60.672(h)(1)	Load Out
297	Belt Conveyor	42 inches	024	Y	0%	40 CFR 60.672(h)(1)	Load Out

NOTE: TP = Transfer Point							
ID	Equipment	Size/ Capacity	E.U. ID No.	NSPS Source?	VE Limit	F.A.C./CFR Rule Applicability	Process Description
300	Belt Conveyor	24 inches	024	Y	0%	40 CFR 60.672(h)(1)	Load Out
303	Belt Conveyor	42 inches	024	Y	0%	40 CFR 60.672(h)(1)	Load Out
385	Belt Conveyor	24 inches	024	Y	0%	40 CFR 60.672(h)(1)	Load Out
	Scalpings Pile	--	025	N	20%	62-296.320(4)(b)1	Load Out
390	Belt Conveyor (TP 390 to 395)	36 inches	024	Y	0%	40 CFR 60.672(h)(1)	Load Out
395	Shuttle (to Storage Bins)	36 inches	024	Y	0%	40 CFR 60.672(h)(1)	Load Out
	Railcar Loading	--	025	N	20%	62-296.320(4)(b)1	Load Out
	Truck Loading	--	025	N	20%	62-296.320(4)(b)1	Load Out

Sand Plant

340	Belt Conveyor (TP 340 to 355)	30 inches	024	Y	0%	40 CFR 60.672(h)(1)	Sand Plant
345	Belt Conveyor (TP 345 to 360)	24 inches	024	Y	0%	40 CFR 60.672(h)(1)	Sand Plant
345A	Belt Conveyor (TP 345A to 360)	36 inches	024	Y	0%	40 CFR 60.672(h)(1)	Sand Plant
350	Belt Conveyor (TP 350 to 370)	24 inches	024	Y	0%	40 CFR 60.672(h)(1)	Sand Plant
355	Belt Conveyor (to Storage Piles)	24 inches	024	Y	0%	40 CFR 60.672(h)(1)	Sand Plant
360	Belt Conveyor (to Storage Piles)	36 inches	024	Y	0%	40 CFR 60.672(h)(1)	Sand Plant
370	Belt Conveyor (to Storage Piles)	24 inches	024	Y	0%	40 CFR 60.672(h)(1)	Sand Plant
	Sand Storage Piles	--	025	N	20%	62-296.320(4)(b)1	Sand Plant
390	Belt Conveyor (TP 390 to 395)	36 inches	024	Y	0%	40 CFR 60.672(h)(1)	Sand Plant
	Sand Hopper	--	025	N	20%	62-296.320(4)(b)1	Sand Plant
620	Screw Dehydrator (TP to 640)	228 ft ²	025	N	20%	62-296.320(4)(b)1	Sand Plant
625	Screw Dehydrator (TP to 645)	192.5 ft ²	025	N	20%	62-296.320(4)(b)1	Sand Plant
630	Screw Dehydrator (TP to 650)	228 ft ²	025	N	20%	62-296.320(4)(b)1	Sand Plant
635	Screw Dehydrator (TP to 655)	192.5 ft ²	025	N	20%	62-296.320(4)(b)1	Sand Plant
640	Belt Conveyor (TP 640 to 340/345/345A)	36 inches	024	Y	0%	40 CFR 60.672(h)(1)	Sand Plant
645	Belt Conveyor (TP 645 to 340/345/350)	24 inches	024	Y	0%	40 CFR 60.672(h)(1)	Sand Plant
650	Belt Conveyor (TP 650 to 340/345/350)	24 inches	024	Y	0%	40 CFR 60.672(h)(1)	Sand Plant
655	Belt Conveyor (TP 655 to 340/345/350)	24 inches	024	Y	0%	40 CFR 60.672(h)(1)	Sand Plant

Attachment "40 CFR 60, Subpart A"

General Provisions

40 CFR 60.1 Applicability.

(a) Except as provided in 40 CFR 60 subparts B and C, the provisions of this part apply to the owner or operator of any stationary source which contains an affected facility, the construction or modification of which is commenced after the date of publication in this part of any standard (or, if earlier, the date of publication of any proposed standard) applicable to that facility.

(b) Any new or revised standard of performance promulgated pursuant to section 111(b) of the Act shall apply to the owner or operator of any stationary source which contains an affected facility, the construction or modification of which is commenced

after the date of publication in this part of such new or revised standard (or, if earlier, the date of publication of any proposed standard) applicable to that facility.

(c) In addition to complying with the provisions of this part, the owner or operator of an affected facility may be required to obtain an operating permit issued to stationary sources by an authorized State air pollution control agency or by the Administrator of the U.S. Environmental Protection Agency (EPA) pursuant to Title V of the Clean Air Act (CAA) as amended November 15, 1990 (42 U.S.C. 7661).

[Rule 62-204.800, F.A.C.; and, 40 CFR 60.1(a), (b) and (c)]

40 CFR 60.2 Definitions.

(a) *Administrator* means the Administrator of the Environmental Protection Agency or the Secretary or the Secretary's designee.

[Rule 62-204.800(7)(a), F.A.C.; and, 40 CFR 60.2]

40 CFR 60.7 Notification and record keeping.

(a) The owner or operator subject to the provisions of this part shall furnish the Administrator written notification as follows:

(1) A notification of the date construction (or reconstruction as defined under 40 CFR 60.15) of an affected facility is commenced postmarked no later than 30 days after such date. This requirement shall not apply in the case of mass-produced facilities which are purchased in completed form.

(2) A notification of the anticipated date of initial startup of an affected facility postmarked not more than 60 days nor less than 30 days prior to such date.

(3) A notification of the actual date of initial startup of an affected facility postmarked within 15 days after such date.

(4) A notification of any physical or operational change to an existing facility which may increase the emission rate of any air pollutant to which a standard applies, unless that change is specifically exempted under an applicable subpart or in 40 CFR 60.14(e). This notice shall be postmarked 60 days or as soon as practicable before the change is commenced and shall include information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change, and the expected completion date of the change. The Administrator may request additional relevant information subsequent to this notice.

(5) A notification of the date upon which demonstration of the continuous monitoring system performance commences in accordance with 40 CFR 60.13(c). Notification shall be postmarked not less than 30 days prior to such date.

Attachment "40 CFR 60, Subpart A"

Page 2

- (6) A notification of the anticipated date for conducting the opacity observations required by 40 CFR 60.11(e)(1) of this part. The notification shall also include, if appropriate, a request for the Administrator to provide a visible emissions reader during a performance test. The notification shall be postmarked not less than 30 days prior to such date.
- (7) A notification that continuous opacity monitoring system data results will be used to determine compliance with the applicable opacity standard during a performance test required by 40 CFR 60.8 in lieu of Method 9 observation data as allowed by 40 CFR 60.11(e)(5) of 40 CFR 60. This notification shall be postmarked not less than 30 days prior to the date of the performance test.
- (b) The owner or operator subject to the provisions of this part shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative.
- (c) The owner or operator required to install a continuous monitoring system (CMS) or monitoring device shall submit an excess emissions and monitoring systems performance report (excess emissions are defined in applicable subparts) and/or a summary report form (see 40 CFR 60.7(d) to the Administrator semiannually, except when: more frequent reporting is specifically required by an applicable subpart; or the CMS data are to be used directly for compliance determination, in which case quarterly reports shall be submitted; or the Administrator, on a case-by-case basis, determines that more frequent reporting is necessary to accurately assess the compliance status of the source. All reports shall be postmarked by the 30th day following the end of each calendar half (or quarter, as appropriate). Written reports of excess emissions shall include the following information:
- (1) The magnitude of excess emissions computed in accordance with 40 CFR 60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions. The process operating time during the reporting period.
 - (2) Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.
 - (3) The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.
 - (4) When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.
- (d) The summary report form shall contain the information and be in the format shown in Figure 1 unless otherwise specified by the Administrator. One summary report form shall be submitted for each pollutant monitored at each affected facility.
- (1) If the total duration of excess emissions for the reporting period is less than 1 percent of the total operating time for the reporting period and CMS downtime for the reporting period is less than 5 percent of the total operating time for the reporting period, only the summary report form shall be submitted and the excess emission report described in 40 CFR 60.7(c) need not be submitted unless requested by the Administrator.
 - (2) If the total duration of excess emissions for the reporting period is 1 percent or greater of the total operating time for the reporting period or the total CMS downtime for the reporting period is 5 percent or greater of the total operating time for the reporting period, the summary report form and the excess emission report described in 40 CFR 60.7(c) shall both be submitted.

[See Attached Figure 1-Summary Report-Gaseous and Opacity Excess Emission and Monitoring System Performance]

Attachment "40 CFR 60, Subpart A"

Page 3

(e) The owner or operator subject to the provisions of this part shall maintain a file of all measurements, including continuous monitoring system, monitoring device, and performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by this part recorded in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, maintenance, reports, and records.

(f) If notification substantially similar to that in 40 CFR 60.7(a) is required by any other State or local agency, sending the Administrator a copy of that notification will satisfy the requirements of 40 CFR 60.7(a).

