

Memorandum

**Florida Department of
Environmental Protection**

KIM

TO: Howard Rhodes
THRU: Clair Fancy *[Signature]*
FROM: Al Linero *[Signature]* 6/17
DATE: June ¹⁷~~20~~, 1997
SUBJECT: Southdown Inc., 0530010-003-AC and PSD-FI-233
Modification of Existing Construction Permit
Final Permit

Attached is the construction permit modification for this facility. The new permit will replace four current construction permits for Cement Plants No. 1 and No. 2, which were originally permitted in 1973 and 1980, respectively. Each plant includes a coal/ liquid fuel/ gas-fired, dry process cement kiln with a preheater and clinker cooler. Air pollution control is achieved by fabric filters (baghouses) for PM/PM₁₀ from the kilns and coolers; absorption of sulfur compounds and metals into the product; and combustion controls for CO, volatile organic compounds (VOC), and nitrogen oxides (NO_x).

The permit allows an increase in preheater feed rate for each kiln from 145 to 150 tons per year on a 30 day rolling average. The permit will account for increases in the permitted emissions of PM/PM₁₀ from Coolers No. 1 and No. 2 and Kiln No. 2; decrease of permitted emissions of PM/PM₁₀ from Kiln No. 1; establishment of or increase in permitted emission limits of CO and VOC from both kilns; and will set a permit limit for NO_x from Kiln No. 1.

I recommend your approval and signature.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF FINAL PERMIT

In the Matter of an
Application for Permit

Mr. Don Kelly, Plant Manager
Southdown, Inc.
Post Office Box 6
Brooksville, Florida 34605-0006


DEP File No. 0530010-003-AC
PSD-FL-233

Enclosed is the final Permit Number 0530010-003 AC and PSD-FL-233. This permit revises permitted emission limits for two kilns and coolers at the Brooksville facility located on Highway 98, Northwest of Brooksville in Hernando County, Florida. This permit is issued pursuant to Section 403, Florida Statutes.

Any party to this order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, F.S., by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Legal Office; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 14 (fourteen) days from the date this Notice is filed with the Clerk of the Department.

The Notice of Appeal must be filed within 14 (fourteen) days from the date this Notice is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.


C. H. Fancy, P.E., Chief
Bureau of Air Regulation

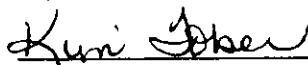
CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF FINAL PERMIT (including the FINAL permit) was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 6-26-97 to the person(s) listed:

Mr. Don Kelly, Southdown, Inc. *
Mr. Brian Beals, EPA
Mr. John Bunyak, NPS
Mr. John Koogler, P.E.
Mr. Amargit Gill, Southdown, Inc.
Mr. Bill Thomas, SWD
Mr. Tom Ellison, SWD
Ms. Dawn Shaw, HCPD

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52(7), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.



(Clerk)

6-27-97
(Date)

FINAL DETERMINATION

SOUTHDOWN, INC.
PORTLAND CEMENT FACILITY
PERMIT 0530010-003-AC (PSD-FL-233)
Hernando County

An Intent to Issue an air construction permit modification for Southdown Inc. located on Highway 98 Northwest of Brooksville, Hernando County, Florida was distributed on May 6, 1997. The Notice of Intent to Issue was published in the Hernando Today, Pasco and Citrus County sections of The Tampa Tribune on May 15, 1997.

During the Public Notice period, comments were submitted by Mr. Jennings, Department Director, Hernando County, Planning Department, Mr. Amarjit S. Gill, P.E., Director, Air Permitting, Southdown, Inc., and Dr. John Koogler, of Koogler and Associates. Mr. Gill and Dr. Koogler had several comments regarding the Technical Evaluation and Preliminary Determination, BACT determination and the Draft Permit.

The Bureau has considered Mr. Jennings, Dr. Koogler and Mr. Gill's comments and has addressed them as follows:

KOOGLER & ASSOCIATES LETTER DATED MAY 16, 1997

Technical Evaluation and Preliminary Determination

Dr. Koogler identified some editorial inconsistency on the numbering of the emission units and submitted certain refinements to the modifications listed on page 3 of the Technical Evaluation and Preliminary Determination.

The comments submitted regarding the Technical Evaluation and Preliminary Determination will be part of the Department's Southdown files. The Department agrees with Dr. Koogler's comments.

Table 2-1 And Table 2-3 Compliance Requirements

Dr. Koogler, on behalf of Southdown, is requesting the requirement for the one-week monitoring for carbon monoxide be deleted from both Kiln 1 and Kiln 2, since the permits specify that the duration of each of the determinations (test runs) is to be one-hour (short term).

The Department concurs with Dr. Koogler rationale. Originally, during previous conversations between the Department and Southdown, it was Southdown's intention to conduct tests based on long term compliance averaging time. Subsequently, Southdown decided to demonstrate compliance based on a short term as required by the regulations.

The frequency of testing and the duration of the tests for these emission units is as specified in Tables 2-1 and 2-2 Compliance Requirements.

**BOARD OF COUNTY COMMISSIONERS-HERNANDO COUNTY PLANNING
DEPARTMENT Letter dated May 20, 1997:**

Mr. Jennings requested that additional language be added to the permit to assure that the used oil/grease to be burned meets the non-hazardous criteria of the County's Air Toxics and Hazardous Waste Fuel Burning Facility Moratorium.

Southdown agreed with the request and the Department has incorporated it as a permit condition. The additional language is added to Specific Condition B5.(h).

Southdown is allowed to burn on site generated non-hazardous waste (as defined by Rule 62-730.030, F.A.C., or 40 CFR Part 261) used oil and grease in the kilns (less than 5,000 gallons per year).

The constituents and properties of the on-spec used oil shall comply with the following allowable concentration levels, as stipulated and defined in 40 CFR 279 (July 1, 1996 version), which is adopted by reference in Chapter 62-710 Florida Administrative Code (F.A.C.):

Constituent/Property	Allowable Concentration
Cadmium	2 ppm maximum
Arsenic	5 ppm maximum
Chromium *	10 ppm maximum
Lead	100 ppm maximum
Total Halogens	1000 ppm maximum
Flash Point	140° F minimum
Polychlorinated	Less than 2 ppm
Byphenyls (PCBs)	

* Based on the analysis of the samples, the Department considers the used oil/grease to be classified as an off-specification used oil for chromium. However, studies show that the low volatility of the 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, including chromium, will not result in exceedances of air quality or ambient guidelines developed to protect human health and welfare.

CONCLUSION:

The final action of the Department will be to issue the permit with the changes as noted above.

**DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF AIR RESOURCES MANAGEMENT
BUREAU OF AIR REGULATION
TELEPHONE (904) 488-1344
FAX (904) 922-6979
Mail Station # 5505**

AIR CONSTRUCTION PERMIT

(Revision of AC 27-258569,-258570,-258571, and-258572)

**SOUTHDOWN, INC
PORTLAND CEMENT PLANT**

Facility ID No. 0530010
Brooksville, Florida
Hernando County
Florida

Permit No. 0530010-003-AC and PSD-FL-233
Kiln and Cooler No. 1 and No. 2

June 20, 1997

SOUTHDOWN, INC.
PORTLAND CEMENT PLANT
Brooksville, Florida
PSD-FL-233 and 0530010-001-AC
Facility ID No. 0530010

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Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

PERMITTEE:

**Southdown, Inc.,
Brooksville Plant
Post Office Box 6
Brooksville, Florida 34605-0006**

FID No.:	0530010
PSD No.:	PSD-FL-233
Permit No.:	0530010-003-AC
SIC No.:	3241
Expires:	June 30, 1998

Authorized Representative:
Don Kelly, Plant Manager

LOCATED AT:

Southdown, Inc., Brooksville Plant, Hernando County
Project: Portland Cement Manufacturing
Kilns 1 & 2 and Clinker Coolers 1 & 2


UTM: Zone 17 ; 356.0 km E ; 3169.9 km N
Directions: *Located on Highway 98, NW of Brooksville, Hernando County*

STATEMENT OF BASIS:

This draft construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and the Florida Administrative Code (F.A.C.) Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297. The above named permittee is authorized to modify the facility in accordance with the conditions of this permit and as described in the application, approved drawings, plans, and other documents on file with the Department of Environmental Protection (Department).

Attached appendices and tables made a part of this permit:

Table 1-1 and 1-2	Air Pollutants Standards and Terms
Table 2-1 and 2-2	Compliance Requirements
Appendix BD-1	BACT Determination
Appendix GC-1	Construction Permit General Conditions


Howard L. Rhodes, Director

AIR CONSTRUCTION PERMIT 0530010-003-AC AND PSD-FL-233

SECTION II. EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

FACILITY DESCRIPTION:

This facility consists of two identical portland cement manufacturing plants and associated equipment. These plants are identified as Cement Plant No. 1 and Cement Plant No. 2.

EMISSION UNITS

These permits address the following emission units:

EMISSIONS UNIT NO.	EMISSIONS UNIT DESCRIPTION
003	Kiln No. 1
004	Cooler No. 1
014	Kiln No. 2
015	Cooler No. 2

REGULATORY CLASSIFICATION

This industry is listed in Table 62-212.400-1 of Chapter 62-212, F.A.C., "Major Facility Categories." Therefore, stack and fugitive emissions of over 100 tons per year of carbon monoxide, volatile organic compounds, sulfur dioxide, nitrogen oxides, or particulate matter characterize the installation as a major facility subject to the requirements of Rule 62-204.800, F.A.C., which incorporates 40 CFR Subpart F, the New Source Performance Standards (NSPS) for Portland Cement Plants. This facility is a Title V source.

PERMIT SCHEDULE:

06/15/97 End of Public Comment period
05/15/97 Publication of Notice in The Tampa Tribune
05/06/97 Issued Intent to Issue Permit
04/03/97 Application deemed complete

RELEVANT DOCUMENTS:

The documents listed below are the basis of the permit. The documents listed below are specifically related to this permitting action. These documents are on file with the Department.

