



Jeb Bush
Governor

Department of Environmental Protection

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

FACSIMILE TRANSMISSION SHEET

DATE 10/30/00

TO: TERESA HERON

Department DARM / NSR

Phone SC 291-9529 Fax _____

FROM: BILL PROSES

DEP Southwest District Office - Air Program
Phone: (813) 744-6100 (SunCom 512-1042) Ext. 119

OPERATOR: EW119

SUBJECT: THE ATTACHED TABLE IS A SUMMARY OF SOUTHDOWN'S
KILNS 1 & 2 METAL TEST RESULTS FROM KOOGLER. KOOGLER
SAY THE COMPLETE TEST WILL ARRIVE THIS WEEK. WE NEED TO
KNOW WHAT THESE RESULTS WILL REQUIRE TO BE DONE.

THANKS, BILL P

Total Number of Pages, Including Cover Page: 2

DEP SWD AIR PROGRAM FAX NUMBERS: (813) 744-6458

(Suncom) 512-1073

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

Printed on recycled paper.

Metals Emission Summary Southdown, Inc. Brooksville, Florida

KILN 1
8/31/00

Run	Emission Rate (lb/hr)		
	Hg	Pb	Be
1	0.00000107	0.000012	0.0175
2	0.00000111	0.000012	0.0236
3	0.00000027	0.000927	0.0011
Average	0.00000082	0.000317	0.0141

0.009373 *lb/year* 0.10612 *lb/year* 153.3 *lb/year*
 0.009784 0.10512 205.26 *lb/year*
 0.002365 8.12052 9.636

0.07665 TPY

KILN 2
8/29 - 30/2000 *AVG*

0.007183 *lb/year* 2.77692 *lb/year* 123.516 *lb/year*
 0.000003592 TPY 0.001388 TPY 0.06176 TPY

Run	Emission Rate (lb/hr)		
	Hg	Pb	Be
1	0.00000103	0.000297	0.0009
2	0.00000019	0.000338	0.0004
3	0.00009574	0.00115	0.0005
Average	0.00003232	0.000585	0.0006

0.009028 2.60172 7.884
 0.0016649 2.96088 3.504
 0.8386824 10.074 4.38

AVG 0.283123 *lb/hr* 5.2122 *lb/hr* 5.256 *lb/hr*
 0.0004156 TPY 0.0026061 TPY 0.002628

		KILN 1	KILN 2
HG			
STATE	200 <i>lb/year</i>	0.00718	0.2831
FED	0.1 TPY	0.0000036	0.00042
PB			
STATE	1200 <i>lb/year</i>	2.7769	5.2122
FED	0.6 TPY	0.001388	0.002606
Be			
STATE	—	123.516	5.256
FED	0.0004 TPY	0.06176	0.002628

Kelvin 1

$$\begin{array}{r} 0.03679 \\ 0.00555 \\ \hline 0.03124 \end{array}$$

Kelvin 2

$$\begin{array}{r} 0.001344 \\ 0.000198 \\ \hline 0.001116 \end{array}$$

Table 1-1. Air Pollutant Standards and Terms.

