METROPOLITAN DADE COUNTY, FLORIDA

METRODADE

ERM

ENVIRONMENTAL RESOURCES MANAGEMENT
ENFORCEMENT SECTION
33 SOUTHWEST 2nd AVENUE
SUITE 1100
MIAMI, FLORIDA 33130-1540
(305) 372-6902

February 3, 1998

Richard D. Pluta, Director
Technical Services
Tarmac America, Inc.
1151 Azalea Garden Road
Norfolk, Virginia 23502

CERTIFIED MAIL NO. Z165003834
RETURNED RECEIPT REQUESTED

Re: Tarmac, Pennsuco Portland Cement Plant located at, near, or in the vicinity of 11000 N.W. 121 Way, Medley, Florida 33178.

Enclosed you will find an original Consent Agreement for the referenced facility which was executed on February 2, 1998. Be advised that the date of execution initiates specific time frames within the Agreement with which you must comply.

If you have any questions concerning the above please contact me at 372-6902.

Sincerely,

Sharon Crabtree
Code Enforcement Officer

cc: Jim Alves
Mike Unger

SC:ocv

cc: J. Reynolds, BAR
A. Linero, BAR

AGREEMENT

DADE COUNTY DEPARTMENT OF ENVIRONMENTAL RESOURCES MANAGEMENT Complainant,	)
VS.	)
Tarmac America, Inc. Respondent	)

THIS AGREEMENT, entered into by and between MIAMI-DADE COUNTY DEPARTMENT OF ENVIRONMENTAL RESOURCES MANAGEMENT (hereinafter referred to as DERM), and Tarmac America, Inc. (hereinafter referred to as Tarmac or Respondent) pursuant to Section 24-5(15)(c) Miami-Dade County Environmental Protection Ordinance, shall serve to redress the alleged violations of Section 24-55 of the Code of Miami-Dade County as set forth in a June 17, 1997 Notice of Violation and Orders for Corrective Action, concerning the site located at 11000 NW 121 Way, Medley, DADE County, Florida (Folio #30-2031-001-0030).

The DERM finds the following:

FINDINGS OF FACT

1. The DERM is an agency of Miami-Dade County, a political subdivision of the State of Florida which is empowered to control and prohibit pollution and protect the environment within Dade County pursuant to Article VIII, Section 6 of the Florida Constitution, the Dade County Home Rule Charter and

Section 403.182 of the Florida Statutes.

2. Tarmac is a Delaware corporation that has its principal place of business in Norfolk, Virginia. Tarmac owns and operates a portland cement manufacturing plant located in Dade County, Florida, under the authority of DEP permit no. AC 13-169901. Tarmac is currently doing business in the State of Florida and is a person within the meaning of section 403.031(5), Florida Statutes.

3. Tarmac's cement plant (Pennsuco Plant) in Dade County includes kiln # 2, a wet process, direct-fired cement kiln that originally was constructed in 1969. In wet process cement manufacture, a slurry of filtrate of crushed limerock containing between 20% and 40% moisture content is introduced into an inclined kiln for calcination into quicklime (calcium oxide) clinker by the application of high thermal energies. At Tarmac's kiln # 2, this thermal energy currently is provided primarily by the direct firing of crushed coal. Flow from the coal mill both conveys the crushed coal to the kiln and serves as the primary combustion air for the kiln.

4. On July 8, 1980 the United States Environmental Protection Agency (EPA) issued Final Determination PSD-FL-050 for proposed fuel conversions of the Pennsuco kilns 1,2 and 3 from natural gas to coal. Condition #8 of the Final Determination limited coal-fired NOx emissions from kiln # 2 to 118 lb/hr at the maximum operating rate or 4.73 lb/ton of clinker produced

at lesser operating rates. These limiting emission rates were proposed by Respondent to ensure validity of the exemption from further Prevention of Significant Deterioration (PSD) review (no net increase in emissions). The PSD permit and accompanying regulatory materials specifically contemplated the possibility, based on published emission rate information for large utility boilers and site-specific variables that could not be quantified in advance, that actual NOx emissions while firing coal could be higher than predicted. However, Tarmac produced published test data which reported that "emissions of NOx are less using coal than when using gas or oil as a fuel for cement kilns" due to the "characteristics of the flame". Also, the EPA concurred with Tarmac "that operating conditions can be found which will result in reduced emissions or at least no net increased emissions" when utilizing coal instead of gas.

5. The conversion to coal for kiln # 2 was deferred for several years, and that kiln was never converted under PSD-FL-050. On August 21, 1989 Respondent again submitted an application to the Florida Department of Environmental Regulation (FDER, now known as the Florida Department of Environmental Protection, DEP) to convert kiln # 2 to coal. In this application Respondent requested, based on NOx emission rate data associated with a dissimilar kiln, a maximum allowable NOx emission rate of 169.25 lbs/hr for kiln # 2.

6. On February 27, 1991 DEP issued Construction Permit No. AC 13-169901 (exhibit A attached) to convert kiln # 2 to coal firing. Specific Condition # 5 of said permit limited NOx emissions to 113.8 lbs/hr. Additionally Specific Condition # 12 in DEP permit no. AC 13-169901 required that after the commencement of operation while firing coal, Tarmac shall conduct NOx emissions tests every two months for up to one year. In the event that the required compliance testing resulted in NOx emissions in the range of 113.8 lbs/hr to 169.3 lbs/hr, Specific Condition #12 of said permit provided Tarmac with the opportunity to request DEP to re-evaluate BACT and consider adjustment of the NOx emissions limitations upward from 113.8 lbs/hr to a maximum of 169.3 lbs/hr. The permit stated that DEP would not initiate enforcement proceedings while evaluating an adjustment of the NOx limitation, provided Tarmac made reasonable efforts to limit air emissions.

7. Tarmac did not convert kiln # 2 to coal for an extended period of time after issuance of permit no. AC 13-169901 in 1991 due to reported variabilities in demand for cement and fuel prices. Accordingly, the performance tests were delayed until coal-firing actually commenced. On April 24, 1994 Respondent initiated the bi-monthly compliance testing for a one year period ending April 1995. By letter dated July 21, 1995, Tarmac provided DEP with data from six stack emission tests performed while firing coal in kiln # 2. NOx emissions

exceeded permittable levels at every testing event. Tarmac requested in its July 21, 1995 letter to DEP that the NOx limit be re-evaluated and, based on a statistical analysis of the test results, be adjusted to 445 lbs/hour. DEP's August 24, 1995 response stated that Tarmac's request was "not representative of BACT under PSD rules and that the NOx test results were beyond the range of values for re-evaluation, set by Tarmac."

