Tarmac

RECEIVED
JUL 10 1995
Bureau of
Air Regulation

5 July 1995

Mr. C. H. Fancy, P. E., Chief
Bureau of Air Regulation
Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Tarmac's Pennsuco Cement Plant/Slag Dryer

Dear Mr. Fancy:

Enclosed please find four (4) copies of an application to construct a slag dryer at the referenced site, along with our Check No. 193323 in the amount of $7,500.00. I have taken the liberty of sending copies of this application to Patrick Wong, Dade County Environmental Resources Management, and Stephanie Brooks at your West Palm Beach Office.

If you have any questions or concerns, please do not hesitate to call me.

Very truly yours,

Albert W. Townsend
Director Environmental/Real Estate

AWT/ct

Enclosures

cc: Stephanie Brooks - DEP - West Palm Beach
Patrick Wong - Dade County Environmental Resources Mgmt.

CC: EPA
NPS

Tarmac America, Inc.
455 Fairway Drive • Deerfield Beach, FL 33441
305-481-2800 • FAX: 305-570-9245

TARMAC
NORFOLK, VA

NationsBank of Texas, N.A.
Wichita Falls, Texas 76301

CHECK NO. 193323

88-130
1119

01OSS02

Seven Thousand Five Hundred and 00 /100th

DATE	AMOUNT
7/03/95	7,500.00

PAY TO THE ORDER OF

1016059
FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION

R D Copeland

AUTHORIZED SIGNATURE

"193323" "111901302" "2330003566"

TARMAC
P.O. BOX 2016, NORFOLK, VIRGINIA 23501

VENDOR NO. 1016059

CHECK NO. 193323 193323

ROUTE CODE	INV. DATE	VENDOR INVOICE NO.	GROSS AMOUNT	DISCOUNT	NET AMOUNT
DC	6/29/95	APPLIC FEES	7,500.00	.00	7,500.00
			7,500.00	.00	7,500.00

ANY QUESTIONS PERTAINING TO THIS PAYMENT SHOULD BE MADE TO OUR OFFICE AT THE ADDRESS ABOVE

RECEIVED
JUL 10 1995
Bureau of
Air Regulation

AIR CONSTRUCTION PERMIT APPLICATION FOR USE OF SLAG AS A CEMENT PRODUCT TARMAC FLORIDA, INC.

Prepared For:

Tarmac Florida, Inc.
455 Fairway Drive
Deerfield Beach, Florida 33441

Prepared By:

KBN Engineering and Applied Sciences, Inc.
6241 NW 23rd Street
Gainesville, Florida 32653-1500

July 1995
15007Y/F1

Department of Environmental Protection

DIVISION OF AIR RESOURCES MANAGEMENT

APPLICATION FOR AIR PERMIT - LONG FORM

See Instructions for Form No. 62-210.900(1)

I. APPLICATION INFORMATION

This section of the Application for Air Permit form provides general information on the scope of this application, the purpose for which this application is being submitted, and the nature of any construction or modification activities proposed as a part of this application. This section also includes information on the owner of the facility (or the responsible official in the case of a Title V source) and the necessary statements for the applicant and professional engineer, where required, to sign and date for formal submittal of the Application for Air Permit to the Department. If the application form is submitted to the Department on diskette, this section of the Application for Air Permit must also be submitted in hard-copy form.

Identification of Facility Addressed in This Application

Enter the name of the corporation, business, governmental entity, or individual that has ownership or control of the facility; the facility name, if any; and a brief reference to the facility's physical location. If known, also enter the ARMS or AIRS facility identification number. This information is intended to give a quick reference, on the first page of the application form, to the facility addressed in this application. Elsewhere in the form, numbered data fields are provided for entry of the facility data in computer-input format.

Tarmac Florida, Inc.; Pennsuco Cement Plant; 50DAD130020

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	7-10-95
2. Permit Number:	AC 13-273887
3. PSD Number (if applicable):	PSD-FI-230
4. Siting Number (if applicable):	

Owner/Authorized Representative or Responsible Official

1. Name and Title of Owner/Authorized Representative or Responsible Official:

Albert W. Townsend, Director of Environmental/Real Estate

2. Owner/Authorized Representative or Responsible Official Mailing Address:

Organization/Firm: **Tarmac Florida, Inc.**
Street Address: **455 Fairway Drive**
City: **Deerfield Beach** State: **FL** Zip Code: **33441**

3. Owner/Authorized Representative or Responsible Official Telephone Numbers:

Telephone: **(305) 481-2800** Fax: **(305) 480-9352**

4. Owner/Authorized Representative or Responsible Official Statement:

I, the undersigned, am the owner or authorized representative of the facility (non-Title V source) addressed in this Application for Air Permit or the responsible official, as defined in Chapter 62-213, F.A.C., of the Title V source addressed in this application, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. Further, I agree to operate and maintain the air pollutant emissions units and air pollution control equipment described in this application so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. If the purpose of this application is to obtain an air operation permit or operation permit revision for one or more emissions units which have undergone construction or modification, I certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted source.*

Signature

7/5/95
Date

* Attach letter of authorization if not currently on file.

Scope of Application

This Application for Air Permit addresses the following emissions unit(s) at the facility (or Title V source). An Emissions Unit Information Section (a Section III of the form) must be included for each emissions unit listed.

Emissions Unit ID / Description of Emissions Unit

Unit #	ARMS ID	Emissions Unit Name/Description
1		Slag Dryer
2	009	Clinker Storage Silos - 21,22,23,26,27, and 28
3	013	Finish Mill No.4
4	014	Cement Storage Silos 1,2,3,4,5,6,7,8, and 9
5	015	Bulk Cement Loadout Units 1 and 2

Purpose of Application and Category

Check one (except as otherwise indicated):

Category I: All Air Operation Permit Applications Subject to Processing Under Chapter 62-213, F.A.C.

This Application for Air Permit is submitted to obtain:

[ ] Initial air operation permit under Chapter 62-213, F.A.C., for an existing facility which is classified as a Title V source.

[ ] Initial air operation permit under Chapter 62-213, F.A.C., for a facility which, upon start up of one or more newly constructed or modified emissions units addressed in this application, would become classified as a Title V source.

Current construction permit number: _____

[ ] Air operation permit renewal under Chapter 62-213, F.A.C., for a Title V source.

Operation permit to be renewed: _____

[ ] Air operation permit revision for a Title V source to address one or more newly constructed or modified emissions units addressed in this application.

Current construction permit number: _____

Operation permit to be renewed: _____

[ ] Air operation permit revision or administrative correction for a Title V source to address one or more proposed new or modified emissions units and to be processed concurrently with the air construction permit application. Also check Category III.

Operation permit to be revised/corrected: _____

_____

[ ] Air operation permit revision for a Title V source for reasons other than construction or modification of an emissions unit. Give reason for the revision e.g., to comply with a new applicable requirement or to request approval of an "Early Reductions" proposal.

Operation permit to be revised: _____

Reason for revision: _____

_____

Category II: All Air Construction Permit Applications Subject to Processing Under Rule 62-210.300(2)(b),F.A.C.

This Application for Air Permit is submitted to obtain:

[ ] Initial air operation permit under Rule 62-210.300(2)(b), F.A.C., for an existing facility seeking classification as a synthetic non-Title V source.

Current operation/construction permit number(s): _____

_____

[ ] Renewal air operation permit under Rule 62-210.300(2)(b), F.A.C., for a synthetic non-Title V source.

Operation permit to be renewed: _____

[ ] Air operation permit revision for a synthetic non-Title V source. Give reason for revision; e.g.; to address one or more newly constructed or modified emissions units.

Operation permit to be revised: _____

Reason for revision: _____

_____

Category III: All Air Construction Permit Applications for All Facilities and Emissions Units.

This Application for Air Permit is submitted to obtain:

[x] Air construction permit to construct or modify one or more emissions units within a facility (including any facility classified as a Title V source).

Current operation permit number(s), if any: _____

AO13-238048

[ ] Air construction permit to make federally enforceable an assumed restriction on the potential emissions of one or more existing, permitted emissions units.

Current operation permit number(s): _____

_____

[ ] Air construction permit for one or more existing, but unpermitted, emissions units.

Application Processing Fee

Check one:

[x] Attached - Amount: $ **$ 7,500.00** [ ] Not Applicable.

Construction/Modification Information

1. Description of Proposed Project or Alterations:

See Attachment A

2. Projected or Actual Date of Commencement of Construction (DD-MON-YYYY):

1 Aug 1995

3. Projected Date of Completion of Construction (DD-MON-YYYY):

31 Dec 1995

Professional Engineer Certification

1. Professional Engineer Name: **David A. Buff**
   Registration Number: **19011**

2. Professional Engineer Mailing Address:
   Organization/Firm: **KBN Engineering and Applied Sciences, Inc.**
   Street Address: **6241 NW 23rd Street, Suite 500**
   City: **Gainesville** State: **FL** Zip Code: **32653-1500**

3. Professional Engineer Telephone Numbers:
   Telephone: **(904) 336-5600** Fax: **(904) 336-6603**

4. Professional Engineer's Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

(1) To the best of my knowledge, there is reasonable assurance (a) that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; or (b) for any application for a Title V source air operation permit, that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application;

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application; and

(3) For any application for an air construction permit for one or more proposed new or modified emissions units, the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

David A. Buff — Signature

7/5/95 — Date

(seal)

* Attach any exception to certification statement.

Application Contact

1. Name and Title of Application Contact:
   Scott Quass, Environmental Manager

2. Application Contact Mailing Address:

   Organization/Firm: **Tarmac Florida, Inc.**
   Street Address: **455 Fairway Drive**
   City: **Deerfield Beach** State: **FL** Zip Code: **33441**

3. Application Contact Telephone Numbers:

   Telephone: **(305) 481-2800** Fax: **(305) 480-9352**

Application Comment

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Name, Location, and Type

1. Facility Owner or Operator: **Tarmac Florida, Inc.**

2. Facility Name: **Pennsuco Cement Plant**

3. Facility Identification Number: **5O DAD 13 0020** [ ] Unknown

4. Facility Location Information:
   Facility Street Address: **11000 N.W. 121 Way**
   City: **Medley** County: **Dade** Zip Code: **33178**

5. Facility UTM Coordinates:
   Zone: **17** East (km): **562.8** North (km): **2861.7**

6. Facility Latitude/Longitude:
   Latitude (DD/MM/SS): / / Longitude: (DD/MM/SS): / /

7. Governmental Facility Code:	8. Facility Status Code:	9. Relocatable Facility?	10. Facility Major Group SIC Code:
0	**A**	[ ] Yes [X] No	**32**

11. Facility Comment:

Facility Contact

1. Name and Title of Facility Contact:
   Scott Quass, Environmental Manager

2. Facility Contact Mailing Address:
   Organization/Firm: **Tarmac Florida, Inc.**
   Street Address: **455 Fairway Drive**
   City: **Deerfield Beach** State: **FL** Zip Code: **33441**

3. Facility Contact Telephone Numbers:
   Telephone: **(305) 481-2800** Fax: **(305) 480-9352**

Facility Regulatory Classifications

1. Small Business Stationary Source? [ ] Yes [x] No [ ] Unknown
2. Title V Source? [x] Yes [ ] No
3. Synthetic Non-Title V Source? [ ] Yes, [x] No
4. Major Source of Pollutants Other than Hazardous Air Pollutants (HAPs)? [x] Yes [ ] No
5. Synthetic Minor Source of Pollutants Other than HAPs? [ ] Yes [x] No
6. Major Source of HAPs? [ ] Yes [x] No [ ] Possible
7. Synthetic Minor Source of HAPs? [ ] Yes [x] No
8. One or More Emissions Units Subject to NSPS? [x] Yes [ ] No
9. One or More Emissions Units Subject to NESHAP? [ ] Yes [x] No
10. Title V Source by EPA Designation? [ ] Yes [x] No
11. Facility Regulatory Classifications Comment:

B. FACILITY REGULATIONS

Depending on the application category, this subsection of the Application for Air Permit form provides either a brief analysis or detailed listing of federal, state, and local regulations applicable to the facility as a whole. (Regulations applicable to individual emissions units within the facility are addressed in Subsection III-B of the form.)

Rule Applicability Analysis (Required for Category II applications and Category III applications involving non Title-V sources. See Instructions.)

List of Applicable Regulations (Required for Category I applications and Category III applications involving Title-V sources. See Instructions.)

62-212.400 PSD

C. FACILITY POLLUTANT INFORMATION

This subsection of the Application for Air Permit form allows for the reporting of potential and estimated emissions of selected pollutants on a facility-wide basis. It must be completed for each pollutant for which the applicant proposes to establish a facility-wide emissions cap and for each pollutant for which emissions are not reported at the emissions-unit level.

Facility Pollutant Information: Pollutant _____ of _____

1. Pollutant Emitted:		
2. Estimated Emissions:		(tons/yr)
3. Requested Emissions Cap:	(lb/hr)	(tons/yr)
4. Basis for Emissions Cap Code:		
5. Facility Pollutant Comment:		

Facility Pollutant Information Pollutant _____ of _____

1. Pollutant Emitted:		
2. Estimated Emissions:		(tons/yr)
3. Requested Emissions Cap:	(lb/hr)	(tons/yr)
4. Basis for Emissions Cap Code:		
5. Facility Pollutant Comment:		

Facility Pollutant Information: Pollutant _____ of _____

1. Pollutant Emitted:		
2. Estimated Emissions:		(tons/yr)
3. Requested Emissions Cap:	(lb/hr)	(tons/yr)
4. Basis for Emissions Cap Code:		
5. Facility Pollutant Comment:		

Facility Pollutant Information: Pollutant _____ of _____

1. Pollutant Emitted:		
2. Estimated Emissions:		(tons/yr)
3. Requested Emissions Cap:	(lb/hr)	(tons/yr)
4. Basis for Emissions Cap Code:		
5. Facility Pollutant Comment:		

D. FACILITY SUPPLEMENTAL INFORMATION

This subsection of the Application for Air Permit form provides supplemental information related to the facility as a whole. (Supplemental information related to individual eissions units within the facility is provided in Subsection III-I of the form.) Supplemental information must be submitted as an attachment to each copy of the form, in hard-copy or computer-readable form.

Supplemental Requirements for All Applications

1. Area Map Showing Facility Location:
   [X] Attached, Document ID: ATTACHMENT A
   [ ] Not Applicable [ ] Waiver Requested

2. Facility Plot Plan:
   [X] Attached, Document ID: ATTACHMENT A
   [ ] Not Applicable [ ] Waiver Requested

3. Process Flow Diagram(s):
   [X] Attached, Document ID(s): ATTACHMENT A
   [ ] Not Applicable [ ] Waiver Requested

4. Precautions to Prevent Emissions of Unconfined Particulate Matter:
   [X] Attached, Document ID: ATTACHMENT A
   [ ] Not Applicable

5. Fugitive Emissions Identification:
   [X] Attached, Document ID: ATTACHMENT A
   [ ] Not Applicable

6. Supplemental Information for Construction Permit Application:
   [X] Attached, Document ID: ATTACHMENT A
   [ ] Not Applicable

Additional Supplemental Requirements for Category I Applications Only

7. List of Insignificant Activities:
   [ ] Attached, Document ID: _____
   [ ] Not Applicable

8. List of Equipment/Activities Regulated under Title VI:
   [ ] Attached, Document ID: _____
   [ ] Equipment/Activities Onsite but Not Required to be Individually Listed
   [ ] Not Applicable

9. Alternative Methods of Operation:
   [ ] Attached, Document ID: _____
   [ ] Not Applicable

10. Alternative Modes of Operation (Emissions Trading):
   [ ] Attached, Document ID: _____
   [ ] Not Applicable

11. Enhanced Monitoring Plan:
   [ ] Attached, Document ID: _____
   [ ] Not Applicable

12. Risk Management Plan Verification:

   [ ] Plan Submitted to Implementing Agency - Verification Attached
   Attached, Document ID: _____

   [ ] Plan to be Submitted to Implementing Agency by Required Date

   [ ] Not Applicable

13. Compliance Report and Plan
   [ ] Attached, Document ID: _____
   [ ] Not Applicable

14. Compliance Statement (Hard-copy Required)
   [ ] Attached, Document ID: _____
   [ ] Not Applicable

Emissions Unit Information Section 1 of 5

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application.

A. GENERAL EMISSIONS UNIT INFORMATION

This subsection of the Application for Air Permit form provides general information on the emissions unit addressed in this Emissions Unit Information Section, including information on the type, control equipment, operating capacity, and operating schedule of the emissions unit..

Type of Emissions Unit Addressed in This Section

Check one:

[X] This Emissions Unit information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, an individually-regulated emission point (stack or vent) serving a single process or production unit, or activity, which also has other individually-regulated emission points.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a collectively-regulated group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section:

   Slag Dryer

2. ARMS Identification Number: [X] No Corresponding ID [ ] Unknown

3. Emissions Unit Status Code:	4. Acid Rain Unit?	5. Emissions Unit Major Group SIC Code:
C	[ ] Yes [X] No	32

6. Initial Startup Date (DD-MON-YYYY):

7. Long-term Reserve Shutdown Date (DD-MON-YYYY):

8. Package Unit:
   Manufacturer: Model Number:

9. Generator Nameplate Rating: MW

10. Incinerator Information:

    Dwell Temperature: °F
    Dwell Time: seconds
    Incinerator Afterburner Temperature: °F

11. Emissions Unit Comment:

Emissions Unit Control Equipment Information

A.

1. Description:

   Fabric Filter

2. Control Device or Method Code: **016**

B.