FACILITY ID NUMBER: 0530010

Permittee:
 Southdown, Inc.
 Portland Cement Plant

DRAFT Permit No.: 0530010-003-AC
 Kiln No.1 & Cooler No.1 PSD-FL-233

Emission Unit 003 - Kiln No. 1
 Emission Unit 004 - Cooler No. 1

E.U. ID#	Description	Pollutant ID	Fuel(s)	Allowable Emissions(2)			Equivalent Emissions (3)	Regulation(s)
				lb/ton dry kiln _{ph} feed *	lb/hr @150 TPH	lb/hr @ 165 TPH	TPY	
ARMS # 003	Kiln No. 1	PM/PM ₁₀	Coal/Gas/Oil/WTDF	0.18	27.0	29.7	118	Rule 62-212.400(6), F.A.C.
ARMS # 003	Kiln No. 1	SO ₂ (1)	Coal/Gas/Oil/WTDF	0.10	15.0	16.5	66	Rule 62-4.070(3), F.A.C.
ARMS # 003	Kiln No. 1	NO _x	Coal/Gas/Oil/WTDF	1.83	275	301	1318	Rule 62-4.070(3), F.A.C.
ARMS # 003	Kiln No. 1	CO	Coal/Gas/Oil/WTDF	1.20	180.0	198.0	788	Rule 62-212.400(6), F.A.C.
ARMS # 003	Kiln No. 1	VOC	Coal/Gas/Oil/WTDF	0.09	13.6	14.9	60	Rule 62-4.070(3), F.A.C.
ARMS # 003	Kiln No. 1	Be,Pb,Hg	Coal/Gas/Oil/WTDF	(4) To Be Determined	(4)	(4)	(4)	
ARMS # 003	Kiln No. 1	20% VE	Coal/Gas/Oil/WTDF					Rule 62-204.800, F.A.C.
ARMS # 004	Cooler No. 1	10% VE						Rule 62-204.800, F.A.C.
ARMS # 004	Cooler No. 1	PM/PM ₁₀		0.09	13.6	14.9	60	Rule 62-204.800, F.A.C.

ALLOWABLE OPERATING RATES

		KILN No.1	Cooler No.1	
Hours of operation per Year		8760	8760	
Kiln preheater feed rate (kiln _{ph})	TPH	165		One-hour maximum
Kiln preheater feed rate (kiln _{ph}) *	TPH	150		(30 - day average)
Kiln Heat Input	MMBtu/hr	300		

NOTES

- (1) Emissions of SO₂ will not exceed 15 lbs/hr (150 TPH) and 16.5 lbs/hr (165 TPH). Annual testing is required in lieu of fuel sulfur restrictions. [AC27-258571]
- (2) Compliance units. This facility shall demonstrate compliance based on these emission standards.
- (3) "Equivalent Emissions" are based on annual average emissions at the 30-day feed rate of 150 TPH. The "Equivalent Emissions" are also listed to assess applicable Title V fees and for PSD recordkeeping tracking purposes.
- (4) To confirm emissions of these pollutants are under the PSD threshold levels.

Table 1-2. Air Pollutant Standards and Terms.

FACILITY ID NUMBER: 0530010

Permittee:
Southdown, Inc.
Portland Cement Plant

DRAFT Permit No.: 0530010-003-AC
Kiln No. 2 & Cooler No. 2 PSD-FL-233

Emission Unit 014 - Kiln No. 2
Emission Unit 015 - Cooler No. 2

E.U. ID#	Description	Pollutant ID	Fuel(s)	Allowable Emissions(2)			Equivalent Emissions (3)	Regulation(s)
				lb/ton dry kiln _{ph} feed *	lb/hr @ 150 TPH	lb/hr @ 165 TPH	TPY	
ARMS # 014	Kiln No. 2	PM/PM ₁₀	Coal/Gas/Oil	0.18	27.0	29.7	118	Rule 62-212.400(6), F.A.C.
ARMS # 014	Kiln No. 2	SO ₂ (1)	Coal/Gas/Oil	0.10	15.0	16.5	66	Rule 62-212.400(6), F.A.C.
ARMS # 014	Kiln No. 2	NO _x	Coal/Gas/Oil	1.72	258.0	283.8	1130	Rule 62-212.400(6), F.A.C.
ARMS # 014	Kiln No. 2	CO	Coal/Gas/Oil	1.20	180.0	198.0	788	Rule 62-212.400(6), F.A.C.
ARMS # 014	Kiln No. 2	VOC	Coal/Gas/Oil	0.09	13.6	14.9	60	Rule 62-212.400(6), F.A.C.
ARMS # 014	Kiln No. 2	B _e ,Pb,Hg	Coal/Gas/Oil	(4)	(4)	(4)	(4)	Rule 62-4.070(3), F.A.C.
ARMS # 014	Kiln No. 2	10% VE	Coal/Gas/Oil					Rule 62-212.400(6), F.A.C.
ARMS # 015	Cooler No.2	10% VE						Rule 62-212.400(6), F.A.C.
ARMS # 015	Cooler No.2	PM/PM ₁₀		0.09	13.6	14.9	60	Rule 62-212.400(6), F.A.C.