8. Thereafter, there were several discussions and exchanges of correspondence through which Tarmac, attempted to initiate DEP re-evaluation of the NOx emission limitation. DEP declined to re-evaluate the NOx emission limitation and ultimately expressed its preference that Tarmac evaluate and then implement physical improvements that would result in continuous compliance with the original NOx emission projections (113.8 lbs/hr).

9. On May 28, 1996 Respondent's consulting firm submitted a plan for testing NOx emission levels using a modified coal burner nozzle installed on kiln # 2. Testing was to commence by early June 1996 and test data was to be submitted to DEP by early August 1996.

10. On October 16, 1996 DEP issued a letter to Respondent stating that DEP had not received NOx emissions testing data as stated in the May 28, 1996 letter. DEP requested that Tarmac provide

immediate assessment of the NOx emission using the modified burner nozzle. Resolution of the NOx emission violation was to be achieved by the end of 1996.

11. Resolution of the elevated NOx emissions issue was not achieved and pursuant to the FDEP/DERM air permitting delegation agreement, on April 14, 1997, FDEP referred the continuing NOx emissions violation at the subject site to DERM for follow-up enforcement action.

12. On June 17, 1997 DERM issued a Notice of Violation (NOV) and Orders for Corrective Action and Settlement for exceedances of permitted NOx emission rates. Said NOV ordered Respondent to submit a written plan detailing proposed corrective actions to ensure that the allowable limits for emissions are not exceeded.

13. Tarmac has reported that its analysis indicates that the level of NOx emissions demanded by DEP can be achieved at kiln #2 while firing coal only by developing alternatives that require very substantial expenditures, such as converting kiln # 2 to indirect firing (or other alternative technology), or modernizing its existing wet process system by converting it to employ dry process technology.

14. Tarmac has expressed a willingness to adopt whichever NOx emission reduction option is most cost-effective, taking into

consideration the age of the existing equipment and the degree of reduction in NOx and other criteria pollutant emissions achievable by each alternative. Due to the reported costs involved, the substantial preliminary engineering work required, as well as the need to design for the integration of new systems into existing operations, Tarmac has stated its need for additional time in which to select and implement its best alternative method. If no economically feasible alternative can be developed, Tarmac will cease operating kiln # 2 on coal.

15. Tarmac hereby consents to the terms of this Agreement without either admitting or denying the factual or legal allegations made by DERM in this Agreement or in the Notice of Violation and Orders for Corrective Action and Settlement; and

16. In an effort to insure continued protection of the health and safety of the public and the environment of Dade County and to insure compliance with Chapter 24, Miami-Dade County Environmental Protection Ordinance and to avoid time-consuming and costly litigation, the parties hereto stipulate and agree to the following, and it is ordered:

17. Upon execution of this Consent Agreement Respondent shall, on an interim basis, meet the NOx emission limit monthly average of 220 lbs/hr for kiln # 2 with 240 lbs/hr being the maximum limit on an instantaneous basis. This NOx emission limit shall

remain in effect until the applicable requirements set forth in paragraphs # 21, 22 or 23 of this Agreement are implemented. Respondent shall then meet NOx emission limitations for kiln # 2 as required.

18. In order to verify compliance with paragraph # 17 of this Agreement, Respondent shall install and have operational a continuous emission monitor on kiln #2 by June 1, 1998. Respondent shall obtain DERM concurrence of the system prior to installation. Until the aforementioned continuous emission monitoring system is operational, Respondent shall conduct monthly NOx emission verification testing. Additionally, beginning in July 1, 1998, respondent shall submit to DERM a written Nox emission monitoring report including the monthly Nox emissions chart from kiln #2. This report shall be due by the fifteenth of the month and shall contain the information obtained from the preceding month. The first report is due to DERM by July 15, 1998. Report submittals shall continue until the expiration of this Agreement in accordance with paragraph 38 of this Agreement.

19. On or before January 31, 1998, Respondent shall provide in writing to DERM its method for eliminating exceedances of the NOx emission limitations as stipulated in permit no. AC 13-169901 for kiln # 2. The method provided shall correspond with the applicable requirements set forth below in paragraphs 21, 22 or 23 of this Agreement.

20. If Respondent chooses to implement the requirements set forth in paragraph 22, Respondent shall submit applications by completing forms designated by agency regulations, signed by the appropriate company representative and sealed by a Florida registered professional engineer, with the appropriate fee, for the required air construction permits and/or permit modifications to the FDEP or Dade County DERM, as appropriate. Said application shall be submitted by February 15, 1998. Additional information requested by the appropriate agencies shall be provided by Respondent within fourteen (14) days of the date Respondent receives the request, unless the reviewing agency determines that additional time is necessary due to the scope of its request. If Respondent chooses to implement the requirements set forth in paragraph 23 of this Agreement, these same permitting procedures shall apply, except that the deadline for submitting the applications shall be June 30, 1998. In all cases Respondent shall diligently apply for and seek in a timely manner to obtain any other necessary approvals to perform the work within the same applicable timeframes stipulated above.

21. If Respondent relinquishes its authorization to burn coal in kiln # 2, it shall notify DEP and DERM in writing by January 31, 1998, that it surrenders permit no. AC 13-169901, and within 90 days thereafter shall cease utilizing coal, and operate kiln # 2 only on those fuels currently authorized

under DEP permit no. AO 13-238048 provided that emissions levels for NOx do not exceed the previously established RACT limitation and SO2 emissions do not exceed the current regulations.

22. Alternatively to the requirements set forth in paragraph # 21 of this Agreement, if kiln # 2 is converted to indirect firing or other DERM and DEP accepted technology that meets the NOx limits in permit no. AC 13-166901, construction shall be completed within 12 months after receiving the construction permit modifications referenced in paragraph #20, above, and any other required permits, and then Respondent shall meet the same BACT NOx emission limitations and all other emission limitations as set forth in construction permit NO. AC 13-169901.

23. Alternatively to the requirements set forth in paragraphs # 21 and # 22 of this Agreement, if the plant's manufacturing process is changed to dry process technology, construction shall be completed within 36 months after the required permits have been issued and then Respondent shall meet the permitted emission limitations.

24. Commencing at the next time at which such fees are due under DEP's regulations, Respondent shall pay to FDEP the Title V permitting fee for kiln # 2 NOx emissions based on the monthly interim average of 220 lbs/hr. This fee shall be effective

upon execution of this Consent Agreement and shall remain in effect until Respondent is in compliance with kiln # 2 permitted NOx emissions limitations.

