



August 23, 1996

Mr. A. A. Linero, P.E., Administrator
New Source Review Section
Bureau Of Air Regulation
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

RECEIVED

AUG 26 1996

BUREAU OF
AIR REGULATION

Re: Southdown, Inc. Modification of Permits
AC27-258569, -258570, -258571, & -258572
Kilns 1 & 2, and Coolers 1 & 2.

Dear Mr. Linero

Thank you for visiting our Brooksville plant on August 13, 1996. In accordance with our discussion on "kiln feed" during the meeting, we will not seek an increase in the emission limits above those submitted in our PSD application. However, we have re-calculated our emissions in terms of lb/ton of feed to the preheater, based on a preheater feed of 145 tons per hour as shown in the attached TABLE I, which also shows the revised PSD netting calculations. In the past, you have asked us to provide "reasonable assurance" that we will be able to meet the new limits for TSP, CO and VOC. Based on data that we collected in September/October of 1995, utilizing the most commonly available flyash and mill scale, we believe our typical emissions will be as shown in TABLE II.

Southdown does intend to install non-certified CO monitors in the exiting gas flow, near the top of the preheater, in each kiln, for purposes of providing valuable process information to the control room operators. As you are aware, we already have oxygen monitors in the back end of each kiln. During our compliance testing, we will not only measure the appropriate emissions in the stack, but also measure the oxygen in the back end of the kiln and the CO exiting from the preheater. We will then establish operating ranges for the oxygen and CO levels, which will be used by the control room operators for controlling the kiln. The mass emission rate of CO should remain fairly constant between the top the preheater and the exhaust stack. Therefore, the CO monitor will also, indirectly, provide an indication of the CO emissions from the main stack.

The remainder of this letter is in response to your July 10, 1996 letter. Pertinent paragraphs from your letter are reproduced below in bold lettering, followed by our response.

PSD Netting Calculation

"The netting calculation for PSD applicability should have been based on comparisons of future potential emissions to past actual emissions. Southdown's calculations were based on

comparisons of allowable emissions limits before and after the changes. If some of the emissions units were operating out of compliance, then it would be appropriate to use past allowable emission rates (for those units) together with past actual hours of operation for comparison with future potential emissions. Please provide a revised netting calculation [Rule 62-212.400(2)(e)]. This was specifically requested in the section entitled "Emission Data" in our March 21 letter."

Response

The netting calculation is performed primarily to determine if the increase in emissions for any of the criteria pollutants would exceed the significant levels, and thereby be classified as "major modification". A major modification is subject to the prevention of significant deterioration (PSD) review. In this case, we had determined that the requested increases for total suspended particulates and carbon monoxide were greater than the significant thresholds of 25 tons/year and 100 tons/year respectively, and therefore a PSD review was applicable. Since the netting calculations were not used to avoid a PSD review, any further refinements to those calculations would not change the end conclusion. The dispersion modeling is not based on tons/year, but rather lbs/hr. Therefore, the impacts on the ground level concentrations, as presented in our analysis, would not be affected by any increases or decreases in the PSD netting calculations.

The reason Southdown requested an increase in the particulate emission limits for Kiln #2, Clinker Cooler #2 and Clinker Cooler #1 was that we could not meet these limits on an on-going basis. As a matter of fact, the limits were exceeded during the compliance testing for these units in 1995. We are in the process of negotiating a settlement with the Florida Department of Environmental Protection's Southwest District office in Tampa, FL. Therefore, as stated in your letter, it is appropriate to use the allowable mass emission rates (lb/hr) in calculating the annual tons per year. It is true that we should have used actual hours of operation for 1994 and 1995 to calculate the annual average instead of using allowable hours of operation. A revised emission netting, based on a feed rate of 145 tons per hour to the preheater, is attached. Dispersion modeling has been re-run.

BACT Determination

"We need better information on historical actual emissions and knowledge on how these were or can be minimized to insure that emission rates reflective of Best Available Control Technology are selected. We cannot justify increases in selected emission limits based on recent BACT determinations alone. Those determinations also addressed other pollutants with tighter limits (e.g. nitrogen oxides) which Southdown does not seek to change at its facility."