ALLOWABLE OPERATING RATES

		KILN No. 2	Cooler No. 2	
Hours of operation per Year		8760	8760	
Kiln preheater feed rate (kiln _{ph})	TPH	165		One-hour maximum
Kiln preheater feed rate (kiln _{ph})*	TPH	150		(30 - day average)
Kiln Heat Input	MMBtu/hr	300		

NOTES

- (1) Emissions of SO₂ will not exceed 15 lbs/hr (150 TPH) and 16.5 lbs/hr (165 TPH). Annual testing is required in lieu of fuel sulfur restrictions. [AC27-258572]
- (2) Compliance units. This facility shall demonstrate compliance based on these emission standards.
- (3) "Equivalent Emissions" are based on annual average emissions at the 30-day feed rate of 150 TPH. The "Equivalent Emissions" are also listed for informational purposes and for PSD and recordkeeping tracking purposes.
- (4) To confirm emissions of these pollutants are under the PSD threshold levels.

Table 2-1. Compliance Requirements.

FACILITY ID NUMBER: 0530010

Permittee:
 Southdown, Inc.
 Portland Cement Plant

DRAFT Permit No.: 0530010-003-AC
 PSD-FL-233 Kiln No. 1 & Cooler No. 1

E.U. ID#	Description	Pollutant Name or parameter	Fuel(s) [1]	EPA Reference Method	Testing Time Frequency	Min. Compliance Test Duration	Monitoring System (MS) *
ARMS # 003	Kiln No.1	PM/PM ₁₀ [6]	Coal/Gas/Oil/WTDF	5 or 201/201A	initial/annual	3 one-hour run	COMS [3]
ARMS # 003	Kiln No.1	VE	Coal/Gas/Oil/WTDF	9	initial/annual [3]	180 min.	
ARMS # 003	Kiln No.1	SO ₂ [5]	Coal/Gas/Oil/WTDF	6C	initial/annual [5]	3 one-hour run	
ARMS # 003	Kiln No.1	NO _x	Coal/Gas/Oil/WTDF	7E	initial/annual [7]	3 one-hour run	
ARMS # 003	Kiln No.1	CO [4]	Coal/Gas/Oil/WTDF	10	initial/annual [4]	3 one-hour run	
ARMS # 003	Kiln No.1	VOC [2]	Coal/Gas/Oil/WTDF	25 or 25A	initial [2]	3 one-hour run	
ARMS # 003	Kiln No.1	Be,Pb,Hg	Coal/Gas/Oil/WTDF	29	initial [8]	3 one-hour run	
ARMS # 004	Cooler No.1	PM/PM ₁₀ [6]		5 or 201/201A	initial/annual	3 one-hour run	
ARMS # 004	Cooler No.1	VE		9	initial/annual [3]	180 min.	COMS [3]

Notes:

- [1] Testing of emissions shall be conducted while burning coal and WTDF (20% heat input). Kiln No. 1 is allowed to burn natural gas, waste tire derived fuel (WTDF), and fuel oils (No. 2,4,5, and 6) as auxiliary fuels and on site generated non-hazardous wastes, used oil and grease. See specific condition No. B5. Frequency of testing after initial compliance shall be determined by the DEP Southwest District Office.
- [2] VOC emission shall be tested initially to comply with the condition of this permit. Thereafter, compliance will be assumed provided that the CO allowable emission rate is not exceeded.
- [3] Pursuant to 40 CFR 60, Subpart F, the kiln and cooler exhaust system shall be equipped with continuous monitors to record the opacity at the stack to indicate proper maintenance and operation. Monitoring of the opacity of emissions shall be determined by COMS pursuant to 40 CFR 60.63. Notification and recordkeeping shall be in accordance with 40 CFR 60.7 and 40 CFR 60.65.
- [4] Continuous process monitors for CO and/or O₂ to optimize combustion conditions for pollution control shall be part of the process.
- [5] Emissions of SO₂ shall not exceed 15 lbs/hour (150 TPH) and 16.5 lbs/hr (165 TPH). Annual testing is required in lieu of fuel sulfur restrictions. (Supplemental information received by DEP March 31, 1995).
- [6] Southdown has the option of using Method 5 if they stipulate that all of the PM is PM₁₀.
- [7] NO_x - An initial and Annual compliance tests as required by EPA Method 7E.
- [8] To confirm emissions of these pollutants are under the PSD threshold levels. Initial test.