1. Description:

2. Control Device or Method Code:

C.

1. Description:

2. Control Device or Method Code:

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate: **52** mmBtu/hr
2. Maximum Incineration Rate: lbs/hr tons/day
3. Maximum Process or Throughput Rate: **150** **tons/hr**
4. Maximum Production Rate:
5. Operating Capacity Comment:

Emissions Unit Operating Schedule

1. Requested Maximum Operating Schedule:			
12	hours/day,	**5**	days/week,
52	weeks/yr	**3,000**	hours/yr

B. EMISSIONS UNIT REGULATIONS

Depending on the application category, this subsection of the Application for Air Permit form provides either a brief analysis or detailed listing of all federal, state, and local regulations applicable to the emissions unit addressed in this Emissions Unit Information Section.

Rule Applicability Analysis (Required for Category II Applications and Category III applications involving non Title-V sources. See Instructions.)

List of Applicable Regulations (Required for Category I applications and Category III applications involving Title-V sources. See Instructions.)

62-212.400
62-296.310

C. EMISSION POINT (STACK/VENT) INFORMATION

This subsection of the application for Air Permit form provides information about the emission point associated with the emissions unit addressed in this Emissions Unit Information Section. An emission point is typically a stack or vent but can be any identifiable location at which air pollutants, including fugitive emissions, are discharged into the atmosphere.

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram:

   Slag Dryer

2. Emission Point Type Code:

   [ ] 1 [ ] 2 [x] 3 [ ] 4

3. Descriptions of Emissions Points Comprising this Emissions Unit:

   Slag Dryer; Slag handling and storage operations

4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:

5. Discharge Type Code:

   [ ] D [ ] F [ ] H [ ] P
   [ ] R [x] V [ ] W

6. Stack Height:	**20**	ft
7. Exit Diameter:	**2.26**	ft
8. Exit Temperature:	**450**	°F
9. Actual Volumetric Flow Rate:	**22,000**	acfm
10. Percent Water Vapor:	**6**	%
11. Maximum Dry Standard Flow Rate:	**12,000**	dscfm
12. Nonstack Emission Point Height:		ft

13. Emission Point UTM Coordinates:

Zone: East (km): North (km):

14. Emission Point Comment:

Stack is square: 2 ft. x 2 ft.

D. SEGMENT (PROCESS/FUEL) INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of segment data (Fields 1-10) must be completed for each segment required to be reported and for each alternative operating method or mode (emissions trading scenario) under Chapter 62-213, F.A.C., for which the maximum hourly or annual segment-related rate would vary. A segment is a material handling, process, fuel burning, volatile organic liquid storage, production, or other such operation to which emissions of the unit are directly related. See instructions for further details on this subsection of the Application for Air Permit.

Segment Description and Rate Information: Segment 1 of 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode): **Raw material grinding and drying**	
2. Source Classification Code (SCC): **30500613**	
3. SCC Units: **tons cement produced**	
4. Maximum Hourly Rate: **150**	5. Maximum Annual Rate: **300,000**
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur:	8. Maximum Percent Ash:
9. Million Btu per SCC Unit:	
10. Segment Comment: **Raw material is blast furnace slag.**	

Segment Description and Rate Information: Segment 2 of 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode): **Process Heaters**	
2. Source Classification Code (SCC): **30590001**	
3. SCC Units: **1000 gallons burned**	
4. Maximum Hourly Rate: **0.3714**	5. Maximum Annual Rate: **1,114.3**
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur: **0.2**	8. Maximum Percent Ash:
9. Million Btu per SCC Unit: **140**	
10. Segment Comment: **No. 2 fuel oil burning in slag dryer.**	

E. POLLUTANT INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

Pollutant Potential/Estimated Emissions: Pollutant 1 of 5

1. Pollutant Emitted: **PM**
2. Total Percent Efficiency of Control: **99.9** %
3. Primary Control Device Code: **016**
4. Secondary Control Device Code:
5. Potential Emissions: **4.1** lbs/hr **6.15** tons/yr
6. Synthetically Limited? [**X**] Yes [ ] No
7. Range of Estimated Fugitive/Other Emissions: [ ] 1 [**X**] 2 [ ] 3 _____ to _____ tons/yr
8. Emission Factor: **0.04 gr/dscf** Reference: **NSPS for asphalt plant**
9. Emissions Method Code (check one): [ ] 1 [ ] 2 [ ] 3 [ ] 4 [**X**] 5
10. Calculation of Emissions: **0.04 gr/dscf x 12,000 dscfm x 60 min/hr ÷ 7000 gr/lb = 4.1 lb/hr; 4.1 lb/hr x 3000 hr/yr x ton/2000 lb = 6.15 TPY**
11. Pollutant Potential/Estimated Emissions Comment:

Emissions Unit Information Section 1 **of** 5

Allowable Emissions (Pollutant identification on front page)

A.

1. Basis for Allowable Emissions Code: **OTHER**
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: **0.04 gr/dscf**
4. Equivalent Allowable Emissions: **4.15** lbs/hr **6.15** tons/yr
5. Method of Compliance: **Annual VE test using EPA Method 9**
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode): **Proposed BACT limit.**

B.

1. Basis for Allowable Emissions Code:
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:
4. Equivalent Allowable Emissions: lbs/hr tons/yr
5. Method of Compliance:
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):

Emissions Unit Information Section 1 of 5

E. POLLUTANT INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

Pollutant Potential/Estimated Emissions: Pollutant 2 of 5

1. Pollutant Emitted: **PM10**
2. Total Percent Efficiency of Control: **99.9** %
3. Primary Control Device Code: **016**
4. Secondary Control Device Code:
5. Potential Emissions: **4.1** lbs/hr **6.15** tons/yr
6. Synthetically Limited? [**X**] Yes [ ] No
7. Range of Estimated Fugitive/Other Emissions: [**X**] 1 [ ] 2 [ ] 3 _____ to _____ tons/yr
8. Emission Factor: **0.04 gr/dscf** Reference: **NSPS for asphalt plants**
9. Emissions Method Code (check one): [ ] 1 [ ] 2 [ ] 3 [ ] 4 [**X**] 5
10. Calculation of Emissions: **See PM calculation**
11. Pollutant Potential/Estimated Emissions Comment:

Emissions Unit Information Section 1 **of** 5

Allowable Emissions (Pollutant identification on front page)

A.

1. Basis for Allowable Emissions Code: **OTHER**		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units: **0.04 gr/dscf**		
4. Equivalent Allowable Emissions:	**4.15** lbs/hr	**6.15** tons/yr
5. Method of Compliance: **Annual VE test using EPA Method 9**		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode): **Proposed BACT limit.**		

B.

1. Basis for Allowable Emissions Code:		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lbs/hr	tons/yr
5. Method of Compliance:		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):		

Emissions Unit Information Section 1 of 5

E. POLLUTANT INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

Pollutant Potential/Estimated Emissions: Pollutant 3 of 5

1. Pollutant Emitted: **SO2**
2. Total Percent Efficiency of Control: %
3. Primary Control Device Code:
4. Secondary Control Device Code:
5. Potential Emissions: **10.55** lbs/hr **15.82** tons/yr
6. Synthetically Limited? [**X**] Yes [ ] No
7. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/yr
8. Emission Factor: **142 (S) lb/1000 gal** Reference: **AP-42**
9. Emissions Method Code (check one): [ ] 1 [ ] 2 [**X**] 3 [ ] 4 [ ] 5
10. Calculation of Emissions: **371.4 gal/hr x 142(0.2) lb/1000 gal = 10.55 lb/hr; 10.55 lb/hr x 3000 hr/yr x ton/2000 lb = 15.82 TPY**
11. Pollutant Potential/Estimated Emissions Comment:

Emissions Unit Information Section 1 of 5
Allowable Emissions (Pollutant identification on front page)

A.

1. Basis for Allowable Emissions Code:		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lbs/hr	tons/yr
5. Method of Compliance:		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):		

B.

1. Basis for Allowable Emissions Code:		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lbs/hr	tons/yr
5. Method of Compliance:		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):		

E. POLLUTANT INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

Pollutant Potential/Estimated Emissions: Pollutant 4 of 5

1. Pollutant Emitted: **NOx**
2. Total Percent Efficiency of Control: %
3. Primary Control Device Code:
4. Secondary Control Device Code:
5. Potential Emissions: **7.43** lbs/hr **11.14** tons/yr
6. Synthetically Limited? [**X**] Yes [ ] No
7. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/yr
8. Emission Factor: **20 lb/1000 gal** Reference: **AP-42**
9. Emissions Method Code (check one): [ ] 1 [ ] 2 [**X**] 3 [ ] 4 [ ] 5
10. Calculation of Emissions: **371.4 gal/hr x 20 lb/1000 gal = 7.43 lb/hr; 7.43 lb/hr x 3000 hr/yr x ton/2000 lb = 11.14 TPY**
11. Pollutant Potential/Estimated Emissions Comment:

Emissions Unit Information Section 1 of 5

E. POLLUTANT INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

Pollutant Potential/Estimated Emissions: Pollutant 5 of 5

1. Pollutant Emitted: CO
2. Total Percent Efficiency of Control: %
3. Primary Control Device Code:
4. Secondary Control Device Code:
5. Potential Emissions: 1.86 lbs/hr 2.79 tons/yr
6. Synthetically Limited? [X] Yes [ ] No
7. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/yr
8. Emission Factor: 5 lb/1000 gal Reference: AP-42
9. Emissions Method Code (check one): [ ] 1 [ ] 2 [X] 3 [ ] 4 [ ] 5
10. Calculation of Emissions: 371.4 gal/hr x 5 lb/1000 gal = 1.86 lb/hr; 1.86 lb/hr x 3000 hr/yr x ton/2000 lb = 2.79 TPY
11. Pollutant Potential/Estimated Emissions Comment:

Emissions Unit Information Section 1 of 5
Allowable Emissions (Pollutant identification on front page)

A.

1. Basis for Allowable Emissions Code:		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lbs/hr	tons/yr
5. Method of Compliance:		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):		

B.

1. Basis for Allowable Emissions Code:		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lbs/hr	tons/yr
5. Method of Compliance:		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):		

Emissions Unit Information Section 1 of 5

Allowable Emissions (Pollutant identification on front page)

A.

1. Basis for Allowable Emissions Code:		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lbs/hr	tons/yr
5. Method of Compliance:		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):		

B.

1. Basis for Allowable Emissions Code:		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lbs/hr	tons/yr
5. Method of Compliance:		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):		

F. VISIBLE EMISSIONS INFORMATION

This subsection of the Application for Air Permit form must be completed for only those emissions units which are subject to a visible emissions limitation. The intent of this subsection of the form is to identify each activity associated with the emissions unit addressed in this section for which a separate opacity limitation would be applicable. Visible emission subtype codes for each such activity are listed in the instructions for Field 1. Most emissions units will be subject to a "subtype VE" limit only.

Visible Emissions Limitations: Visible Emissions Limitation 1 of 1

1.	Visible Emissions Subtype: **VE**
2.	Basis for Allowable Opacity: [**X**] Rule [ ] Other
3.	Requested Allowable Opacity Normal Conditions: **20** % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4.	Method of Compliance: **EPA Method 9**
5.	Visible Emissions Comment:

Visible Emissions Limitations: Visible Emissions Limitation _____ of _____

1.	Visible Emissions Subtype:
2.	Basis for Allowable Opacity: [ ] Rule [ ] Other
3.	Requested Allowable Opacity Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4.	Method of Compliance:
5.	Visible Emissions Comment:

Visible Emissions Limitations: Visible Emissions Limitation _____ of _____

1.	Visible Emissions Subtype:
2.	Basis for Allowable Opacity: [ ] Rule [ ] Other
3.	Requested Allowable Opacity Normal Conditions: % Exceptional Conditions: . % Maximum Period of Excess Opacity Allowed: min/hour
4.	Method of Compliance:
5.	Visible Emissions Comment:

G. CONTINUOUS MONITOR INFORMATION

This subsection of the Application for Air Permit form must be completed for only those emissions units which are required by rule or permit to install and operate one or more continuous emission, opacity, flow, or other type monitors. A separate set of continuous monitor information (fields 1-6) must be completed for each monitoring system required.

Continuous Monitoring System Continuous Monitor _____ of _____

1.	Parameter Code:
2.	CMS Requirement: [ ] Rule [ ] Other
3.	Monitor Information: Monitor Manufacturer: Model Number: Serial Number:
4.	Installation Date (DD-MON-YYYY):
5.	Performance Specification Test Date (DD-MON-YYYY):
6.	Continuous Monitor Comment:

Continuous Monitoring System Continuous Monitor _____ of _____

1.	Parameter Code:
2.	CMS Requirement: [ ] Rule [ ] Other
3.	Monitor Information: Monitor Manufacturer: Model Number: Serial Number:
4.	Installation Date (DD-MON-YYYY):
5.	Performance Specification Test Date (DD-MON-YYYY):
6.	Continuous Monitor Comment:

Continuous Monitoring System Continuous Monitor _____ of _____

1.	Parameter Code:
2.	CMS Requirement: [ ] Rule [ ] Other
3.	Monitor Information: Monitor Manufacturer: Model Number: Serial Number:
4.	Installation Date (DD-MON-YYYY):
5.	Performance Specification Test Date (DD-MON-YYYY):
6.	Continuous Monitor Comment:

H. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT TRACKING INFORMATION

This subsection of the Application for Air Permit form must be completed for all applications, not just those undergoing prevention-of-significant-deterioration (PSD) review persuant to Rule 62-212.400, F.A.C. The intent of this subsection is to make a preliminary determination as to whether the emissions unit addressed in this Emissons Unit Information Section consumes PSD increment. PSD increment is consumed (or expanded) as a result of emission increases (decreases) occurring after pollutant-specific baseline dates. Pollutants for which baseline dates have been established are sulfur dioxide, particulate matter, and nitrogen dioxide.

PSD Increment Consumption Determination

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

   If the emissions unit addressed in this section emits particulate matter or sulfur dioxide, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for particulate matter or sulfur dioxide. Check the first statement, if any, that applies and skip remaining statements.

   [x] The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.

   [ ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and the emissions unit consumes increment.

   [ ] The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and the emissions unit consumes increment.

   [ ] For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.

   [ ] None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

2. Increment Consuming for Nitrogen Dioxide?

If the emissions unit addressed in this section emits nitrogen oxides, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for nitrogen dioxide. Check first statement, if any, that applies and skip remaining statements.

[ ] The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and the source consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and the source consumes increment.

[X] For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and the emissions unit consumes increment.

[ ] None of the above apply. If so, baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3. Increment Consuming/Expanding Code:

PM	[X] C	[ ] E	[ ] Unknown
SO_2	[X] C	[ ] E	[ ] Unknown
NO_2	[X] C	[ ] E	[ ] Unknown

4. Baseline Emissions:

PM	0 lbs/hr	0 tons/yr
SO_2	0 lbs/hr	0 tons/yr
NO_2		0 tons/yr

5. PSD Comment:

I. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

This subsection of the Application for Air Permit form provides supplemental information related to the emissions unit addressed in this Emissions Unit Information Section. Supplemental information must be submitted as an attachment to each copy of the form, in hard-copy or computer-readable form.

Supplemental Requirements for All Applications

1.	Process Flow Diagram	
	[X] Attached, Document ID: ATT. A	
	[ ] Not Applicable	[ ] Waiver Requested
2.	Fuel Analysis or Specification	
	[X] Attached, Document ID: ATT. A	
	[ ] Not Applicable	[ ] Waiver Requested
3.	Detailed Description of Control Equipment	
	[X] Attached, Document ID: ATT. A	
	[ ] Not Applicable	[ ] Waiver Requested
4.	Description of Stack Sampling Facilities	
	[ ] Attached, Document ID: _____	
	[X] Not Applicable	[ ] Waiver Requested
5.	Compliance Test Report	
	[ ] Attached, Document ID: _____	[X] Not Applicable
	[ ] Previously Submitted, Date: _____	
6.	Procedures for Startup and Shutdown	
	[ ] Attached, Document ID: _____	[X] Not Applicable
7.	Operation and Maintenance Plan	
	[ ] Attached, Document ID: _____	[X] Not Applicable
8.	Supplemental Information for Construction Permit Application	
	[X] Attached, Document ID: ATT. A	[ ] Not Applicable
9.	Other Information Required by Rule or Statute	
	[ ] Attached, Document ID: _____	[X] Not Applicable

Additional Supplemental Requirements for Category I Applications Only

10.	Alternative Methods of Operation [ ] Attached, Document ID: _____ [ ] Not Applicable
11.	Alternative Modes of Operation (Emissions Trading) [ ] Attached, Document ID: _____ [ ] Not Applicable
12.	Enhanced Monitoring Plan [ ] Attached, Document ID: _____ [ ] Not Applicable
13.	Identification of Additional Applicable Requirements [ ] Attached, Document ID: _____ [ ] Not Applicable
14.	Acid Rain Permit Application [ ] Acid Rain Part - Phase II (Form No. 62-210.900(1)(a)) Attached, Document ID: _____ [ ] Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) Attached, Document ID: _____ [ ] New Unit Exemption (Form No. 62-210.900(1)(a)2.) Attached, Document ID: _____ [ ] Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) Attached, Document ID: _____ [ ] Not Applicable

Emissions Unit Information Section 2 of 5

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application.

A. GENERAL EMISSIONS UNIT INFORMATION

This subsection of the Application for Air Permit form provides general information on the emissions unit addressed in this Emissions Unit Information Section, including information on the type, control equipment, operating capacity, and operating schedule of the emissions unit..