(g) Individual subparts of this part may include specific provisions which clarify or make inapplicable the provisions set forth in this section.

[Rule 62-204.800, F.A.C.; and, 40 CFR 60.7(a), (b), (c), (d), (e), (f) and (g)]

40 CFR 60.8 Performance tests.

(a) Within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup of such facility and at such other times as may be required by the Administrator under section 114 of the Act, the owner or operator of such facility shall conduct performance test(s) and furnish the Administrator a written report of the results of such performance test(s).

(b) Performance tests shall be conducted and data reduced in accordance with the test methods and procedures contained in each applicable subpart unless the Administrator (1) specifies or approves, in specific cases, the use of a reference method with minor changes in methodology, (4) waives the requirement for performance tests because the owner or operator of a source has demonstrated by other means to the Administrator's satisfaction that the affected facility is in compliance with the standard, or (5) approves shorter sampling times and smaller sample volumes when necessitated by process variables or other factors. Nothing in 40 CFR 60.8 shall be construed to abrogate the Administrator's authority to require testing under section 114 of the Act.

(c) Performance tests shall be conducted under such conditions as the Administrator shall specify to the plant operator based on representative performance of the affected facility. The owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of the performance tests. Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test nor shall emissions in excess of the level of the applicable emission limit during periods of startup, shutdown, and malfunction be considered a violation of the applicable emission limit unless otherwise specified in the applicable standard.

(e) The owner or operator of an affected facility shall provide, or cause to be provided, performance testing facilities as follows:

(1) Sampling ports adequate for test methods applicable to such facility. This includes (i) constructing the air pollution control system such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test methods and procedures and (ii) providing a stack or duct free of cyclonic flow during performance tests, as demonstrated by applicable test methods and procedures.

(2) Safe sampling platform(s).

(3) Safe access to sampling platform(s).

(4) Utilities for sampling and testing equipment.

(f) Unless otherwise specified in the applicable subpart, each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for the time and under the conditions specified in the applicable standard. For the purpose of determining compliance with an applicable standard, the arithmetic means of results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances, beyond the owner or operator's control, compliance may, upon the Administrator's approval, be determined using the arithmetic mean of the results of the two other runs.

[Rule 62-204.800, F.A.C.; and, 40 CFR 60.8(a), (b)(1), (4) & (5), (c), (e) and (f)]

40 CFR 60.10 State authority.

The provisions of 40 CFR 60 shall not be construed in any manner to preclude any State or political subdivision thereof from:

- (a) Adopting and enforcing any emission standard or limitation applicable to an affected facility, provided that such emission standard or limitation is not less stringent than the standard applicable to such facility.
 - (b) Requiring the owner or operator of an affected facility to obtain permits, licenses, or approvals prior to initiating construction, modification, or operation of such facility.
- [Rule 62-204.800, F.A.C.; and, 40 CFR 60.10(a) and (b)].

40 CFR 60.11 Compliance with standards and maintenance requirements.

- (a) Compliance with standards in this part, other than opacity standards, shall be determined only by performance tests established by 40 CFR 60.8, unless otherwise specified in the applicable standard.
- (b) Compliance with opacity standards in this part shall be determined by conducting observations in accordance with Reference Method 9 in appendix A of this part, any alternative method that is approved by the Administrator, or as provided in 40 CFR 60.11(e)(5). For purposes of determining initial compliance, the minimum total time of observations shall be 3 hours (30 6-minute averages) for the performance test or other set of observations (meaning those fugitive-type emission sources subject only to an opacity standard).
- (c) The opacity standards set forth in this part shall apply at all times except during periods of startup, shutdown, malfunction, and as otherwise provided in the applicable standard.
- (d) At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.
- (e)(1) For the purpose of demonstrating initial compliance, opacity observations shall be conducted concurrently with the initial performance test required in 40 CFR 60.8 unless one of the following conditions apply. If no performance test under 40 CFR 60.8 is required, then opacity observations shall be conducted within 60 days after achieving the maximum production rate at which the affected facility will be operated but no later than 180 days after initial startup of the facility. If visibility or other conditions prevent the opacity observations from being conducted concurrently with the initial performance test required under 40 CFR 60.8, the source owner or operator shall reschedule the opacity observations as soon after the initial performance test as possible, but not later than 30 days thereafter, and shall advise the Administrator of the rescheduled date. In these cases, the 30-day prior notification to the Administrator required in 40 CFR 60.7(a)(6) shall be waived. The rescheduled opacity observations shall be conducted (to the extent possible) under the same operating conditions that existed during the initial performance test conducted under 40 CFR 60.8. The visible emissions observer shall determine whether visibility or other conditions prevent the opacity observations from being made concurrently with the initial performance test in accordance with procedures contained in Reference Method 9 of appendix B of this part. Opacity readings of portions of plumes which contain condensed, uncombined water vapor shall not be used for purposes of determining compliance with opacity standards. The owner or operator of an affected facility shall make available, upon request by the Administrator, such records as may be necessary to determine the conditions under which the visual observations were made and shall provide evidence indicating proof of current visible observer emission certification. Except as provided in 40 CFR 60.11(e)(5), the results of continuous monitoring by transmissometer which indicate that the opacity at the time visual observations were made was not in excess of the standard are probative but not conclusive evidence of the actual opacity of an emission, provided that the source shall meet the burden of proving that the instrument used meets (at the time of the alleged violation) Performance Specification 1 in appendix B of 40 CFR 60, has been properly maintained and (at the time of the alleged violation) that the resulting data have not been altered in any way.

Attachment "40 CFR 60, Subpart A"

Page 5

(2) Except as provided in 40 CFR 60.11(e)(3), the owner or operator of an affected facility to which an opacity standard in this part applies shall conduct opacity observations in accordance with 40 CFR 60.11(b), shall record the opacity of emissions, and shall report to the Administrator the opacity results along with the results of the initial performance test required under 40 CFR 60.8. The inability of an owner or operator to secure a visible emissions observer shall not be considered a reason for not conducting the opacity observations concurrent with the initial performance test.

(3) The owner or operator of an affected facility to which an opacity standard in this part applies may request the Administrator to determine and to record the opacity of emissions from the affected facility during the initial performance test and at such times as may be required. The owner or operator of the affected facility shall report the opacity results. Any request to the Administrator to determine and to record the opacity of emissions from an affected facility shall be included in the notification required in 40 CFR 60.7(a)(6). If, for some reason, the Administrator cannot determine and record the opacity of emissions from the affected facility during the performance test, then the provisions of 40 CFR 60.7(e)(1) shall apply.

(4) The owner or operator of an affected facility using a continuous opacity monitor (transmissometer) shall record the monitoring data produced during the initial performance test required by 40 CFR 60.8 and shall furnish the Administrator a written report of the monitoring results along with Method 9 and 40 CFR 60.8 performance test results.

(5) The owner or operator of an affected facility subject to an opacity standard may submit, for compliance purposes, continuous opacity monitoring system (COMS) data results produced during any performance test required under 40 CFR 60.8 in lieu of Method 9 observation data. If an owner or operator elects to submit COMS data for compliance with the opacity standard, he shall notify the Administrator of that decision, in writing, at least 30 days before any performance test required under 40 CFR 60.8 is conducted. Once the owner or operator of an affected facility has notified the Administrator to that effect, the COMS data results will be used to determine opacity compliance during subsequent tests required under 40 CFR 60.8 until the owner or operator notifies the Administrator, in writing, to the contrary. For the purpose of determining compliance with the opacity standard during a performance test required under 40 CFR 60.8 using COMS data, the minimum total time of COMS data collection shall be averages of all 6-minute continuous periods within the duration of the mass emission performance test. Results of the COMS opacity determinations shall be submitted along with the results of the performance test required under 60.8. The owner or operator of an affected facility using a COMS for compliance purposes is responsible for demonstrating that the COMS meets the requirements specified in 40 CFR 60.13(c), that the COMS has been properly maintained and operated, and that the resulting data have not been altered in any way. If COMS data results are submitted for compliance with the opacity standard for a period of time during which Method 9 data indicates noncompliance, the Method 9 data will be used to determine opacity compliance.

(6) Upon receipt from an owner or operator of the written reports of the results of the performance tests required by 40 CFR 60.8, the opacity observation results and observer certification required by 40 CFR 60.11(e)(1), and the COMS results, if applicable, the Administrator will make a finding concerning compliance with opacity and other applicable standards. If COMS data results are used to comply with an opacity standard, only those results are required to be submitted along with the performance test results required by 40 CFR 60.8. If the Administrator finds that an affected facility is in compliance with all applicable standards for which performance tests are conducted in accordance with 40 CFR 60.8 of this part but during the time such performance tests are being conducted fails to meet any applicable opacity standard, the shall notify the owner or operator and advise him that he may petition the Administrator within 10 days of receipt of notification to make appropriate adjustment to the opacity standard for the affected facility.

(7) The Administrator will grant such a petition upon a demonstration by the owner or operator that the affected facility and associated air pollution control equipment was operated and maintained in a manner to minimize the opacity of emissions during the performance tests; that the performance tests were performed under the conditions established by the Administrator; and that the affected facility and associated air pollution control equipment were incapable of being adjusted or operated to meet the applicable opacity standard.