* MS = Continuous Opacity Monitoring System (COMS) - Continuous Emission Monitoring System (CEMS)

Table 2-2. Compliance Requirements.

FACILITY ID NUMBER: 0530010

Permittee:
 Southdown, Inc.
 Portland Cement Plant

DRAFT Permit No.: 0530010-003-AC
 PSD-FL-233 Kiln No. 2 & Cooler No.2

E.U. ID#	Description	Pollutant Name or parameter	Fuel(s) [1]	EPA Reference Method	Testing Time Frequency	Min. Compliance Test Duration	Monitoring System (MS) *
ARMS # 014	Kiln No.2	PM/PM ₁₀ [6]	Coal / Gas / Oil	5 or 201/201A	initial/annual	3 one-hour run	COMS [3]
ARMS # 014	Kiln No.2	VE	Coal / Gas / Oil	9	initial/annual [3]	180 min.	
ARMS # 014	Kiln No.2	SO ₂ [5]	Coal / Gas / Oil	6C	initial/annual [5]	3 one-hour run	
ARMS # 014	Kiln No.2	NO _x	Coal / Gas / Oil	7E	initial/annual [7]	3 one-hour run	
ARMS # 014	Kiln No.2	CO [4]	Coal / Gas / Oil	10	initial/annual [4]	3 one-hour run	
ARMS # 014	Kiln No.2	VOC [2]	Coal / Gas / Oil	25 or 25A	initial [2]	3 one-hour run	
ARMS # 014	Kiln No.2	Be,Pb,Hg	Coal / Gas / Oil	29	initial [8]	3 one-hour run	
ARMS # 015	Cooler No. 2	PM/PM ₁₀ [6]		5 or 201/201A	initial/annual	3 one-hour run	
ARMS # 015	Cooler No. 2	VE		9	initial/annual [3]	180 min.	COMS [3]

Notes:

- [1] Testing of emissions shall be conducted while burning coal. Kiln No. 2 is allowed to burn natural gas and fuel oils (No. 2,4,5, and 6) as auxiliary fuels and on site generated non-hazardous wastes, used oil and grease. See specific condition No. C5. Frequency of testing after initial compliance shall be determined by the DEP Southwest District Office.
 - [2] VOC emission shall be tested initially to comply with the condition of this permit. Thereafter, compliance will be assumed provided that the CO allowable emission rate is not exceeded.
 - [3] Pursuant to 40 CFR 60, Subpart F, the kiln and cooler exhaust system shall be equipped with continuous monitors to record the opacity at the stack to indicate proper maintenance and operation. Monitoring of the opacity of emissions shall be determined by COMS pursuant to 40 CFR 60.63. Notification and recordkeeping shall be in accordance with 40 CFR 60.7 and 40 CFR 60.65.
 - [4] Continuous process monitors for CO and/or O₂ to optimize combustion conditions for pollution control shall be part of the process.
 - [5] Emissions of SO₂ shall not exceed 15 lbs/hour. Annual testing is required in lieu of fuel sulfur restrictions. (Supplemental information received by DEP March 31, 1995).
 - [6] Southdown has the option of using Method 5 if they stipulate that all of the PM is PM₁₀.
 - [7] NO_x - Initial and Annual compliance tests as required by EPA Method 7E.
 - [8] To confirm emissions of these pollutants are under the PSD threshold levels. Initial test.
- * MS = Continuous Opacity Monitoring System (COMS) - Continuous Emission Monitoring System (CEMS)

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

Southdown, Inc.
Portland Cement Plant

Air Permit No. 0530010-003-AC
PSD-FL-233 Kilns & Coolers No 1 & No 2

NO_x, CO and VOC will be set for Kiln 1 and PM/PM₁₀ for Cooler 1. These emissions limits will be based on PSD/BACT requirements for these pollutants.