Type of Emissions Unit Addressed in This Section

Check one:

[X] This Emissions Unit information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, an individually-regulated emission point (stack or vent) serving a single process or production unit, or activity, which also has other individually-regulated emission points.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a collectively-regulated group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section:

   Clinker Storage Silos 21,22,23,26,27 & 28

2. ARMS Identification Number: [ ] No Corresponding ID [ ] Unknown

   009

3. Emissions Unit Status Code:	4. Acid Rain Unit?	5. Emissions Unit Major Group SIC Code:
A	[ ] Yes [X] No	**32**

6. Initial Startup Date (DD-MON-YYYY):

7. Long-term Reserve Shutdown Date (DD-MON-YYYY):

8. Package Unit:
   Manufacturer: Model Number:

9. Generator Nameplate Rating: MW

10. Incinerator Information:

    Dwell Temperature: °F
    Dwell Time: seconds
    Incinerator Afterburner Temperature: °F

11. Emissions Unit Comment:

Emissions Unit Control Equipment Information

A.

1. Description:

Baghouse K-633

2. Control Device or Method Code: **018**

B.

1. Description:

2. Control Device or Method Code:

C.

1. Description:

2. Control Device or Method Code:

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate: mmBtu/hr
2. Maximum Incineration Rate: lbs/hr tons/day
3. Maximum Process or Throughput Rate: 150 tons/hr
4. Maximum Production Rate:
5. Operating Capacity Comment:

Emissions Unit Operating Schedule

1. Requested Maximum Operating Schedule:			
24	hours/day,	7	days/week,
52	weeks/yr	8,760	hours/yr

B. EMISSIONS UNIT REGULATIONS

Depending on the application category, this subsection of the Application for Air Permit form provides either a brief analysis or detailed listing of all federal, state, and local regulations applicable to the emissions unit addressed in this Emissions Unit Information Section.

Rule Applicability Analysis (Required for Category II Applications and Category III applications involving non Title-V sources. See Instructions.)

List of Applicable Regulations (Required for Category I applications and Category III applications involving Title-V sources. See Instructions.)

62-296.310

C. EMISSION POINT (STACK/VENT) INFORMATION

This subsection of the application for Air Permit form provides information about the emission point associated with the emissions unit addressed in this Emissions Unit Information Section. An emission point is typically a stack or vent but can be any identifiable location at which air pollutants, including fugitive emissions, are discharged into the atmosphere.

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram:

   K-633

2. Emission Point Type Code:

   [ ] 1 [ ] 2 [x] 3 [ ] 4

3. Descriptions of Emissions Points Comprising this Emissions Unit:

   Clinker Silos 21,22,23,26,27 & 28

4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:

5. Discharge Type Code:

   [ ] D [ ] F [x] H [ ] P
   [ ] R [ ] V [ ] W

6. Stack Height:	**130**	ft
7. Exit Diameter:	**0.76**	ft
8. Exit Temperature:	**90**	°F
9. Actual Volumetric Flow Rate:	**1,500**	acfm
10. Percent Water Vapor:		%
11. Maximum Dry Standard Flow Rate:		dscfm
12. Nonstack Emission Point Height:		ft

13. Emission Point UTM Coordinates:

Zone: East (km): North (km):

14. Emission Point Comment:

Stack dimensions are 0.67 ft. x 0.67 ft.

D. SEGMENT (PROCESS/FUEL) INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of segment data (Fields 1-10) must be completed for each segment required to be reported and for each alternative operating method or mode (emissions trading scenario) under Chapter 62-213, F.A.C., for which the maximum hourly or annual segment-related rate would vary. A segment is a material handling, process, fuel burning, volatile organic liquid storage, production, or other such operation to which emissions of the unit are directly related. See instructions for further details on this subsection of the Application for Air Permit.

Segment Description and Rate Information: Segment 1 of 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode): **Clinker Storage Silos**	
2. Source Classification Code (SCC): **3-05-007-99**	
3. SCC Units: **tons cement produced**	
4. Maximum Hourly Rate: **87.5**	5. Maximum Annual Rate: **766,500**
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur:	8. Maximum Percent Ash:
9. Million Btu per SCC Unit:	
10. Segment Comment: **Rate represents tons of clinker produced.**	

Segment Description and Rate Information: Segment 2 of 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode): **Clinker Storage Silos**	
2. Source Classification Code (SCC): **3-05-007-99**	
3. SCC Units: **tons cement produced**	
4. Maximum Hourly Rate: **150**	5. Maximum Annual Rate: **300,000**
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur:	8. Maximum Percent Ash:
9. Million Btu per SCC Unit:	
10. Segment Comment: **Rate represents tons of slag produced; 3,000 hr/yr.**	

Emissions Unit Information Section 2 **of** 5

Allowable Emissions (Pollutant identification on front page)

A.

1. Basis for Allowable Emissions Code:		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lbs/hr	tons/yr
5. Method of Compliance:		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):		

B.

1. Basis for Allowable Emissions Code:		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lbs/hr	tons/yr
5. Method of Compliance:		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):		

E. POLLUTANT INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

Pollutant Potential/Estimated Emissions: Pollutant 2 of 2

1. Pollutant Emitted: **PM10**
2. Total Percent Efficiency of Control: **99.9** %
3. Primary Control Device Code: **018**
4. Secondary Control Device Code:
5. Potential Emissions: **0.13** lbs/hr **0.56** tons/yr
6. Synthetically Limited? [ ] Yes [x] No
7. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/yr
8. Emission Factor: **0.01 gr/acf** Reference: **Manufacturer's Design**
9. Emissions Method Code (check one): [ ] 1 [ ] 2 [ ] 3 [ ] 4 [x] 5
10. Calculation of Emissions: **See Table 3-4, Attachment A**
11. Pollutant Potential/Estimated Emissions Comment:

Emissions Unit Information Section 2 of 5

Allowable Emissions (Pollutant identification on front page)

A.

1. Basis for Allowable Emissions Code:		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lbs/hr	tons/yr
5. Method of Compliance:		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):		

B.

1. Basis for Allowable Emissions Code:		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lbs/hr	tons/yr
5. Method of Compliance:		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):		

Emissions Unit Information Section 2 of 5

E. POLLUTANT INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

Pollutant Potential/Estimated Emissions: Pollutant 1 of 2

1. Pollutant Emitted: **PM**
2. Total Percent Efficiency of Control: **99.9** %
3. Primary Control Device Code: **018**
4. Secondary Control Device Code:
5. Potential Emissions: **0.13** lbs/hr **0.56** tons/yr
6. Synthetically Limited? [ ] Yes [**x**] No
7. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/yr
8. Emission Factor: **0.01 gr/acf** Reference: **Manufacturer's Design**
9. Emissions Method Code (check one): [ ] 1 [ ] 2 [ ] 3 [ ] 4 [**x**] 5
10. Calculation of Emissions: **See Table 3-4, Attachment A**
11. Pollutant Potential/Estimated Emissions Comment:

F. VISIBLE EMISSIONS INFORMATION

This subsection of the Application for Air Permit form must be completed for only those emissions units which are subject to a visible emissions limitation. The intent of this subsection of the form is to identify each activity associated with the emissions unit addressed in this section for which a separate opacity limitation would be applicable. Visible emission subtype codes for each such activity are listed in the instructions for Field 1. Most emissions units will be subject to a "subtype VE" limit only.

Visible Emissions Limitations: Visible Emissions Limitation 1 of 1

1.	Visible Emissions Subtype: **VE**
2.	Basis for Allowable Opacity: [ ] Rule [**X**] Other
3.	Requested Allowable Opacity Normal Conditions: **5** % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4.	Method of Compliance: **Annual VE test with EPA Method 9**
5.	Visible Emissions Comment: **BACT**

Visible Emissions Limitations: Visible Emissions Limitation _____ of _____

1.	Visible Emissions Subtype:
2.	Basis for Allowable Opacity: [ ] Rule [ ] Other
3.	Requested Allowable Opacity Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4.	Method of Compliance:
5.	Visible Emissions Comment:

Visible Emissions Limitations: Visible Emissions Limitation _____ of _____

1.	Visible Emissions Subtype:
2.	Basis for Allowable Opacity: [ ] Rule [ ] Other
3.	Requested Allowable Opacity Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4.	Method of Compliance:
5.	Visible Emissions Comment:

G. CONTINUOUS MONITOR INFORMATION

This subsection of the Application for Air Permit form must be completed for only those emissions units which are required by rule or permit to install and operate one or more continuous emission, opacity, flow, or other type monitors. A separate set of continuous monitor information (fields 1-6) must be completed for each monitoring system required.

Continuous Monitoring System Continuous Monitor _____ of _____

1. Parameter Code:
2. CMS Requirement: [ ] Rule [ ] Other
3. Monitor Information: Monitor Manufacturer: Model Number: Serial Number:
4. Installation Date (DD-MON-YYYY):
5. Performance Specification Test Date (DD-MON-YYYY):
6. Continuous Monitor Comment:

Continuous Monitoring System Continuous Monitor _____ of _____

1.	Parameter Code:
2.	CMS Requirement: [ ] Rule [ ] Other
3.	Monitor Information: Monitor Manufacturer: Model Number: Serial Number:
4.	Installation Date (DD-MON-YYYY):
5.	Performance Specification Test Date (DD-MON-YYYY):
6.	Continuous Monitor Comment:

Continuous Monitoring System Continuous Monitor _____ of _____

1.	Parameter Code:
2.	CMS Requirement: [ ] Rule [ ] Other
3.	Monitor Information: Monitor Manufacturer: Model Number: Serial Number:
4.	Installation Date (DD-MON-YYYY):
5.	Performance Specification Test Date (DD-MON-YYYY):
6.	Continuous Monitor Comment:

H. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT TRACKING INFORMATION

This subsection of the Application for Air Permit form must be completed for all applications, not just those undergoing prevention-of-significant-deterioration (PSD) review persuant to Rule 62-212.400, F.A.C. The intent of this subsection is to make a preliminary determination as to whether the emissions unit addressed in this Emissons Unit Information Section consumes PSD increment. PSD increment is consumed (or expanded) as a result of emission increases (decreases) occurring after pollutant-specific baseline dates. Pollutants for which baseline dates have been established are sulfur dioxide, particulate matter, and nitrogen dioxide.

PSD Increment Consumption Determination

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

   If the emissions unit addressed in this section emits particulate matter or sulfur dioxide, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for particulate matter or sulfur dioxide. Check the first statement, if any, that applies and skip remaining statements.

   [x] The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.

   [ ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and the emissions unit consumes increment.

   [ ] The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and the emissions unit consumes increment.

   [ ] For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.

   [ ] None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

2. Increment Consuming for Nitrogen Dioxide?

If the emissions unit addressed in this section emits nitrogen oxides, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for nitrogen dioxide. Check first statement, if any, that applies and skip remaining statements.

[ ] The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and the source consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and the source consumes increment.

[ ] For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and the emissions unit consumes increment.

[ ] None of the above apply. If so, baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3.	Increment Consuming/Expanding Code:			
	PM	[X] C	[ ] E	[ ] Unknown
	SO_2	[ ] C	[ ] E	[ ] Unknown
	NO_2	[ ] C	[ ] E	[ ] Unknown
4.	Baseline Emissions:			
	PM	0 lbs/hr	0 tons/yr	
	SO_2	lbs/hr	tons/yr	
	NO_2		tons/yr	
5.	PSD Comment:			

I. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

This subsection of the Application for Air Permit form provides supplemental information related to the emissions unit addressed in this Emissions Unit Information Section. Supplemental information must be submitted as an attachment to each copy of the form, in hard-copy or computer-readable form.

Supplemental Requirements for All Applications

1.	Process Flow Diagram	
	[ ] Attached, Document ID: _____	
	[X] Not Applicable	[ ] Waiver Requested
2.	Fuel Analysis or Specification	
	[ ] Attached, Document ID: _____	
	[X] Not Applicable	[ ] Waiver Requested
3.	Detailed Description of Control Equipment	
	[X] Attached, Document ID: ATT. A	
	[ ] Not Applicable	[ ] Waiver Requested
4.	Description of Stack Sampling Facilities	
	[ ] Attached, Document ID: _____	
	[X] Not Applicable	[ ] Waiver Requested
5.	Compliance Test Report	
	[ ] Attached, Document ID: _____	[X] Not Applicable
	[ ] Previously Submitted, Date: _____	
6.	Procedures for Startup and Shutdown	
	[ ] Attached, Document ID: _____	[X] Not Applicable
7.	Operation and Maintenance Plan	
	[ ] Attached, Document ID: _____	[X] Not Applicable
8.	Supplemental Information for Construction Permit Application	
	[X] Attached, Document ID: ATT. A	[ ] Not Applicable
9.	Other Information Required by Rule or Statute	
	[ ] Attached, Document ID: _____	[X] Not Applicable

Additional Supplemental Requirements for Category I Applications Only

10.	Alternative Methods of Operation [ ] Attached, Document ID: _____ [ ] Not Applicable
11.	Alternative Modes of Operation (Emissions Trading) [ ] Attached, Document ID: _____ [ ] Not Applicable
12.	Enhanced Monitoring Plan [ ] Attached, Document ID: _____ [ ] Not Applicable
13.	Identification of Additional Applicable Requirements [ ] Attached, Document ID: _____ [ ] Not Applicable
14.	Acid Rain Permit Application [ ] Acid Rain Part - Phase II (Form No. 62-210.900(1)(a)) Attached, Document ID: _____ [ ] Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) Attached, Document ID: _____ [ ] New Unit Exemption (Form No. 62-210.900(1)(a)2.) Attached, Document ID: _____ [ ] Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) Attached, Document ID: _____ [ ] Not Applicable

Emissions Unit Information Section 3 of 5

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application.

A. GENERAL EMISSIONS UNIT INFORMATION

This subsection of the Application for Air Permit form provides general information on the emissions unit addressed in this Emissions Unit Information Section, including information on the type, control equipment, operating capacity, and operating schedule of the emissions unit..

Type of Emissions Unit Addressed in This Section

Check one:

[x] This Emissions Unit information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, an individually-regulated emission point (stack or vent) serving a single process or production unit, or activity, which also has other individually-regulated emission points.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a collectively-regulated group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section:

   Finish Mill #4: F-430, F-432, F-603, F-604, F-605

2. ARMS Identification Number: [ ] No Corresponding ID [ ] Unknown

   013

3. Emissions Unit Status Code:	4. Acid Rain Unit?	5. Emissions Unit Major Group SIC Code:
A	[ ] Yes [X] No	**32**

6. Initial Startup Date (DD-MON-YYYY):

7. Long-term Reserve Shutdown Date (DD-MON-YYYY):

8. Package Unit:
   Manufacturer: Model Number:

9. Generator Nameplate Rating: MW

10. Incinerator Information:

    Dwell Temperature: °F
    Dwell Time: seconds
    Incinerator Afterburner Temperature: °F

11. Emissions Unit Comment:

Emissions Unit Control Equipment Information

A.

1. Description:

   Five baghouses; F-430, F-432, F-603, F-604, F-605

2. Control Device or Method Code: **018**

B.

1. Description:

2. Control Device or Method Code:

C.

1. Description:

2. Control Device or Method Code:

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate: mmBtu/hr
2. Maximum Incineration Rate: lbs/hr tons/day
3. Maximum Process or Throughput Rate: 150 TPH
4. Maximum Production Rate:
5. Operating Capacity Comment:

Emissions Unit Operating Schedule

1. Requested Maximum Operating Schedule:

24	hours/day,	7	days/week,
52	weeks/yr	8,760	hours/yr

B. EMISSIONS UNIT REGULATIONS

Depending on the application category, this subsection of the Application for Air Permit form provides either a brief analysis or detailed listing of all federal, state, and local regulations applicable to the emissions unit addressed in this Emissions Unit Information Section.

Rule Applicability Analysis (Required for Category II Applications and Category III applications involving non Title-V sources. See Instructions.)

List of Applicable Regulations (Required for Category I applications and Category III applications involving Title-V sources. See Instructions.)

62-296.310

C. EMISSION POINT (STACK/VENT) INFORMATION

This subsection of the application for Air Permit form provides information about the emission point associated with the emissions unit addressed in this Emissions Unit Information Section. An emission point is typically a stack or vent but can be any identifiable location at which air pollutants, including fugitive emissions, are discharged into the atmosphere.

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram:

   F-430, F-432, F-603, F-604, F-605

2. Emission Point Type Code:

   [ ] 1 [ ] 2 [x] 3 [ ] 4

3. Descriptions of Emissions Points Comprising this Emissions Unit:

   Ball Mill/Mill Sweep (F-430); clinker/gypsum conveyor system, separator and transfer line (F-432); clinker/gypsum conveyors (F-603, F-604, F-605).

4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:

5. Discharge Type Code:

   [ ] D [ ] F [ ] H [ ] P
   [ ] R [x] V [ ] W

6. Stack Height:	**72**	ft
7. Exit Diameter:	**1.5**	ft
8. Exit Temperature:	**90**	°F
9. Actual Volumetric Flow Rate:	**13,400**	acfm
10. Percent Water Vapor:		%
11. Maximum Dry Standard Flow Rate:		dscfm
12. Nonstack Emission Point Height:		ft

13. Emission Point UTM Coordinates:

Zone: East (km): North (km):

14. Emission Point Comment:

F-430; 30,000 acfm; 2.0 ft. diameter. F-432; 17,000 acfm; 1.5 ft. diameter. F-603; 8,000 acfm; 1.0 x 1.0 ft. F-604; 8,000 acfm; 1.0 x 1.0 ft. F-605; 4,000 acfm; 0.67 x 0.67 ft.