Attachment "40 CFR 60, Subpart A"

Page 6

(8) The Administrator will establish an opacity standard for the affected facility meeting the above requirements at a level at which the source will be able, as indicated by the performance and opacity tests, to meet the opacity standard at all times during which the source is meeting the mass or concentration emission standard. The Administrator will promulgate the new opacity standard in the Federal Register.

(f) Special provisions set forth under an applicable subpart of 40 CFR 60 shall supersede any conflicting provisions of 40 CFR 60.11.

(g) For the purpose of submitting compliance certifications or establishing whether or not a person has violated or is in violation of any standard in this part, nothing in this part shall preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed.

[Rule 62-204.800, F.A.C.; and, 40 CFR 60.11(a), (b), (c), (d), (e), (f) and (g)]

40 CFR 60.12 Circumvention.

No owner or operator subject to the provisions of this part shall build, erect, install, or use any article, machine, equipment or process, the use of which conceals an emission which would otherwise constitute a violation of an applicable standard. Such concealment includes, but is not limited to, the use of gaseous diluents to achieve compliance with an opacity standard or with a standard which is based on the concentration of a pollutant in the gases discharged to the atmosphere.

[Rule 62-204.800, F.A.C.; and, 40 CFR 60.12]

40 CFR 60.13 Monitoring requirements.

(a) For the purposes of this section, all continuous monitoring systems required under applicable subparts shall be subject to the provisions of this section upon promulgation of performance specifications for continuous monitoring systems under appendix B of 40 CFR 60 and, if the continuous monitoring system is used to demonstrate compliance with emission limits on a continuous basis, appendix F to 40 CFR 60, unless otherwise specified in an applicable subpart or by the Administrator. Appendix F is applicable December 4, 1987.

(b) All continuous monitoring systems and monitoring devices shall be installed and operational prior to conducting performance tests under 40 CFR 60.8. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation, and calibration of the device.

(c) If the owner or operator of an affected facility elects to submit continuous opacity monitoring system (COMS) data for compliance with the opacity standard as provided under 40 CFR 60.11(e)(5), he/she shall conduct a performance evaluation of the COMS as specified in Performance Specification 1, appendix B, of 40 CFR 60 before the performance test required under 40 CFR 60.8 is conducted. Otherwise, the owner or operator of an affected facility shall conduct a performance evaluation of the COMS or continuous emission monitoring system (CEMS) during any performance test required under 40 CFR 60.8 or within 30 days thereafter in accordance with the applicable performance specification in appendix B of 40 CFR 60. The owner or operator of an affected facility shall conduct COMS or CEMS performance evaluations at such other times as may be required by the Administrator under section 114 of the Act.

(1) The owner or operator of an affected facility using a COMS to determine opacity compliance during any performance test required under 40 CFR 60.8 and as described in 40 CFR 60.11(e)(5), shall furnish the Administrator two or, upon request, more copies of a written report of the results of the COMS performance evaluation described in 40 CFR 60.13(c) at least 10 days before the performance test required under 40 CFR 60.8 is conducted.

(2) Except as provided in 40 CFR 60.13(c)(1), the owner or operator of an affected facility shall furnish the Administrator within 60 days of completion two or, upon request, more copies of a written report of the results of the performance evaluation.

- (d)(1) Owners and operators of all continuous emission monitoring systems installed in accordance with the provisions of this part shall check the zero (or low-level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily in accordance with a written procedure. The zero and span shall, as a minimum, be adjusted whenever the 24-hour zero drift or 24-hour span drift exceeds two times the limits of the applicable performance specifications in appendix B. The system must allow the amount of excess zero and span drift measured at the 24-hour interval checks to be recorded and quantified, whenever specified. For continuous monitoring systems measuring opacity of emissions, the optical surfaces exposed to the effluent gases shall be cleaned prior to performing the zero and span drift adjustments except that for systems using automatic zero adjustments. The optical surfaces shall be cleaned when the cumulative automatic zero compensation exceeds 4 percent opacity.
- (2) Unless otherwise approved by the Administrator, the following procedures shall be followed for continuous monitoring systems measuring opacity of emissions. Minimum procedures shall include a method for producing a simulated zero opacity condition and an upscale (span) opacity condition using a certified neutral density filter or other related technique to produce a known obscuration of the light beam. Such procedures shall provide a system check of the analyzer internal optical surfaces and all electronic circuitry including the lamp and photo detector assembly.
- (e) Except for system breakdowns, repairs, calibration checks, and zero and span adjustments required under 40 CFR 60.13(d), all continuous monitoring systems shall be in continuous operation and shall meet minimum frequency of operation requirements as follows:
- (1) All continuous monitoring systems referenced by 40 CFR 60.13(c) for measuring opacity of emissions shall complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period.
- (2) All continuous monitoring systems referenced by 40 CFR 60.13(c) for measuring emissions, except opacity, shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period.
- (f) All continuous monitoring systems or monitoring devices shall be installed such that representative measurements of emissions or process parameters from the affected facility are obtained. Additional procedures for location of continuous monitoring systems contained in the applicable Performance Specifications of appendix B of 40 CFR 60 shall be used.
- (g) When the effluents from a single affected facility or two or more affected facilities subject to the same emission standards are combined before being released to the atmosphere, the owner or operator may install applicable continuous monitoring systems on each effluent or on the combined effluent. When the affected facilities are not subject to the same emission standards, separate continuous monitoring systems shall be installed on each effluent. When the effluent from one affected facility is released to the atmosphere through more than one point, the owner or operator shall install an applicable continuous monitoring system on each separate effluent unless the installation of fewer systems is approved by the Administrator. When more than one continuous monitoring system is used to measure the emissions from one affected facility (e.g., multiple breechings, multiple outlets), the owner or operator shall report the results as required from each continuous monitoring system.
- (h) Owners or operators of all continuous monitoring systems for measurement of opacity shall reduce all data to 6 minute averages and for continuous monitoring systems other than opacity to 1-hour averages for time periods as defined in 40 CFR 60.2. Six-minute opacity averages shall be calculated from 36 or more data points equally spaced over each 6-minute period. For continuous monitoring systems other than opacity, 1-hour averages shall be computed from four or more data points equally spaced over each 1-hour period. Data recorder during periods of continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in the data averages computed under this paragraph. An arithmetic or integrated average of all data may be used. The data may be recorded in reduced or non reduced form (e.g., ppm pollutant and percent O₂ or ng/J of pollutant). All excess emissions shall be converted into units of the standard using the applicable conversion procedures specified in subparts. After conversion into units of the standard, the data may be rounded to the same number of significant digits as used in the applicable subparts to specify the emission limit (e.g., rounded to the nearest 1 percent opacity).

Attachment "40 CFR 60, Subpart A"

Page 8

- (i) After receipt and consideration of written application, the Administrator may approve alternatives to any monitoring procedures or requirements of this part including, but not limited to the following:
- (1) Alternative monitoring requirements when installation of a continuous monitoring system or monitoring device specified by this part would not provide accurate measurements due to liquid water or other interferences caused by substances with the effluent gases.
 - (2) Alternative monitoring requirements when the affected facility is infrequently operated.
 - (3) Alternative monitoring requirements to accommodate continuous monitoring systems that require additional measurements to correct for stack moisture conditions.
 - (4) Alternative locations for installing continuous monitoring systems or monitoring devices when the owner or operator can demonstrate that installation at alternate locations will enable accurate and representative measurements.
 - (5) Alternative methods of converting pollutant concentration measurements to units of the standards.
 - (6) Alternative procedures for performing daily checks of zero and span drift that do not involve use of span gases or test cells.
 - (7) Alternatives to the A.S.T.M. test methods or sampling procedures specified by any subpart.
 - (8) Alternative continuous monitoring systems that do not meet the design or performance requirements in Performance Specification 1, appendix B, but adequately demonstrate a definite and consistent relationship between its measurements and the measurements of opacity by a system complying with the requirements in Performance Specification 1. The Administrator may require that such demonstration be performed for each affected facility.
 - (9) Alternative monitoring requirements when the effluent from a single affected facility or the combined effluent from two or more affected facilities are released to the atmosphere through more than one point.
- (j) An alternative to the relative accuracy test specified in Performance Specification 2 of appendix B may be requested as follows:
- (1) An alternative to the reference method tests for determining relative accuracy is available for sources with emission rates demonstrated to be less than 50 percent of the applicable standard. A source owner or operator may petition the Administrator to waive the relative accuracy test in section 7 of Performance Specification 2 and substitute the procedures in section 10 if the results of a performance test conducted according to the requirements in 40 CFR 60.8 of this subpart or other tests performed following the criteria in 40 CFR 60.8 demonstrate that the emission rate of the pollutant of interest in the units of the applicable standard is less than 50 percent of the applicable standard. For sources subject to standards expressed as control efficiency levels, a source owner or operator may petition the Administrator to waive the relative accuracy test and substitute the procedures in section 10 of Performance Specification 2 if the control device exhaust emission rate is less than 50 percent of the level needed to meet the control efficiency requirement. The alternative procedures do not apply if the continuous emission monitoring system is used to determine compliance continuously with the applicable standard. The petition to waive the relative accuracy test shall include a detailed description of the procedures to be applied. Included shall be location and procedure for conducting the alternative, the concentration or response levels of the alternative RA materials, and the other equipment checks included in the alternative procedure. The Administrator will review the petition for completeness and applicability. The determination to grant a waiver will depend on the intended use of the CEMS data (e.g., data collection purposes other than NSPS) and may require specifications more stringent than in Performance Specification 2 (e.g., the applicable emission limit is more stringent than NSPS).
 - (2) The waiver of a CEMS relative accuracy test will be reviewed and may be rescinded at such time following successful completion of the alternative RA procedure that the CEMS data indicate the source emissions approaching the level of the applicable standard. The criterion for reviewing the waiver is the collection of CEMS data showing that emissions have exceeded 70 percent of the applicable standard for seven, consecutive, averaging periods as specified by the applicable regulation(s). For sources subject to standards expressed as control efficiency levels, the criterion for reviewing the waiver is the collection of CEMS data showing that exhaust emissions have exceeded 70 percent of the level needed to meet the control efficiency requirement for seven, consecutive, averaging periods as specified by the applicable regulation(s) [e.g., 40 CFR 60.45(g)(2) and 40 CFR 60.45(g)(3), 40 CFR 60.73(e), and 40 CFR 60.84(e)]. It is the