1. Application received February 22, 1996. Addendum received February 21, 1997.
2. Department's letters dated March 8, March 21, July 10, July 25, September 23, October 31, 1996 and January 5, 1997.
3. Southdown Inc. letters dated April 1, June 17, July 22, August 26, October 2, (netting calculations) October 14, November 5, November 11, 1996, January 30, January 31 and February 24, 1997

AIR CONSTRUCTION PERMIT 0530010-003-AC AND PSD-FL-233

SECTION II. EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

1.0 ADMINISTRATIVE

- 1.1 Regulating Agencies: All documents related to applications for permits to operate, reports, tests, minor modifications and notifications shall be submitted to the Florida Department of Environmental Protection (FDEP) Southwest District Air Section located at 3804 Coconut Drive, Tampa, Florida 33619-8218, and phone number (813)744-6100. All applications for permits to construct or modify an emission unit(s) subject to the Prevention of Significant Deterioration requirements should be submitted to the Bureau of Air Regulation (BAR), Florida Department of Environmental Protection (FDEP) located at 2600 Blirstone Road, Tallahassee, Florida 32399-2400 and phone number (904)488-1344.
- 1.2 General Conditions: The owner and operator is subject to and shall be aware of and operate under the attached General Permit Conditions G.1 through G.15 listed in *Appendix GC* of this permit. General Permit Conditions are binding and enforceable pursuant to Chapter 403 of the Florida Statutes. [Rule 62-4.160, F.A.C.]
- 1.3 Terminology: The terms used in this permit have specific meanings as defined in the corresponding chapter of the Florida Administrative Code.
- 1.4 Forms and Application Procedures: The permittee shall use the applicable forms listed in Rule 62-210.900, F.A.C., when appropriate and follow the application procedures in Chapter 62-4, F.A.C. [Rule 62-210.900, F.A.C.]
- 1.5 Expiration: This air construction permit shall expire on June 30, 1998. [Rule 62-210.300(1), F.A.C.] The permittee may, for good cause, request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit. However, the permittee shall promptly notify the Southwest District office of any delays in completion of the project which would affect the startup day by more than 90 days. [Rule 62-4.090, F.A.C.]
- 1.6 Application for Title V Permit: This air construction permit revises specific permit conditions to reflect the current applicable requirements, BACT and new permit emission limits. Stack testing of emissions that are required by this permit shall be performed to determine compliance with all new applicable permitted limits. A revision of the Title V operating permit application pursuant to Chapter 62-213, F.A.C., shall be submitted to the DEP District office in Tampa. [Chapter 62-213, F.A.C.]
- 1.7 Applicable Regulations: Unless otherwise indicated, the construction and operation of these emission units shall be in accordance with the capacities and specifications stated in the application. Southdown, Inc., is subject to all applicable provisions of Chapter 403, F.S. and Florida Administrative Code Chapters 62-4, 62-103, 62-204, 62-210, 62-212, 62-213, 62-296, 62-297, and the Code of Federal Regulations Section 40, Part 60. Specifically, this facility is subject to the New Source Performance Standards (NSPS) for Portland Cement Plants identified by the Code of Federal Regulations Section 40, Part 60, Subpart F, and incorporated by reference in the Florida Administrative Code regulation 62-204.800. Issuance of this

AIR CONSTRUCTION PERMIT 0530010-003-AC AND PSD-FL-233

SECTION II. EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements or regulations. [Rule 62-210.300, F.A.C.]

2.0 EMISSION LIMITING STANDARDS

2.1 General Visible Emissions Standard: [Rule 62-296-320 (4)(b), F.A.C.] Unless otherwise specified by rule or permit, no person shall cause, let, permit, suffer or allow to be discharged into the atmosphere any air pollutants from new or existing emissions units, the opacity of which is equal to:

- Visible emissions from PM fugitive sources shall not exceed 10% opacity.

2.2 Unconfined Emissions of Particulate Matter [Rule 62-296.320(4)(c), F.A.C.]

- (a) The owner or operators shall not cause, let, permit, suffer or allow the emissions of unconfined particulate matter from any source whatsoever, including, but not limited to, vehicular movement, transportation of materials, construction, alteration, demolition or wrecking, or industrially related activities such as loading, unloading, storing or handling, without taking reasonable precautions to prevent such emission.
- (b) Reasonable precautions shall include the following:
- All permanent haul roads shall be paved.
 - Temporary haul road shall be watered or treated with chemical dust suppressants at regular intervals.
 - Dry materials (moisture content $\leq 14\%$) shall be stored below grade, in silos, or in enclosed structures.
 - Coal stored at or above natural grade shall be compacted, turned and/or watered as necessary to maintain a minimum 8% moisture content in the surface layer, and shall be aligned with the predominant wind direction to minimize wind erosion.
 - Abandoned haul road and other disturbed areas shall be revegetated within 60 days of the date that active service of the roads ends.
 - All cement products shall be transferred to transport trucks with a sealed pneumatic conveying system that is either a closed system or exhausted through a bag filter.

NOTE: Facilities that cause frequent, valid complaints may be required by the Southwest District office in Tampa to take these or other reasonable precautions. In determining what constitutes reasonable precautions for a particular source, the Department shall consider the cost of the control technique or work practice, the environmental impacts of the technique or practice, and the degree of reduction of emissions expected from a particular technique or practice.

AIR CONSTRUCTION PERMIT 0530010-003-AC AND PSD-FL-233

SECTION II. EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

2.3 General Pollutant Emission Limiting Standards: [Rule 62-296.320 (1), F.A.C.]

- (a) The owner or operator shall not store, pump, handle, process, load, unload or use in any process or installation, volatile organic compounds or organic solvents without applying known and existing vapor emission control devices or systems.
- (b) No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor.

NOTE: An objectionable odor is defined as any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonably interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance. [F.A.C. 62-210.200(198)]

3.0 OPERATION AND MAINTENANCE

3.1 Changes/Modifications: The owner or operator shall submit to the Department of Environmental Protection, Bureau of Air Regulation and/or the Southwest District office in Tampa, for review and obtain approval for any changes in, or modifications to: the method of operation; process or pollution control equipment; increase in hours of operation; equipment capacities; or any change which would result in an increase in potential/actual emissions. Depending on the size and scope of the modification, it may be necessary to submit an application for, and obtain an air construction permit prior to making the desired change. FDEP will provide a clear point of entry for Hernando County and any other substantially affected parties to challenge any of FDEP's proposed determinations in this regard. *Routine maintenance of equipment would not constitute a modification of this permit.* [Rule 62-4.030, 62-210.300 and 62-4.070(3), F.A.C.]

3.2 Plant Operation - Problems: If temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by hazard of fire, wind or by other cause, the owner or operator shall notify the Southwest District office in Tampa as soon as possible, but at least within (1) working day, excluding weekends and holidays. The notification shall include: pertinent information as to the cause of the problem; the steps being taken to correct the problem and prevent future recurrence; and where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with the conditions of this permit and the regulations. [Rule 62-4.130, F.A.C.]

3.3 Circumvention: The owner or operator shall not circumvent any air pollution control equipment or allow the emission of air pollutants without this equipment operating properly. [Rules 62-210.650, F.A.C.]

AIR CONSTRUCTION PERMIT 0530010-003-AC AND PSD-FL-233

SECTION II. EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

3.4 Excess Emissions Requirements [Rule 62-210.700, F.A.C.]

- (a) Excess emissions resulting from start-up, shutdown or malfunction of these emissions units shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized, but in no case exceed two hours in any 24 hour period unless specifically authorized by the Southwest District office for longer duration. [Rule 62-210.700(1), F.A.C.]
- (b) Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during start-up, shutdown, or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]
- (c) In case of excess emissions resulting from malfunctions, the owner or operator shall notify the Air Control Section of the Southwest District office within one (1) working day of: the nature, extent, and duration of the excess emissions; the cause of the problem; and the corrective actions being taken to prevent recurrence. [Rule 62-210.700(6), F.A.C.]

4.0 Monitoring of Operations

4.1 Determination of Process Variables:

- (a) The permittee shall install, operate, and maintain equipment and/or instruments necessary to determine process variables, such as process weight input or heat input, when such data is needed in conjunction with emissions data to determine the compliance of the emissions unit with applicable emission limiting standards. [Rule 62-297.310 (5), F.A.C.]
- (b) Equipment and/or instruments used to directly or indirectly determine such process variables, including devices such as belt scales, weight hoppers, flow meters, and tank scales, shall be calibrated and adjusted to indicate the true value of the parameter being measured with sufficient accuracy to allow the applicable process variable to be determined within 10% of its true value. [Rule 62-297.310(5), F.A.C.]

5.0 TEST REQUIREMENTS

- 5.1 Test Performance: Within 60 days after achieving the maximum production rate at which this facility will be operated, but not later than 180 days after initial startup up and annually thereafter, (except for VOC), the owner or operator shall simultaneously conduct performance test(s) for PM/PM₁₀, NO_x, SO₂, CO, VE and VOC (initial) pursuant to 40 CFR 60.8, Performance Tests, Rule 62-296.310 F.A.C., 40 CFR 60, Appendix A and 40 CFR 51, Appendix M. [Rule 62-204.800, F.A.C and Rule 62-297.310, F.A.C.]
- 5.2 Test Procedures and Test Reports shall meet all applicable requirements of the Florida Administrative Code Chapter 62-297. [Rule 62-297.310, F.A.C.]