D. SEGMENT (PROCESS/FUEL) INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of segment data (Fields 1-10) must be completed for each segment required to be reported and for each alternative operating method or mode (emissions trading scenario) under Chapter 62-213, F.A.C., for which the maximum hourly or annual segment-related rate would vary. A segment is a material handling, process, fuel burning, volatile organic liquid storage, production, or other such operation to which emissions of the unit are directly related. See instructions for further details on this subsection of the Application for Air Permit.

Segment Description and Rate Information: Segment 1 of 1

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode): **Clinker Grinding**	
2. Source Classification Code (SCC): **3-05-007-17**	
3. SCC Units: **tons cement produced**	
4. Maximum Hourly Rate: **150**	5. Maximum Annual Rate: **1,314,000**
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur:	8. Maximum Percent Ash:
9. Million Btu per SCC Unit:	
10. Segment Comment:	

Segment Description and Rate Information: Segment _____ of _____

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode):	
2. Source Classification Code (SCC):	
3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur:	8. Maximum Percent Ash:
9. Million Btu per SCC Unit:	
10. Segment Comment:	

E. POLLUTANT INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

Pollutant Potential/Estimated Emissions: Pollutant 1 of 2

1. Pollutant Emitted: **PM**
2. Total Percent Efficiency of Control: **99.9** %
3. Primary Control Device Code: **018**
4. Secondary Control Device Code:
5. Potential Emissions: **5.75** lbs/hr **25.14** tons/yr
6. Synthetically Limited? [ ] Yes [x] No
7. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/yr
8. Emission Factor: **0.01 gr/acf** Reference: **Manufacturer's Design**
9. Emissions Method Code (check one): [ ] 1 [ ] 2 [ ] 3 [ ] 4 [x] 5
10. Calculation of Emissions: **See Table 3-4, Attachment A**
11. Pollutant Potential/Estimated Emissions Comment:

Emissions Unit Information Section 3 of 5

Allowable Emissions (Pollutant identification on front page)

A.

1. Basis for Allowable Emissions Code:	**OTHER**
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	**0.01 gr/acf**
4. Equivalent Allowable Emissions:	**5.75** lbs/hr **25.14** tons/yr
5. Method of Compliance:	**Annual VE test using EPA Method 9**
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):	**BACT**

B.

1. Basis for Allowable Emissions Code:	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	
4. Equivalent Allowable Emissions:	lbs/hr tons/yr
5. Method of Compliance:	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):	

E. POLLUTANT INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

Pollutant Potential/Estimated Emissions: Pollutant 2 of 2

1. Pollutant Emitted: **PM10**
2. Total Percent Efficiency of Control: **99.9** %
3. Primary Control Device Code: **018**
4. Secondary Control Device Code:
5. Potential Emissions: **5.75** lbs/hr **25.14** tons/yr
6. Synthetically Limited? [ ] Yes [X] No
7. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/yr
8. Emission Factor: **0.01 gr/acf** Reference: **Manufacturer's Design**
9. Emissions Method Code (check one): [ ] 1 [ ] 2 [ ] 3 [ ] 4 [X] 5
10. Calculation of Emissions: **See Table 3-4, Attachment A**
11. Pollutant Potential/Estimated Emissions Comment:

Emissions Unit Information Section 3 **of** 5

Allowable Emissions (Pollutant identification on front page)

A.

1. Basis for Allowable Emissions Code: **OTHER**
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: **0.01 gr/acf**
4. Equivalent Allowable Emissions: **5.75** lbs/hr **25.14** tons/yr
5. Method of Compliance: **Annual VE test using EPA Method 9**
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode): **BACT**

B.

1. Basis for Allowable Emissions Code:
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:
4. Equivalent Allowable Emissions: lbs/hr tons/yr
5. Method of Compliance:
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):

F. VISIBLE EMISSIONS INFORMATION

This subsection of the Application for Air Permit form must be completed for only those emissions units which are subject to a visible emissions limitation. The intent of this subsection of the form is to identify each activity associated with the emissions unit addressed in this section for which a separate opacity limitation would be applicable. Visible emission subtype codes for each such activity are listed in the instructions for Field 1. Most emissions units will be subject to a "subtype VE" limit only.

Visible Emissions Limitations: Visible Emissions Limitation 1 of 1

1.	Visible Emissions Subtype: VE
2.	Basis for Allowable Opacity: [ ] Rule [X] Other
3.	Requested Allowable Opacity Normal Conditions: 5 % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4.	Method of Compliance: Annual test using EPA Method 9
5.	Visible Emissions Comment: BACT

Visible Emissions Limitations: Visible Emissions Limitation _____ of _____

1.	Visible Emissions Subtype:
2.	Basis for Allowable Opacity: [ ] Rule [ ] Other
3.	Requested Allowable Opacity Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4.	Method of Compliance:
5.	Visible Emissions Comment:

Visible Emissions Limitations: Visible Emissions Limitation _____ of _____

1.	Visible Emissions Subtype:
2.	Basis for Allowable Opacity: [ ] Rule [ ] Other
3.	Requested Allowable Opacity Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4.	Method of Compliance:
5.	Visible Emissions Comment:

G. CONTINUOUS MONITOR INFORMATION

This subsection of the Application for Air Permit form must be completed for only those emissions units which are required by rule or permit to install and operate one or more continuous emission, opacity, flow, or other type monitors. A separate set of continuous monitor information (fields 1-6) must be completed for each monitoring system required.

Continuous Monitoring System Continuous Monitor _____ of _____

1.	Parameter Code:
2.	CMS Requirement: [ ] Rule [ ] Other
3.	Monitor Information: Monitor Manufacturer: Model Number: Serial Number:
4.	Installation Date (DD-MON-YYYY):
5.	Performance Specification Test Date (DD-MON-YYYY):
6.	Continuous Monitor Comment:

Continuous Monitoring System Continuous Monitor _____ of _____

1.	Parameter Code:
2.	CMS Requirement: [ ] Rule [ ] Other
3.	Monitor Information: Monitor Manufacturer: Model Number: Serial Number:
4.	Installation Date (DD-MON-YYYY):
5.	Performance Specification Test Date (DD-MON-YYYY):
6.	Continuous Monitor Comment:

Continuous Monitoring System Continuous Monitor _____ of _____

1.	Parameter Code:
2.	CMS Requirement: [ ] Rule [ ] Other
3.	Monitor Information: Monitor Manufacturer: Model Number: Serial Number:
4.	Installation Date (DD-MON-YYYY):
5.	Performance Specification Test Date (DD-MON-YYYY):
6.	Continuous Monitor Comment:

H. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT TRACKING INFORMATION

This subsection of the Application for Air Permit form must be completed for all applications, not just those undergoing prevention-of-significant-deterioration (PSD) review persuant to Rule 62-212.400, F.A.C. The intent of this subsection is to make a preliminary determination as to whether the emissions unit addressed in this Emissons Unit Information Section consumes PSD increment. PSD increment is consumed (or expanded) as a result of emission increases (decreases) occurring after pollutant-specific baseline dates. Pollutants for which baseline dates have been established are sulfur dioxide, particulate matter, and nitrogen dioxide.

PSD Increment Consumption Determination

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

   If the emissions unit addressed in this section emits particulate matter or sulfur dioxide, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for particulate matter or sulfur dioxide. Check the first statement, if any, that applies and skip remaining statements.

   [X] The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.

   [ ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and the emissions unit consumes increment.

   [ ] The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and the emissions unit consumes increment.

   [ ] For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.

   [ ] None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

2. Increment Consuming for Nitrogen Dioxide?

If the emissions unit addressed in this section emits nitrogen oxides, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for nitrogen dioxide. Check first statement, if any, that applies and skip remaining statements.

[ ] The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and the source consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and the source consumes increment.

[ ] For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and the emissions unit consumes increment.

[ ] None of the above apply. If so, baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3.	Increment Consuming/Expanding Code:			
	PM	[X] C	[ ] E	[ ] Unknown
	SO_2	[ ] C	[ ] E	[ ] Unknown
	NO_2	[ ] C	[ ] E	[ ] Unknown
4.	Baseline Emissions:			
	PM	0 lbs/hr	0 tons/yr	
	SO_2	lbs/hr	tons/yr	
	NO_2		tons/yr	
5.	PSD Comment:			

I. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

This subsection of the Application for Air Permit form provides supplemental information related to the emissions unit addressed in this Emissions Unit Information Section. Supplemental information must be submitted as an attachment to each copy of the form, in hard-copy or computer-readable form.

Supplemental Requirements for All Applications

1.	Process Flow Diagram	
	[ ] Attached, Document ID: _____	
	[X] Not Applicable	[ ] Waiver Requested
2.	Fuel Analysis or Specification	
	[ ] Attached, Document ID: _____	
	[X] Not Applicable	[ ] Waiver Requested
3.	Detailed Description of Control Equipment	
	[X] Attached, Document ID: ATT. A	
	[ ] Not Applicable	[ ] Waiver Requested
4.	Description of Stack Sampling Facilities	
	[ ] Attached, Document ID: _____	
	[X] Not Applicable	[ ] Waiver Requested
5.	Compliance Test Report	
	[ ] Attached, Document ID: _____	[X] Not Applicable
	[ ] Previously Submitted, Date: _____	
6.	Procedures for Startup and Shutdown	
	[ ] Attached, Document ID: _____	[X] Not Applicable
7.	Operation and Maintenance Plan	
	[ ] Attached, Document ID: _____	[X] Not Applicable
8.	Supplemental Information for Construction Permit Application	
	[X] Attached, Document ID: ATT. A	[ ] Not Applicable
9.	Other Information Required by Rule or Statute	
	[ ] Attached, Document ID: _____	[X] Not Applicable

Additional Supplemental Requirements for Category I Applications Only

10.	Alternative Methods of Operation [ ] Attached, Document ID: _____ [ ] Not Applicable
11.	Alternative Modes of Operation (Emissions Trading) [ ] Attached, Document ID: _____ [ ] Not Applicable
12.	Enhanced Monitoring Plan [ ] Attached, Document ID: _____ [ ] Not Applicable
13.	Identification of Additional Applicable Requirements [ ] Attached, Document ID: _____ [ ] Not Applicable
14.	Acid Rain Permit Application [ ] Acid Rain Part - Phase II (Form No. 62-210.900(1)(a)) Attached, Document ID: _____ [ ] Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) Attached, Document ID: _____ [ ] New Unit Exemption (Form No. 62-210.900(1)(a)2.) Attached, Document ID: _____ [ ] Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) Attached, Document ID: _____ [ ] Not Applicable

Emissions Unit Information Section 4 of 5

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application.

A. GENERAL EMISSIONS UNIT INFORMATION

This subsection of the Application for Air Permit form provides general information on the emissions unit addressed in this Emissions Unit Information Section, including information on the type, control equipment, operating capacity, and operating schedule of the emissions unit..

Type of Emissions Unit Addressed in This Section

Check one:

[X] This Emissions Unit information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, an individually-regulated emission point (stack or vent) serving a single process or production unit, or activity, which also has other individually-regulated emission points.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a collectively-regulated group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section:

   Cement storage silos 7-9; F-512

2. ARMS Identification Number: [ ] No Corresponding ID [ ] Unknown

   014

3. Emissions Unit Status Code:	4. Acid Rain Unit?	5. Emissions Unit Major Group SIC Code:
A	[ ] Yes [X] No	**32**

6. Initial Startup Date (DD-MON-YYYY):

7. Long-term Reserve Shutdown Date (DD-MON-YYYY):

8. Package Unit:
   Manufacturer: Model Number:

9. Generator Nameplate Rating: MW

10. Incinerator Information:

    Dwell Temperature: °F
    Dwell Time: seconds
    Incinerator Afterburner Temperature: °F

11. Emissions Unit Comment:

Emissions Unit Control Equipment Information

A.

1. Description:

Baghouse, F-512

2. Control Device or Method Code: **018**

B.

1. Description:

2. Control Device or Method Code:

C.

1. Description:

2. Control Device or Method Code:

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate: mmBtu/hr
2. Maximum Incineration Rate: lbs/hr tons/day
3. Maximum Process or Throughput Rate: 150 TPH
4. Maximum Production Rate:
5. Operating Capacity Comment:

Emissions Unit Operating Schedule

1. Requested Maximum Operating Schedule:

24	hours/day,	7	days/week,
52	weeks/yr	8,760	hours/yr

B. EMISSIONS UNIT REGULATIONS

Depending on the application category, this subsection of the Application for Air Permit form provides either a brief analysis or detailed listing of all federal, state, and local regulations applicable to the emissions unit addressed in this Emissions Unit Information Section.

Rule Applicability Analysis (Required for Category II Applications and Category III applications involving non Title-V sources. See Instructions.)

List of Applicable Regulations (Required for Category I applications and Category III applications involving Title-V sources. See Instructions.)

62-296.310

C. EMISSION POINT (STACK/VENT) INFORMATION

This subsection of the application for Air Permit form provides information about the emission point associated with the emissions unit addressed in this Emissions Unit Information Section. An emission point is typically a stack or vent but can be any identifiable location at which air pollutants, including fugitive emissions, are discharged into the atmosphere.

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram:

   F-512

2. Emission Point Type Code:

   [x] 1 [ ] 2 [ ] 3 [ ] 4

3. Descriptions of Emissions Points Comprising this Emissions Unit:

4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:

5. Discharge Type Code:

   [ ] D [ ] F [x] H [ ] P
   [ ] R [ ] V [ ] W

6. Stack Height:	**200**	ft
7. Exit Diameter:	**1.1**	ft
8. Exit Temperature:	**90**	°F
9. Actual Volumetric Flow Rate:	**10,000**	acfm
10. Percent Water Vapor:		%
11. Maximum Dry Standard Flow Rate:		dscfm
12. Nonstack Emission Point Height:		ft

13. Emission Point UTM Coordinates:

Zone: East (km): North (km):

14. Emission Point Comment:

Stack dimensions are 1.0 ft. x 1.0 ft.

D. SEGMENT (PROCESS/FUEL) INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of segment data (Fields 1-10) must be completed for each segment required to be reported and for each alternative operating method or mode (emissions trading scenario) under Chapter 62-213, F.A.C., for which the maximum hourly or annual segment-related rate would vary. A segment is a material handling, process, fuel burning, volatile organic liquid storage, production, or other such operation to which emissions of the unit are directly related. See instructions for further details on this subsection of the Application for Air Permit.

Segment Description and Rate Information: Segment 1 of 1

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode): **Cement storage silos**	
2. Source Classification Code (SCC): **3-05-007-18**	
3. SCC Units: **tons cement produced**	
4. Maximum Hourly Rate: **150**	5. Maximum Annual Rate: **1,314,000**
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur:	8. Maximum Percent Ash:
9. Million Btu per SCC Unit:	
10. Segment Comment:	

Segment Description and Rate Information: Segment _____ of _____

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode):	
2. Source Classification Code (SCC):	
3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur:	8. Maximum Percent Ash:
9. Million Btu per SCC Unit:	
10. Segment Comment:	

E. POLLUTANT INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

Pollutant Potential/Estimated Emissions: Pollutant 1 of 2

1. Pollutant Emitted: **PM**
2. Total Percent Efficiency of Control: **99.9** %
3. Primary Control Device Code: **018**
4. Secondary Control Device Code:
5. Potential Emissions: **0.86** lbs/hr **3.75** tons/yr
6. Synthetically Limited? [ ] Yes [x] No
7. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/yr
8. Emission Factor: **0.01 gr/acf** Reference: **Manufacturer's Design**
9. Emissions Method Code (check one): [ ] 1 [ ] 2 [ ] 3 [ ] 4 [x] 5
10. Calculation of Emissions: **See Table 3-4, Attachment A**
11. Pollutant Potential/Estimated Emissions Comment:

Emissions Unit Information Section 4 **of** 5

Allowable Emissions (Pollutant identification on front page)

A.

1. Basis for Allowable Emissions Code: **OTHER**	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: **0.01 gr/acf**	
4. Equivalent Allowable Emissions:	**0.86** lbs/hr **3.75** tons/yr
5. Method of Compliance: **Annual VE using EPA Method 9**	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):	

B.

1. Basis for Allowable Emissions Code:	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	
4. Equivalent Allowable Emissions:	lbs/hr tons/yr
5. Method of Compliance:	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):	

E. POLLUTANT INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

Pollutant Potential/Estimated Emissions: Pollutant 2 of 2

1. Pollutant Emitted: **PM10**
2. Total Percent Efficiency of Control: **99.9** %
3. Primary Control Device Code: **018**
4. Secondary Control Device Code:
5. Potential Emissions: **0.86** lbs/hr **3.75** tons/yr
6. Synthetically Limited? [ ] Yes [x] No
7. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/yr
8. Emission Factor: **0.01 gr/acf** Reference: **Manufacturer's Design**
9. Emissions Method Code (check one): [ ] 1 [ ] 2 [ ] 3 [ ] 4 [x] 5
10. Calculation of Emissions: **See Table 3-4, Attachment A**
11. Pollutant Potential/Estimated Emissions Comment:

Emissions Unit Information Section 4 **of** 5

Allowable Emissions (Pollutant identification on front page)

A.

1. Basis for Allowable Emissions Code: **OTHER**	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: **0.01 gr/acf**	
4. Equivalent Allowable Emissions:	**0.86** lbs/hr **3.75** tons/yr
5. Method of Compliance: **Annual VE using EPA Method 9**	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):	

B.