responsibility of the source operator to maintain records and determine the level of emissions relative to the criterion on the waiver of relative accuracy testing. If this criterion is exceeded, the owner or operator must notify the Administrator within 10 days of such occurrence and include a description of the nature and cause of the increasing emissions. The Administrator will review the notification and may rescind the waiver and require the owner or operator to conduct a relative accuracy test of the CEMS as specified in section 7 of Performance Specification 2.

[Rule 62-204.800, F.A.C.; and, 40 CFR 60.13(a) thru (j)].

40 CFR 60.14 Modification.

- (a) Except as provided under 40 CFR 60.14(e) and 40 CFR 60.14(f), any physical or operational change to an existing facility which results in an increase in the emission rate to the atmosphere of any pollutant to which a standard applies shall be considered a modification within the meaning of section 111 of the Act. Upon modification, an existing facility shall become an affected facility for each pollutant to which a standard applies and for which there is an increase in the emission rate to the atmosphere.
- (b) Emission rate shall be expressed as kg/hr (lbs/hour) of any pollutant discharged into the atmosphere for which a standard is applicable. The Administrator shall use the following to determine emission rate:
 - (1) Emission factors as specified in the latest issue of "Compilation of Air Pollutant Emission Factors", EPA Publication No. AP-42, or other emission factors determined by the Administrator to be superior to AP-42 emission factors, in cases where utilization of emission factors demonstrate that the emission level resulting from the physical or operational change will either clearly increase or clearly not increase.
 - (2) Material balances, continuous monitor data, or manual emission tests in cases where utilization of emission factors as referenced in 40 CFR 60.14(b)(1) does not demonstrate to the Administrator's satisfaction whether the emission level resulting from the physical or operational change will either clearly increase or clearly not increase, or where an owner or operator demonstrates to the Administrator's satisfaction that there are reasonable grounds to dispute the result obtained by the Administrator utilizing emission factors as referenced in 40 CFR 60.14(b)(1). When the emission rate is based on results from manual emission tests or continuous monitoring systems, the procedures specified in 40 CFR 60 appendix C of 40 CFR 60 shall be used to determine whether an increase in emission rate has occurred. Tests shall be conducted under such conditions as the Administrator shall specify to the owner or operator based on representative performance of the facility. At least three valid test runs must be conducted before and at least three after the physical or operational change. All operating parameters which may affect emissions must be held constant to the maximum feasible degree for all test runs.
- (c) The addition of an affected facility to a stationary source as an expansion to that source or as a replacement for an existing facility shall not by itself bring within the applicability of this part any other facility within that source.
- (d) [Reserved]
- (e) The following shall not, by themselves, be considered modifications under this part:
 - (1) Maintenance, repair, and replacement which the Administrator determines to be routine for a source category, subject to the provisions of 40 CFR 60.14(c) and 40 CFR 60.15.
 - (2) An increase in production rate of an existing facility, if that increase can be accomplished without a capital expenditure on that facility.
 - (3) An increase in the hours of operation.
 - (4) Use of an alternative fuel or raw material if, prior to the date any standard under this part becomes applicable to that source type, as provided by 40 CFR 60.1, the existing facility was designed to accommodate that alternative use. A facility shall be considered to be designed to accommodate an alternative fuel or raw material if that use could be accomplished under the facility's construction specifications as amended prior to the change. Conversion to coal required for energy considerations, as specified in section 111(a)(8) of the Act, shall not be considered a modification.
 - (5) The addition or use of any system or device whose primary function is the reduction of air pollutants, except when an emission control system is removed or is replaced by a system which the Administrator determines to be less environmentally beneficial.

Attachment "40 CFR 60, Subpart A"

Page 10

- (6) The relocation or change in ownership of an existing facility.
- (f) Special provisions set forth under an applicable subpart of this part shall supersede any conflicting provisions of this section.
- (g) Within 180 days of the completion of any physical or operational change subject to the control measures specified in 40 CFR 60.14(a), compliance with all applicable standards must be achieved.
[Rule 62-204.800, F.A.C.; and, 40 CFR 60.14(a) thru (g)].

40 CFR 60.15 Reconstruction.

- (a) An existing facility, upon reconstruction, becomes an affected facility, irrespective of any change in emission rate.
- (b) "Reconstruction" means the replacement of components of an existing facility to such an extent that:
 - (1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility, and
 - (2) It is technologically and economically feasible to meet the applicable standards set forth in this part.
- (c) "Fixed capital cost" means the capital needed to provide all the depreciable components.
- (d) If an owner or operator of an existing facility proposes to replace components, and the fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility, he shall notify the Administrator of the proposed replacements. The notice must be postmarked 60 days (or as soon as practicable) before construction of the replacements is commenced and must include the following information:
 - (1) Name and address of the owner or operator.
 - (2) The location of the existing facility.
 - (3) A brief description of the existing facility and the components which are to be replaced.
 - (4) A description of the existing air pollution control equipment and the proposed air pollution control equipment.
 - (5) An estimate of the fixed capital cost of the replacements and of constructing a comparable entirely new facility.
 - (6) The estimated life of the existing facility after the replacements.
 - (7) A discussion of any economic or technical limitations the facility may have in complying with the applicable standards of performance after the proposed replacements.
- (e) The Administrator will determine, within 30 days of the receipt of the notice required by 40 CFR 60.15(d) and any additional information he may reasonably require, whether the proposed replacement constitutes reconstruction.
- (f) The Administrator's determination under 40 CFR 60.15(e) shall be based on:
 - (1) The fixed capital cost of the replacements in comparison to the fixed capital cost that would be required to construct a comparable entirely new facility;
 - (2) The estimated life of the facility after the replacements compared to the life of a comparable entirely new facility;
 - (3) The extent to which the components being replaced cause or contribute to the emissions from the facility; and
 - (4) Any economic or technical limitations on compliance with applicable standards of performance which are inherent in the proposed replacements.
- (g) Individual subparts of this part may include specific provisions which refine and delimit the concept of reconstruction set forth in this section.
[Rule 62-204.800, F.A.C.; and, 40 CFR 60.15(a) thru (g)].



There are three main point sources of dust emissions from cement plants.

Kiln systems, clinker coolers and cement mills.

Custom-made solutions will ensure that your emission level always is kept. F.L.Smidth Airtech will guarantee a clean environment.

A Clean Solution for Cement Plants

Problems facing Cement Producers

Cement production is characterized by varying operating conditions of the production machines. Start and stop of machines in the process gives changes in the gas and dust composition, this requires that not only the filter, but also cooling devices, dust transportation, ID fans and dampers are designed in relation to each other and in relation to the process conditions.

We know the problems:

- very fine dust particles from the kiln
- variation in outlet temperature from kiln and cooler
- wet bottom in the cooling tower
- sticky dust from kiln by-pass

Typical solutions

A complete process line for removal of dust and sulphur from a cement kiln could consist of: A cooling device (cooling tower or heat exchanger), a filter (electrostatic precipitators, or fabric filter), gas absorption equipment, dust removal systems, ducts and fan and a water treatment plant. De-dusting of clinker coolers and cement and coal mills are often done with electrostatic precipitators or bag filters in combination with a heat exchanger.

Who are we ?

F.L.Smidth Airtech has deep roots within the cement industry. Being a part of the F.L.Smidth Group gives you the benefit of working with a company who have in-depth knowledge of all the processes involved in cement production. We employ more than 200 extremely competent and well-educated engineers. We know the cement production process inside out.