SAFETY PRECAUTIONS

25. The Respondent shall maintain the subject site, during the pendency of this Agreement, in a manner which shall not pose a hazard or threat to the public at large or the environment and shall not cause a nuisance or sanitary nuisance as set forth in Chapter 24, Miami-Dade County Environmental Protection Ordinance.

VIOLATION OF REQUIREMENTS

26. This Agreement constitutes a lawful order of the Director of the Department of Environmental Resources Management and is enforceable in a civil or criminal court of competent jurisdiction pursuant to Chapter 24, Miami-Dade County Environmental Protection Ordinance. Violation of any requirement of the Agreement may result in enforcement action by DERM. Each violation of any of the terms and conditions of this Agreement by the Respondent shall constitute a separate offense.

SETTLEMENT COSTS

27. The Respondent hereby certifies that it has the financial ability to comply with the terms and conditions stipulated herein and to comply with the payments specified in this Agreement.

28. DERM has determined, that due to DERM's Administrative costs incurred to bring the subject facility into compliance and other sums recoverable pursuant to Section 24-57(e) of the Miami-Dade County Code, an environmental remediation fee of $200,000.00 is appropriate. DERM will allow $50,000 (25%) of the required $200,000.00 environmental remediation fee to be used towards offsetting the costs of continuous emission monitoring equipment installation at kiln #2 (Pennsuco Plant). If for any reason Respondent fails to install the required continuous emission monitoring system Respondent shall pay DERM the full environmental remediation fee of $200,000.00. The Respondent shall within thirty (30) days of the effective date of this Agreement, submit to DERM a certified check in the amount of $150,000.00, for environmental remediation as set forth in Section 24-57(e) for the purpose of the enforcement of environmental laws in Dade County. The check shall be made payable to DERM and sent to the Department of Environmental Resources Management, c/o Sharon Crabtree, Suite 1100, 33 SW 2nd Avenue, Miami, Florida, 33130.

29. Except as otherwise provided under paragraph 33 below, in the event Respondent fails to submit, modify, implement, obtain, provide, operate, comply and or complete those items listed in paragraphs 17,18,19,20,21,22 or 23 (as applicable) herein, the Respondent shall pay DERM a civil penalty of one hundred dollars ($100.00) per day for each day of non-compliance and the Respondent shall be subject to enforcement action in a civil or criminal court of competent jurisdiction for such failure pursuant to the provisions set forth in Chapter 24, Miami-Dade County Environmental Protection Ordinance. Said payment shall be made by Respondent to DERM within ten (10) days of receipt of written notification and shall be sent to the Department of Environmental Resources Management, c/o Sharon Crabtree, at 33 S.W. 2nd Avenue, Miami, Florida 33130.

GENERAL PROVISIONS

30. Respondent shall allow authorized representatives of DERM access to the property at reasonable times for purposes of determining compliance with this Consent Agreement and the rules and regulations set forth in Chapter 24, Miami-Dade County Environmental Protection Ordinance.

31. The DERM expressly reserves the right to initiate appropriate legal action to prevent or prohibit the future violations of applicable statutes or the rules promulgated thereunder.

32. Entry into this Consent Agreement does not relieve Respondent of the responsibility to comply with applicable federal, state or local laws, regulations and ordinances.

33. If any event occurs which causes delay, or the reasonable likelihood of delay, in complying with the requirements or deadlines of this Agreement, Respondent shall have the burden of demonstrating to DERM, that the delay was, or will be, caused by circumstances beyond the control of Respondent. Upon occurrence of the event(s) causing delay, or upon becoming aware of a potential for delay, Respondent shall promptly notify DERM orally within twenty four (24) hours and shall, within five (5) days of oral notification to the DERM, notify DERM in writing of the anticipated length and cause of the delay, the measures taken or to be taken to prevent or minimize the delay, and the timetable by which Respondent intends to implement these measures. If DERM determines that the delay has been or will be caused by circumstances beyond the reasonable control of Respondent, the time for performance hereunder shall be extended for as reasonable a period as may be determined based on such circumstances. Excessive Emissions pursuant to Florida Administrative Code (F.A.C.) 62-210.700 may be considered a reasonable delay in emissions compliance with this Agreement provided Respondent complies with the requirements of this paragraph. The Respondent shall adopt all reasonable measures necessary to avoid or minimize delay.

Failure of Respondent to comply with the notice requirements of this paragraph in a timely manner shall constitute a waiver of Respondent's right to request an extension of time for compliance with the requirements or deadlines of this Agreement.

34. This Agreement shall neither be evidence of a violation of this Chapter or other environmental laws nor shall it be deemed to impose any limitation upon any investigation or action by DERM in the enforcement of Chapter 24, Miami-Dade County Environmental Protection Ordinance.

35. In consideration of the complete and timely performance by the Respondent of the obligations contained in the Agreement, DERM waives its rights to seek judicial imposition of damages or criminal or civil penalties for the matters alleged in this Agreement and the June 17, 1997 Notice of Violations and Orders for Correction Action.

36. This Agreement shall become effective upon the date of execution by the Director, Environmental Resources Management.

37. This Agreement shall expire upon written concurrence by The DERM, at such time as Respondent ceases to utilize coal in kiln #2 and has shown to be in compliance with paragraph 21 of this agreement or files with DEP and DERM a certificate of compliance documenting that it has commenced commercial

operation and has shown to be in compliance with the prescribed requirements of paragraphs 22 or 23.

STATE OF VIRGINIA
CITY OF NORFOLK

1-30-98
Date

John D. Carr, President
Tarmac America, Inc.

BEFORE ME, the undersigned authority, personally appeared JOHN D. CARR who after being duly sworn, deposes and says that he has read and agrees to the foregoing.

Sworn to and subscribed before me this 30th day of January, 1998 by JOHN D. CARR (name of affiant).

Personally Known ✓ or Produced Identification _____.
(Check one)

Type of Identification Produced: _____.

My Commission Expires August 31, 1999

Mildred D. Jolley
Notary Public

2-2-98
Date

John W. Renfrow, P.E., Director
Environmental Resources Management

Joseph D. Stilwell
Witness

Hugh P. Wong
Witness

DERM
Complainant
VS.
Tarmac America, Inc.
Respondent

EXHIBIT A

Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

PERMITTEE:
Tarmac Florida, Inc.
P. O. Box 2998
Hialeah, Florida 33012

Permit Number: AC 13-169901
PSD-FL-142
Expiration Date: June 30, 1992
County: Dade
Latitude/Longitude: 25°52'30"N
80°22'30"W
Project: Kiln No. 2 Coal Conversion

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-2 and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

For the conversion of kiln No. 2 to coal firing. The project will be located at the permittee's existing facility in Medley, Dade County, Florida. The UTM coordinates are Zone 17, 562.8 km East and 2861.7 km North.