1. Basis for Allowable Emissions Code:	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	
4. Equivalent Allowable Emissions:	lbs/hr tons/yr
5. Method of Compliance:	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):	

F. VISIBLE EMISSIONS INFORMATION

This subsection of the Application for Air Permit form must be completed for only those emissions units which are subject to a visible emissions limitation. The intent of this subsection of the form is to identify each activity associated with the emissions unit addressed in this section for which a separate opacity limitation would be applicable. Visible emission subtype codes for each such activity are listed in the instructions for Field 1. Most emissions units will be subject to a "subtype VE" limit only.

Visible Emissions Limitations: Visible Emissions Limitation 1 of 1

1.	Visible Emissions Subtype: VE
2.	Basis for Allowable Opacity: [X] Rule [ ] Other
3.	Requested Allowable Opacity Normal Conditions: 20 % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4.	Method of Compliance: Annual VE test, EPA Method 9
5.	Visible Emissions Comment:

Visible Emissions Limitations: Visible Emissions Limitation _____ of _____

1.	Visible Emissions Subtype:
2.	Basis for Allowable Opacity: [ ] Rule [ ] Other
3.	Requested Allowable Opacity Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4.	Method of Compliance:
5.	Visible Emissions Comment:

Visible Emissions Limitations: Visible Emissions Limitation _____ of _____

1.	Visible Emissions Subtype:
2.	Basis for Allowable Opacity: [ ] Rule [ ] Other
3.	Requested Allowable Opacity Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4.	Method of Compliance:
5.	Visible Emissions Comment:

G. CONTINUOUS MONITOR INFORMATION

This subsection of the Application for Air Permit form must be completed for only those emissions units which are required by rule or permit to install and operate one or more continuous emission, opacity, flow, or other type monitors. A separate set of continuous monitor information (fields 1-6) must be completed for each monitoring system required.

Continuous Monitoring System Continuous Monitor _____ of _____

1.	Parameter Code:
2.	CMS Requirement: [ ] Rule [ ] Other
3.	Monitor Information: Monitor Manufacturer: Model Number: Serial Number:
4.	Installation Date (DD-MON-YYYY):
5.	Performance Specification Test Date (DD-MON-YYYY):
6.	Continuous Monitor Comment:

Continuous Monitoring System Continuous Monitor _____ of _____

1.	Parameter Code:
2.	CMS Requirement: [ ] Rule [ ] Other
3.	Monitor Information: Monitor Manufacturer: Model Number: Serial Number:
4.	Installation Date (DD-MON-YYYY):
5.	Performance Specification Test Date (DD-MON-YYYY):
6.	Continuous Monitor Comment:

Continuous Monitoring System Continuous Monitor _____ of _____

1.	Parameter Code:
2.	CMS Requirement: [ ] Rule [ ] Other
3.	Monitor Information: Monitor Manufacturer: Model Number: Serial Number:
4.	Installation Date (DD-MON-YYYY):
5.	Performance Specification Test Date (DD-MON-YYYY):
6.	Continuous Monitor Comment:

H. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT TRACKING INFORMATION

This subsection of the Application for Air Permit form must be completed for all applications, not just those undergoing prevention-of-significant-deterioration (PSD) review persuant to Rule 62-212.400, F.A.C. The intent of this subsection is to make a preliminary determination as to whether the emissions unit addressed in this Emissons Unit Information Section consumes PSD increment. PSD increment is consumed (or expanded) as a result of emission increases (decreases) occurring after pollutant-specific baseline dates. Pollutants for which baseline dates have been established are sulfur dioxide, particulate matter, and nitrogen dioxide.

PSD Increment Consumption Determination

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

   If the emissions unit addressed in this section emits particulate matter or sulfur dioxide, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for particulate matter or sulfur dioxide. Check the first statement, if any, that applies and skip remaining statements.

   [ ] The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.

   [ ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and the emissions unit consumes increment.

   [ ] The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and the emissions unit consumes increment.

   [ ] For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.

   [X] None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

2. Increment Consuming for Nitrogen Dioxide?

If the emissions unit addressed in this section emits nitrogen oxides, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for nitrogen dioxide. Check first statement, if any, that applies and skip remaining statements.

[ ] The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and the source consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and the source consumes increment.

[ ] For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and the emissions unit consumes increment.

[ ] None of the above apply. If so, baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3.	Increment Consuming/Expanding Code:				
	PM	[ ] C	[ ] E	[X] Unknown	
	SO_2	[ ] C	[ ] E	[ ] Unknown	
	NO_2	[ ] C	[ ] E	[ ] Unknown	
4.	Baseline Emissions:				
	PM	**1.5** lbs/hr	**5.25** tons/yr		
	SO_2	lbs/hr	tons/yr		
	NO_2		tons/yr		
5.	PSD Comment:				

I. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

This subsection of the Application for Air Permit form provides supplemental information related to the emissions unit addressed in this Emissions Unit Information Section. Supplemental information must be submitted as an attachment to each copy of the form, in hard-copy or computer-readable form.

Supplemental Requirements for All Applications

1.	Process Flow Diagram	
	[ ] Attached, Document ID: _____	
	[X] Not Applicable	[ ] Waiver Requested
2.	Fuel Analysis or Specification	
	[ ] Attached, Document ID: _____	
	[X] Not Applicable	[ ] Waiver Requested
3.	Detailed Description of Control Equipment	
	[X] Attached, Document ID: ATT. A	
	[ ] Not Applicable	[ ] Waiver Requested
4.	Description of Stack Sampling Facilities	
	[ ] Attached, Document ID: _____	
	[X] Not Applicable	[ ] Waiver Requested
5.	Compliance Test Report	
	[ ] Attached, Document ID: _____	[X] Not Applicable
	[ ] Previously Submitted, Date: _____	
6.	Procedures for Startup and Shutdown	
	[ ] Attached, Document ID: _____	[X] Not Applicable
7.	Operation and Maintenance Plan	
	[ ] Attached, Document ID: _____	[X] Not Applicable
8.	Supplemental Information for Construction Permit Application	
	[X] Attached, Document ID: ATT. A	[ ] Not Applicable
9.	Other Information Required by Rule or Statute	
	[ ] Attached, Document ID: _____	[X] Not Applicable

Additional Supplemental Requirements for Category I Applications Only

10. Alternative Methods of Operation

[ ] Attached, Document ID: _____ [ ] Not Applicable

11. Alternative Modes of Operation (Emissions Trading)

[ ] Attached, Document ID: _____ [ ] Not Applicable

12. Enhanced Monitoring Plan

[ ] Attached, Document ID: _____ [ ] Not Applicable

13. Identification of Additional Applicable Requirements

[ ] Attached, Document ID: _____ [ ] Not Applicable

14. Acid Rain Permit Application

[ ] Acid Rain Part - Phase II (Form No. 62-210.900(1)(a))
Attached, Document ID: _____

[ ] Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)
Attached, Document ID: _____

[ ] New Unit Exemption (Form No. 62-210.900(1)(a)2.)
Attached, Document ID: _____

[ ] Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)
Attached, Document ID: _____

[ ] Not Applicable

Emissions Unit Information Section 5 of 5

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application.

A. GENERAL EMISSIONS UNIT INFORMATION

This subsection of the Application for Air Permit form provides general information on the emissions unit addressed in this Emissions Unit Information Section, including information on the type, control equipment, operating capacity, and operating schedule of the emissions unit..

Type of Emissions Unit Addressed in This Section

Check one:

[X] This Emissions Unit information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, an individually-regulated emission point (stack or vent) serving a single process or production unit, or activity, which also has other individually-regulated emission points.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a collectively-regulated group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section:

   Bulk cement loadout units 1 & 2

2. ARMS Identification Number: [ ] No Corresponding ID [ ] Unknown

   015

3. Emissions Unit Status Code:	4. Acid Rain Unit?	5. Emissions Unit Major Group SIC Code:
A	[ ] Yes [X] No	**32**

6. Initial Startup Date (DD-MON-YYYY):

7. Long-term Reserve Shutdown Date (DD-MON-YYYY):

8. Package Unit:
   Manufacturer: Model Number:

9. Generator Nameplate Rating: MW

10. Incinerator Information:

Dwell Temperature:	°F
Dwell Time:	seconds
Incinerator Afterburner Temperature:	°F

11. Emissions Unit Comment:

Emissions Unit Control Equipment Information

A.

1. Description:

   Two baghouses: B-110, B-220

2. Control Device or Method Code: **018**

B.

1. Description:

2. Control Device or Method Code:

C.

1. Description:

2. Control Device or Method Code:

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate: mmBtu/hr
2. Maximum Incineration Rate: lbs/hr tons/day
3. Maximum Process or Throughput Rate: **300** **TPH**
4. Maximum Production Rate:
5. Operating Capacity Comment:

Emissions Unit Operating Schedule

1. Requested Maximum Operating Schedule:

24	hours/day,	**7**	days/week,
52	weeks/yr	**8,760**	hours/yr

B. EMISSIONS UNIT REGULATIONS

Depending on the application category, this subsection of the Application for Air Permit form provides either a brief analysis or detailed listing of all federal, state, and local regulations applicable to the emissions unit addressed in this Emissions Unit Information Section.

Rule Applicability Analysis (Required for Category II Applications and Category III applications involving non Title-V sources. See Instructions.)

List of Applicable Regulations (Required for Category I applications and Category III applications involving Title-V sources. See Instructions.)

62-296.310

C. EMISSION POINT (STACK/VENT) INFORMATION

This subsection of the application for Air Permit form provides information about the emission point associated with the emissions unit addressed in this Emissions Unit Information Section. An emission point is typically a stack or vent but can be any identifiable location at which air pollutants, including fugitive emissions, are discharged into the atmosphere.

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram:

   B-110, B-210

2. Emission Point Type Code:

   [ ] 1 [ ] 2 [x] 3 [ ] 4

3. Descriptions of Emissions Points Comprising this Emissions Unit:

   Railcar/Truck loadout Unit 1 (B-110); Truck loadout Unit 2 (B-210)

4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:

5. Discharge Type Code:

   [ ] D [ ] F [x] H [ ] P
   [ ] R [ ] V [ ] W

6. Stack Height:	**30**	ft
7. Exit Diameter:	**0.76**	ft
8. Exit Temperature:	**90**	°F
9. Actual Volumetric Flow Rate:	**3,000**	acfm
10. Percent Water Vapor:		%
11. Maximum Dry Standard Flow Rate:		dscfm
12. Nonstack Emission Point Height:		ft

13. Emission Point UTM Coordinates:

Zone: East (km): North (km):

14. Emission Point Comment:

Stack dimensions are 0.67 ft. x 0.67 ft.

D. SEGMENT (PROCESS/FUEL) INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of segment data (Fields 1-10) must be completed for each segment required to be reported and for each alternative operating method or mode (emissions trading scenario) under Chapter 62-213, F.A.C., for which the maximum hourly or annual segment-related rate would vary. A segment is a material handling, process, fuel burning, volatile organic liquid storage, production, or other such operation to which emissions of the unit are directly related. See instructions for further details on this subsection of the Application for Air Permit.

Segment Description and Rate Information: Segment 1 of 1

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode): **Cement loadout**	
2. Source Classification Code (SCC): **3-05-007-19**	
3. SCC Units: **tons cement produced**	
4. Maximum Hourly Rate: **300**	5. Maximum Annual Rate: **2,628,000**
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur:	8. Maximum Percent Ash:
9. Million Btu per SCC Unit:	
10. Segment Comment:	

Segment Description and Rate Information: Segment _____ of _____

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode):	
2. Source Classification Code (SCC):	
3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur:	8. Maximum Percent Ash:
9. Million Btu per SCC Unit:	
10. Segment Comment:	

E. POLLUTANT INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

Pollutant Potential/Estimated Emissions: Pollutant 1 of 2

1. Pollutant Emitted: **PM**
2. Total Percent Efficiency of Control: **99.9** %
3. Primary Control Device Code: **018**
4. Secondary Control Device Code:
5. Potential Emissions: **0.52** lbs/hr **2.26** tons/yr
6. Synthetically Limited? [ ] Yes [**X**] No
7. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/yr
8. Emission Factor: **0.01 gr/acf** Reference: **Manufacturer's Design**
9. Emissions Method Code (check one): [ ] 1 [ ] 2 [ ] 3 [ ] 4 [**X**] 5
10. Calculation of Emissions: **See Table 3-4, Attachment A**
11. Pollutant Potential/Estimated Emissions Comment:

Emissions Unit Information Section 5 of 5

Allowable Emissions (Pollutant identification on front page)

A.

1. Basis for Allowable Emissions Code: **OTHER**
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: **0.01 gr/acf**
4. Equivalent Allowable Emissions: **0.52** lbs/hr **2.26** tons/yr
5. Method of Compliance: **Annual VE test using EPA Method 9**
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):

B.

1. Basis for Allowable Emissions Code:
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:
4. Equivalent Allowable Emissions: lbs/hr tons/yr
5. Method of Compliance:
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):

Emissions Unit Information Section 5 of 5

E. POLLUTANT INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

Pollutant Potential/Estimated Emissions: Pollutant 2 of 2

1. Pollutant Emitted: **PM10**
2. Total Percent Efficiency of Control: **99.9** %
3. Primary Control Device Code: **018**
4. Secondary Control Device Code:
5. Potential Emissions: **0.52** lbs/hr **2.26** tons/yr
6. Synthetically Limited? [ ] Yes [x] No
7. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/yr
8. Emission Factor: **0.01 gr/acf** Reference: **Manufacturer's Design**
9. Emissions Method Code (check one): [ ] 1 [ ] 2 [ ] 3 [ ] 4 [x] 5
10. Calculation of Emissions: **See Table 3-4, Attachment A**
11. Pollutant Potential/Estimated Emissions Comment:

Emissions Unit Information Section 5 **of** 5

Allowable Emissions (Pollutant identification on front page)

A.

1. Basis for Allowable Emissions Code: **OTHER**
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: **0.01 gr/acf**
4. Equivalent Allowable Emissions: **0.52** lbs/hr **2.26** tons/yr
5. Method of Compliance: **Annual VE test using EPA Method 9**
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):

B.

1. Basis for Allowable Emissions Code:
2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:
4. Equivalent Allowable Emissions: lbs/hr tons/yr
5. Method of Compliance:
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):

F. VISIBLE EMISSIONS INFORMATION

This subsection of the Application for Air Permit form must be completed for only those emissions units which are subject to a visible emissions limitation. The intent of this subsection of the form is to identify each activity associated with the emissions unit addressed in this section for which a separate opacity limitation would be applicable. Visible emission subtype codes for each such activity are listed in the instructions for Field 1. Most emissions units will be subject to a "subtype VE" limit only.

Visible Emissions Limitations: Visible Emissions Limitation 1 of 1

1.	Visible Emissions Subtype: **VE**
2.	Basis for Allowable Opacity: [**X**] Rule [ ] Other
3.	Requested Allowable Opacity Normal Conditions: **10** % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4.	Method of Compliance: **Annual VE test using EPA Method 9**
5.	Visible Emissions Comment: **62-296.800; NSPS**

Visible Emissions Limitations: Visible Emissions Limitation _____ of _____

1.	Visible Emissions Subtype:
2.	Basis for Allowable Opacity: [ ] Rule [ ] Other
3.	Requested Allowable Opacity Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4.	Method of Compliance:
5.	Visible Emissions Comment:

Visible Emissions Limitations: Visible Emissions Limitation _____ of _____

1.	Visible Emissions Subtype:
2.	Basis for Allowable Opacity: [ ] Rule [ ] Other
3.	Requested Allowable Opacity Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4.	Method of Compliance:
5.	Visible Emissions Comment:

G. CONTINUOUS MONITOR INFORMATION

This subsection of the Application for Air Permit form must be completed for only those emissions units which are required by rule or permit to install and operate one or more continuous emission, opacity, flow, or other type monitors. A separate set of continuous monitor information (fields 1-6) must be completed for each monitoring system required.

Continuous Monitoring System Continuous Monitor _____ of _____

1.	Parameter Code:
2.	CMS Requirement: [ ] Rule [ ] Other
3.	Monitor Information: Monitor Manufacturer: Model Number: Serial Number:
4.	Installation Date (DD-MON-YYYY):
5.	Performance Specification Test Date (DD-MON-YYYY):
6.	Continuous Monitor Comment:

Continuous Monitoring System Continuous Monitor _____ of _____

1.	Parameter Code:
2.	CMS Requirement: [ ] Rule [ ] Other
3.	Monitor Information: Monitor Manufacturer: Model Number: Serial Number:
4.	Installation Date (DD-MON-YYYY):
5.	Performance Specification Test Date (DD-MON-YYYY):
6.	Continuous Monitor Comment:

Continuous Monitoring System Continuous Monitor _____ of _____

1.	Parameter Code:
2.	CMS Requirement: [ ] Rule [ ] Other
3.	Monitor Information: Monitor Manufacturer: Model Number: Serial Number:
4.	Installation Date (DD-MON-YYYY):
5.	Performance Specification Test Date (DD-MON-YYYY):
6.	Continuous Monitor Comment:

H. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT TRACKING INFORMATION

This subsection of the Application for Air Permit form must be completed for all applications, not just those undergoing prevention-of-significant-deterioration (PSD) review persuant to Rule 62-212.400, F.A.C. The intent of this subsection is to make a preliminary determination as to whether the emissions unit addressed in this Emissons Unit Information Section consumes PSD increment. PSD increment is consumed (or expanded) as a result of emission increases (decreases) occurring after pollutant-specific baseline dates. Pollutants for which baseline dates have been established are sulfur dioxide, particulate matter, and nitrogen dioxide.