Your benefits

In F.L.Smidth Airtech we supply custom made solutions. This means that we deliver a clean environment for your plant. You will get custom designed total solutions - considering both economical and technical aspects - based on our experience from more than 2,100 installations in the Cement industry. You will get a guarantee of performance as well as of the time for implementation, giving a minimum disturbance to the production.



**Pennsuco Cement
Control Equipment**

PKS Units

EU ID	1R	Coal System							
Unit ID	Equip.MFG	Model	Bag#	CFM	Cloth Area (sqft)	A/C Ratio	Vent Size	Vent AGL	
461.BF130	FLS Airtech	36TAX10FM	36	1400	469	3.0:1	9"x10"	126	
461.BF230	FLS Airtech	36TAX10FM	36	1400	469	3.0:1	9"x10"	126	
461.BF350	FLS Airtech	121CX10	121	5550	1575	3.5:1	12"x15"	75	
461.BF500	FLS Airtech	735SX12	735	54500	13855	3.9:1	main stack	420	
461.BF650	FLS Airtech	800/7	9	294	75	3.9:1	5"	67	
461.BF750	FLS Airtech	800/7	9	294	75	3.9:1	5"	67	

EU ID	2R	Pyroprocessing							
Unit ID	Equip.MFG	Model	Bag#	CFM	Cloth Area (sqft)	A/C Ratio	Vent Size	Vent AGL	
331.BF200	FLS Airtech	M5C690D16(16)	6900	605000	173397	3.0:1	14'	420	
331.BF645	Midwest	MVL54H	36	3500	1167	3.9:1	10"	46	
331.BF740	FLS Airtech	100C10	100	4250	1302	3.3:1	12"x15"	125	
341.BF350	FLS Airtech	64C10	64	3760	833	4.5:1	11"x13"	241	
351.BF410	FLS Airtech	64C10	64	4000	833	4.8:1	11"x13"	84	
351.BF440	FLS Airtech	100C10	100	4760	1320	3.7:1	12"x15"	45	
351.BF470	FLS Airtech	100C10	100	4100	1302	3.2:1	12"x15"	353	

EU ID	4R	Clinker Handling & Storage							
Unit ID	Equip.MFG	Model	Bag#	CFM	Cloth Area (sqft)	A/C Ratio	Vent Size	Vent AGL	
441.BF540	FLS Airtech	100C10	100	4600	1302	3.5:1	12"x15"	53	
481.BF140	FLS Airtech	196C10	196	12000	2552	4.7:1	19"x23"	185	
481.BF330	FLS Airtech	100C10	100	6100	1302	4.7:1	16"x19"	103	
481.BF540	FLS Airtech	100C10	100	4700	1302	3.6:1	12"x15"	44	
481.BF640	FLS Airtech	100C10	100	4700	1302	3.6:1	12"x15"	42	
481.BF730	FLS Airtech	304C10	304	18700	3958	4.7:1	23"x33"	113	
481.BF930	FLS Airtech	304C10	304	15000	3958	3.8:1	20"x30"	113	

EU ID	6R	Raw Mill Feed & Grinding							
Unit ID	Equip.MFG	Model	Bag#	CFM	Cloth Area (sqft)	A/C Ratio	Vent Size	Vent AGL	
311.BF650	FLS Airtech	144C10	144	8500	1875	4.5:1	19"x19"	98	
311.BF750	FLS Airtech	144C10	144	7750	1875	4.5:1	18"x27"	17	
311.BF950	FLS Airtech	225C10	225	11700	2930	4.0:1	20"x30"	68	
321.BF470	FLS Airtech	225C10	225	10800	2930	3.7:1	17"x21"	100	

Solution examples

We are proud to be a partner to the Cement industry. F.L.Smith Airtech has a rich history of working with some of the largest cement companies in the world.



ENCI, Holland

A total turnkey solution including a large four field electrostatic precipitator for de-dusting of the kiln and dryer. The ESP is guaranteed for an emission of max. 10 mg/Nm³ dry gas, but is operating well below that level.



NORCEM, Norway

A 3,500 tpd cement kiln burning hazardous waste. Emissions must be below 10 mg/Nm³ for dust and 50 micro g/Nm³ for mercury. Two fabric filters are installed after an electrostatic precipitators. The plant can operate with only the ESPs, or when burning hazardous waste, the fabric filters are connected. Mercury collection is ensured by injection of activated carbon. For optimum adsorption of mercury the existing gas conditioning tower was rebuilt to reduce the outlet temperature to 135 °C.



Blue Circle, Hope Cement, UK / Fabric Filters

Two fabric filters for de-dusting of the kiln gases. The guaranteed emission from these filters is 10 mg/Nm³. Flow rate is 594,000 Nm³/h at a max. temperature of 260 °C.



Aalborg Portland, Denmark, Scrubbers

A solution for sulphur dioxide removal, including two wet scrubber systems. The scrubbers are part of a new heat recuperation system, which utilises the heat in the gases for the city's district heating system. The scrubbers produce gypsum, which is used in the cement mills.



APMC Rawang, Malaysia.

Clinker Cooler, Fabric filter with heat exchanger

A 5,800 tpd grate cooler de-dusted by a fabric filter preceded by a tube heat exchanger.

FLSMIDTH
AIRTECH

F.L.Smith Airtech supplies Air Pollution Control equipment: Electrostatic precipitators • FabriClean pulse-jet fabric filters • Gas conditioning towers • Desulphurization systems • COROMAX pulse systems • PIACS microprocessor controllers and other advanced electrical control systems • Dust transport and storage equipment • All kinds of auxiliary equipment like fans, flue gas ducts, cyclones etc. • We supply new equipment or upgrading of existing equipment - no matter whether the existing equipment is supplied by us or not.

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REV. 1 MRS

**Florida Department of
Environmental Protection**

Memorandum

TO: Mallika Multhiah
FROM: Russell Wider
DATE: April 25, 2003
SUBJECT: Comments on Testing at Tarmac

Mallika, here are a few of the things that I noticed that may be of help in assuring the quality of the testing conducted for Tarmac.

- FTIR tests conducted for HCL: The results of the three runs conducted for HCl show that the first and last runs are very similar, while the second run was non-detectable. The use of the second run has biased the results lower than what seems to be indicated by the other two runs. No explanation was given as to why they were unable to detect HCl in run two, yet did so in the other runs, and at an order of magnitude difference. If the second run was in the range of the other two runs, the resulting average would increase by at least one ton, on Kiln #3 alone. Kiln #2's results would probably increase as well, if we were to accept the emission factors that Tarmac has presented us. An increase of at least 1.5 tons could reasonably be expected, therefore catapulting the facility into major source status.
- HCl calibration standards were used yet no documentation (gas certificates) was provided on the quality of the sample or verification of the concentrations used. Where was reference spectra obtained from? Method 321 suggests that for typical test conditions on cement kilns (moisture content of up to 30% and CO₂ concentrations from 1 to 15 percent), the use of a 22 meter path length for quantification ranges of from 1 to 5 ppm HCl, why was a 9.8 meter path used instead?
- Only one test, the testing for Kiln #2, appears to have been properly noticed and witnessed by regulatory personnel.
- The EPA document entitled "Questions and Answers for the Portland Cement Manufacturing Industry NESHAP 40 CFR 63, Subpart LLL" provides guidance on determining the applicability of MACT to a source. In order for a facility to show that it is an area source for HAPs it must use Method 320 or 321 to do so. This test must be done on each emission point covered in the NESHAP that is expected to be an emitter of HCl. Acceptance of major source status would require no up-front testing to establish that status. We do not have reasonable assurance that Kiln #2 emissions may be predicted from factors calculated from testing on Kiln #3. If Kilns #2 and #3 were identical in every detail, perhaps testing of one unit would be sufficient, but in this case it is not.

MEMORANDUM

Page Two

6/7/2004

- Correct all emission concentrations from the %O₂ that the test was conducted at (roughly 11.6 - 12.0% O₂) to 7% O₂. The emission limits set by the NESHAP are corrected to 7% O₂, and I believe a determination of whether the facility is in compliance/major source determination should be made on the same basis.
- Method 18 testing was modified without prior approval or notification. What are the ramifications from altering the method? EPA retains all authority for the modification of reference test methods and can invalidate testing modified without prior notification and approval.
- Without a fuel analysis of the coal, particularly the chloride content, we do not have reasonable assurance that future shipments of coal used at the plant would not cause an increase in emissions.
- I am rather uncomfortable with the idea that only one stack test is being used to determine whether this source is major or an area source. Shouldn't a history of stack tests or another few using FTIR be utilized to determine HCl emission rates throughout the facility? Furthermore, we have established for other Portland cement facilities that a number of tests will be necessary to determine that a facility is an area source. Prior test data may be used provided that tests were properly noticed or witnessed by regulatory personnel.
- Dioxin and furan testing: Method 23 was used but audit samples from EPA were not used to QA/QC the testing done on Kiln #3. If Tarmac wishes to show that it is in compliance with the D/F limits for either a major or an area source, it will need to retest using audit samples provided by EPA. Was D/F testing done on Kiln #2?

If you have any questions, please call me at 850-921-9513.