The source shall be constructed in accordance with the permit application, plans, documents, amendments and drawings, except as otherwise noted in the General and Specific Conditions.

Attachments are listed below:

1. Application to construct received September 5, 1989.
2. DER's letter of incompleteness dated October 4, 1989.
3. EPA's letter dated October 18, 1989.
4. KBN's response (to incompleteness letter) dated November 13, 1989.
5. Dade County DERM's letter dated November 17, 1989.
6. EPA's letter dated December 13, 1989.
7. KBN's letter dated December 21, 1989.
8. KBN's letter dated January 15, 1990.
9. KBN's letter dated January 30, 1990.
10. EPA's letter dated March 20, 1990.
11. EPA's letter dated April 13, 1990.
12. Dade County DERM's letter dated April 30, 1990.
13. NPS's letter dated May 30, 1990.

GENERAL CONDITIONS:

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.

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 any 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.

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.

GENERAL CONDITIONS:

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 for 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:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the dates analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

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.

SPECIFIC CONDITIONS:

1. The construction and operation of the subject modification of kiln No. 2 shall be in accordance with the capacities and specifications stated in the application.

2. The maximum clinker production rate of kiln No. 2 shall not exceed 25 tons per hour and 197,100 tons per year. Kiln No. 2 shall operate only on coal firing for up to 7,884 hours per year at a maximum firing rate of 162.5 MMBtu per hour. The coal used for firing kiln No. 2 shall have a maximum sulfur content of 2.0 percent by weight, with the rolling 30-day average sulfur content not exceeding 1.75 percent by weight.

3. Sulfur dioxide emissions from kiln No. 2 shall not exceed 7.8 lbs/ton of clinker produced, 195.0 lbs/hr, 768.7 tons/yr.

SPECIFIC CONDITIONS:

of 5.86 to 8.25 lbs/hr (up to 0.33 lbs/ton clinker, 32.52 TPY), the Department, if requested by the permittee, shall re-evaluate BACT and consider upward adjustments of the emission limitations for the indicated constituents based on available data. During this testing and evaluation period, the permittee shall make reasonable efforts to limit air emissions, and the Department shall not initiate enforcement proceedings. Any upward adjustment of emission limitations pursuant to this paragraph shall be the subject of public notice in a local newspaper pursuant to Department rules. The Department's determination based on the data produced under this paragraph shall be a point of entry for purposes of Section 120.57, Florida Statutes.

13. The compliance tests shall be conducted within 30 days after operation on coal begins. The Department's Southeast District office and the Dade County Department of Environmental Resources Management (DCDERM) shall be notified in writing at least 15 days prior to source testing and at least 5 days prior to initial startup. Written reports of the tests shall be submitted to those offices within 45 days of test completion.

14. The permittee, for good cause, may 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 (F.A.C. Rule 17-4.090).

15. An application for an operation permit must be submitted to the Department's Southeast District office and the DCDERM at least 90 days prior to the expiration date of this construction permit or within 45 days after completion of compliance testing, whichever occurs first. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rule 17-4.220).

Issued this 25 day
of February, 1991

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

Carol M. Browner, Secretary

JR
Kiln #2

METROPOLITAN DADE COUNTY, FLORIDA

METRODADE

RECEIVED

JUN 24 1997

BUREAU OF
AIR REGULATION

DERM

ENVIRONMENTAL RESOURCES MANAGEMENT
ENFORCEMENT SECTION
33 SOUTHWEST 2nd AVENUE
SUITE 1100
MIAMI, FLORIDA 33130-1540
(305) 372-6902

June 17, 1997

John D. Carr, President
Tarmac Florida, Inc.
1151 Azalea Garden Rd.
Norfolk, Va. 23502

CERTIFIED MAIL NO:P333150717
RETURN RECEIPT REQUESTED

Michael R. Kane, Vice President
Tarmac Florida, Inc.
11000 NW 121 Way
Medley, FL 33178

CERTIFIED MAIL NO:P333150723
RETURN RECEIPT REQUESTED

RE: Exceedances of permitted emissions at Tarmac/ Pennsuco portland Cement plant located at, near or in the vicinity of 11000 NW 121 Way, Medley, Florida, 33178.

Dear Messrs Carr and Kane:

NOTICE OF VIOLATION
AND
ORDERS FOR CORRECTIVE ACTION AND SETTLEMENT

A departmental review of reports for emission tests conducted on May 31, 1995 and December 17-20, 1996 revealed exceedances of allowable pollutants as follows:

Test Date	Emission Unit	Pollutant Test	Result	Allowable Emissions
5/31/95	kiln #2	Nitrogen Oxide	328.4 lbs/hr	113.8 lbs/hr
12/17/96	cooler #3	Particulate Matter	0.49 lbs/ton	0.1 lbs/ton
12/18/96	cooler #2	Particulate Matter	41.99 lbs/hr	23.71 lbs/hr
12/18/96	kiln #2	Particulate Matter	20.46 lbs/hr	14.40 lbs/hr
12/18/96	kiln #2	Nitrogen Oxide	307.21bs/hr	113.8 lbs/hr
12/19/96	kiln #3	Sulfur Dioxide	6.98 lbs/ton	4.6 lbs/ton

Additionally, you have failed to submit the 1995 Annual Operating Report (AOR) for the referenced facility.

Be advised that the above constitute violations of the facility's Annual Operating Permits # AP-00604 and #AP-00368

issued by the Department of Environmental Resources Management (DERM) and specific conditions 5 and 8 of the Construction Permit AC 13-169901 and specific conditions 2 and 7 of the Operating Permit AO 13-238048 issued by the Florida Department of Environmental Protection (DEP).

Furthermore, said operations constitute violations of Section 62-296.320, 62-296.407 and 62-297.415 of the Florida Administrative Code and Sections 24-35.1, 24-54 and 24-55 of the Metropolitan Dade County Environmental Protection Ordinance.

Based on the above, and pursuant to the authority granted to me under Chapter 24, I am ordering you to submit to this Department the following items within thirty (30) days of receipt of this Notice:

(1) A complete written plan detailing proposed corrective actions to ensure that the allowable limits for emissions are not exceeded.