AIR CONSTRUCTION PERMIT 0530010-003-AC AND PSD-FL-233

SECTION II. EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

- 5.3 Test Notification: The owner or operator shall notify the Southwest District office in Tampa in writing at least (30) days [initial] and (15) days [annual] prior to conducting each scheduled compliance test. The notification shall include the test date, the expected test time, the facility contact person for the test, and the person or company conducting the test. The (30) or (15) day notification requirement may be waived at the discretion of the Department. Likewise, if circumstances prevent testing during the test window specified for the emission unit, the owner or operator may request an alternate test date before the expiration of this window. **[Rule 62-297.310 and 40 CFR 60.8, F.A.C.]**
- 5.4 Special Compliance Tests: When the Department, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in Rule 62-204, 62-210, 62-212, 62-296 and 62-297, F.A.C. or in a permit issued pursuant to those rules is being violated, it may require the owner or operator of the facility to conduct compliance tests which identify the nature and quantity of pollutant emissions from the emissions units and to provide a report on the results of said tests to the Southwest District office in Tampa. **[Rule 62-297.310, F.A.C.]**
- 5.5 Stack Testing Facilities: The owner or operator shall install stack testing facilities in accordance with **Rule 62-297.310, F.A.C.**
- 5.6 Exceptions and Approval of Alternate Procedures and Requirements: An Alternate Sampling Procedure (ASP) may be requested from the Bureau of Monitoring and Mobile Sources of the Florida Department of Environmental Protection in accordance with the procedures specified in **Rule 62-297.620, F.A.C.**
- 6.0 REPORTS AND RECORDS**
- 6.1 Duration: All reports and records required by this permit shall be kept for at least (5) years from the date the information was recorded. **[62-4.160(14)(b), F.A.C.]**
- 6.2 Emission Compliance Stack Test Reports:
- (a) A *test report* indicating the results of the required compliance tests shall be filed with the Southwest District office in Tampa as soon as practical, but no later than 45 days after the last sampling run is completed. **[Rule 62-297.310, F.A.C.]**
 - (b) The *test report* shall provide sufficient detail on the tested emission unit and the procedures used to allow the Department to determine if the test was properly conducted and if the test results were properly computed. At a minimum, the test report shall provide the applicable information listed in **Rule 62-297.310 (8), F.A.C.**

AIR CONSTRUCTION PERMIT 0530010-003-AC AND PSD-FL-233

SECTION II. EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS

- 6.3 Excess Emissions Report: If excess emissions occur, the owner or operator shall notify the Air Section of the Southwest District office within (1) working day of: the nature, extent, and duration of the excess emissions; the cause of the excess emissions; and the actions taken to correct the problem. In addition, the Department may request a written summary report of the incident. Pursuant to the New Source Performance Standards, excess emissions shall also be reported in accordance with 40 CFR 60.7. [Rules 62-4.130 and 62-210.700(6), F.A.C.]
- 6.4 Annual Operating Report for Air Pollutant Emitting Facility: Before March 1st of each year, the owner or operator shall submit to the Department this required report [DEP Form No. 62-210.900(5)], which summarizes operations for the previous calendar year. [Rule 62-210.370(3), F.A.C.]
- 7.0 **OTHER REQUIREMENTS**
- 7.1 Waste Disposal: The owner or operator shall treat, store, and dispose of all liquid, solid, and hazardous wastes in accordance with all applicable Federal, State, and Local regulations. This air pollution permit does not preclude the permittee from securing any other types of required permits, licenses, or certifications.
- 7.2 Used Oil and Grease: Used oil and grease burned at this facility (Kiln Nos. 1 and 2) shall not be a hazardous waste as defined by 40 CFR Part 261.3 or Rule 62-730.030, F.A.C. It shall not include fuels or blended fuels consisting in whole or in part of hazardous waste or which include mixture of any solid waste generated from the treatment, storage, or disposal of hazardous waste. These fuels shall be burned in compliance with Section 403.769(3), Florida Statutes.
- 7.3 Other Regulations: The owner or operator shall comply with applicable provisions of Rule 62-710, Used oil Management and 40 CFR Parts 279, Standards for the Management of Used Oil.

AIR CONSTRUCTION PERMIT 0530010-003-AC AND PSD-FL-233

SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

SUBSECTION A. NSPS COMMON CONDITIONS: 40 CFR 60 SUBPART A,
GENERAL PROVISIONS

This permit addresses the following emission units.

EMISSIONS UNIT NO.	EMISSIONS UNIT DESCRIPTION
003	Unit No. 1 - Kiln No. 1
014	Unit No. 2 - Kiln No. 2
004	Unit No. 3 - Cooler No. 1
015	Unit No. 4 - Cooler No. 2

These emission units shall comply with all applicable requirements of 40 CFR 60, General Provisions, Subpart A.

- A.1. [40 CFR 60.7, Notification and record keeping]
- A.2. [40 CFR 60.8, Performance tests]
- A.3. [40 CFR 60.11, Compliance with standards and maintenance requirements]
- A.4. [40 CFR 60.12, Circumvention]
- A.5. [40 CFR 60.13, Monitoring requirements]
- A.6. [40 CFR 60.19, General notification and reporting requirements]

These emission units shall comply with all applicable provisions of the 40 CFR 60 New Source Performance Standards for Portland Cement Plants, Subpart F, 40 CFR 60, Appendix A, and 40 CFR 51, Appendix M.

AIR CONSTRUCTION PERMIT 0530010-003-AC AND PSD-FL-233

SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

SUBSECTION B. SPECIFIC CONDITIONS:

The following Specific Conditions apply to the following emission units:

EMISSION UNIT NO.	EMISSION UNIT DESCRIPTION
003	Kiln No. 1
004	Cooler No. 1

EMISSION LIMITATIONS

- B1. The emissions from these emission units shall not exceed the allowable emission rates listed in Table 1-1 Air Pollutant Standards and Terms (attached). [Rule 62-210.200(198) and 62-212.400, F.A.C.]
- B2. In order to minimize excess emissions during startup/shutdown/malfunction these emission units shall adhere to best operational practices. [Rule 62-210.700, F.A.C. and 40 CFR 60.7]

OPERATIONAL LIMITATIONS

- B3. These emission units are allowed to operate continuously (8760 hours/year). [Rule 62-210.233, F.A.C. Definitions-Potential to emit (PTE)]
- B4. OPERATING RATES:
 - Kiln preheater feed rate -- 165 tons/hour (one-hour maximum)
 - Kiln preheater feed rate -- 150 tons/hour (30-day average)

[AC 27-186923, AC 27-258571 and Dr. John Koogler's letter of November 22, 1994]
[Rule 62-210.233 F.A.C., (PTE)]

TIRE BURNING:

- (a) The No. 1 cement kiln's maximum utilization/firing rate of WTDF shall not exceed 20 percent of the total Btu heat input, or 2.14 tons per hour [Construction Permit No. AC 27-240349].
- (b) WTDF may be introduced into the No. 1 cement kiln only at a point at the base of the preheater (i.e., exit of gases from the kiln) [Construction Permit No. AC27-240349].
- (c) WTDF firing in the No. 1 cement kiln shall not commence or be conducted unless the cement kiln has reached an operating temperature of at least 1,400 degree Fahrenheit for one hour. The operating gas temperature shall be measured at the cement kiln exit [Construction Permit No. AC27-240349].

AIR CONSTRUCTION PERMIT 0530010-003-AC AND PSD-FL-233

SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

(d) In the No. 1 cement kiln, continuous whole tire-derived fuel (WTDF) utilization/firing shall be allowed (i.e., 8760 hrs/yr operation) [Construction Permit AC27-240349].

B5. The No. 1 cement kiln fuel heat input rate shall not exceed 300 MMBtu/hr, which is approximately:

- (a) 24,000 pounds per hour of coal with a heating value of 12,500 Btu/lb,
- (b) 2,116 gallons/hour of No. 2 fuel oil with a heating value of 141,300 Btu/gal,
- (c) 2,060 gallons/hour of No. 4 fuel oil with a heating value of 145,600 Btu/gal,
- (d) 2,016 gallons/hour of No. 5 fuel oil with a heating value of 148,800 Btu/gal,
- (e) 1,982 gallons/hour of No. 6 fuel oil with a heating value of 151,300 Btu/gal,
- (f) 292,683 cubic feet/hour of natural gas with a heating value of 1,025 Btu per cubic foot,
- (g) 2.14 tons per hour of whole tire-derived fuel (WTDF),
- (h) Southdown is allowed to burn on site generated non-hazardous waste used oil (as defined by Rule 62-730.030, F.A.C., or 40 CFR Part 261) and grease in the kilns (less than 5,000 gallons per year).

The constituents and properties of the on-spec used oil shall comply with the following allowable concentration levels, as stipulated and defined in 40 CFR 279 (July 1, 1996 version), which is adopted by reference in **Chapter 62-710 Florida Administrative Code (F.A.C.)**:

Constituent/Property	Allowable Concentration
Cadmium	2 ppm maximum
Arsenic	5 ppm maximum
Chromium *	10 ppm maximum
Lead	100 ppm maximum
Total Halogens	1000 ppm maximum
Flash Point	140° F minimum
Polychlorinated	Less than 2 ppm
Byphenyls (PCBs)	

* Based on the analysis of the samples, the Department considers the used oil/grease to be classified as an off-specification used oil for chromium. However, studies show that the low volatility of the metals, including chromium, and its extensive bonding in the clinker results in insignificant emissions for this

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element. Southdown has provided assurances that emissions of this pollutant will not result in exceedances of air quality or ambient guidelines developed to protect human health and welfare.

Use of fuels other than those listed above is prohibited. [Construction Permit No. AC27-186923 and AC27-212252 and Supplemental information received by DEP March 31, 1995]

- B6. Any other operating parameters (including control equipment operating parameters) established during compliance testing and/or inspection that will confirm the proper operation of each emission unit shall be included in the operating permit. [Rule 62-297.310, F.A.C. and 62-4.070, F.A.C.]

MONITORING OF OPERATIONS

- B7. The owner or operator shall record the daily production and preheater-kiln system feed rate. [Rule 62-204.800, F.A.C., 40 CFR 60.63(a)]
- B8. The owner or operator shall install, calibrate, maintain, and operate in accordance with 40 CFR 60.13 a *continuous opacity monitoring system* to measure the opacity of emissions from the cement kiln and clinker cooler control device stacks. [Rule 62-204.800, F.A.C., 40 CFR 60.63(b)]
- B9. The opacity monitoring device shall meet the applicable requirements of Chapter 62-204, F.A.C., 40 CFR 60.11 and 40 CFR 60.13, including certification of the device in accordance with 40 CFR 60, Appendix B, Performance Specifications and 40 CFR 60.7(a)(5) Notification Requirements.