RAW

Phillips, Cindy

From: Linero, Alvaro
Sent: Friday, April 04, 2003 5:17 PM
To: 'Muthiah, Mallika (DERM)'
Cc: 'Wongp@miamidade.gov'; Phillips, Cindy
Subject: RE: Pennsuco Cement ? MACT Applicability

Mallika:

Thanks for sending Tarmac's letter to us.

I think we ought to discuss on Thursday right after our teleconference with Nailite for just a few minutes.

That way Trina and Patrick can consider to what extent and depth we want to continue reviewing this item. My understanding is that you have a possibly incomplete application that asks for a change in status from major to minor for HAPs.

I recommend before the meeting that someone find out the real status of their modernization so we know what the long term plans for the existing facility really are. As you know, minor source status allows the old kiln (Kiln 2) to emit particulate matter at the rate of roughly 0.5 lb/ton process instead of 0.1 lb/ton from the cooler. I doubt there are many plants still emitting at those levels in the country.

Secondly, we ought to think about who are the experts available within BAR and on your staff on testing, MACT rules, cement, etc. I plan to invite Cindy and myself and maybe someone in emissions monitoring.

We ought to come out of that session with an action plan.

Between now and then, maybe you Cindy and I can discuss.

Thanks again and have a nice weekend.

Al Linero.

-----Original Message-----

From: Muthiah, Mallika (DERM) [mailto:MuthiM@miamidade.gov]
Sent: Friday, April 04, 2003 4:14 PM
To: Linero, Alvaro; Phillips, Cindy
Cc: Wong, Patrick (DERM); Gordon, Ray (DERM); Garcia, Manuel (DERM)
Subject: FW: Pennsuco Cement ? MACT Applicability

For your review and comments.

-----Original Message-----

From: Scott Quaas [mailto:SCOTTQ@titanamerica.com]
Sent: Friday, April 04, 2003 4:06 PM
To: Wong, Patrick (DERM)
Cc: Muthiah, Mallika (DERM)
Subject: Pennsuco Cement ? MACT Applicability

Patrick . . .

Attached is our response to the DERM incompleteness determination letter. I have also copied Mallika.

Scott Quaas
Tarmac -- Florida
A Titan America Business
Environmental Manager
Phone: 954.425.4165
Fax: 954.480.9352
E-Mail: squaas@titanamerica.com

Phillips, Cindy

From: Linero, Alvaro
Sent: Friday, January 30, 2004 6:13 PM
To: Phillips, Cindy
Subject: RE: Tarmac Pennsuco's Construction Permit

You are right about major versus minor LLL. I thought of that just as I saw your e-mail land in my in-box and thought "I'll bet Cindy caught that!" Fortunately they can meet all LLL limits and will have THC monitor for reasonable assurance they didn't trigger PSD for VOC.

-----Original Message-----

From: Phillips, Cindy
Sent: Friday, January 30, 2004 6:05 PM
To: Linero, Alvaro
Subject: RE: Tarmac Pennsuco's Construction Permit

Thanks Al. Though this permit states that the facility is subject to Subpart LLL, it does not specifically state that it is subject to the major source provisions of Subpart LLL. (Subpart LLL has area source provisions, too.)

When I get a chance, I'll go through the conditions of this AC and make sure that all of the major source provisions have been included.

-Cindy

-----Original Message-----

From: Linero, Alvaro
Sent: Friday, January 30, 2004 5:48 PM
To: Phillips, Cindy
Subject: FW: Tarmac Pennsuco's Construction Permit

Cindy. Here is the draft for Tarmac modernization project.

I did a check and found numerous references to LLL.

I don't think much changed between draft and final.

There are several references to the shutdown of existing kilns. The only specific reference to a kiln by number is Kiln 3. It must shut down within 180 days of the start up of the new kiln.

The draft Title V permit needs to be more specific in requiring the shut down of Kiln 2 and Kiln 3. The condition allowing future operation should read that they must obtain a permit not just apply for one.

Al.

-----Original Message-----

From: Muthiah, Mallika (DERM) [mailto:MuthiM@co.miami-dade.fl.us]
Sent: Friday, April 13, 2001 2:49 PM
To: Linero, Alvaro; Reynolds, John; Kahn, Joseph
Cc: Fancy, Clair; Wong, Patrick (DERM); Echanique, Frank (DERM); Griner, Debbie (DERM); Garcia, Manuel (DERM); Villamil, Sonia (DERM); Gordon, Ray (DERM)
Subject: Tarmac Pennsuco's Construction Permit

Al/John/Joe,

For the first time in the past few days, I am writing an e-mail to you all without asking any question regarding the cement plant permit. This message is also about Tarmac's construction permit, but to inform you that we issued the draft version of the

construction permit yesterday. In this project, my staff performed an excellent job, working diligently for weeks, paying attention to all the details, and we are very proud of the product. While breathing easy, we want to express our appreciation and thanks for all (Al, John and Joe) your support, and timely assistance in clarifying the pertinent rules and certain permit conditions.

Attached please find the construction permit (draft) document. Tarmac is planning to publish the Public Notice of Intent on Monday, April 16, 2001.

<<AC Tarmac Pennsuco Apr01.doc>>

Thanks again.

Mallika Muthiah, P.E., Chief
Air Facilities Section
Department of Environmental Resources Management
Miami, Florida
(305) 372-6921
muthim@co.miami-dade.fl.us <mailto:muthim@co.miami-dade.fl.us>

Phillips, Cindy

From: Phillips, Cindy
Sent: Friday, January 30, 2004 5:57 PM
To: 'Muthiah, Mallika (DERM)'
Cc: Jordahl, Claire (DERM)
Subject: RE: Tarmac DRAFT Title V Permit

Mallika, thanks for forwarding a copy of this DRAFT permit to me. Since you did send me a copy, I feel I must tell you, based on the limited "testing and supporting documentation" that I have seen, I disagree with your determination of Tarmac's non-major HAP source status. Perhaps you received additional "testing and supporting documentation" that I did not receive.

That being said, there is no reason not to incorporate the provisions of 40 CFR 63 Subpart LLL for Major Sources now, with the caveat that the provisions become applicable for the entire facility upon start-up of the new kiln. This is especially important if you have not included major source MACT provisions for the entire facility in the construction permit 0250020-010-AC.

Tarmac is subject to major source MACT provisions immediately upon becoming major for HAPs. There should not be a Title V permit shield protecting them from complying with the major source provisions during the period of time from the start-up date, until the date the Title V permit is revised to include the major source provisions.

Including the major source MACT provisions now, with a future effective date (start-up date of the new kiln), also promotes the Department's philosophy of "Less Process". Why set yourself up to have to reopen the Title V permit for a revision almost immediately upon this version going final, when you don't have to?

If you have any questions about my concerns, please contact me.

-Cindy

P.S. Has Tarmac published the notice of this draft permit yet? If not, why not?

-----Original Message-----

From: Muthiah, Mallika (DERM) [mailto:MuthiM@miamidade.gov]
Sent: Thursday, January 08, 2004 11:56 AM
To: Vielhauer, Trina
Cc: Kahn, Joseph; Linero, Alvaro; Sheplak, Scott; Phillips, Cindy; Jordahl, Claire (DERM)
Subject: FW: DRAFT Title V Permit

I am forwarding the Tarmac DRAFT Title V Permit documents for your information.

Mallika Muthiah
Miami-Dade County DERM
(305) 372-6921

-----Original Message-----

From: Jordahl, Claire (DERM)
Sent: Wednesday, January 07, 2004 4:33 PM
To: 'barbara.friday@dep.state.fl.us'
Cc: Muthiah, Mallika (DERM); Garcia, Manuel (DERM); Gordon, Ray (DERM)
Subject: DRAFT Title V Permit

The Intent To Issue w/DRAFT Title V Permit Revision for Tarmac, 0250020-013-AV, was issued today. The permit files are attached for posting:

<<SOB 0250020-013-AV dr.DOC>> <<Intent 0250020-013-AV dr.doc>>
<<0250020-013-AV dr.doc>>

Thank you Barbara and if you have any questions please call.

Claire M. Jordahl
Department of Environmental Resources Management
Air Facilities Section
Phone: 305-372-6949
Fax: 305-372-6954
E-mail: jordac@miamidade.gov <<mailto:jordac@miamidade.gov>>

Phillips, Cindy

From: Linero, Alvaro
Sent: Friday, January 30, 2004 5:48 PM
To: Phillips, Cindy
Subject: FW: Tarmac Pennsuco's Construction Permit



AC Tarmac
Pennsuco Apr01.doc (

Cindy. Here is the draft for Tarmac modernization project.

I did a check and found numerous references to LLL.

I don't think much changed between draft and final.

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The draft Title V permit needs to be more specific in requiring the shut down of Kiln 2 and Kiln 3. The condition allowing future operation should read that they must obtain a permit not just apply for one.

Al.