Be further advised that the above-referenced violations are subject to mandatory civil penalties which have been calculated at the amount of one hundred ninety two thousand dollars ($192,000). This case penalty calculation represents a settlement offer which shall remain open for thirty (30) days from your receipt of this letter.

Failure to resolve this matter within the thirty (30) day time period may result in this case being referred to the Office of the County Attorney for further enforcement action in a court of competent jurisdiction.

If you have any questions regarding the above please contact this office at (305) 372-6902 or the Air Facilities Section at (305) 372-6925.

Sincerely,

Sharon Crabtree
Code Enforcement Officer

CC: A.A. Linero, DEP
CC: Tom Tittle, DEP
CC: Albert Townsend, Tarmac PBC
SC:kjb

Tarmac America, Inc.
455 Fairway Drive
Deerfield Beach, FL 33441
Telephone: 305.481.2800
Facsimile: 305.480.9352

CERTIFIED MAIL - RRR
Z 056 630 740

17 July 1995

RECEIVED
JUL 24 1995
Bureau of
Air Regulation

Ms. Stephanie Brooks, P.E.
Air Resources Management
Fla. Dept. Of Environmental Regulation
P.O. Box 15425
W. Palm Beach, Florida 33416

RE: Pennsuco Cement Plant
Dade County - AP
Kiln No. 2 Coal Conversion
FDEP Permit No. AC13-169901

Dear Ms. Brooks:

Please find enclosed stack a emission test report in accordance with the test protocol specified in the above referenced permit. The protocol required a series of compliance tests every two months for one year and the enclosed test conducted on May 31, 1995 is the last in that series. The table below summarizes the series test results.

Test Date	Clinker Production	Sulfur Dioxide	Sulfuric Acid Mist	Nitrogen Oxides	Carbon Monoxide	VOC's	Particulate Matter	PM10
4/26-27/94	24.08	0.36	0.07	417.32	9.73	1.00	13.26	11.27
6/28-29/94	23.80	48.85	*	279.08	-	-	-	-
8/31/94	19.30	7.89	3.60	204.53	-	-	-	-
10/27-28/94	24.7	5.94	*	287.92	-	-	-	-
1/3/95	23.0	0.77	0.91	335.71	-	-	-	-
5/31/95	24.0	4.43	2.27	328.4	-	-	-	-
AVERAGE	23.15	11.37	1.71	308.83	9.73	1.00	13.26	11.27

[all test results in lbs/hr] * interference problems - see report

Copies of this letter and the enclosed test reports have been forwarded to the DERM. In accordance with the permit protocal, a request will be prepared and submitted for modification of the emission

limits for NO_x and SO_2 relative to the test results. Should you have any questionsat this time regarding the enclosed reports please call me at (800) 330-3380 x4165.

Sincerely,

Scott Quaas

Scott Quaas
Environmental Manager
Technical Services–Florida Region

cc: A. Townsend
R. Pluta
E. Anderson - DERM
C. Fancy - FDEP, Tallahassee

Florida Department of Environmental Regulation
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400
Lawton Chiles, Governor
Carol M. Browner, Secretary

PERMITTEE:
Tarmac Florida, Inc.
P. O. Box 2998
Hialeah, Florida 33012

Permit Number: AC 13-169901
PSD-FL-142
Expiration Date: June 30, 1992
County: Dade
Latitude/Longitude: 25°52'30"N
80°22'30"W
Project: Kiln No. 2 Coal Conversion

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-2 and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

For the conversion of kiln No. 2 to coal firing. The project will be located at the permittee's existing facility in Medley, Dade County, Florida. The UTM coordinates are Zone 17, 562.8 km East and 2861.7 km North.

The source shall be constructed in accordance with the permit application, plans, documents, amendments and drawings, except as otherwise noted in the General and Specific Conditions.

Attachments are listed below:

1. Application to construct received September 5, 1989.
2. DER's letter of incompleteness dated October 4, 1989.
3. EPA's letter dated October 18, 1989.
4. KBN's response (to incompleteness letter) dated November 13, 1989.
5. Dade County DERM's letter dated November 17, 1989.
6. EPA's letter dated December 13, 1989.
7. KBN's letter dated December 21, 1989.
8. KBN's letter dated January 15, 1990.
9. KBN's letter dated January 30, 1990.
10. EPA's letter dated March 20, 1990.
11. EPA's letter dated April 13, 1990.
12. Dade County DERM's letter dated April 30, 1990.
13. NPS's letter dated May 30, 1990.

PERMITTEE:
Tarmac Florida, Inc.

Permit Number: AC 13-169901
PSD-FL-142
Expiration Date: June 30, 1992

GENERAL CONDITIONS:

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.

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, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any 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 of 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.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgement 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.

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.

GENERAL CONDITIONS:

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.

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 any 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.

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.

GENERAL CONDITIONS:

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.

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.

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.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.120 and 17-30.300, 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.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes a Determination of Best Available Control Technology (BACT) and Determination of Prevention of Significant Deterioration (PSD).

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.

GENERAL CONDITIONS:

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 for 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:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the dates analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

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.

SPECIFIC CONDITIONS:

1. The construction and operation of the subject modification of kiln No. 2 shall be in accordance with the capacities and specifications stated in the application.

2. The maximum clinker production rate of kiln No. 2 shall not exceed 25 tons per hour and 197,100 tons per year. Kiln No. 2 shall operate only on coal firing for up to 7,884 hours per year at a maximum firing rate of 162.5 MMBtu per hour. The coal used for firing kiln No. 2 shall have a maximum sulfur content of 2.0 percent by weight, with the rolling 30-day average sulfur content not exceeding 1.75 percent by weight.

3. Sulfur dioxide emissions from kiln No. 2 shall not exceed 7.8 lbs/ton of clinker produced, 195.0 lbs/hr, 768.7 tons/yr.

SPECIFIC CONDITIONS:

4. Sulfuric acid mist emissions from kiln No. 2 shall not exceed 0.23 lb/ton of clinker produced, 5.86 lbs/hr, 23.06 tons/yr.

5. Nitrogen oxides emissions from kiln No. 2 shall not exceed 4.55 lbs/ton of clinker produced, 113.8 lbs/hr, 448.4 tons/yr.

6. Carbon monoxide emissions from kiln No. 2 shall not exceed 346 lbs/hr, 1363.9 tons/yr.

7. VOC emissions from kiln No. 2 shall not exceed 28.8 lbs/hr, 113.5 tons/yr.

8. Particulate matter emissions from kiln No. 2 shall not exceed 14.40 lbs/hr, 56.76 tons/yr.

9. PM_{10} emissions from kiln No. 2 shall not exceed 12.24 lbs/hr, 48.25 tons/yr. Compliance for PM_{10} shall be determined by applying a factor of 0.85 to the measured particulate matter emissions.