TEST METHODS AND PROCEDURES

- B10. These emission units shall be tested in accordance with the applicable EPA/reference method, testing time frequency, and minimum compliance test duration. Table 2-1. Compliance Requirements (attached) lists the EPA Methods. No other test method shall be used unless approval from the Department has been received in writing. These emission units shall comply with applicable requirements of Rule 62-297.310, F.A.C., General Test Requirements and 40 CFR 60.8 Performance Tests. [Rules 62-204.800, 62-297.310, 62-297.400, 62-297.401, 62-297.620 F.A.C, and 40 CFR 60 Appendix A, and 40 CFR 60.8, Subpart A]
- B11. Compliance with the particulate matter standard contained in Table 1-1 Air Pollutant Standards and Terms (attached) shall be determined using EPA Method 5. The emission rate (E) of particulate matter shall be computed for each run using the following equation:

$$E = (c_s \times Q_{sd}) / (P \times K)$$

where:

E = emission rate of particulate matter, kg/metric ton (lb/ton) of kiln feed,
c_s = concentration of particulate matter, g/dscm (g/dscf),
Q_{sd} = volumetric flow rate of effluent gas, dscm/hr (dscf/hr),

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- P = total kiln feed (dry basis) rate, metric ton/hr (ton/hr),
K = conversion factor, 1000 g/kg (453.6 g/lb)

The sampling time and sample volume for each run shall be at least 60 minutes and 0.85 dscm (30.0 dscf) for the kiln and at least 60 minutes and 1.15 dscm (40.6 dscf) for the clinker cooler. [Rules 62-204.800 and 62-297.401, F.A.C. 40 CFR 60.64(b)(1) - (3)]

- B12. Suitable methods shall be used to determine the kiln feed rate (P), except fuels, for each run. Material balance over the production system shall be used to confirm the feed rate. [40 CFR 60.64(3)]
- B13. The visible emissions test shall be conducted by a certified observer and be a minimum of 180 minutes in duration. The test observation period shall include the period during which the highest opacity emissions can reasonably be expected to occur. [40 CFR 60.11 and Rule 62-297.310 (7), F.A.C.]
- B14. Testing of emissions shall be conducted with the source operating at permitted capacity. Permitted capacity is defined as 90-100% of the maximum operating rate allowed by the permit. If it is impracticable to test at permitted capacity, each emission unit may be tested at less than the minimum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test load until a new test is conducted. Once the emission unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity. The initial compliance test results shall be submitted to the DEP Southwest District office with the application for an operating permit. [Rule 62-4.070 (3), 62-297.310, 62-4.055, 62-4.22, and Chapter 62-213, F.A.C.]
- B15. Operating procedures shall include good combustion practices and proper training of all operators and supervisors. The good combustion practices shall meet the guidelines and procedures as established by the equipment manufacturers. All operators (including supervisors) of air pollution control devices shall be properly trained in plant specific equipment. [Rule 62-4.070(3), F.A.C.]

RECORDKEEPING AND REPORTING REQUIREMENTS

- B16. The owner or operator shall submit reports of excess emissions based upon data from the continuous opacity monitoring system. Periods of excess emissions that shall be reported are defined as all 6 minute periods during which the average opacity exceeds that allowed in 40 CFR 60.62(a)(2) and 40 CFR 60.62(b)(2). The content of these reports must comply with the requirements in 40 CFR 60.7(d). Such reports shall be submitted quarterly pursuant to 40 CFR 60.7 (c). [Rule 62-204.800, F.A.C.; 40 CFR 60.63(d), 60.65(a) and 40 CFR 60.7]
- B17. Daily sampling and recording of the baghouse dust for the No. 1 kiln is required. The concentration of thallium in the baghouse dust shall not exceed 1.5%. Compliance shall be demonstrated using the "Thallium Concentration Monitoring and Analysis Procedure" as described in Mr. Bob Roger's letter to Dr. John Koogler, dated January 12, 1994 [Attachment #9 of Construction Permit No. AC27-240349].

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- B18. The following fuel records shall be maintained for a minimum of five (5) years and made available upon request:
1. Coal
 - (a) the coal usage rate in tons/day;
 - (b) the average sulfur content and heating value (Btu/lb) of each coal shipment based upon analysis of a sample representative of the shipment (trainload).
 2. Liquid Fuels
 - (a) The fuel type (number) and usage rate in gal/day;
 - (b) Records of the sulfur content and heating value (Btu/gal) of each oil shipment based upon analysis of a sample representative of the shipment.
 3. Natural Gas
 - (a) The fuel usage rate in cubic feet per day;
 - (b) The average heating value (Btu/Ft³) provided by the gas supplier.
 4. Tires
 - (a) The utilization/firing rate of WTDF shall be quantified (weighed) continuously and recorded hourly;
 - (b) The quantities of all deliveries of WTDF shall be documented and kept on record/file.
- B19. Two copies of the results of the emission tests for the pollutants listed in Condition 1 for these emission units shall be submitted within forty-five days of the last sampling run to the Department's Southwest District office. Reports shall be in a format consistent with and shall include the information in accordance with Rule 62-297.310 (8), F.A.C. [Rule 62-210.370(3) and Rule 62-.297.310(8), F.A.C.]

Daily Operation and Maintenance (O&M) Log:

- B20. This facility shall maintain a central file containing all measurements, records, and other data that are required to be collected pursuant to the various specific conditions of this permit. Operators shall keep a daily O&M log to include, at a minimum, the following information:
- (a) The data collected from in-stack monitoring instruments,
 - (b) The records on daily feed rates and clinker production rate,
 - (c) The amount and type of fuel burned per affected unit,
 - (d) Calibration logs for all instruments,

SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

- (e) Maintenance/repair logs for any work performed on equipment or instrument which is subject to this permit, and,
- (f) Fuel analysis data.

All measurements, records, and other data required to be maintained by Southdown, shall be retained for at least five (5) years following the data on which such measurements, records, or data are recorded. This data shall be made available to the Department upon request. The Department's Southwest District office shall be notified in writing at least 15 days prior to the testing (auditing) of any instrument required to be operated by this facility to allow witnessing by authorized personnel. [Rule 62-4.070(3), F.A.C.]

OTHER RULE REQUIREMENTS

- B21. If there is a change in the method of operation, etc., pursuant to Florida Administrative Code (F.A.C.) **Rule 62-210.200**, Definitions - Modification, the permittee shall submit an application along with the appropriate processing fee to the Department's Bureau of Air Regulation. Any physical modifications to the WTDF feed mechanism utilized during the test burn of WTDF/coal that result in an increased feed rate, a change in the location where WTDF is introduced into the kiln, or the introduction of WTDF into the kiln through the use of a mechanism other than a double air lock feed system, may require a modification of the permit. If the WTDF feed mechanism is to be physically modified in this manner, a description of such modification shall be submitted to FDEP and HCBCC 90 days prior to actual modification. FDEP and HCBCC shall review this information and, prior to any modification, determine whether further stack testing is required in order to determine if such modifications will result in an increase in actual emissions, whether a permit modification is necessary, and/or what the terms of any modified permit shall be.

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SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

SUBSECTION C. SPECIFIC CONDITIONS

The following Specific Conditions apply to the following emission units:

EMISSION UNIT NO.	EMISSION UNIT DESCRIPTION
014	Kiln No. 2
015	Cooler No. 2

EMISSION LIMITATIONS

- C1. The emissions from these emission units shall not exceed the allowable emission rates listed in Table 1-2 Air Pollutant Standards and Terms (attached). [Rule 62-210.200(198) and 62-212.400, F.A.C.]
- C2. In order to minimize excess emissions during startup/shutdown/malfunction this emission units shall adhere to best operational practices. [Rule 62-210.700, F.A.C. and 40 CFR 60.7]

OPERATIONAL LIMITATIONS

- C3. Cement Kiln No. 2 is allowed to operate continuously 8760 hours/year. [Rule 62-210.233, F.A.C., Definitions, Potential to Emit (PTE)]
- C4. *Process operating rates:*
 - Kiln preheater feed rate -- 165 tons/hour (one hour maximum)
 - Kiln preheater feed rate -- 150 tons/hour (30-day average)[AC 27-186923, AC 27-258572 and Dr. John Koogler's letter of November 22, 1994]. [Rule 62-210.233, F.A.C., (PTE)]
- C5. The No. 2 cement kiln fuel heat input rate shall not exceed 300 MMBtu/hr, which is approximately:
 - (a) 24,000 pounds per hour of coal with a heating value of 12,500 Btu/lb,
 - (b) 2,116 gallons/hour of No. 2 fuel oil with a heating value of 141, 300 Btu/gal,
 - (c) 2,060 gallons/hour of No. 4 fuel oil with a heating value of 145,600 Btu/gal,
 - (d) 2,016 gallons/hour of No. 5 fuel oil with a heating value of 148,800 Btu/gal,
 - (e) 1,982 gallons/hour of No. 6 fuel oil with a heating value of 151,300 Btu/gal,

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- (f) 292,683 cubic feet/hour of natural gas with a heating value of 1,025 Btu per cubic foot,
- (h) Southdown is allowed to burn on site generated, non-hazardous waste used oil (as defined by Rule 62-730.030, F.A.C., or 40 CFR Part 261) and grease and rags in the kilns (less than 5,000 gallons per year).

The constituents and properties of the on-spec used oil shall comply with the following allowable concentration levels, as stipulated and defined in 40 CFR 279 (July 1, 1996 version), which is adopted by reference in **Chapter 62-710 Florida Administrative Code (F.A.C.)**:

Constituent/Property	Allowable Concentration
Cadmium	2 ppm maximum
Arsenic	5 ppm maximum
Chromium *	10 ppm maximum
Lead	100 ppm maximum
Total Halogens	1000 ppm maximum
Flash Point	140° F minimum
Polychlorinated Byphenyls (PCBs)	Less than 2 ppm

* Based on the analysis of the samples, the Department considers the used oil/grease to be classified as an off-specification used oil for chromium. However, studies show that the low volatility of the metals, including chromium, and its extensive bonding in the clinker results in insignificant emissions for this element. Southdown has provided assurances that emissions of this pollutant will not result in exceedances of air quality or ambient guidelines developed to protect human health and welfare.