-----Original Message-----

From: Muthiah, Mallika (DERM) [mailto:MuthiM@co.miami-dade.fl.us]
Sent: Friday, April 13, 2001 2:49 PM
To: Linero, Alvaro; Reynolds, John; Kahn, Joseph
Cc: Fancy, Clair; Wong, Patrick (DERM); Echanique, Frank (DERM); Griner, Debbie (DERM); Garcia, Manuel (DERM); Villamil, Sonia (DERM); Gordon, Ray (DERM)
Subject: Tarmac Pennsuco's Construction Permit

Al/John/Joe,

For the first time in the past few days, I am writing an e-mail to you all without asking any question regarding the cement plant permit. This message is also about Tarmac's construction permit, but to inform you that we issued the draft version of the construction permit yesterday. In this project, my staff performed an excellent job, working diligently for weeks, paying attention to all the details, and we are very proud of the product. While breathing easy, we want to express our appreciation and thanks for all (Al, John and Joe) your support, and timely assistance in clarifying the pertinent rules and certain permit conditions.

Attached please find the construction permit (draft) document. Tarmac is planning to publish the Public Notice of Intent on Monday, April 16, 2001.

<<AC Tarmac Pennsuco Apr01.doc>>

Thanks again.

Mallika Muthiah, P.E., Chief
Air Facilities Section
Department of Environmental Resources Management
Miami, Florida
(305) 372-6921
muthim@co.miami-dade.fl.us <mailto:muthim@co.miami-dade.fl.us>

Phillips, Cindy

From: Linero, Alvaro
Sent: Friday, October 24, 2003 5:01 PM
To: 'Muthiah, Mallika (DERM)'
Cc: 'Gordon, Ray (DERM)'
Subject: RE: Tarmac Ash Use

The material is dry scrubber ash collected in a baghouse at the PG&E plant in Indiantown, Martin County. The unit is a pulverized coal unit that uses ammonia to control NOx and a dry scrubber/baghouse combo for PM. Basically lime is injected into a spray dryer and the SO2 is absorbed by the lime. The resulting calcium sulfite or calcium sulfate and free lime (CaO) are captured by the baghouse along with other particulate matter. The arrangement is somewhat like that used at Montenay. Obviously the pollutant loads are not as great at Montenay.

The material (flyash) is presently shipped to places like a landfill in Orlando operated by OUC where it is used to stabilize sewage sludge prior to disposal.

It is a "talcum like" substance that can certainly be dispersed if not contained. Normally it is shipped in enclosed container truck (pressure differential tankers).

Conditioning probably does not mean thorough conditioning with water since the material can set up. Most likely conditioning means that the material will be shipped in an open truck with enough water to make a crust on the top.

To avoid dispersal in an open area at Tarmac, they would have to condition the surface too.

Ideally if there is a way to transfer the material from an enclosed tanker truck directly into the appropriate material bin fugitive emissions can be controlled.

I think you need to get diagram from Tarmac showing how they will receive and handle the material to avoid fugitive emissions. I still remember my visit in 1995 to Tarmac when a worker (without a face mask) opened a valve and then disappeared momentarily in the cloud of precipitator dust that he released into the back of a truck.

I also didn't understand whether they plan to add the product to the clinker they already make (like the usual gypsum addition) or whether they will add it to the raw materials or whether it is for some other product they make.

I also did not understand if they are talking about the existing wet process or the new dry process.

That is about all I have to offer. Good luck.

Al Linero.

Phillips, Cindy

From: Phillips, Cindy
Sent: Tuesday, September 23, 2003 3:14 PM
To: Vielhauer, Trina
Cc: Sheplak, Scott; Linero, Alvaro
Subject: Tarmac

Trina, I think you probably already have it on your list of potentially hot topics but... Tarmac is dragging their feet on the testing necessary to determine whether or not they are major for HAPs. Like the Phosphate industry, the MACT compliance date for Portland Cement Kilns was also in June 2002.

Russell and I were talking about this today and he said that since we are making the phosphate industry meet the DQO, we probably should make Tarmac do so also. He's going to talk to Joe about it.

-Cindy

Phillips, Cindy

From: Linero, Alvaro
Sent: Thursday, May 13, 2004 4:09 PM
To: 'Muthiah, Mallika (DERM)'
Cc: Nelson, Deborah
Subject: FW: Tarmac Pennsucco

Mallika.

Looks like Tarmac PM emissions are 17 times as high in 2003 than 2002.

PM looks low in 2001, but not totally absurd.

I will ask Debbie Nelson to add about 100 TPY to the PM estimate from Tarmac in the FP&L Turkey Pt. Technical Evaluation.

Did they conduct a test on Kiln 3 this year? How about NOx on Kiln 2. If not, when will this likely occur? I might like to observe.

Al Linero.

-----Original Message-----

From: Nelson, Deborah
Sent: Thursday, May 13, 2004 3:39 PM
To: Linero, Alvaro
Subject: Tarmac Pennsucco

Al,

According to our AOR's, Kiln #3 had the following PM emissions in TPY:

	PM	PM10
2001	23.65	20.1
2002	5.75	4.89
2003	99.16	84.29

Debbie

Deborah Nelson

Meteorologist

Permitting South

850-921-9537

Muthiah, Mallika (DERM)

From: Muthiah, Mallika (DERM)
Sent: Thursday, March 04, 2004 12:09 PM
To: 'alvaro.linero@dep.state.fl.us'
Cc: Garcia, Manuel (DERM); Gordon, Ray (DERM); Jordahl, Claire (DERM)
Subject: Tarmac Pennsuco Plant

Today, DERM received an application from Tarmac to modify the air construction permit 0250020-010-AC (the modernization plant).

We are mailing a copy of Tarmac's application to you for DEP's comments.

If you have any questions regarding this application, please contact Rick Garcia or myself.

Thank you.

Mallika Muthiah, P.E., Chief
Air Facilities Section
Miami-Dade County DERM
(305) 372-6921
muthim@miamidade.gov

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Phillips, Cindy

From: Phillips, Cindy
Sent: Monday, February 02, 2004 9:31 AM
To: Linero, Alvaro
Subject: RE: Permitting Highlights for January

It would be fine if they had stopped at 8.1. However, 8.2 seems to dictate what must occur if they don't shut down kiln 2, namely the submission of an application when, if fact, what must occur is enforcement of the major source provisions of the MACT.

-----Original Message-----

From: Linero, Alvaro
Sent: Friday, January 30, 2004 6:06 PM
To: Phillips, Cindy
Subject: RE: Permitting Highlights for January

See below:

Looks like the new Title V draft permit requires shut down of kiln 2 before start up of the new kiln. If Kiln 2 doesn't shut down by the date the new Kiln starts up, it would instantly come under LLL (major Source) the day the new kiln starts up. It wouldn't meet the lb PM per ton process limit of 0.1 for the cooler.

Maybe they could have written the conditions under 8.1 and 8.2 a little differently, but it would be a tremendous stretch to say that an application would suffice to let Kiln 2 continue to operate.

They have a break in that they get to operate Kiln 3 for 180 days after startup of the new kiln (with some conditions).

Al.

8. Kiln No. 2

1. Kiln No. 2 shall be permanently shutdown on or before the startup date of the new kiln that was authorized for construction in Air Permit No. 0250020-010-AC.
2. Operation of Kiln No. 2 beyond the startup date of the new kiln, specified as EU 005 in Air Permit No. 0250020-010-AC, shall require an air construction permit pursuant to Rule 62-210.300(1), F.A.C., and New Source Review for the Prevention of Significant Deterioration pursuant to Rule 62-212.400(5), F.A.C.
3. The testing that was done at Kiln No. 2 to demonstrate non-major source status for HAPs cannot be used for any other purpose.

[Rule 62-210.300(1) and 62-212.400(5), F.A.C.; Rule 62-4.070(3), F.A.C.]

NOTE: *Startup date is defined as the setting in operation of an affected source for any purpose.*
[40 CFR 63.2, Definitions]

9. Kiln No. 3

The existing Kiln No. 3 shall be permanently shutdown no later than 180 days from the startup date of the new kiln, specified as emissions unit No. 005 (Raw mill and Pyroprocessing Unit) in Permit No. 0250020-010-AC. The shutdown date of Kiln No. 3 shall not be extended for any reason. The operation of Kiln No. 3 shall comply with the following conditions:

Phillips, Cindy

To: jordac@miamidade.gov

9. Kiln No. 3

The existing Kiln No. 3 shall be permanently shutdown no later than 180 days from the startup date of the new kiln and, therefore, no later than November 27, 2004. The new kiln is specified as emissions unit No. 005 (Raw mill and Pyroprocessing Unit) in Permit No. 0250020-010-AC. The shutdown date of Kiln No. 3 shall not be extended for any reason. The operation of Kiln No. 3 shall comply with the following conditions:

- Operation of Kiln No. 3 shall not result in an exceedances of any 12-month rolling average ton per year emissions limit specified in conditions B.23 and B.24 of the Air construction permit (Permit No. 0250020-010-AC).
- Shutdown of Kiln No. 3 shall commence within 48-hours of introduction of kiln feed to the preheater / calciner, and shutdown shall be completed within 5 days of commencement of such action. This schedule shall be followed each time the kiln feed is introduced to the preheater / calciner.
- Simultaneous operation of Kiln no. 3 and the Emissions unit No. 005 for the purpose of clinker production is prohibited, except during the duration of the shutdown of kiln No. 3 (5 days).
- Dates of introduction of kiln feed to the preheater / calciner, and the dates of commencement and completion of Kiln No. 3 shutdown must be recorded and reported to the DERM Air Facilities Section within 15 days of each mentioned action.
- A log of hourly clinker production from Kiln No. 3 and emissions unit No. 005 for the 180 days after the startup of emissions unit No. 005 shall be maintained at the facility. These records must be submitted to the DERM Air Facilities Section on a weekly basis.
- The testing that was done at Kiln No. 3 to demonstrate non-major source status for HAPs cannot be used for any other purpose

[Air Construction Permit No. 0250020-010-AC; Rule 62-4.070(3), F.A.C.]