10. All reasonable precautions that apply under F.A.C. Rule 17-2.610(3) shall be implemented to limit unconfined emissions of particulate matter from any activity associated with this project. Adequate watering of the coal pile area shall be conducted whenever visible emissions occur in that area. The frequency of watering shall be no more than every half hour.

11. Initial and annual compliance tests shall be conducted using the following test methods:

EPA Method 5 for particulate matter
EPA Method 7 for nitrogen oxides
EPA Method 8 for sulfur dioxide and acid mist
EPA Method 25 for VOC
EPA Method 10 for carbon monoxide

12. Tarmac shall conduct a series of compliance tests for SO_2, H_2SO_4 mist, and NO_x emissions every two months for up to one year to allow representative sampling during different times of the year. The tests shall be performed in accordance with the compliance test methods specified in this permit. In the event that this series of tests results in SO_2 emissions in the range of 195 to 275 lbs/hr (up to 11 lbs/ton clinker, 1,084.1 TPY), NO_x emissions in the range of 113.8 to 169.3 lbs/hr (up to 6.77 lbs/ton clinker, 667.2 TPY), or H_2SO_4 mist emissions in the range

SPECIFIC CONDITIONS:

of 5.86 to 8.25 lbs/hr (up to 0.33 lbs/ton clinker, 32.52 TPY), the Department, if requested by the permittee, shall re-evaluate BACT and consider upward adjustments of the emission limitations for the indicated constituents based on available data. During this testing and evaluation period, the permittee shall make reasonable efforts to limit air emissions, and the Department shall not initiate enforcement proceedings. Any upward adjustment of emission limitations pursuant to this paragraph shall be the subject of public notice in a local newspaper pursuant to Department rules. The Department's determination based on the data produced under this paragraph shall be a point of entry for purposes of Section 120.57, Florida Statutes.

13. The compliance tests shall be conducted within 30 days after operation on coal begins. The Department's Southeast District office and the Dade County Department of Environmental Resources Management (DCDERM) shall be notified in writing at least 15 days prior to source testing and at least 5 days prior to initial startup. Written reports of the tests shall be submitted to those offices within 45 days of test completion.

14. The permittee, for good cause, may 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 (F.A.C. Rule 17-4.090).

15. An application for an operation permit must be submitted to the Department's Southeast District office and the DCDERM at least 90 days prior to the expiration date of this construction permit or within 45 days after completion of compliance testing, whichever occurs first. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rule 17-4.220).

Issued this 25 day
of February, 1991

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

Carol M. Browner, Secretary

Best Available Control Technology (BACT) Determination
Tarmac Florida, Inc.
Dade County

The applicant proposes to convert an existing natural gas/No. 6 fuel oil kiln to coal firing at their portland cement manufacturing plant in northwest Dade County. The kiln (No. 2) is one of three cement kilns at the facility. Each of the kilns was permitted to convert to coal in 1984, however kiln No. 2 was never converted. In addition, it is expected that the permit limit that was established for sulfur dioxide is not adequate based on experience with burning coal in kiln No. 3.

The applicant has indicated the maximum net total annual tonnage of regulated air pollutants emitted from the fuel conversion project based on 197,100 tons per year clinker production to be as follows:

Pollutant	Max. Net Increase in Emissions (TPY)	PSD Significant Emission Rate (TPY)
TSP	18.6	25
PM_{10}	14.8	15
SO_2	1,563	40
NOx	270.5	40
CO	98.1	100
VOC	39.8	40
Pb	1.46	0.6
H_2SO_4 Mist	46.9	7
Be	0.03	0.0004

Rule 17-2.500(2)(f)(3) of the Florida Administrative Code (F.A.C.) requires a BACT review for all regulated pollutants emitted in an amount equal to or greater than the significant emission rates listed in the previous table.

BACT Determination Requested by the Applicant

Pollutant	Determination
SO_2	16.0 lb/ton of clinker
H_2SO_4 Mist	0.48 lb/ton of clinker
NOx	8.02 lb/ton of clinker

Date of Receipt of a BACT Application

September 5, 1989

Review Group Members

This determination was based upon comments received from the applicant and the Permitting and Standards Section.

BACT Determination Procedure

In accordance with Florida Administrative Code Chapter 17-2, Air Pollution, this BACT determination is based on the maximum degree of reduction of each pollutant emitted which the 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 Best Available Control Technology 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 determinations 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 the most stringent control available for a similar or identical source or source category. If it is shown that this level of control is technically or economically infeasible for the source 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.

BACT Analysis

A review of the BACT/LAER clearinghouse for portland cement manufacturing facilities indicates a wide range of SO_2 limitations. The BACT determinations have been established in terms of percent reduction, mass emissions per ton of feed, per ton of product (clinker), and per unit of time (hour). In some cases determinations have been expressed in terms of pounds per million Btu heat input, or parts per million.

For percent SO_2 reduction BACT determinations have ranged from a low of 20 percent to a high of 90 percent for coal fired facilities.

For mass emissions as a function of heat input, previous BACT determinations from coal fired facilities range from 0.488 to 2.41 pounds per million Btu. Although the BACT/LAER Clearinghouse has several determinations which have been expressed in terms of throughput (lbs/ton), it is not clear as to whether or not the emissions rate given is based on raw materials, feed or clinker produced. As this is the case, these determinations will not be used in evaluating the proposed emission rate of 16 pounds per ton of clinker produced.

The applicant has proposed a SO_2 emission rate of 400 lbs/hr (16 lb/ton of clinker). This emission is based on an inherent removal efficiency of 36 percent, considering that the coal for firing the kiln will have a maximum sulfur content of 2.0 percent. Taking into consideration the kiln's maximum heat input of 162.5 MMBtu/hr, the proposed emission rate can also be equated to 2.46 lb/MMBtu.

The proposed SO_2 emission rate reduction can be compared to previous BACT determinations as follows:

Previous BACT Determinations

Basis	Least Stringent	Most Stringent	Applicant's Proposal
Percent SO_2 Reduction	20	90	36
lbs/MMBtu	2.41	0.488	2.46

A review of the SO_2 emission rate/reduction summary indicates that the applicant's proposal is not representative of what BACT should be in terms of pounds emitted per million Btu heat input and is marginal for percent SO_2 reduction. In fact, the least stringent BACT determinations (20% reduction and 2.41 lb/MMBtu) were established for a source which was permitted in 1981 and is not representative of today's "top down" BACT evaluations.