Use of fuels other than those listed above is prohibited. [Construction Permit No. AC27-186923 and AC27-212252 and Supplemental information received by DEP March 31, 1995]

- C6. Any other operating parameters (including control equipment operating parameters) established during compliance testing and/or inspection that will confirm the proper operation of each emission unit shall be included in the operating permit. [Rule 62-297.310, F.A.C. and 62-4.070, F.A.C.]

MONITORING OF OPERATIONS

- C7. The owner or operator shall record the daily production and preheater-kiln system feed rates. [Rule 62-204.800, F.A.C., 40 CFR 60.63(a)]

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- C8. The owner or operator shall install, calibrate, maintain, and operate in accordance with 40 CFR 60.13 a *continuous opacity monitoring system* to measure the opacity of emissions from the cement kiln and clinker cooler control device stack. [Rule 62-204.800, F.A.C., 40 CFR 60.63(b)]
- C9. The opacity monitoring device shall meet the applicable requirements of Chapter 62-204, F.A.C., 40 CFR 60.11 and 40 CFR 60.13, including certification of the device in accordance with 40 CFR 60, Appendix B, Performance Specifications and 40 CFR 60.7(a)(5) Notification Requirements.

TEST METHODS AND PROCEDURES

- C10. These emission units shall be tested in accordance with the applicable EPA/reference method, testing time frequency, and minimum compliance test duration. Table 2-2. Compliance Requirements (attached) list the EPA Methods. No other test method shall be used unless approval from the Department has been received in writing. These emission units shall comply with all applicable requirements of Rule 62-297.310, F.A.C., General Test Requirements. [Rules 62-204.800, 62-297.310, 62-297.400, 62-297.401, F.A.C, and 40 CFR 60, Appendix A and 40 CFR 60.8, Subpart A]
- C11. Compliance with the particulate matter standard contained in Table 1-2 Air Pollutant Standards and Terms (attached) shall be determined using EPA Method 5. The emission rate (E) of particulate matter shall be computed for each run using the following equation:

$$E = (c_p \times Q_{sd}) / (P \times K)$$

where:

- E = emission rate of particulate matter, kg/metric ton (lb/ton) of kiln feed,
c_p = concentration of particulate matter, g/dscm (g/dscf),
Q_{sd} = volumetric flow rate of effluent gas, dscm/hr (dscf/hr),
P = total kiln feed (dry basis) rate, metric ton/hr (ton/hr),
K = conversion factor, 1000 g/kg (453.6 g/lb)

The sampling time and sample volume for each run shall be at least 60 minutes and 0.85 dscm (30.0 dscf) for the kiln and at least 60 minutes and 1.15 dscm (40.6 dscf) for the clinker cooler. [Rules 62-204.800 and 62-297.401, F.A.C. 40 CFR 60.64(b)(1) - (3)]

- C12. Suitable methods shall be used to determine the *kiln feed rate (P)*, except fuels, for each run. Material balance over the production system shall be used to confirm the feed rate. [40 CFR 60.64(3)]
- C13. The visible emissions test shall be conducted by a certified observer and be a minimum of 180 minutes in duration. The test observation period shall include the period during which the highest opacity emissions can reasonably be expected to occur. [40 CFR 60.11. and Rule 62-297.310 (7), F.A.C.]

SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

- C14. Testing of emissions shall be conducted with the source operating at permitted capacity. Permitted capacity is defined as 90-100% of the maximum operating rate allowed by the permit. If it is impracticable to test at permitted capacity, each emission unit may be tested at less than the minimum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test load until a new test is conducted. Once the emission unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity. The initial compliance test results shall be submitted to the DEP Southwest District office with the application for an operating permit. [Rule 62-4.070 (3), 62-297.310, 62-213, 62-4.055, 62-4.22, F.A.C.]
- C15. Operating procedures shall include good combustion practices and proper training of all operators and supervisors. The good combustion practices shall meet the guidelines and procedures as established by the equipment manufacturers. All operators (including supervisors) of air pollution control devices shall be properly trained in plant specific equipment. [Rule 62-4.070(3), F.A.C.]

RECORDKEEPING AND REPORTING REQUIREMENTS

- C16. The owner or operator shall submit reports of excess emissions based upon data from the continuous opacity monitoring system. Periods of excess emissions that shall be reported are defined as all 6 minute periods during which the average opacity exceeds that allowed in the **BACT Determination** (10% opacity for the Kiln and Cooler). The content of these reports must comply with the requirements in **40 CFR 60.7(d)**. Such reports shall be submitted quarterly pursuant to **40 CFR 60.7 (c)**. [Rule 62-204.800, F.A.C.; 40 CFR 60.63(d), 60.65(a) and 40 CFR 60.7]
- C17. The following Kiln No. 2 fuel records shall be maintained and made available upon request:
1. Coal
 - (a) the coal usage rate in tons/day;
 - (b) the average sulfur content and heating value (Btu/lb) of each coal shipment based upon analysis of a sample representative of the shipment (trainload).
 2. Liquid Fuels
 - (a) The fuel type (number) and usage rate in gal/day;
 - (b) Records of the sulfur content and heating value (Btu/gal) of each oil shipment based upon analysis of a sample representative of the shipment.
 3. Natural Gas
 - (a) The fuel usage rate in cubic feet per day;
 - (b) The average heating value (Btu/Ft³) provided by the gas supplier.
- [Rule 62-4.070(3), F.A.C.]

SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

C18. Two copies of the results of the emission tests for the pollutants listed in Condition 1 for these emission units shall be submitted within forty-five days of the last sampling run to the Department's Southwest District office. Reports shall be in a format consistent with and shall include the information in accordance with **Rule 62-297.310 (8), F.A.C. [Rule 62-210.370 (3) and Rule 62-297.310(8), F.A.C.]**

Daily Operation and Maintenance (O&M) Log:

C19. This facility shall maintain a central file containing all measurements, records, and other data that are required to be collected pursuant to the various specific conditions of this permit. Operators shall keep a daily O&M log to include, at a minimum, the following information:

- (a) The data collected from in-stack monitoring instruments,
- (b) The records on daily feed rates and clinker production rate,
- (c) The amount and type of fuel burned per affected unit,
- (d) Calibration logs for all instruments,
- (e) Maintenance/repair logs for any work performed on equipment or instrument which is subject to this permit, and,
- (f) Fuel analysis data.

All measurements, records, and other data required to be maintained by Southdown, shall be retained for at least five (5) years following the data on which such measurements, records, or data are recorded. This data shall be made available to the Department upon request. The Department's Southwest District office shall be notified in writing at least 15 days prior to the testing (auditing) of any instrument required to be operated by this facility to allow witnessing by authorized personnel. **[Rule 62-4.070(3), F.A.C.]**

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SECTION IV. PERMITTING HISTORY AND RELEVANT DOCUMENTS

Permitting History

A detailed Permitting History of the emission units modified in this permit are found in Appendix PH on file with the Department..

December 18, 1973	Permit AC 27-2251 to construct Kiln No. 1 and Associated Equipment.
July 25, 1980	Permits AC 27-30444, 30446, 30447, 30449, 30450, 30451, 30453, 30454 and 30455 to construct Kiln No. 2 and Associated Equipment.
March 1981	PSD-FL-063 issued by EPA - Permit to Construct Kiln No. 2 and Associated Equipment.
November 3, 1987	Modification of Kiln No. 2: Increase NO _x limits from 195.3 lbs/hr to 250 lbs/hr and SO ₂ limits from 3 lbs/hr to 12 lbs/hr. Permit No. AC 27-138850 and PSD-FL-124.
July 20, 1990	Modifications of Kiln No. 2 to burn Flolite oil, increase operating rates and operate kiln without operating the raw mill, PSD-FL-124A. Modification to burn tires in Kiln No. 1. This request was granted. Currently (1996) this facility is not burning tires.
July 25, 1990	AC 27-173474, NO _x emissions were reduced from 250 lbs/hr to 162.3 lbs/hr.
January 25, 1991	Modification of Kiln No. 2 Auxiliary Sources to coincide with recent changes in operation of No. 2 Kiln, AC 27-185898, 27-185900 through -185907.
March 8, 1991	Permit Issued to burn Flolite at Kiln No. 1 AC 27-186923. Allow testing while burning TDF. Conditions of permit remain unchanged.
February 24, 1992	Request to burn waste classified as hazardous waste was withdrawn. This request was filed with the U.S. EPA, Region IV.
January 26, 1993	Modification to allow an increase in cement Kiln No. 2. NO _x emissions from 162.3 lbs/hr to 250 lbs/hr, 30 days rolling average. This increase was to reflect previous BACT limit (PSD-FL-124). Permit allows use of Flolite. New permits, PSD-FL-188 and AC 27-212252, were issued.
April 15, 1994	Permit issued to allow the use of TDF to provide 20% of heat input. AC27-240349, Kiln No. 1.

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SECTION IV. PERMITTING HISTORY AND RELEVANT DOCUMENTS

- August 13, 1995 Permits issued at the Southwest District office (AC-27-258569, AC27-258570, AC27-258571, AC27-258572) to allow the burning of natural gas, fuel oils Nos. 2, 4, 5 and 6. Deletes use of flolite in Kilns No. 1 and No. 2.
- February 22, 1996 Request to modify cement Kiln No. 1, Cooler No 1 and Kiln No. 2, and Cooler No. 2. The request was to increase emissions of CO, VOC and to increase/decrease TSP (Kiln No. 1). A detailed project description was listed in the Technical Evaluation and Preliminary Determination. Permit Nos. PSD-FL-233 and 0530010-001-AC. This draft permit was public noticed but was never issued.
- February 21, 1997 Request to increase 4 percent in the kiln preheater feed rates from 145 to 150 TPH, rolling 30- production day average for each kiln. A PSD review will be conducted for PM/PM₁₀, NO_x, CO and VOC emissions for both kilns.

NOTE: This permit revises and supersedes air construction permits numbers AC27-258589, 258570, 258571, and 258572.