PSD Increment Consumption Determination

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

   If the emissions unit addressed in this section emits particulate matter or sulfur dioxide, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for particulate matter or sulfur dioxide. Check the first statement, if any, that applies and skip remaining statements.

   [X] The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.

   [ ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and the emissions unit consumes increment.

   [ ] The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and the emissions unit consumes increment.

   [ ] For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.

   [ ] None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

2. Increment Consuming for Nitrogen Dioxide?

If the emissions unit addressed in this section emits nitrogen oxides, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for nitrogen dioxide. Check first statement, if any, that applies and skip remaining statements.

[ ] The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and the source consumes increment.

[ ] The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and the source consumes increment.

[ ] For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and the emissions unit consumes increment.

[ ] None of the above apply. If so, baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3.	Increment Consuming/Expanding Code:			
	PM	[X] C	[ ] E	[ ] Unknown
	SO_2	[ ] C	[ ] E	[ ] Unknown
	NO_2	[ ] C	[ ] E	[ ] Unknown
4.	Baseline Emissions:			
	PM	0 lbs/hr	0	tons/yr
	SO_2	lbs/hr		tons/yr
	NO_2			tons/yr
5.	PSD Comment:			

I. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

This subsection of the Application for Air Permit form provides supplemental information related to the emissions unit addressed in this Emissions Unit Information Section. Supplemental information must be submitted as an attachment to each copy of the form, in hard-copy or computer-readable form.

Supplemental Requirements for All Applications

1.	Process Flow Diagram	
	[ ] Attached, Document ID: _____	
	[X] Not Applicable	[ ] Waiver Requested
2.	Fuel Analysis or Specification	
	[ ] Attached, Document ID: _____	
	[X] Not Applicable	[ ] Waiver Requested
3.	Detailed Description of Control Equipment	
	[X] Attached, Document ID: ATT. A	
	[ ] Not Applicable	[ ] Waiver Requested
4.	Description of Stack Sampling Facilities	
	[ ] Attached, Document ID: _____	
	[X] Not Applicable	[ ] Waiver Requested
5.	Compliance Test Report	
	[ ] Attached, Document ID: _____	[X] Not Applicable
	[ ] Previously Submitted, Date: _____	
6.	Procedures for Startup and Shutdown	
	[ ] Attached, Document ID: _____	[X] Not Applicable
7.	Operation and Maintenance Plan	
	[ ] Attached, Document ID: _____	[X] Not Applicable
8.	Supplemental Information for Construction Permit Application	
	[X] Attached, Document ID: ATT. A	[ ] Not Applicable
9.	Other Information Required by Rule or Statute	
	[ ] Attached, Document ID: _____	[X] Not Applicable

Additional Supplemental Requirements for Category I Applications Only

10. Alternative Methods of Operation

[ ] Attached, Document ID: _____ [ ] Not Applicable

11. Alternative Modes of Operation (Emissions Trading)

[ ] Attached, Document ID: _____ [ ] Not Applicable

12. Enhanced Monitoring Plan

[ ] Attached, Document ID: _____ [ ] Not Applicable

13. Identification of Additional Applicable Requirements

[ ] Attached, Document ID: _____ [ ] Not Applicable

14. Acid Rain Permit Application

[ ] Acid Rain Part - Phase II (Form No. 62-210.900(1)(a))
Attached, Document ID: _____

[ ] Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)
Attached, Document ID: _____

[ ] New Unit Exemption (Form No. 62-210.900(1)(a)2.)
Attached, Document ID: _____

[ ] Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)
Attached, Document ID: _____

[ ] Not Applicable

ATTACHMENT A

AIR CONSTRUCTION PERMIT APPLICATION

for

USE OF SLAG AS A CEMENT PRODUCT

Tarmac Florida, Inc.

JULY 1995

Attachment A

1.0 INTRODUCTION

Tarmac Florida, Inc., is proposing to process up to 300,000 tons per year of blast furnace slag at its existing portland cement plant located in Medley, Florida. In order to process this raw material, a dryer will be installed and fueled by low sulfur fuel oil. The slag material will be brought to the facility by truck, dried, and then conveyed via the existing plant conveying system to the cement plant storage silos. In the cement plant, the dried slag will be ground and stored for shipment. The slag will be shipped to concrete batch plants for use as a raw material in concrete.

A description of the proposed project is presented in Section 2.0. Existing and future maximum air emissions from affected emissions units at the facility are described in Section 3.0. Air quality regulations applicable to the proposed project are described in Section 4.0. Based on this analysis, the project will be subject to prevention of significant deterioration (PSD) review. However, since the proposed project will utilize best available control technology (BACT), and the increase in emissions of all regulated pollutants due to the project will be less than 50 TPY, the project is exempt from all PSD new source review requirements except application of BACT. The BACT analysis is presented in Section 5.0.

2.0 PROJECT DESCRIPTION

Tarmac Florida, Inc., currently operates a portland cement plant located in Medley, Dade County, Florida (refer to Figures 2-1 and 2-2). A single air operating permit (AO13-238048, issued Dec. 17, 1993) regulates air emissions from the cement plant, while a second permit (AC13-234568) regulates air emissions from the aggregate plant.

Tarmac is proposing to use blast furnace slag from iron foundries as an alternative cement type product. It is currently anticipated that up to 300,000 tons per year (TPY) of slag could be processed. The slag will be delivered to the facility via truck (refer to flow diagram, Figure 2-3). The delivered slag is wet, in the range of 6 percent to 10 percent moisture, hence the need to dry the slag prior to use. The slag will be delivered to an open storage area within the existing aggregate facility (see Figure 2-3). It will then be picked up by a front end loader and fed into a

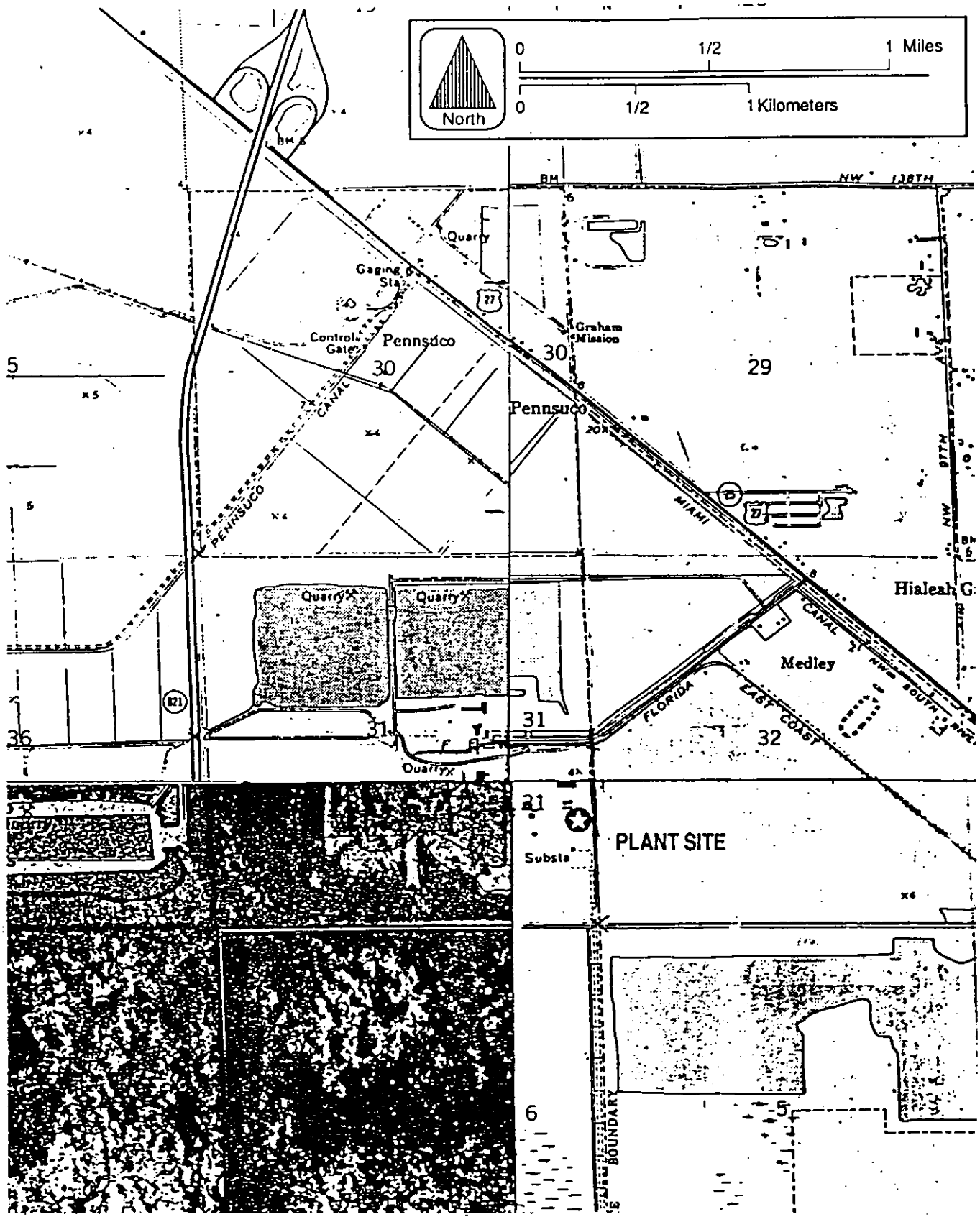


Figure 2-1
Location of Tarmac Florida Facility

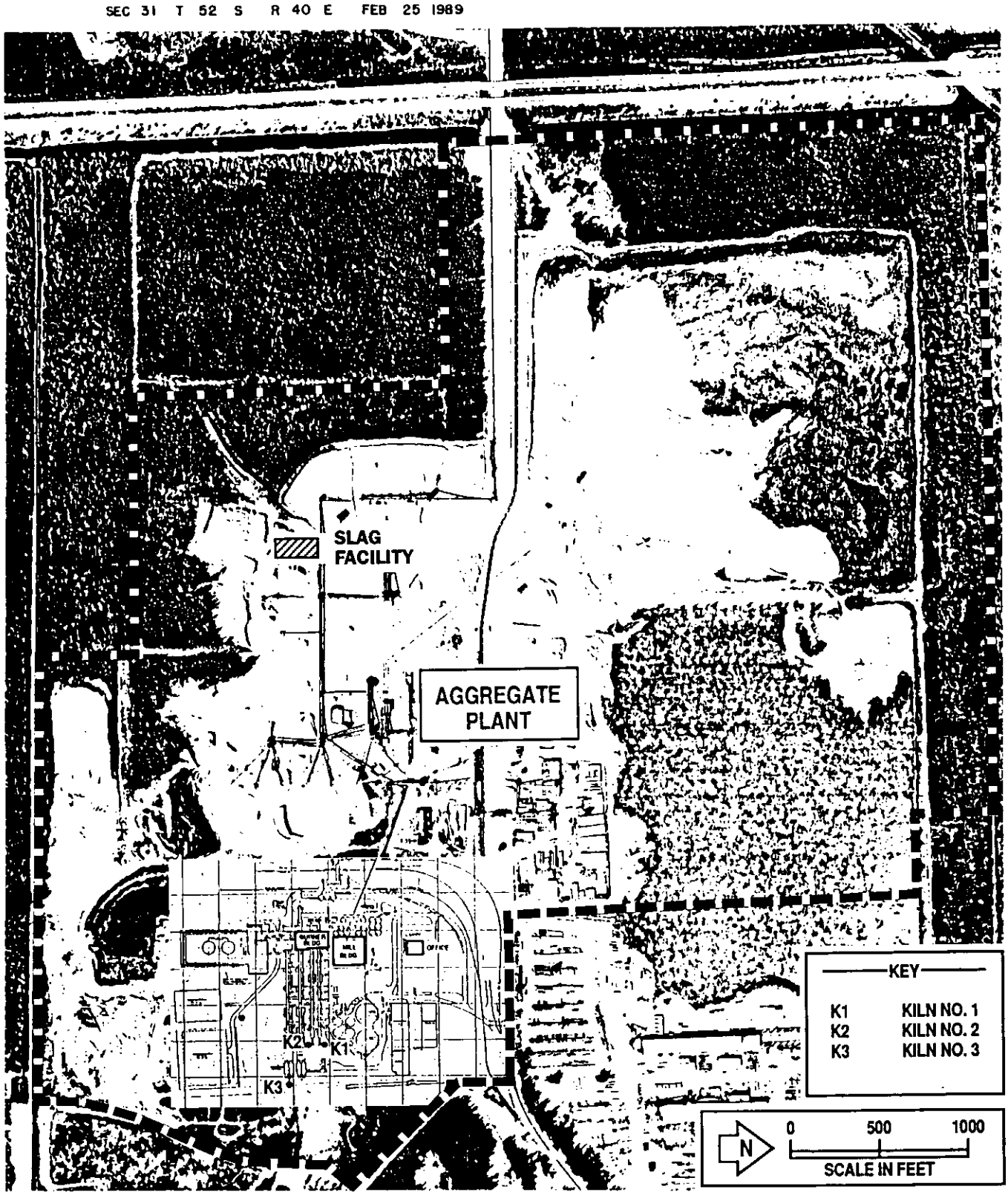


Figure 2-2
Plot Plan and Boundary of Tarmac Florida Facility

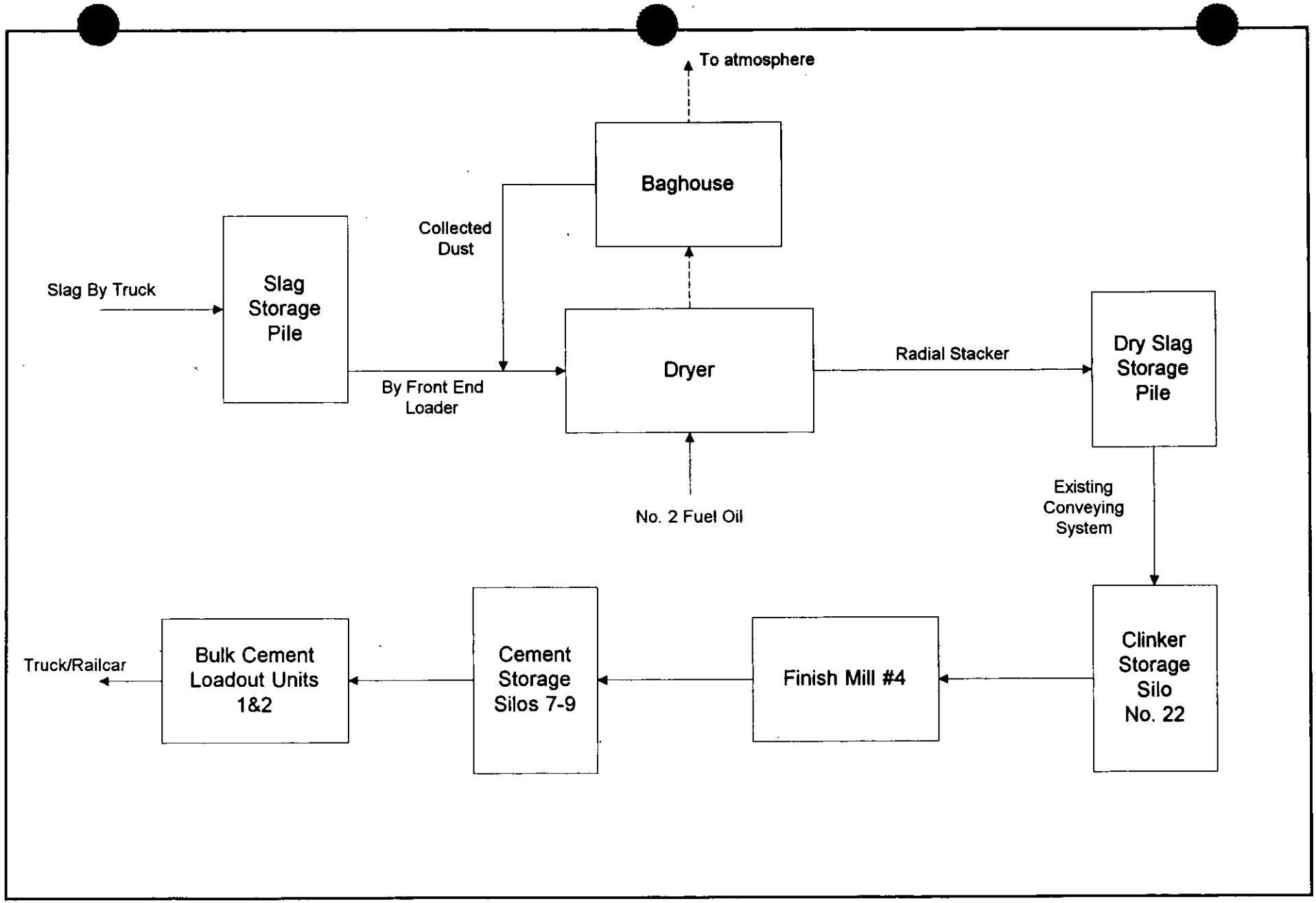


Figure 2-3 Flow Diagram of Slag Processing System, Tarmac Florida

Process Flow Legend:
Gas
Solid/Liquid

Emission Unit:
Process Area:
Filename: TARMAC1.VSD
Latest Revision Date: 6/27/95

KBN Engineering and Applied Sciences, Inc.

hopper, onto a conveyor, and then into the slag dryer. The slag dryer will dry the slag to approximately 5 percent moisture.