70% of Kiln 5

June 18

*Sealed Kiln
June 18 Kiln down
no field work*

13.2.4 Aggregate Handling And Storage Piles

13.2.4.1 General

Inherent in operations that use minerals in aggregate form is the maintenance of outdoor storage piles. Storage piles are usually left uncovered, partially because of the need for frequent material transfer into or out of storage.

Dust emissions occur at several points in the storage cycle, such as material loading onto the pile, disturbances by strong wind currents, and loadout from the pile. The movement of trucks and loading equipment in the storage pile area is also a substantial source of dust.

13.2.4.2 Emissions And Correction Parameters

The quantity of dust emissions from aggregate storage operations varies with the volume of aggregate passing through the storage cycle. Emissions also depend on 3 parameters of the condition of a particular storage pile: age of the pile, moisture content, and proportion of aggregate fines.

When freshly processed aggregate is loaded onto a storage pile, the potential for dust emissions is at a maximum. Fines are easily disaggregated and released to the atmosphere upon exposure to air currents, either from aggregate transfer itself or from high winds. As the aggregate pile weathers, however, potential for dust emissions is greatly reduced. Moisture causes aggregation and cementation of fines to the surfaces of larger particles. Any significant rainfall soaks the interior of the pile, and then the drying process is very slow.

Silt (particles equal to or less than 75 micrometers [μm] in diameter) content is determined by measuring the portion of dry aggregate material that passes through a 200-mesh screen, using ASTM-C-136 method.¹ Table 13.2.4-1 summarizes measured silt and moisture values for industrial aggregate materials.

13.2.4.3 Predictive Emission Factor Equations

Total dust emissions from aggregate storage piles result from several distinct source activities within the storage cycle:

1. Loading of aggregate onto storage piles (batch or continuous drop operations).
2. Equipment traffic in storage area.
3. Wind erosion of pile surfaces and ground areas around piles.
4. Loadout of aggregate for shipment or for return to the process stream (batch or continuous drop operations).

Either adding aggregate material to a storage pile or removing it usually involves dropping the material onto a receiving surface. Truck dumping on the pile or loading out from the pile to a truck with a front-end loader are examples of batch drop operations. Adding material to the pile by a conveyor stacker is an example of a continuous drop operation.

Table 13.2.4-1. TYPICAL SILT AND MOISTURE CONTENTS OF MATERIALS AT VARIOUS INDUSTRIES^a

Industry	No. Of Facilities	Material	Silt Content (%)			Moisture Content (%)		
			No. Of Samples	Range	Mean	No. Of Samples	Range	Mean
Iron and steel production	9	Pellet ore	13	1.3 - 13	4.3	11	0.64 - 4.0	2.2
		Lump ore	9	2.8 - 19	9.5	6	1.6 - 8.0	5.4
		Coal	12	2.0 - 7.7	4.6	11	2.8 - 11	4.8
		Slag	3	3.0 - 7.3	5.3	3	0.25 - 2.0	0.92
		Flue dust	3	2.7 - 23	13	1	—	7
		Coke breeze	2	4.4 - 5.4	4.9	2	6.4 - 9.2	7.8
		Blended ore	1	—	15	1	—	6.6
		Sinter	1	—	0.7	0	—	—
		Limestone	3	0.4 - 2.3	1.0	2	ND	0.2
Stone quarrying and processing	2	Crushed limestone	2	1.3 - 1.9	1.6	2	0.3 - 1.1	0.7
		Various limestone products	8	0.8 - 14	3.9	8	0.46 - 5.0	2.1
Taconite mining and processing	1	Pellets	9	2.2 - 5.4	3.4	7	0.05 - 2.0	0.9
		Tailings	2	ND	11	1	—	0.4
Western surface coal mining	4	Coal	15	3.4 - 16	6.2	7	2.8 - 20	6.9
		Overburden	15	3.8 - 15	7.5	0	—	—
		Exposed ground	3	5.1 - 21	15	3	0.8 - 6.4	3.4
Coal-fired power plant	1	Coal (as received)	60	0.6 - 4.8	2.2	59	2.7 - 7.4	4.5
Municipal solid waste landfills	4	Sand	1	—	2.6	1	—	7.4
		Slag	2	3.0 - 4.7	3.8	2	2.3 - 4.9	3.6
		Cover	5	5.0 - 16	9.0	5	8.9 - 16	12
		Clay/dirt mix	1	—	9.2	1	—	14
		Clay	2	4.5 - 7.4	6.0	2	8.9 - 11	10
		Fly ash	4	78 - 81	80	4	26 - 29	27
		Misc. fill materials	1	—	12	1	—	11

^a References 1-10. ND = no data.

The quantity of particulate emissions generated by either type of drop operation, per kilogram (kg) (ton) of material transferred, may be estimated, with a rating of A, using the following empirical expression:¹¹

$$E = k(0.0016) \frac{\left(\frac{U}{2.2}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} \text{ (kg/megagram [Mg])} \quad (1)$$

$$E = k(0.0032) \frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} \text{ (pound [lb]/ton)}$$

where:

- E = emission factor
- k = particle size multiplier (dimensionless)
- U = mean wind speed, meters per second (m/s) (miles per hour [mph])
- M = material moisture content (%)

The particle size multiplier in the equation, k, varies with aerodynamic particle size range, as follows:

Aerodynamic Particle Size Multiplier (k) For Equation 1				
< 30 μm	< 15 μm	< 10 μm	< 5 μm	< 2.5 μm
0.74	0.48	0.35	0.20	0.11

The equation retains the assigned quality rating if applied within the ranges of source conditions that were tested in developing the equation, as follows. Note that silt content is included, even though silt content does not appear as a correction parameter in the equation. While it is reasonable to expect that silt content and emission factors are interrelated, no significant correlation between the 2 was found during the derivation of the equation, probably because most tests with high silt contents were conducted under lower winds, and vice versa. It is recommended that estimates from the equation be reduced 1 quality rating level if the silt content used in a particular application falls outside the range given:

Ranges Of Source Conditions For Equation 1			
Silt Content (%)	Moisture Content (%)	Wind Speed	
		m/s	mph
0.44 - 19	0.25 - 4.8	0.6 - 6.7	1.3 - 15

To retain the quality rating of the equation when it is applied to a specific facility, reliable correction parameters must be determined for specific sources of interest. The field and laboratory procedures for aggregate sampling are given in Reference 3. In the event that site-specific values for correction parameters cannot be obtained, the appropriate mean from Table 13.2.4-1 may be used, but the quality rating of the equation is reduced by 1 letter.

For emissions from equipment traffic (trucks, front-end loaders, dozers, etc.) traveling between or on piles, it is recommended that the equations for vehicle traffic on unpaved surfaces be used (see Section 13.2.2). For vehicle travel between storage piles, the silt value(s) for the areas among the piles (which may differ from the silt values for the stored materials) should be used.

Worst-case emissions from storage pile areas occur under dry, windy conditions. Worst-case emissions from materials-handling operations may be calculated by substituting into the equation appropriate values for aggregate material moisture content and for anticipated wind speeds during the worst case averaging period, usually 24 hours. The treatment of dry conditions for Section 13.2.2, vehicle traffic, "Unpaved Roads", follows the methodology described in that section centering on parameter p. A separate set of nonclimatic correction parameters and source extent values corresponding to higher than normal storage pile activity also may be justified for the worst-case averaging period.

13.2.4.4 Controls¹²⁻¹³

Watering and the use of chemical wetting agents are the principal means for control of aggregate storage pile emissions. Enclosure or covering of inactive piles to reduce wind erosion can also reduce emissions. Watering is useful mainly to reduce emissions from vehicle traffic in the storage pile area. Watering of the storage piles themselves typically has only a very temporary slight effect on total emissions. A much more effective technique is to apply chemical agents (such as surfactants) that permit more extensive wetting. Continuous chemical treating of material loaded onto piles, coupled with watering or treatment of roadways, can reduce total particulate emissions from aggregate storage operations by up to 90 percent.¹²

References For Section 13.2.4

1. C. Cowherd, Jr., *et al.*, *Development Of Emission Factors For Fugitive Dust Sources*, EPA-450/3-74-037, U. S. Environmental Protection Agency, Research Triangle Park, NC, June 1974.
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