APPENDIX GC
GENERAL PERMIT CONDITIONS [F.A.C. 62-4.160]

- G.1 The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
- G.2 This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings or exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
- G.3 As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey and vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
- G.4 This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
- G.5 This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
- G.6 The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
- G.7 The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:
- (a) Have access to and copy and records that must be kept under the conditions of the permit;
 - (b) Inspect the facility, equipment, practices, or operations regulated or required under this permit, and,
 - (c) Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.
- Reasonable time may depend on the nature of the concern being investigated.
- G.8 If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:
- (a) A description of and cause of non-compliance; and
 - (b) The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

APPENDIX GC
GENERAL PERMIT CONDITIONS [F.A.C. 62-4.160]

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

- G.9 In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.
- G.10 The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.
- G.11 This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.
- G.12 This permit or a copy thereof shall be kept at the work site of the permitted activity.
- G.13 This permit also constitutes:
- (a) Determination of Best Available Control Technology ()
 - (b) Determination of Prevention of Significant Deterioration (); and
 - (c) Compliance with New Source Performance Standards ().
- G.14 The permittee shall comply with the following:
- (a) Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
 - (b) The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application or this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.
 - (c) Records of monitoring information shall include:
 - 1. The date, exact place, and time of sampling or measurements;
 - 2. The person responsible for performing the sampling or measurements;
 - 3. The dates analyses were performed;
 - 4. The person responsible for performing the analyses;
 - 5. The analytical techniques or methods used; and
 - 6. The results of such analyses.
- G.15 When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

SOUTHDOWN, INC.
PORTLAND CEMENT FACILITY
PERMIT 0530010-003-AC (PSD-FL-233)
Hernando County

The applicant, Southdown Inc. (SI), owns a portland cement manufacturing facility in Brooksville. It consists of two kilns with a dry process preheater design and two clinker coolers along with raw mill, finish mill, cement and clinker handling equipment, coal handling equipment, silos, and air pollution control equipment. A process description was included in the Technical Evaluation and Preliminary Determination issued on May 6, 1997.

Each kiln/cooler is permitted to feed 165 tons per hour (TPH) of raw material to the preheater, 148 TPH to the kiln, and produce 90 TPH from the cooler on a 1-hr basis. Each is also permitted to feed 145 TPH to the preheater, 130 TPH to the kiln, and produce 84 TPH from the cooler on a 30-day basis.

A single, large, fabric filter system (baghouse) is already in use to capture particulate matter from each kiln and cooler. Baghouses are also used to limit particulate emissions from other process emission points. All the emission units controlled by baghouses are listed in a Best Available Control Technology (BACT) determination performed for Cement Plant 2 in 1980. Kiln No. 2 has three (3) additional BACT determinations on file with the Department (1980, 1988 and 1993). No previous BACT determinations have been performed on Kiln No. 1.

Southdown requested to revise the allowable emissions limits for their kilns and coolers due to an increase in the process rate to the kiln preheater from 145 to 150 TPH (30-day basis). Specifically, it was requested to increase emissions limits for particulate matter (PM/PM₁₀), carbon monoxide (CO), nitrogen oxides (NO_x), visible emissions (VE) and volatile organic compounds (VOC) from Kiln No. 2; decrease PM/PM₁₀ (allowable emissions) and increase NO_x, VOC and CO emission limits for Kiln No. 1; and increase the PM/PM₁₀ limits for Coolers Nos. 1 and 2.

The project and rule applicability are described in the previously issued Technical Evaluation and Preliminary Determination. A Best Available Control Technology (BACT) determination pursuant to Prevention of Significant Deterioration (PSD) is required for each pollutant exceeding the significant emission rates in Table 62-212.400-2, F.A.C., "Regulated Air Pollutants Significant Emissions Rates." The increase in actual emissions will subject Kilns Nos. 1 and 2 to PSD review for particulate matter, nitrogen oxides, volatile organic compounds and carbon monoxide, and Coolers Nos. 1 and 2 to PSD review for particulate matter.

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

Following is the BACT determination proposed by the applicant. These are on the basis of feed to the kiln.

BACT DETERMINATION REQUESTED BY THE APPLICANT - KILN FEED BASIS:

POLLUTANT	EMISSION LIMIT
Particulate Matter (PM/PM ₁₀) (kilns)	0.2 lb./ton of dry kiln feed
Particulate Matter (PM/PM ₁₀)(coolers)	0.1 lb/ton of dry kiln feed
Nitrogen Oxides (NO _x)	2.11 lbs/ton of dry kiln feed
Carbon Monoxide (kilns)	1.30 lb/ton dry kiln feed
Volatile Organic Compounds (Kiln No. 2)	0.1 lb/ton dry kiln feed
Visible Emissions (Kiln No. 2)	20 percent

The above limits are expressed in terms of pollutant emitted per ton of material reaching the kiln. Following a review of past permits, the exact process, requirements of the applicable NSPS for cement plants, and discussions with Southdown, the Department will limit only raw material fed to the kiln preheater. This is the most accurate and reliable measure of kiln operating rate in a preheater or precalciner kiln, particularly when there are no bypass streams and when little or no cement kiln dust is wasted. All limits will be expressed in terms of pounds of pollutant per ton of material fed to the kiln preheater (kiln_{ph}). Where appropriate, equivalent factors in terms of pounds of pollutant per ton of clinker produced will also be given for reference and comparison with industry or EPA reporting conventions. The above table is therefore adjusted as follows:

BACT DETERMINATION REQUESTED BY THE APPLICANT - PREHEATER BASIS:

POLLUTANT	EMISSION LIMIT
Particulate Matter (PM/PM ₁₀) (kilns)	0.18 lb./ton of dry kiln _{ph} feed
Particulate Matter (PM/PM ₁₀)(coolers)	0.09 lb/ton of dry kiln _{ph} feed
Nitrogen Oxides (NO _x)	1.9 lb/ton of dry kiln _{ph} feed
Carbon Monoxide (kilns)	1.2 lb/ton dry kiln _{ph} feed
Volatile Organic Compounds (Kiln No. 2)	0.09 lb/ton dry kiln _{ph} feed
Visible Emissions (Kiln No. 2)	20 percent

Southdown, Inc.
 Portland Cement Facility

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

APPENDIX BD
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

DATE OF RECEIPT OF A BACT APPLICATION:

February 21, 1997

REVIEW GROUP MEMBERS:

Teresa Heron, and A. A. Linero of the New Source Review Section.

BACT DETERMINATION PROCEDURE:

In accordance with Chapter 62-212, F.A.C., this BACT determination is based on the maximum degree of reduction of each pollutant emitted which the Department of Environmental Protection (Department), on a case by case basis, taking into account energy, environmental and economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems, and techniques. In addition, the regulations state that, in making the BACT determination, the Department shall give consideration to:

- (a) Any Environmental Protection Agency determination of BACT pursuant to Section 169, and any emission limitation contained in 40 CFR Part 60 - Standards of Performance for New Stationary Sources or 40 CFR Part 61 - National Emission Standards for Hazardous Air Pollutants.
- (b) All scientific, engineering, and technical material and other information available to the Department.
- (c) The emission limiting standards or BACT determination of any other state.
- (d) The social and economic impact of the application of such technology.

The EPA currently stresses that BACT should be determined using the "top-down" approach. The first step in this approach is to determine, for the emission unit in question, the most stringent control available for a similar or identical emission unit or emission unit category. If it is shown that this level of control is technically or economically infeasible for the emission unit in question, then the next most stringent level of control is determined and similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by any substantial or unique technical, environmental, or economic objections.

The air pollutant emissions from this facility can be grouped into categories based upon the control equipment and techniques that are available to control emissions from these emission units. Using this approach, the emissions can be classified as follows:

- o Particulate matter from kilns and coolers (PM/PM₁₀, and VE). This is controlled generally by add-on particulate collection equipment such as baghouses or electrostatic precipitators.

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- o Products of combustion and incomplete combustion (e.g., SO₂, NO_x, CO, VOC). Control is largely achieved by good combustion practices and reactions with clinker and raw materials.
- o Emissions from materials handling, conveyance, and storage (primarily PM). Controlled generally by fabric filters and reasonable precautions.

Grouping the pollutants in this manner facilitates the BACT analysis because it enables the equipment available to control the type or group of pollutants emitted and the corresponding energy, economic, and environmental impacts to be examined on a common basis. Although all of the pollutants addressed in the BACT analysis may be subject to a specific emission limiting standard as a result of PSD review, the control of "non-regulated" air pollutants is considered in imposing a more stringent BACT limit on a "regulated" pollutant (i.e., PM, SO₂, H₂SO₄, fluorides, etc.), if a reduction in "non-regulated" air pollutants can be directly attributed to the control device selected as BACT for the abatement of the "regulated" pollutants.

BACT ANALYSIS

Particulate Matter (PM/PM₁₀)

Particulate Matter is generated by the various physical and chemical processes at a cement manufacturing plant. Sources of particulate matter at cement plants include (1) quarrying and crushing, (2) raw material storage, (3) grinding and blending, 4) clinker production, 5) finish grinding, and 6) packaging and loading. Additional sources of PM are raw material storage piles, conveyers, storage silos, and unloading facilities.

The largest emission source of PM within cement plants is the pyroprocessing system that includes the kiln and clinker cooler exhaust stacks (in this case, common kiln/cooler stack). Emissions from kilns are affected by several factors, including differences in convective patterns, material movement patterns, burner locations and orientations, heat transfer mechanisms, and the type of clinker cooler that supplies secondary air to the kiln for combustion. Typically, dust from the pollution control equipment servicing the kiln and cooler is collected and recycled into the kiln and thus incorporated into the clinker. Southdown has stated that the great majority of the cement kiln dust (CKD) captured in the baghouse is returned to the pyroprocessing system as raw material.

Common control devices for stack gases include settling chambers, inertial separators, impingement separators, wet scrubbers, fabric filters, and electrostatic precipitators. Fabric filters (baghouses) and electrostatic precipitator (ESPs) are often considered equivalent for particulate control. Both types of devices can achieve removal efficiencies of over 99 percent. ESPs and baghouses are used extensively as control devices at cement plants. ESPs are generally specified for kiln and clinker cooler exhaust gases because of their ability to operate effectively at varying temperatures. Baghouses are also used at many facilities for particulate control from kilns and coolers. Both types of control equipment provide for the

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recovery/recycling of collected dust back into the process stream. Baghouses are also used to control particulate emissions from most other material processing operations at cement plants.