The slag dryer Tarmac will utilize is a previously fabricated asphalt dryer (see Figure 2-4). The unit was originally fabricated in 1972, and includes a Flex-Kleen baghouse for PM control. The maximum process rate for the dryer will be 150 tons per hour (TPH), with an average process rate of 100 TPH. The dryer will burn No. 2 fuel oil with a maximum sulfur content of 0.2 percent. Maximum heat input to the dryer will be 52 MMBtu/hr. A 10,000 gallon fuel oil storage tank will be installed to store the fuel. A plot plan of the slag dryer site is shown in Figure 2-3.

The baghouse for the slag dryer is a Flex-Kleen Model 84UDLM288M216XLA. This unit was fabricated with the original dryer. The baghouse will be refurbished prior to use. Pertinent data for the baghouse is as follows:

Air flow rate: 22,000 acfm
Gas temperature: 450°F, max.
Cloth area: 3,391 sq. ft.
Air/cloth ratio: 6.48:1
Cloth type: 14 oz. nomex felt
Cleaning method: Pulse jet
Outlet grain loading: estimated maximum of 0.04 gr/dscf

From the dryer, the slag is conveyed to an open storage pile. From the pile, front end loaders will be used to load the material onto the existing conveying system to the cement plant. The slag will be delivered to the existing clinker silos, i.e., silos 21, 22, 23, 26, 27 and 28. From the silos, the slag will be ground in Finish Mill #4. The ground slag will then be transferred and stored in Cement Silos 7, 8 and 9, and then shipped out via the bulk cement loadout units (Units 1 & 2).

A typical analysis of iron slag is presented in Table 2-1. As shown, the slag is primarily composed of calcium oxide (lime) and silicon oxides, with smaller amounts of aluminum oxide.

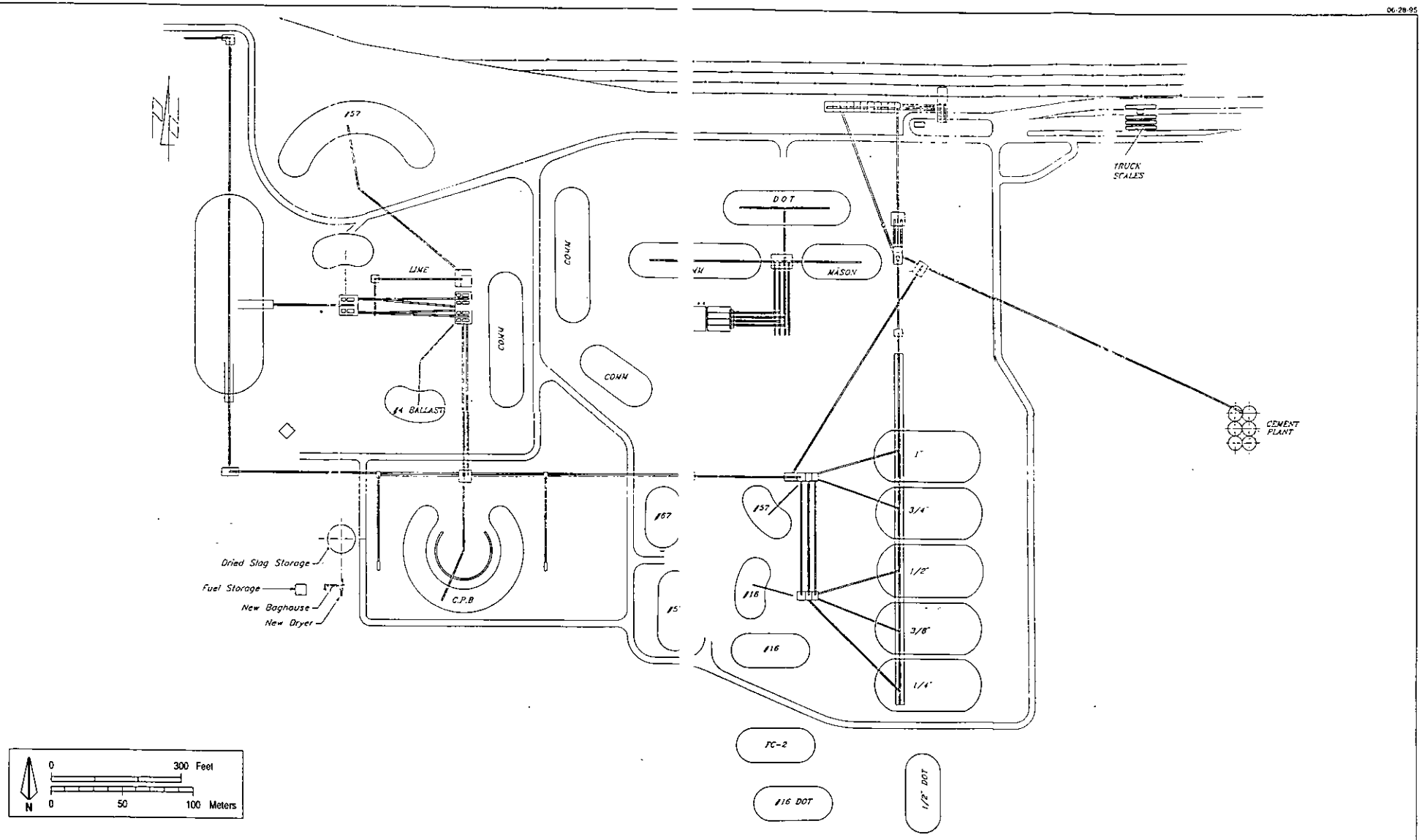


Figure 2-4
Layout of Slag Dryer and Handling Facilities

Table 2-1. Analysis of Iron Slag

Parameter	Composition (% by weight, wet)
Silicon Oxide	33.0
Aluminum Oxide	14.3
Iron Oxide	1.9
Calcium Oxide	40.0
Sulfur Trioxide	1.8
Moisture	9.0

Source: Tarmac Florida, 1995.

3.0 AIR EMISSIONS

3.1 SLAG DRYER

The maximum particulate matter (PM) emissions from the slag dryer are based on an outlet dust loading from the baghouse of 0.04 gr/dscf. Based on the maximum air flow rate of 22,000 acfm @ 450°F, the dry standard air flow rate is 12,000 dscfm (assuming about 6 percent moisture). Maximum operating hours for the dryer will be 3,000 hr/yr. Maximum PM emissions are therefore:

12,000 dscfm x 0.04 gr/dscf x 60 min/hr / 7000 gr/lb = 4.1 lb/hr

4.1 lb/hr x 3,000 hr/yr x ton/2,000 lb = 6.15 TPY

Emissions of other pollutants from the slag dryer are due to fuel oil burning, and are presented in Table 3-1. The emissions are based on AP-42 emission factors for fuel oil combustion.

3.2 CEMENT PRODUCTION, STORAGE AND HANDLING

The aggregate plant facilities to be affected by the slag utilization include several transfer points along the existing conveying system. The estimated PM emissions from these conveying operations are quantified in Table 3-2. Also included are fugitive PM emissions due to vehicular traffic in the slag storage pile area and wind erosion from the slag storage piles. The derivation of these emissions are presented in the Appendix.

The existing cement production facilities affected by the slag utilization consists of Clinker Storage silos 21, 22, 23, 26, 27 and 28; Finish Mill #4; Cement Silos 7-9; and the Bulk Cement Loadout Units 1&2. All of these sources are controlled by baghouses. The current existing PM emissions for these sources, based on average operating hours for 1993-1994, are presented in Table 3-3. The proposed maximum PM emissions from each of these sources is shown in Table 3-4, based on future maximum operating hours of 8,760 hr/yr.

In the case of Finish Mill #4, the PM emissions are currently limited by the process weight table according to operating permit AO13-157297. However, the process weight table severely overestimates the actual emissions from these baghouse controlled sources. The baghouse on Finish Mill #4 is designed to achieve an outlet dust loading of 0.01 gr/acf. Therefore, Tarmac is proposing to lower the allowable PM emissions from Finish Mill #4 to 0.01 gr/acf.

Table 3–1. Maximum Emissions Due to Fuel Combustion for Slag Dryer, Tarmac Florida

Parameter	No. 2 Fuel Oil
OPERATING DATA	
Operating Time (hr/yr)	3,000
Heat Input Rate (MMBtu/hr)	52.0
Fuel Oil Use (gal/hr)[a]	371.4
Fuel Oil Use (gal/yr)	1,114,286
Maximum Sulfur Content (Wt %)	0.2

Pollutant	Emission Factor [b]	Maximum Emissions lb/hr	Maximum Emissions TPY
EMISSIONS DATA			
SO2:	142*S lb/Mgal[c]	10.55	15.82
NOx:	20 lb/Mgal	7.43	11.14
CO:	5 lb/Mgal	1.86	2.79
NMVOC:	0.2 lb/Mgal	0.074	0.11
Sulfuric Acid Mist:	0.1225 lb/Mgal	0.046	0.068
Lead–Total:	8.9E–06 lb/MMBtu	4.63E–04	6.94E–04
Mercury:	3.0E–06 lb/MMBtu	1.56E–04	2.34E–04
Beryllium:	2.5E–06 lb/MMBtu	1.30E–04	1.95E–04

Note: NA = not applicable.

[a] Based on 140,000 Btu/gal for 0.2% S oil.
[b] Emission factors based on AP–42.
[c] "S" denotes the weight % sulfur in fuel oil; max sulfur content = 0.2%

Table 3-2. Fugitive Dust Emissions For Slag Project, Tarmac Florida, Inc.

SOURCE	TYPE OF OPERATION	M MOISTURE CONTENT (%)	U WIND SPEED (MPH)	UNCONTROLLED EMISSION FACTOR[a] (LB/TON)	CONTROL	CONTROL EFFICIENCY (%)	CONTROLLED EMISSION FACTOR (LB/TON)	ACTIVITY FACTOR	MAXIMUM ANNUAL PM(TSP) EMISSIONS (TONS/YR)	PM10 SIZE MULT.	MAXIMUM ANNUAL PM10 EMISSIONS (TONS/YR)
TRUCK DUMP	BATCH DROP	6	9	0.00148	NONE	0	0.00148	300,000 TPY	0.221	0.35	0.077
FRONTEND LOADER-TO-HOPPER	BATCH DROP	6	9	0.00148	NONE	0	0.00148	300,000 TPY	0.221	0.35	0.077
HOPPER-TO-BELT	CONTINUOUS DROP	6	9	0.00148	NONE	0	0.00148	300,000 TPY	0.221	0.35	0.077
DRYER-TO-RADIAL STACKER	CONTINUOUS DROP	3	9	0.00389	NONE	0	0.00389	300,000 TPY	0.584	0.35	0.204
RADIAL STACKER-TO-STORAGE PILE	CONTINUOUS DROP	3	9	0.00389	NONE	0	0.00389	300,000 TPY	0.584	0.35	0.204
FRONTEND LOADER-TO-HOPPER	BATCH DROP	3	9	0.00389	NONE	0	0.00389	300,000 TPY	0.584	0.35	0.204
HOPPER-TO-CONVEYOR Y76	CONTINUOUS DROP	3	9	0.00389	NONE	0	0.00389	300,000 TPY	0.584	0.35	0.204
CONVEYOR Y76-TO-Y75	CONTINUOUS DROP	3	9	0.00389	PARTIAL ENCLOSURE	50	0.00195	300,000 TPY	0.292	0.35	0.102
CONVEYOR Y75-TO-Y78	CONTINUOUS DROP	3	9	0.00389	PARTIAL ENCLOSURE	50	0.00195	300,000 TPY	0.292	0.35	0.102
CONVEYOR Y78-TO-Y79	CONTINUOUS DROP	3	9	0.00389	PARTIAL ENCLOSURE	50	0.00195	300,000 TPY	0.292	0.35	0.102
CONVEYOR Y79-TO-Y102	CONTINUOUS DROP	3	9	0.00389	PARTIAL ENCLOSURE	50	0.00195	300,000 TPY	0.292	0.35	0.102
CONVEYOR Y102-TO-CLINKER SILOS	CONTINUOUS DROP	3	9	0.00389	PARTIAL ENCLOSURE	50	0.00195	300,000 TPY	0.292	0.35	0.102
SLAG STORAGE PILES (2)	WIND EROSION	--	--	--	NONE	0	--	--	0.027[d]	0.5	0.014
SLAG STORAGE PILES MAINTENANCE	VEHICULAR TRAFFIC	--	--	0.96[b]	WATERING	50	0.93[b]	15,000 VMT[c]	3.470[d]	0.35	1.215
TOTAL									7.958		2.790

Notes/References

[a] Batch Drop and Continuous Drop Emission Factors are computed from AP-42 (USEPA, 1988), Section 11.2.3:
$E = 0.0032 \times (U/5)^{1.3} / (M/2)^{1.4}$ lb/ton

[b] Pound per Vehicle Mile Travel (lb/VMT), see Appendix for derivation.

[c] Based on vehicle operating 3,000 hrs/yr @ 5 mph.

[d] Refer to Appendix for derivation.

15007Y/F1/WP
06/28/95

Table 3–3. Actual 1993–1994 Particulate Emissions From Cement Production Facilities, Tarmac Florida, Inc.

Emission Unit/Point	Emission Point ID	Control Equipment Type	Maximum Process Rate (TPH)	Air Flow Rate (cfm)	PM Emission Factor	PM Emissions (lb/hr)	PM Emissions (hr/yr)[a]	PM Emissions (TPY)
Clinker Storage Silos								
Clinker silos 21, 22, 23, 26, 27 & 28	K–633	Baghouse	150.0	1,500	0.01 gr/acf	0.13	7,550	0.49
Finish Mill #4								
Ball mill/mill sweep	F–430	Baghouse	150.0	30,000	0.01 gr/acf	2.57	2,068	2.66
Belt conveyor/separator/cement pump	F–432	Baghouse	150.0	17,000	0.01 gr/acf	1.46	2,068	1.51
Clinker/gypsum conveyors	F–603	Baghouse	150.0	8,000	0.01 gr/acf	0.69	2,068	0.71
Clinker/gypsum conveyors	F–604	Baghouse	150.0	8,000	0.01 gr/acf	0.69	2,068	0.71
Clinker/gypsum conveyors	F–605	Baghouse	150.0	4,000	0.01 gr/acf	0.34	2,068	0.35
Cement Storage Silos 1–9								
Cement Silos 7–9	F–512	Baghouse	150.0	10,000	0.01 gr/acf	0.86	6,030	2.58
Bulk Cement Loadout Units 1 & 2								
Railcar/Truck Unit 1	B–110	Baghouse	300.0	3,000	0.01 gr/acf	0.26	2,468	0.32
Truck Unit 2	B–210	Baghouse	300.0	3,000	0.01 gr/acf	0.26	2,468	0.32
					TOTAL =	7.24		9.64

[a] Based on actual 1993–1994 operating hours.

Table 3–4. Future Maximum Particulate Emissions From Cement Production Facilities, Tarmac Florida, Inc.

Emission Unit/Point	Emission Point ID	Control Equipment Type	Maximum Process Rate (TPH)	Air Flow Rate (cfm)	PM Emission Factor	PM Emissions (lb/hr)	PM Emissions (hr/yr)	PM Emissions (TPY)
Clinker Storage Silos								
Clinker silos 21, 22, 23, 26, 27 & 28	K–633	Baghouse	150.0	1,500	0.01 gr/acf	0.13	8,760	0.56
Finish Mill #4								
Ball mill/mill sweep	F–430	Baghouse	150.0	30,000	0.01 gr/acf	2.57	8,760	11.26
Belt conveyor/separator/cement pump	F–432	Baghouse	150.0	17,000	0.01 gr/acf	1.46	8,760	6.38
Clinker/gypsum conveyors	F–603	Baghouse	150.0	8,000	0.01 gr/acf	0.69	8,760	3.00
Clinker/gypsum conveyors	F–604	Baghouse	150.0	8,000	0.01 gr/acf	0.69	8,760	3.00
Clinker/gypsum conveyors	F–605	Baghouse	150.0	4,000	0.01 gr/acf	0.34	8,760	1.50
Cement Storage Silos 1–9								
Cement Silos 7–9	F–512	Baghouse	150.0	10,000	0.01 gr/acf	0.86	8,760	3.75
Bulk Cement Loadout Units 1 & 2								
Railcar/Truck Unit 1	B–110	Baghouse	300.0	3,000	0.01 gr/acf	0.26	8,760	1.13
Truck Unit 2	B–210	Baghouse	300.0	3,000	0.01 gr/acf	0.26	8,760	1.13
					TOTAL =	7.24		31.72

4.0 REGULATORY APPLICABILITY

4.1 PSD NEW SOURCE REVIEW

A comparison of the net increase in emissions of regulated PSD pollutants due to the proposed project is presented in Table 4-1. The current actual emissions are current emissions due to existing facilities which will be affected by the project, i.e., the cement production facilities. The future maximum emissions include emissions due to both new facilities and the existing facilities which will be affected. The PSD significant emission rates are also shown in Table 4-1.