Response

OXIDES OF NITROGEN (NO_x)

The NO_x limit for Kiln No. 2 is 250 lbs/hr. This limit was not established on the basis of any emission

factors related to either kiln feed or clinker production. However, it is equivalent to 1.724 lb/ton dry feed to the preheater. The conversion factor from preheater feed to clinker production can vary from 0.55 to 0.62. Therefore, the clinker production can vary from 79.8 tons/hour to 89.9 tons/hour. Since our NO_x limit is fixed at 250 lbs/hour, for comparison purposes, it can be expressed as 3.13 lb/ton clinker to 2.78 lb/ton of clinker. The NO_x limit for Kiln No. 2 is the lowest for any of our operating kilns. This limit compares very well with the most recent BACT determinations made by FDEP for both Florida Crushed Stone (FCS) and Florida Rock Industries (FRI). Therefore, it is not clear why FDEP would consider tightening the existing NO_x for Kiln #2. There is no NO_x limit for Kiln #1 and we strongly oppose any suggestion by FDEP to establish one at this time for the simple reason that it will result in additional emission fees approaching \$30,000 to \$40,000 annually.

CARBON MONOXIDE (CO)

As we have stated in previous submittals, the carbon monoxide is not just a combustion related pollutant. Southdown uses flyash as an additive to the raw feed mix primarily as a source of alumina and silica. Flyash also contains carbon, which can vary in concentration depending on the source of the flyash. As the raw feed travels down the preheater tower, most of the carbon present in the flyash is burned off but some of it leaves as carbon monoxide. This results in fluctuating carbon monoxide emissions. Exhaust gas sampling, while using typical flyash from Tampa Electric Power Company (TEPCO) has indicated that CO concentrations can fluctuate between 60 to 200 ppm. Based on these results, we feel confident that the BACT limit for carbon monoxide of 1.172 lb/ton of feed to the preheater (1.307 lb/ton kiln feed, as used previously) can be met consistently on an on-going basis.

VOLATILE ORGANIC COMPOUNDS EMISSIONS (VOC)

Southdown uses mill scale as an additive to the raw feed as a source of iron. Mill scale is generally contaminated with oils from the various processes in the mill. As the mill scale travels down the preheater tower, as a part of the raw feed, the organics volatilize and exit through the main stack. The existing limit of 7.4 lb/hr is too low. Exhaust gas sampling, while using typical mill scale, containing up to 2% hydrocarbons, has indicated that VOC concentrations can fluctuate between 5 to 10 ppm. Based on these results, we feel confident that a limit of 0.09 lb/ton feed for volatile organic compounds can be met consistently on an on-going basis.

SULFUR DIOXIDE (SO₂)

Southdown had requested FDEP to delete Flolite as an alternate fuel for both kilns. This request was approved and is reflected in the most recent permit renewal, AC27-258570 for Kiln No. 2 dated May 19, 1995, and AC27-258571 for Kiln No. 1 dated August 3, 1995. The new SO₂ emission limit for each kiln is 15.0 lb/hr. This limit is more stringent than limits established by FDEP for both FCS and FRI. As discussed during our meeting on August 13, 1996, increasing this limit to 25 lb/hr for each kiln would make it not only consistent with other kilns in the state, but also in line with the most recent BACT determinations.

Incomplete Determination

"The main reason is that it does not adequately describe the manner in which Southdown intends to operate its kilns to insure that the proposed limits will be met."

Response

As stated earlier in the letter, Southdown does intend to install CO monitors (non-certified) in the exiting gas stream from the preheaters for process controls. These CO monitors, in conjunction with the existing O2 monitors in the back end of the kiln will be used to define operating ranges for the control room operators. These ranges will be determined during the compliance testing. We have every reason to believe that we will be able to meet the requested limits for CO, VOC and TSP.

OTHER ITEMS

In the cement industry, "kiln feed" for a preheater/precalciner kiln is generally assumed to be the feed entering the preheater tower. It is the only "feed" rate that is actually measured. The so called "kiln feed" (as used by FDEP) is calculated by assuming that a certain percentage of the feed is carried away by the counter flowing gases and is collected in the dust collectors, from where it is recycled. Clinker production is also calculated based on a conversion factor. It is Southdown's position that feed rate to the preheater is most significant and verifiable number for tracking production. In our permits for Kiln #1 & #2, we have the following limits in Condition No. 4, under "PROCESS OPERATING LIMITATIONS":

"The maximum material handling rates, based upon a rolling 30 production-day average, are as follows:

Kiln preheater feed rate	= 145 tons/hour
Cement Kiln Feed Rate	= 130 tons/hour
Clinker production rate	= 79.6 tons/hour

The maximum material handling rates for any one hour of operation are as follows:

Kiln preheater feed rate	= 165 tons/hour
Cement Kiln Feed Rate	= 148 tons/hour
Clinker production rate	= 90.0 tons/hour"

We do not see any need for a three-tier limit on production. We believe there should only be one limit and that should be the limit on feed to the preheater. Therefore, we respectfully request that Condition No. 4, in both permits, be amended to read as:

"The maximum material handling rate, based upon a rolling 30 production-day average, is 145 tons/hour and the maximum material handling rate for any one hour of operation is 165 tons/hour."