Common controls to limit particulate emissions from fugitive sources (such as roadways, stockpiles, and material processing and conveying equipment) include wet suppression, sweeping, application of surfactants, paving of roads and covering of stockpiles to reduce wind erosion. Wet suppression of fugitive particulate emissions is considered as BACT for most material handling operations and unpaved roads. Dust from stockpiles can be minimized by relatively high material moisture content with additional water spraying as necessary.

A review of the BACT Clearinghouse shows that baghouses and ESPs are widely used to control particulate matter from process emission units at cement plants. They are commonly accepted as BACT. At this facility, particulate matter sources are controlled by baghouses.

Southdown has proposed to increase the process rate (145 to 150 TPH) for both kilns, therefore changing the allowable emission rates for particulate matter (PM/PM₁₀) from Kilns Nos. 1 and 2 and Clinker Coolers Nos. 1 and 2 to allow for the fluctuations in emission rates during normal operating conditions. The permitted PM/PM₁₀ limits would be increased for Kiln No. 2 from 13.5 pounds per hour (lb/hr) to 27.0 lb/hr, while PM/PM₁₀ emissions for Kiln No. 1 are proposed to be decreased from 39.0 lb/hr (allowable emissions) to 27.0 lb/hr. The proposed limit for the two clinker coolers would be increased from 7.13 lb/hr (Kiln No. 1) and 5.0 lb/hr (Kiln No. 2) to 13.6 lb/hr. The proposed kiln particulate emission limits are equivalent to 0.18 pounds per ton of dry feed to each kiln preheater (lb/ton feed_{ph}). This is a standard lower than the New Source Performance Standard NSPS limit of 0.3 pounds per ton of dry feed (kiln). For the coolers the proposed limits are equivalent to 0.09 lb/ton feed_{ph} which is approximately equal to the applicable NSPS limit.

Southdown also requested to increase VE (which is largely linked to particulate emissions) from 10 percent for Kiln No. 2 to 20 percent.

PRODUCTS OF COMBUSTION AND INCOMPLETE COMBUSTION

Nitrogen Oxides

Emissions of NO_x from dry process cement plants with a preheater include the kiln, and any fuel-fired support operation. NO_x is generated during fuel combustion by oxidation of chemically bound nitrogen in the fuel (fuel NO_x) and by thermal fixation of nitrogen in the combustion air (thermal NO_x). As flame temperature increases, the amount of thermally generated NO_x increases. Fuel type affects the quantity and type of NO_x generated. Generally, natural gas is low in nitrogen. However it causes higher flame temperatures and generates more thermal NO_x than oil or coal, which have higher fuel nitrogen content, but exhibit lower flame temperatures.

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NO_x emissions represent a significant portion of the total emissions generated by this project, and shall be minimized using BACT.

The emissions of NO_x can potentially be reduced at Portland cement plants by two methods:

1. Minimizing the quantity of NO_x generated during combustion (combustion modifications).
2. Reducing the quantity of NO_x in the flue gas stream (flue gas controls).

In establishing BACT for cement kilns, the Department reviewed the EPA BACT/LAER Clearinghouse and a paper presented at the Air and Waste Management Association (AWMA) International Specialty Conference on Waste Combustion in Boilers and Industrial Furnaces. The paper, "Reduction of NO_x Emissions from Cement Kiln/Calcliner through the Use of the NO_xOUT Process," which was written by representatives of Nalco and Ash Grove Cement, suggests that SNCR is a viable control method. A level as low as 1.0 lb/ton of clinker was reached based on demonstration tests conducted at the Ash Grove cement plant in Seattle, Washington. However the process has not been demonstrated on a long term basis. Recently a proposed cement plant (Great Star Cement, Clark County, Nevada) was permitted with the urea-based SNCR/NO_xOUT process as BACT. The process relies on the reaction between ammonia and NO_x to yield molecular nitrogen. The delivery system consists of urea injectors in one of the preheater sections. The objective was to achieve 50% reduction of NO_x emissions. At that level there should be no ammonia slip while meeting a BACT limit of 3.1 lb/ton clinker.

A review of the EPA BACT/LAER Clearinghouse (BACT Clearinghouse) information indicates that NO_x emissions at most facilities are minimized by process control and good combustion practices.

The applicant stated that NO_x emissions at this facility will be controlled through "proper combustion practices" such as burner design with primary combustion air control. The applicant has proposed for each kiln with a preheater design a NO_x emission rate of 285 lb/hr and 1.9 lb/ton kiln_{PH} feed (3.17 lb/ton clinker at a production rate of 90 TPH, 30-day average).

A review of the NO_x emission rate summary indicates that the applicant's proposal is among the lowest BACT determinations made to date for plants utilizing dry processes. The dry process with a preheater/precalcliner is considered to be the most energy-efficient process. Dry process preheater designs, such as the one employed by Southdown, are also energy efficient. Therefore it is expected that the lower fuel use will result in relatively low NO_x, as well as documented reductions from tire burning is another reason to expect low emission rate from the both preheater design kilns.

Following is a comparison between previous BACT determinations for NO_x documented in the BACT Clearinghouse and Southdown's proposal.

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Previous BACT Determinations

BASIS	Least Stringent	Most Stringent	Proposed (Applicant)
	Year 1978	Year 1981	Year 1996
lb/ton clinker	11.13	0.85	3.17

It is important to note that the facility which was given the 0.85 lb/ton clinker NO_x limit has not been able to meet it since construction. A dry process plant with a preheater/precalciner received a NO_x limit of 1.11 lb/ton clinker but was never built. Another dry process plant with a preheater/precalciner received a BACT determination of 2.09 lb NO_x/ton clinker. However, it appears that since that time a less stringent standard was applied. One dry process preheater/precalciner kiln in California received a NO_x BACT determination of 2.5 lb/ton clinker. The Department made a BACT Determination of 2.8 lb/ton clinker in 1997 (Florida Crushed Stone) and in 1995 for the proposed Florida Rock Industries Cement Plant in Newberry, Florida. The main reason that the lb/ton clinker emission rate was higher than the one for the California plant was that Florida limestone is wetter and requires more heat input to dry. A claim by the kiln manufacturer that differences in volatility between Eastern and Western coal should be reflected in an even higher emission limit for the Florida kiln was rejected by the Department.

Based on the long history of past permitting actions of Kiln No. 1 since its permit was issued in 1973 (no allowable emission limit for any pollutant other than PM), and the few stack records data on file with the Department, the Department has determined that the BACT limit for dry process preheater kilns should not exceed 1.83 lb/ton kiln PH feed (275 lb/hr at 150 TPH preheater feed rate) or 3.05 lb/ton clinker at a production rate of 90 TPH, 30-days average.

Introduction of tires in the material feed end of the kiln (Kiln No. 1) will reduce the thermal load on the burner end and possibly result in lower NO_x emissions [refer to files on stack tests performed in 1993 while burning 80% coal and 20% WTDF (191 lb/hr on a two days average), 1994 (159 lb/hr), and 1995 (152 lb/hr)]. The newer Kiln No. 2 has a BACT emission limit for NO_x of 1.72 lb/ton kiln PH feed which is equivalent to 2.86 lb/ton clinker. The kiln has been able to consistently meet this value.

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Carbon Monoxide

Carbon monoxide (CO) is a pollutant formed by the incomplete combustion (oxidation) of carbon containing compounds in the cement kiln fuel and during the transformation of cement raw materials to cement clinker. When insufficient oxygen is provided, more CO and less CO₂ are formed than under excess air conditions. Substantial quantities of CO and CO₂ are also generated through calcining of limestone and other calcareous material. This calcining process thermally decomposes CaCO₃ to CaO and CO₂. The calcining of limestone in the cement manufacturing process liberates large amounts of CO₂, which is available for dissociation into CO.

Flyash, a constituent of the raw feed mix, contains unburnt carbon which can vary in concentration depending on the source of the flyash. As the raw feeds travels down the preheater tower, most of the carbon present in the flyash is burned off. However, some of it is emitted as carbon monoxide. This contributes to fluctuations in carbon monoxide emissions.

The generation of CO and NO_x is inversely related to that of NO_x and is linked to the oxygen level that is present in the kiln system. As the oxygen level increases, the formation of NO_x increases and the formation of CO decreases. Conversely, when the oxygen level decreases, the formation of NO_x decreases and the formation of CO increases. Southdown will meet CO and NO_x emission levels by controlling excess oxygen in the kiln to a level between one and one-half to three percent excess oxygen. A continuous CO process monitor will assist in the control of the CO content in the kiln.

Emissions of CO can potentially be reduced at portland cement plants through utilization of proper combustion practices to maximize the oxidation of CO to CO₂ and reducing the quantity of CO in the flue gas stream (flue gas control). The high temperatures and control of excess air and fuel, typically results in simultaneous optimization for CO and NO_x. The applicant proposes proper combustion practices as BACT to control emissions of CO from this plant. A review of the BACT Clearinghouse reveals that for cement plants, BACT for CO is proper combustion practices.

The applicant proposes a CO limit of 1.2 lb/ton of feed_{ph} and good combustion practice as BACT for CO for each Kiln. This represents an emission increases for Kiln No. 1 from 57.7 lb/hr to 180 lb/hr and for Kiln No. 2 from 64.0 to 180 lb/hr respectively. This increase is proposed in order to allow for more representativeness on a year-round basis compared with what is achievable during an annual test. It also accounts for fluctuations due to normal process oscillations and varying characteristics of raw materials and fuels.

Volatile Organic Compounds

VOC is also a pollutant formed due to incomplete combustion of fuel and organic material in the feed material to the kiln system. Limestone contains very low levels of VOCs. An additional source of VOC is oil from mill scale that is sometimes used as a raw material for its iron.