The sulfur dioxide emissions from coal fired portland cement production facilities can be reduced or controlled by restricting the coal's sulfur content, add on control equipment, and inherent removal attributed to the limestone feed which is dependent upon the kiln's design.

Several of the more stringent BACT determinations have been based on the use of low sulfur coal, with the lowest level indicated being 0.8 percent. In other cases the determinations have established that control be achieved by using lime injection and/or fabric filters as BACT, or have based BACT on the inherent SO_2 removal that is provided only by the limestone component of the feed to produce clinker. Each of these alternatives will be evaluated in greater detail below.

The applicant has proposed to use coal with a sulfur content not to exceed 1.75 percent on a monthly average with the maximum sulfur content not to exceed 2.0 percent. Given these maximums, a cost/benefit analysis of switching to a lower sulfur content coal can be conducted. The applicant has indicated that the cost of switching to coal with a sulfur content of 1.5 and 1.0 percent would be an additional $3.80 and $4.90 per ton of coal, respectively. Given the sulfur dioxide reductions that would be achieved using the lower sulfur coals the costs per ton of SO_2 controlled would be $1,784 and $983 for 1.5 and 1.0 percent sulfur coal, respectively. Each of these costs is below the New Source Performance Standard (NSPS) guideline of $2,000 per ton of SO_2 controlled that is used for establishing NSPS.

Several of the portland cement manufacturing facilities listed in the BACT/LAER Clearinghouse achieve part of the overall SO_2 control by using a baghouse as the particulate control device. The applicant stated that a baghouse would inherently provide greater removal (in the range of 20 to 45 percent) than the proposed ESP due to the filter cake formed on the bags. The clearinghouse lists some facilities in which the level of control has been additionally enhanced by incorporating lime/limestone injection.

The applicant has indicated that the additional removal which might be obtained from using a baghouse does not warrant the expense. In 1983 dollars, the cost of purchasing and operating a baghouse is estimated to be 1.9 million and 0.6 million, respectively. These costs are not justified since an efficient particulate control device (ESP) is already in place.

The BACT/LAER Clearinghouse lists facilities that provide SO_2 reductions up to 90 percent based on the inherent control that is provided only by the alkaline content of the cement dust and the particulate control device. The applicant stated that the proposed inherent SO_2 removal efficiency of 36 percent is based upon experience with burning coal in kiln No. 3. Testing of kiln No. 3 has shown an average SO_2 removal efficiency of approximately 75 percent. The applicant does not expect the same efficiency, however, for kiln No. 2 since kiln No. 2 is smaller, shorter, and less energy efficient. Being shorter, the applicant states that there would be less retention time of the gases in the kiln, thereby having less time for absorption into the

clinker. In addition, the operating conditions (temperature, excess air, etc.) may be different in kiln No. 2 than kiln No. 3. As a result, the inherent SO_2 removal efficiency is expected to be less than that achieved in kiln No. 3 and is proposed to be 36 percent.

The applicant has indicated that the amount of sulfuric acid mist (H_2SO_4) emissions will be equivalent to approximately 3 percent of the SO_2 emissions. As this is the case, BACT for H_2SO_4 will be established at 3 percent of the BACT emission limit for SO_2.

Like SO_2, a review of the BACT/LAER Clearinghouse indicates a wide range of limitations for nitrogen oxides. For NOx, previous BACT determinations have been established in terms of pounds emitted per ton of feed, pounds per million Btu heat input and parts per million.

In terms of pounds per ton of feed, previous BACT determinations for NOx range from a low of 1.6 pounds to a high of 2.9 pounds. For BACTs that were expressed as pounds per million Btu heat input, the clearinghouse indicates a range of 0.32 to 0.7 lb/MMBtu.

The applicant has proposed a NOx emission rate of 169.3 lb/hr. Taking into consideration the kiln's raw material feed rate of 81,000 lb/hr and heat input of 162.5 MMBtu/hr, the proposed emission rate equates to 4.2 lb/ton of feed and 1.04 lb/MMBtu, respectively.

The proposed NOx emission rate can be compared to previous BACT determinations as follows:

Previous BACT Determinations

Basis	Least Stringent	Most Stringent	Applicant's Proposal
lbs/ton feed	2.9	1.6	4.2
lb/MMBtu	0.7	0.32	1.04

A review of the NOx emission rate summary indicates that the applicant's proposal is not representative of what BACT should be both in terms of pounds emitted per ton of feed and pounds emitted per million Btu heat input. Here again, the least stringent of these BACT determinations were established for sources which were permitted several years ago, and hence is not representative of today's "top down" BACT evaluation.

The emissions of nitrogen oxides result from the oxidation of nitrogen in the fuel (fuel NOx) as well as in incoming combustion air (thermal NOx). Based on these principles, the formation of NOx is dependent upon the type of fuel, its nitrogen content, and the combustion parameters of the kiln. Although cement kilns are

limited as to what can be done to limit NOx emissions, previous BACT determinations indicate that most, if not all, facilities are controlling NOx emissions to levels which are lower than proposed by the applicant.

Environmental Impact Analysis

A review of the maximum ambient impacts associated with the coal conversion of kiln No. 2 indicates that the increase in SO_2 emissions will contribute significantly to the present background concentrations. Based on the applicant's proposal for BACT, the impacts associated with the increase in SO_2 emissions are estimated to be 162 ug/m^3, 3-hour; 54 ug/m^3, 24-hour; and 3.6 ug/m^3, annual average. These impacts are well in excess of the present background concentrations of 15 ug/m^3, 3-hour; 8 ug/m^3, 24-hour; and 3 ug/m^3, annual average.

Based on this impact review, the Department has determined that Tarmac's proposal to convert kiln No. 2 to coal firing has the potential to contribute substantially to the SO_2 concentration in that area. As this is the case, the Department believes that a BACT determination which would reduce the proposed SO_2 impacts is justified. Although BACT has also been required for NOx emissions, the maximum annual impact associated with the conversion of kiln No. 2 is below the significant impact level of 1.0 ug/m^3. As this is the case, the increase in NOx impact due to the proposal will not be a major factor in the BACT determination.

In addition to the increased emissions of criteria pollutants, the conversion to coal has the potential to generate hazardous air pollutants which are not associated with oil firing. These pollutants (zinc, phenol, and pyridine) should be controlled to some degree by the existing control equipment, and hence should not have an effect on the BACT determination. The conversion may also result in increases of other noncriteria pollutants. Here again, these increases would be minimal and would not affect the BACT determination.