We hope this response adequately addresses the concerns raised in your July 10, 1996 letter and will allow you to proceed in the issuance of the "Draft Permits". If you need additional information or have any questions please call me at (713) 653-8098.

Sincerely,

Amarjit Singh Gill
Amarjit Singh Gill, PE
Director, Air Permitting

c: Don Kelly
John Koogler

cc: EPA
NPS
SWD

SOUTHDOWN, INC.
BROOKSVILLE PLANT

	Pollutant	Allowable Hrs.	Allowable Lb/Hr	1994 TPY	1995 TPY	2 Yr. Avg. TPY	Preheater Feed TPH	BACT Lb/Ton Feed	Calculated Emis. Limit Lb/Hr	PTE TPY	NET TPY
Kiln #1	TSP	8760	43.5	174.0	171.3	172.7	145.0	0.180	26.1	114.3	-58.3
Kiln #2	TSP	8200	13.5	50.5	52.5	51.5	145.0	0.180	26.1	107.0	55.5
Cooler #1	TSP	8760	7.1	28.4	28.0	28.2	145.0	0.090	13.1	57.2	29.0
Cooler #2	TSP	8200	5.0	18.7	19.5	19.1	145.0	0.090	13.1	53.5	34.4
Net TSP											60.6
Kiln #1	CO	8760	57.7	230.8	227.2	229.0	145.0	1.172	169.9	744.3	515.3
Kiln #2	CO	8200	64.0	239.3	249.0	244.1	145.0	1.172	169.9	696.8	452.6
Net CO											968.0
Kiln #2	VOC	8200	7.4	27.7	28.8	28.2	145.0	0.090	13.1	53.5	25.3
Net VOC											25.3
Kiln #1 & Clinker Cooler #1 operated 8001 hours in 1994 and 7875 hours in 1995											
Kiln #2 & Clinker Cooler #2 operated 7478 hours in 1994 and 7780 hours in 1995											

TABLE I

BROOKSVILLE, FLORIDA

Pollutants	Ave Meas	Exh Flow	Temp	Moisture	Baro. Press	Exh Flow	Phtr. Feed	Pmt. Limit	Calculated	Limit	Margin
	PPM or %	ACFM	(F)	%	Inch Hg	DSCFM	Tons/Hr	Lb/Hr	Lb/Hr	Lb/Hr	%
NOx	160.0	278000.0	230.0	9.0	29.7	192525.2	145.0	250.0	220.8	250.0	11.7
SO2	7.0	278000.0	230.0	9.0	29.7	192525.2	145.0	15.0	13.4	15.0	10.4
VOC	7.5	278000.0	230.0	9.0	29.7	192525.2	145.0	7.4	9.9	13.1	24.4
CO	180.0	278000.0	230.0	9.0	29.7	192525.2	145.0	64.0	151.2	169.9	11.0
TSP		278000.0	230.0	9.0	29.7	192525.2	145.0	13.5	19.8	26.1	24.1
O2 - % *	13.2										

Kiln #2

Pollutants	Ave Meas	Exh Flow	Temp	Moisture	Baro. Press	Exh Flow	Phtr. Feed	Pmt. Limit	Calculated	Limit	Margin
	PPM or %	ACFM	(F)	%	Inch Hg	DSCFM	Tons/Hr	Lb/Hr	Lb/Hr	Lb/Hr	%
SO2	7.0	275000.0	250.0	9.0	29.7	185082.9	145.0	15.0	12.9	15.0	13.9
CO	175.0	275000.0	250.0	9.0	29.7	185082.9	145.0	57.7	141.3	169.9	16.8
TSP		275000.0	250.0	9.0	29.7	185082.9	145.0	43.5	20.6	26.1	21.0
O2 - %*	13.7										

Kiln #1

* Oxygen is shown for information only. It can vary from 10% to 15%, depending on the air leakage into the system.