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Southdown will reduce the VOC emissions by controlling the temperatures in the kiln system. In the kiln, the feed material will reach about 2700 degrees Fahrenheit. The temperature of the gases in the kiln will reach between 3700 to 3800 degrees Fahrenheit. At these high temperatures, virtually all VOCs will be consumed or destroyed regardless of their source (limestone, mill scale, coal, fuel oil, etc.). Clinker production requires certain temperatures, residence time, and turbulence within the kiln. These factors are sufficient to ensure the destruction of almost all VOCs at cement plants.

Emissions of VOC can also be controlled by add-on control devices, by the mechanisms of adsorption, absorption, or incineration (afterburning). Incineration processes include flame incineration, thermal incineration, and catalytic incineration. No add-on controls for VOC have been demonstrated for cement plants.

A review of the BACT Clearinghouse reveals that for cement plants, BACT for VOCs is proper combustion practices.

For VOC, the applicant has estimated 13.6 lb/hr (an increase of approximately 9.1 lb/hr) for both kilns. The applicant is utilizing good combustion practices for both kilns to reduce VOCs emissions.

BACT DETERMINATION RATIONALE:

The existing BACT VE limit of 10 percent for Kiln No. 2 is more stringent than the NSPS for Portland Cement Plant, 40 CFR 60, Subpart F for Kiln No. 2. It is also consistent with various recent BACT determinations made throughout Florida. There is no good basis for considering the higher VE limit proposed by Southdown than the one already established. Although Kiln No. 1 has a VE limit of 20 percent, the kilns are operated similarly and will have identical PM limits. The efforts to maintain the lower Opacity limit at Kiln No. 2 will probably result in fairly low opacity from Kiln No. 1.

BACT for PM (0.2 lb/ton kiln feed) from Kilns No. 1 and No. 2 proposed by Southdown is more stringent than the NSPS for Portland Cement Plants, 40 CFR 60, Subpart F. The basis is the BACT determinations made by the Department for Florida Rock Industries and Florida Crushed Stone and the original BACT determination for Southdown (then FM&M). The Department accepts the applicant's proposed limit (as corrected to 0.18 lb/ton kiln_{ph} feed) for both Kiln Nos. 1 and 2.

BACT for PM (0.1 lb/ton kiln_{ph}) feed from Coolers Nos. 1 and 2 proposed by Southdown is equal to that given in the NSPS for Portland Cement Plants. Southdown was unable to achieve lower limits set in the past as a result of permit conditions they agreed to comply with in order to avoid PSD/BACT. The basis is also the BACT determinations made by the Department for Florida Rock Industries and Florida Crushed Stone. The Department accepts the applicant's proposed limit (corrected to 0.09 lb/ton kiln_{ph} feed) for both Coolers Nos. 1 and 2 with the understanding that it is being met at all times rather than just during annual emission tests.

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BACT for CO was proposed by Southdown to be 1.2 lb/ton kiln_{ph} feed (2.0 lb/ton clinker at a clinker production rate of 90 TPH) for both Kilns. This value will provide sufficient flexibility to minimize NO_x and SO₂ emissions. The value is within the Department's recent BACT determination to Florida Crushed Stone (FCS) with a CO limit of 2.0 lb/ton clinker. However the Department encourages Southdown to continue to be judicious in selecting sources of coal ash. Some of the local power companies are trying to recover the unburned carbon in the coal ash by reburning it, taking advantage of the heat content, and producing a more salable coal ash for customers such as the cement industry. If Southdown revises its specifications and accepts poor quality flyash, it can be counter-productive for this pollution prevention effort affecting both industries.

A BACT determination was required for VOC for both Kilns. The Department accepts the limit requested by Southdown which will result in annual emissions above the PSD threshold. It will allow Southdown sufficient flexibility in control for all combustion products.

No BACT determination was requested or required for metals such as mercury, beryllium, lead arsenic, fluorides and sulfuric acid mist (PSD pollutants). Original emission estimates submitted for previous applications provided assurance that emissions of these pollutants are less than the PSD significant threshold values.

No new BACT determination was requested for SO₂. The actual BACT emission level of 15 lb SO₂/hr is being met. This is equal to 0.10 lb SO₂/ton kiln_{ph} feed. For comparison with industry conventions, this value is equal to 0.16 lb SO₂/ton clinker at a production rate of 90 TPH. Kiln No. 1 also meets the same SO₂ limit as Kiln No. 2.

A new BACT- NO_x emission limit of 1.83 lb/ton kiln_{PH} feed or 275 lb/hr (3.05 lb/NO_x/ton clinker at a production rate of 90 TPH, 30-day average) will be set for Kiln No. 1. BACT for Kiln No. 2 will remain at 1.72 lb NO_x/ton kiln_{ph} feed or 258 lb/hr at a 150 TPH process rate (2.86 lb/ton clinker at a production rate of 90 TPH, 30-days average).

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BACT DETERMINATION BY DEP:

Based on the information provided by the applicant and the information searches conducted by the Department, the BACT emission levels are established as follows:

POLLUTANT	EMISSION LIMIT
Particulate Matter (PM/PM ₁₀) (kilns)	0.18 lb./ton kiln _{ph} feed
Particulate Matter (PM/PM ₁₀)(coolers)	0.09 lb/ton kiln _{ph} feed
Carbon Monoxide (kilns)	1.2 lb/ton kiln _{ph} feed
Nitrogen Oxides (Kiln No. 1)	1.83 lb/ton kiln _{ph} feed
Nitrogen Oxides (Kiln No. 2)	1.72 lb/ton kiln _{ph} feed
Volatile Organic Compounds (kilns)	0.09 lb/ton kiln _{ph} feed
Visible Emissions (Kiln No. 2)	10 percent (no change)

COMPLIANCE

Compliance with the particulate emission limitations shall be in accordance with the EPA Reference Method 5 as contained in Appendix A, 40 CFR 60, and set forth in Subsection 60.64 of the NSPS for Portland Cement Plants, 40 CFR 60.

Continuous opacity monitors (kilns and coolers) shall meet the requirements of the 40 CFR 60.63, NSPS Subpart F for Portland Cement Plants. Compliance with the opacity standard for the Kilns and Clinker Coolers No. 1 and No. 2 shall be demonstrated by EPA reference Method 9.

Compliance with the CO limitations shall be demonstrated initially and annually by using EPA Reference Method 10 as contained in Appendix A, 40 CFR 60.

Pursuant to Rules 62-4.070(3), 62-212.400(6), and 62-297.520, F.A.C., the kiln/cooler exhaust stack system shall also be equipped with continuous monitors process monitors to record CO and/or O₂ to indicate proper maintenance, operation, and to optimize combustion for pollution control.

Compliance with the NO_x limitation shall be demonstrated initially and annually by using EPA Reference Method 7E as contained in Appendix A, 40 CFR 60.

Compliance with the VOC limitations shall be demonstrated (on a one time basis) by three one hour stack tests using Method 25 or 25A as contained in Appendix A, 40 CFR 60.

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BACT/LAER/RACT CLEARINGHOUSE DATABASE COMPARISON

The following table is to be used for reference and comparison with portland cement facilities listed in the BACT/LAER/RACT Clearinghouse database:

POLLUTANT	lb/ton clinker	lb/ton kiln _{ph} feed *	lb/ton kiln feed**	lb/MM BTU
PM/PM ₁₀ (kiln)	0.31	0.18	0.2	0.08
SO ₂ (kiln)	0.16	0.10	0.12	0.05
NO _x (Kiln No. 1)	3.05	1.83	2.03	0.91
NO _x (Kiln No. 2)	2.87	1.72	1.91	0.86
CO (kiln)	2.00	1.2	1.33	0.57
VOC (kiln)	0.15	0.09	0.1	0.04
PM/PM ₁₀ (Cooler)	0.15	0.09	0.1	0.04

Based on the following process rates:

Preheater feed rate (kiln_{ph} feed rate) : 165 TPH (one-hour maximum)

Preheater feed rate (kiln_{ph} feed rate) *: 150 TPH (30-day average)

Kiln feed rate **: 135 TPH (30-day average)

Clinker production : 90 TPH (30-day average)

Heat Input : 300 MMBTU/hr

DETAILS OF THE ANALYSIS MAY BE OBTAINED BY CONTACTING:

Teresa Heron, Review Engineer
A. A. Linero, Administrator, New Source Review Section
Department of Environmental Protection
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Recommended By:

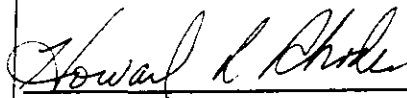


C. H. Fancy, P.E., Chief
Bureau of Air Regulation

6/23/97

Date:

Approved By:



Howard L. Rhodes, Director
Division of Air Resources Management

6/25/97

Date:

Southdown, Inc.
Portland Cement Facility

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

Is your RETURN ADDRESS completed on the reverse side?

SENDER:
 ■ Complete items 1 and/or 2 for additional services.
 ■ Complete items 3, 4a, and 4b.
 ■ Print your name and address on the reverse of this form so that we can return this card to you.
 ■ Attach this form to the front of the mailpiece, or on the back if space does not permit.
 ■ Write "Return Receipt Requested" on the mailpiece below the article number.
 ■ The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
 1. Addressee's Address
 2. Restricted Delivery
 Consult postmaster for fee.

3. Article Addressed to:
 Don Kelly, Plant Mgr
 Southdown, Inc
 P O Box 6
 Brooksville, FL
 34605-0006

4a. Article Number
 P 265 659 235

4b. Service Type
 Registered Certified
 Express Mail Insured
 Return Receipt for Merchandise COD

7. Date of Delivery
 7-2-97

5. Received By: (Print Name)

8. Addressee's Address (Only if requested and fee is paid)

6. Signature: (Addressee or Agent)
 X Audrey Maddox

PS Form 3800, April 1995

Return Receipt

Thank you for using Return Receipt Service.

P 265 659 235

US Postal Service
Receipt for Certified Mail
 No Insurance Coverage Provided.
 Do not use for International Mail (See reverse)

Sent to	Don Kelly
Street & Number	Southdown
Post Office, State, & ZIP Code	Brooksville, FL
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	6-26-97
0530010-003-AC PSD-FL-233	

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