Potential Sensitive Concerns

The applicant has indicated that any level of control which would result in higher costs to the facility such as switching to a lower sulfur content coal would affect the company's ability to be competitive with other cement suppliers. For example, the additional cost of switching to a coal with a 1.5 or 1.0 percent sulfur content would increase the cost of production by 8 and 9%, respectively. This would limit Tarmac's ability to be competitive with other cement manufacturers since Tarmac is currently just marginally competitive in this industry. In addition, Tarmac as well as other domestic cement producers, competitiveness is being currently strained by the importing of cement from Mexico.

Since 1983, Mexican producers have been importing gray portland cement and cement clinker into Arizona, New Mexico, Texas, and Florida. This cement, which has been alledgely sold at less than fair value and in some cases below production costs, has led to decreased sales by domestic producers, and resulted in the closure of 2 cement plants in Florida. As this is the case, any control measures that result in higher production costs would be economically burdensome to the applicant.

BACT Determination by DER

Discussion

Based on the information provided by the applicant and the studies conducted as part of the Department's review, the levels of control proposed by the applicant are not representative of BACT.

For sulfur dioxide the level of control proposed by the applicant (36% control and 2.46 lb/MMBtu) is only equivalent at best to the least stringent BACT determinations for other portland cement manufacturing facilities. Although the Department recognizes the economic hardship that could result from switching to a lower sulfur coal, there is evidence to suggest that a lower SO_2 emission rate can be achieved without switching.

In 1984, Tarmac applied for and received a modification of their 1980 federal Prevention of Significant Deterioration (PSD) permit to convert kiln Nos. 1, 2, and 3 to coal firing. An excerpt from the BACT determination for that PSD permit provides information on the expected level of control as follows:

"The applicant submitted test data while firing residual oil containing 2.38 percent sulfur to determine kiln product absorption of SO_2. The data indicated that 91.3% of the potential SO_2 was absorbed by the aggregate processed in kiln Nos. 1 and 2 and 98.7% in kiln No. 3. A BACT determination was made based upon the applicant's data.

After one of the kilns [kiln 3] had been converted to fire coal, the exhaust gases were tested for SO_2 content. The data indicated the absorption of SO_2 in the kiln product was 75 to 80 percent, not the reduction originally anticipated. The coal fired in the kiln during the test contained two percent sulfur."

This information indicates that for kiln No. 3 the efficiency of SO_2 absorption decreased by a maximum of 24 percent when coal was fired instead of residual oil. Although the data indicate that the efficiency of absorption was higher for kiln No. 3 (98.7% for kiln No. 3 compared to 91.3% for kiln Nos. 1 and 2) when firing residual oil, it is expected that the differential efficiency

decrease for firing coal instead of residual oil should be similar for all three kilns. Based on this the expected efficiency of SO_2 absorption when firing coal would be a minimum of 69.4% instead of the proposed 36 percent for kiln 2.

A sulfur dioxide reduction of 69.4 percent is more representative of previous BACT determinations. In terms of pounds emitted per heat input, a 69.4 percent reduction equates to 1.18 lb/MMBtu which also better represents BACT. In addition, 1.18 lb/MMBtu is consistent with the New Source Performance Standard (NSPS) for fuel burning equipment of similar size. For coal fired industrial-commercial-institutional steam generating units with heat input capacities between 100 and 250 million Btu per hour the least stringent NSPS requires that SO_2 emissions not exceed 1.2 lb/MMBtu.

For nitrogen oxides the level of control proposed by the applicant also exceeds what has been previously established as BACT. Here again, the Department believes that there is evidence to suggest that cement kilns can meet a lower than proposed emission limitation.

Taking into consideration the applicant's proposed NOx emission rate of 169.3 lb/hr with the proposed clinker production rate of 25 tons per hour, the NOx emissions are equivalent to 6.77 pounds per ton of clinker produced. This level greatly exceeds the uncontrolled NOx emission factor of 2.8 lb/ton of clinker that is given in EPA AP-42 for both dry and wet process kilns.

The AP-42 emission factor, equivalent to 1.74 lb/ton of feed, is more representative of previous BACT determinations. In terms of heat input, the AP-42 emission factor equates to 0.43 lb/MMBtu. This emission level is within the range of previous BACT determinations, though it is on the stringent side.

By comparison, the least stringent NSPS for NOx from coal fired (except lignite) industrial-commercial-institutional steam generating units is 0.70 lb/MMBtu. This level, equivalent to a 2.84 lb/ton of feed for the Tarmac facility is representative of the least stringent BACT determination both in terms of emission per ton of feed and lb/MMBtu. As this is the case, this level (0.7 lb/MMBtu) does not appear to be unreasonable as BACT for the Tarmac facility.

Conclusion

Based on the information presented, the Department has determined that BACT for the Tarmac facility is equivalent to limiting the sulfur dioxide and nitrogen oxide emissions to the least stringent NSPS for coal fired industrial-commercial-institutional steam generating units. This decision is consistent with the requirements that all BACT determinations be at least as

stringent as any applicable NSPS. Although kilns are not steam generating units, emission limitations for fuel burning equipment should be consistent where possible. As this is the case, an emission limitation based on the least stringent NSPS limitation for another type of coal fired equipment is judged to be reasonable as a "top-down" BACT determination. In fact, any emission limitation which would exceed the least stringent NSPS would be judged to be unrepresentative of today's "top-down" BACT procedure.

The Department has determined that these levels are consistent with previous BACT determinations for portland cement manufacturing facilities and the information available suggests that these levels are reasonable for the Tarmac facility. The BACT emission levels are thus established as follows:

Pollutant	Emission Limit	Equivalent Limit
SO_2	1.20 lb/MMBtu	7.80 lbs/ton of clinker produced
NOx	0.70 lb/MMBtu	4.55 lbs/ton of clinker produced
H_2SO_4 Mist	0.036 lb/MMBtu	0.23 lbs/ton of clinker produced

In accordance with the Department's Final Order issued on December 7, 1990, (DOAH Case No. 90-3852, OGC File No. 90-0954), appended hereto is Attachment A reflecting the amount and percentage of SO_2 increment consumed in Class I and Class II areas in conjunction with SO_2 emission rates of 195 lbs/hr and 275 lbs/hr, respectively.

Details of the Analysis May be Obtained by Contacting:

Barry Andrews, P.E., BACT Coordinator
Department of Environmental Regulation
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Recommended by:

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

January 25, 1991
Date

Approved by:

Carol M. Browner, Secretary
Dept. of Environmental Regulation

February 25, 1991
Date