6.3.1 Nitrogen Oxides (NO_x)

Nitrogen oxides will be limited to an emission factor of 1.83 lb NO_x/ton kiln_{ph} feed (275 lb/hr) for Kiln 1. The limit from Kiln 2 will remain at 1.72 lb NO_x/ton kiln_{ph} feed (258 lb/hr). These limits are attained through process and combustion control.

6.3.2 Sulfur dioxide (SO₂)

Sulfur dioxide emissions from each kiln will remain limited to 15 lb/hr (0.10 lb SO₂/ton kiln_{ph} feed). These represent the lowest known rates from any kiln in the country. SO₂ emissions are minimized by maintaining proper ratios of sulfur and alkali in the pyroprocessing environment and intimate contact between raw materials and exhaust gases. Ultimately the sulfur oxides are incorporated into the clinker lattice structure, thus minimizing the amount emitted to the atmosphere. A small measure of SO₂ removal is theoretically possible in the baghouse although insufficient moisture is present to allow this mechanism to be significant.

6.3.3 Particulate Matter (PM/PM₁₀)

Particulate emissions will be limited to 27 lb/hr from each kiln and 13.6 lb/hr from each cooler. These equate to 0.18 lb/ton kiln_{ph} feed and 0.09 lb/ton kiln_{ph} feed from the kiln and cooler respectively. These values are among the lowest at any cement plant in the country. The exhaust gases from both kilns and coolers are controlled by fabric filters (baghouses). When properly maintained, baghouses routinely achieve a particulate control efficiency greater than 99.9 percent.

6.3.4 Carbon Monoxide and Volatile Organic Compounds (CO and VOC)

Emissions from each kiln of carbon monoxide and volatile organic compounds will be limited to 13.6 lb CO/hr and 13.6 lb VOC/hr. These values correspond to emission factors of 1.2 lb CO/ton kiln_{ph} feed and 0.09 lb VOC/ton kiln_{ph} feed. These limits will be accomplished by combustion control.

6.3.5 Metal Emissions

Most trace metals in the kiln systems behave in a manner similar to the main elements, i.e. Ca, Si, Al, Fe and Mg. As such, most of the trace metals are bound in the clinker and in the dusts discharged from the kiln system. Studies show that more than 99.9 % of the total main and trace elements inputs are bound in the solids of the kiln system.

Analyses of the on site generated, non-hazardous used oil/grease, burned as these kilns, meets the specification used oil limits for arsenic, cadmium, lead and total halogens but exceed the on-specification used oil limit for chromium. However, studies show that the low volatility of the

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

Southdown, Inc.
Portland Cement Plant

Air Permit No. 0530010-003-AC
PSD-FL-233 Kilns & Coolers No 1 & No. 2

metals, including chromium, and its extensive bonding in the clinker results in insignificant emissions for these elements.

Southdown has provided assurances that emissions of these pollutants will not result in exceedances of air quality standards or ambient guidelines developed to protect human health and welfare. PSD pollutants: Mercury (Hg), Beryllium (Be), lead (Pb), and arsenic (As) are under the PSD threshold level and are not subject to PSD review.

6.4 Air Quality Analysis

6.4.1 Introduction

The proposed project will increase emissions of four pollutants at levels in excess of PSD significant amounts: PM/PM₁₀, CO, NO_x, and VOC. The air quality impact analyses required by the PSD regulations for these pollutants include:

- * An analysis of existing air quality for PM₁₀, CO, NO_x, and VOC;
- * A significant impact analysis for PM₁₀, CO and NO_x;
- * A PSD increment analysis for PM₁₀ and NO_x;
- * An Ambient Air Quality Standards (AAQS) analysis for PM₁₀, and
- * An analysis of impacts on soils, vegetation, and visibility and of growth-related air quality modeling impacts.

The analysis of existing air quality generally relies on preconstruction monitoring data collected with EPA-approved methods. The significant impact, PSD increment, and AAQS analyses depend on air quality dispersion modeling carried out in accordance with EPA guidelines.

Based on the required analyses, the Department has reasonable assurance that the proposed project, as described in this report and subject to the conditions of approval proposed herein, will not cause or significantly contribute to a violation of any AAQS or PSD increment. However, the following EPA-directed stack height language is included: "In approving this permit, the Department has determined that the application complies with the applicable provisions of the stack height regulations as revised by EPA on July 8, 1985 (50 FR 27892). Portions of the regulations have been remanded by a panel of the U.S. Court of Appeals for the D.C. Circuit in NRDC v. Thomas, 838 F. 2d 1224 (D.C. Cir. 1988). Consequently, this permit may be subject to modification if and when EPA revises the regulation in response to the court decision. This may result in revised emission limitations or may affect other actions taken by the source owners or operators." A discussion of the required analyses follows.

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

Southdown, Inc.
Portland Cement Plant

Air Permit No. 0530010-003-AC
PSD-FL-233 Kilns & Coolers No 1 & No. 2

metals, including chromium, and its extensive bonding in the clinker results in insignificant emissions for these elements.

Southdown has provided assurances that emissions of these pollutants will not result in exceedances of air quality standards or ambient guidelines developed to protect human health and welfare. PSD pollutants: Mercury (Hg), Beryllium (Be), lead (Pb), and arsenic (As) are under the PSD threshold level and are not subject to PSD review.

6.4 Air Quality Analysis

6.4.1 Introduction

The proposed project will increase emissions of four pollutants at levels in excess of PSD significant amounts: PM/PM₁₀, CO, NO_x, and VOC. The air quality impact analyses required by the PSD regulations for these pollutants include:

- * An analysis of existing air quality for PM₁₀, CO, NO_x, and VOC;
- * A significant impact analysis for PM₁₀, CO and NO_x;
- * A PSD increment analysis for PM₁₀ and NO_x;
- * An Ambient Air Quality Standards (AAQS) analysis for PM₁₀, and
- * An analysis of impacts on soils, vegetation, and visibility and of growth-related air quality modeling impacts.

The analysis of existing air quality generally relies on preconstruction monitoring data collected with EPA-approved methods. The significant impact, PSD increment, and AAQS analyses depend on air quality dispersion modeling carried out in accordance with EPA guidelines.

Based on the required analyses, the Department has reasonable assurance that the proposed project, as described in this report and subject to the conditions of approval proposed herein, will not cause or significantly contribute to a violation of any AAQS or PSD increment. However, the following EPA-directed stack height language is included: "In approving this permit, the Department has determined that the application complies with the applicable provisions of the stack height regulations as revised by EPA on July 8, 1985 (50 FR 27892). Portions of the regulations have been remanded by a panel of the U.S. Court of Appeals for the D.C. Circuit in NRDC v. Thomas, 838 F. 2d 1224 (D.C. Cir. 1988). Consequently, this permit may be subject to modification if and when EPA revises the regulation in response to the court decision. This may result in revised emission limitations or may affect other actions taken by the source owners or operators." A discussion of the required analyses follows.

TABLE 212.400-2
REGULATED AIR POLLUTANTS --SIGNIFICANT EMISSION RATES

Pollutant	Significant Emission Rate (Tons Per Year)
Carbon monoxide	100
Nitrogen oxides	40
Sulfur dioxide	40
Ozone	40 VOC
Particulate matter	25
PM ₁₀	15
Total reduced sulfur (including H ₂ S)	10
Reduced sulfur compounds (including H ₂ S)	10
Sulfuric acid mist	7
Fluorides	3
	(Pounds Per Year)
Lead	1200
Mercury	200
Municipal waste combustor organics (measured as total tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans)	(Megagrams per Year) 3.2 x 10 ⁻⁶ (Tons per Year) 3.5 x 10 ⁻⁶
Municipal waste combustor metals (measured as particulate matter)	(Megagrams per Year) 14 (Tons per Year) 15
Municipal waste combustor acid gases (measured as sulfur dioxide and hydrogen chloride)	(Megagrams per Year) 36 (Tons per Year) 40
Municipal solid waste landfill emissions (measured as nonmethane organic compounds)	(Megagrams per Year) 45 (Tons per Year) 50