As shown, the net increase in PM and PM10 emissions will exceed the PSD significant emission rate of 25 and 15 TPY, respectively. Therefore, the proposed project is subject to PSD review for PM/PM10. However, because the net increase in emissions for all pollutants due to the proposed project are less than 50 TPY, the proposed modification is exempt from several of the requirements under PSD new source review [F.A.C. Rule 62-212.400(3)(d)]. The project is exempt from the requirements of Rule 62-212.400(5)(d), (e), (f) and (g), which are the requirements for ambient impact analysis, additional impact analysis, preconstruction air quality monitoring analysis, and post construction monitoring. Therefore, the proposed project is only subject to the control technology review requirements under PSD rules [62-212.400(5)(b) and (c)]. The control technology analysis for PM/PM10 is presented in Section 5.0.

4.2 STATE OF FLORIDA EMISSION STANDARDS

The State of Florida emission limiting standards for aggregate dryers consist of a PM limit based on the process weight table, and a visible emissions limitation [Rule 62-296.310(1) and (2)]. Based on a maximum process eight input rate of 150 TPH, the process weight table would allow up to 38.6 lb/hr of PM emissions. However, Tarmac will limit PM emissions from the slag dryer to 4.1 lb/hr based on fabric filter control technology. The regulations limit visible emissions from the dryer and materials handling operations to no more than 20 percent opacity.

4.3 FEDERAL NEW SOURCE PERFORMANCE STANDARDS

Federal new source performance standards (NSPS) have been promulgated by the U.S. EPA for nonmetallic mineral processing plants (40 CFR 60, Subpart OOO) and for dryers and calciners in the mineral industries (40 CFR 60, Subpart UUU). However, Tarmac is not processing any of the materials covered under these regulations. Therefore, the proposed facilities are not subject to the NSPS.

Table 4–1. Emissions Increase Associated With Slag Project, Tarmac Florida, Inc.

Regulated Pollutant	(A) Slag Dryer Emissions (TPY)	(B) Fugitives From Slag Handling (TPY)	Cement Production Facilities (C) Current Actuals (TPY)	Cement Production Facilities (D) Future Maximums (TPY)	(A+B–C+D) Net Increase In Emissions (TPY)	PSD Significant Emission Rate (TPY)	PSD Review Applies?
Particulate matter (TSP)	6.15	7.96	9.64	31.72	36.2	25	Yes
Particulate matter (PM10)	6.15	2.79	9.64	31.72	31.0	15	Yes
Sulfur dioxide	15.82	--	--	--	15.8	40	No
Nitrogen oxides	11.14	--	--	--	11.1	40	No
Carbon monoxide	2.79	--	--	--	2.8	100	No
Volatile organic compounds	0.11	--	--	--	0.11	40	No
Sulfuric acid mist	0.068	--	--	--	0.07	7	No
Total reduced sulfur	--	--	--	--	--	10	No
Lead	0.0007	--	--	--	0.0007	0.6	No
Mercury	0.0002	--	--	--	0.0002	0.1	No
Beryllium	0.0002	--	--	--	0.0002	0.0004	No
Fluorides	--	--	--	--	--	3	No
Asbestos	--	--	--	--	--	0.007	No
Vinyl Chloride	--	--	--	--	--	1	No

5.0 BEST AVAILABLE CONTROL TECHNOLOGY ANALYSIS

5.1 REQUIREMENTS

The 1977 Clean Air Act Amendments established requirements for the approval of preconstruction permit applications under the PSD program. One of these requirements is that the best available control technology (BACT) be installed for applicable pollutants. BACT determinations must be made on a case-by-case basis considering technical, economic, energy, and environmental impacts for various BACT alternatives. To bring consistency to the BACT process, the EPA developed the so called "top-down" approach to BACT determinations. As mentioned previously, this approach has been challenged in court and a settlement agreement reached which requires EPA to initiate formal rulemaking on the top down approach. Nonetheless, in the absence of formal rules related to this approach, the "top-down" approach is followed in the Tarmac BACT analysis.

The first step in a top-down BACT analysis is to determine, for each applicable pollutant, the most stringent control alternative available for a similar source or source category. If it can be shown that this level of control is not feasible on the basis of technical, economic, energy, or environmental impacts for the source in question, then the next most stringent level of control is identified and similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by any technical, economic, energy, or environmental consideration.

In the case of the proposed modification at Tarmac, PM(TSP)/PM10 require BACT analysis. Only the slag dryer system requires BACT analysis as this is the only emissions units being added or physically modified as part of the project. The following sections present the BACT analysis.

5.1 BACT ANALYSIS FOR PM EMISSIONS

5.1.1 Slag Dryer

Tarmac is proposing a PM emission limit of 0.04 gr/dscf as BACT. This limit is equivalent to the new source performance standards (NSPS) which have been promulgated for asphalt concrete plants (40 CFR 60, Subpart I). The asphalt plant NSPS is based on fabric filter or venturi scrubber control technology, although fabric filter technology has been found to more consistently achieve the NSPS level. A second review of the asphalt plant NSPS conducted by EPA in 1985 demonstrated that fabric filter control technology was the best demonstrated technology to comply

with the NSPS. Of 26 plants surveyed with fabric filter control, the typical air to cloth ratio was 6:1, and the most common filter fabric was 14 ounce weight nomex.

The Tarmac slag dryer was originally fabricated as an asphalt concrete plant with fabric filter control. The air to cloth ratio is 6.5:1, and 14 ounce nomex bags (or equivalent) will be used. Therefore, it is believed that the asphalt NSPS of 0.04 gr/dscf can be achieved by the Tarmac system, although the drying of slag could cause higher inlet dust loadings to the fabric filter compared to an asphaltic dryer.

A review of previous BACT determinations for PM emissions from asphaltic dyers and similar materials dryers was conducted. The results of this review is presented in Table 5-1. It is noted that all determinations found were issued prior to 1991. However, all previous BACT determinations for asphalt plants were equal to the NSPS of 0.04 gr/dscf and were based on baghouse control technology. This demonstrates that baghouse technology is the best technology for application on asphalt plants and similar dryers.

A number of other determinations were found in the BACT Clearinghouse for various material dryers. However, many of these were expressed in terms not readily converted to a grain loading. In addition, these dryers were for materials other than slag, and the differences and/or similarities between these facilities and Tarmac are not readily definable.

In conclusion, Tarmac's proposed PM emission limit of 0.04 gr/dscf is equivalent to all previous BACT determinations for asphalt plant dryers. Considering the uncertainty associated with the existing fabric filter system and the drying of iron slag, a lower PM limit cannot be proposed. However, the resulting PM emissions are very low: 4.1 lb/hr and 6.15 TPY. This lower level of emissions does not warrant further controls or a lower limitation.

The proposed VE limitation is 20 percent opacity, which is equivalent to the NSPS limit for asphalt plants. This opacity limitation is also equivalent to the State of Florida limitation contained in F.A.C. 62-296.310.

Table 5-1. Summary of BACT Determinations for PM Emissions From Dryers of Aggregates/Non-Metallic Minerals

Plant Type/Company	Comments	State	Permit #	Permit Issue Date	New Source? (a)	Throughput	Emission Limit	Control Equipment
Asphalt Plants								
Lee Hy Paving Corp.		VA	50060	27-Jan-89	Yes	240,000 ton/yr	0.04 GR/DSCF	Baghouse
Lee Hy Paving Corp.		VA	(5)40031	14-Nov-86	Yes	200 ton/hr	0.04 GR/DSCF	Baghouse
B.P. Short & Sons Paving Co.		VA	50041	15-Apr-87	Yes	250 ton/yr	0.04 GR/DSCF	Baghouse
Blakemore Construction Corp.		VA	(3)40766	24-Jun-88	Yes	300 ton/yr	0.04 GR/DSCF	Baghouse
Concrete Plant								
Quikrete Co.		CT	145-0017	5-May-89	No	100,000 lb/hr	0.015 lb/hr	Baghouse
Lime Plants								
Austinville Limestone Co.		VA	10213	16-Sep-87	Yes	315,000 ton/yr	10.5 lb/hr	Fabric Filter
Dan River, Inc.		VA	30242	03-Dec-87	Yes	0	1.62 lb/hr	Baghouse
Stone Crushing Plant								
Luck Stone Corp.	Dryer Overhead Vent (2)	VA	50429	15-Aug-85	Yes	11,025 ton/yr	4.33 ton/yr (each)	Baghouse
	Dryer Bottom Vent (4)					11,025 ton/yr	3.3 ton/yr (each)	Baghouse
Miscellaneous Plants								
Englehard Corp.	Calciner/Spray Dryer	GA	3295-158-4632	18-Nov-87	No	20 ton/hr	0.025 GR/DSCF	Baghouse after start-up
Manville Sales Corp., PLT #1		OH	04-545	N/A	Yes	2,600 lb/hr	0.37 lb/hour	Fabric Filter
Kyanite Mining Corp.		VA	30677	10-Jul-85	Yes	48 MMBtu/hr	30.91 ton/yr	N/A
ICI Americas, Inc.		VA	50418	26-Jan-89	Yes	1 ton/hr	0.004 lb/hr	Bagfilters
Omya, Inc.	Dryers, Spray, (2)	VT	VT-009	27-Jul-90	No	20 ton/hr (each	1.32 lb/hr	Multiple Cyclones
	Dryers, Flash, (2)					6 ton/hr (each	0.02 GR/DSCF	Fabric Filter
Corona Ind.	Sand Dryer	CA	147795	25-Nov-86	Yes	100 ton/hr	72 lb/day	Cyclone Seperator & Scrubber
Ocean Salt Co., Inc.	Salt Dryer	CA	157476	N/A	No	200 ton/day	26 lb/day	Scrubbers
Beadex MFG Co., Inc.	Calcium Carbonate Dryer	CA	183480	18-Sep-89	Yes	406,000 lb/day	150 lb/day	Baghouse

(a) Indicates if emission unit subject to BACT was new construction (yes) or a modification (no).

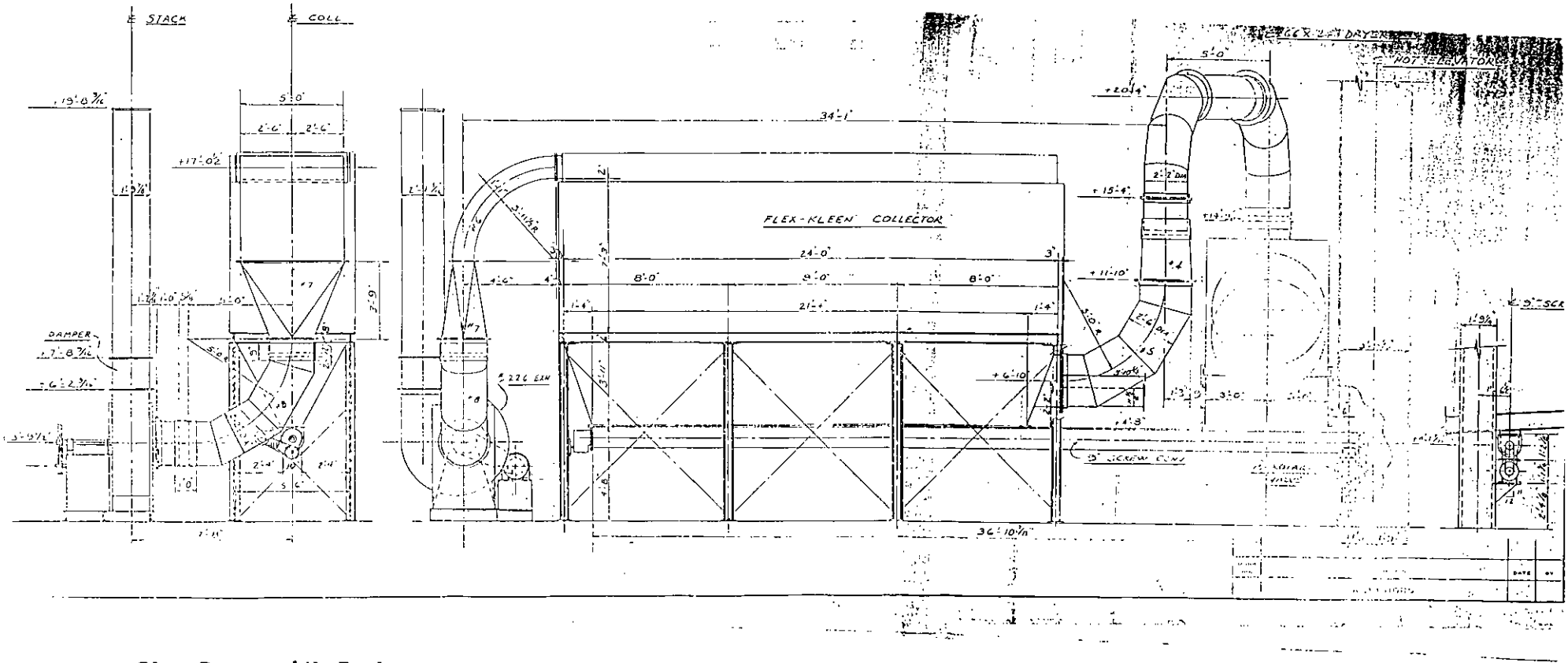
Source: BACT/RACT/LAER Clearinghouse Database, June 1995.

5.1.2 Materials Handling Operations

Tarmac will employ reasonable precautions to prevent fugitive emissions from the handling and storage of slag. These measures will include use of enclosures were feasible, and watering as needed to minimize fugitive dust emissions.

The existing materials handling system to be used for slag conveying and transfer are not being physically modified. Therefore, according to 40 CFR 52.21, BACT does not apply to these emission units.

APPENDIX



Slag Dryer with Baghouse

TARUNPAV
6/24/95

Table C1. Estimation of Emission Factors and Rates For Vehicle Traffic On Unpaved Roads For Slag Project

General Data	Pile Mainten. Front-end loader
Vehicle Data	
Description	Slag
Vehicle Speed (S), mph- Average	5
Vehicle weight (W), tons- Loaded	27
- Unloaded	9
- Average	18
Vehicle number of wheels (w)	4
Vehicle miles traveled (VMT) - Annual	15,000 [a]
General/ Site Characteristics	
Days of precipitation greater than or equal to 0.01 inch (p) - Annual	120
Silt content (s), %	4.8 [b]
Particle size multiplier, PM (k)	1.00
Particle size multiplier, PM10 (k)	0.35
Emission Control Data	
Emission control method	Watering
Emission control removal efficiency, %	50
Calculated PM Emission Factor (EF)	
Uncontrolled EF, lb/VMT - Annual	0.93
Controlled EF,lb/VMT- Annual	0.46
Calculated PM10 Emission Factor (EF)	
Uncontrolled EF, lb/VMT - Annual	0.32
Controlled EF,lb/VMT- Annual	0.16
Estimated Emission Rate (ER)	
PM Emissions (TPY)	3.47
PM10 Emissions (TPY)	1.21

Emission Factor (EF) Equations

Uncontrolled emission factor = UEF(lb/VMT) = k x 5.9 x (s/12) x (S/30) x $(W/3)^{0.7}$ x $(w/4)^{-5}$ x ((365 - p)/365)

COntrolled emission factor = Uncontrolled emission factor x (100 - Removal efficiency (%))

[a] Based on vehicle operating 3,000 hr/yr @ 5 mph.

[b] **Based on sand and gravel processing, AP-42, Table 11.2.1-1.**

Source: AP-42, Section 13.2.1, Unpaved Roads, July, 1994.

AP-42 SECTIONS

AP-42
Fourth Edition
September 1985

COMPILATION OF AIR POLLUTANT EMISSION FACTORS

Volume I: Stationary Point And Area Sources

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office Of Air And Radiation
Office Of Air Quality Planning And Standards
Research Triangle Park, North Carolina 27711

September 1985

11.2.1 UNPAVED ROADS

11.2.1.1 General

Dust plumes trailing behind vehicles traveling on unpaved roads are a familiar sight in rural areas of the United States. When a vehicle travels an unpaved road, the force of the wheels on the road surface causes pulverization of surface material. Particles are lifted and dropped from the rolling wheels, and the road surface is exposed to strong air currents in turbulent shear with the surface. The turbulent wake behind the vehicle continues to act on the road surface after the vehicle has passed.

11.2.1.2 Emissions Calculation And Correction Parameters

The quantity of dust emissions from a given segment of unpaved road varies linearly with the volume of traffic. Also, field investigations have shown that emissions depend on correction parameters (average vehicle speed, average vehicle weight, average number of wheels per vehicle, road surface texture and road surface moisture) that characterize the condition of a particular road and the associated vehicle traffic.[1-4]

Dust emissions from unpaved roads have been found to vary in direct proportion to the fraction of silt (particles smaller than 75 micrometers in diameter) in the road surface materials.[1] The silt fraction is determined by measuring the proportion of loose dry surface dust that passes a 200 mesh screen, using the ASTM-C-136 method. Table 11.2.1-1 summarizes measured silt values for industrial and rural unpaved roads.

The silt content of a rural dirt road will vary with location, and it should be measured. As a conservative approximation, the silt content of the parent soil in the area can be used. However, tests show that road silt content is normally lower than in the surrounding parent soil, because the fines are continually removed by the vehicle traffic, leaving a higher percentage of coarse particles.

Unpaved roads have a hard, generally nonporous surface that usually dries quickly after a rainfall. The temporary reduction in emissions caused by precipitation may be accounted for by not considering emissions on "wet" days (more than 0.254 millimeters [0.01 inches] of precipitation).

The following empirical expression may be used to estimate the quantity of size specific particulate emissions from an unpaved road, per vehicle kilometer traveled (VKT) or vehicle mile traveled (VMT), with a rating of A:

$$E = k(1.7)\left(\frac{s}{12}\right)\left(\frac{S}{48}\right)\left(\frac{W}{2.7}\right)^{0.7}\left(\frac{w}{4}\right)^{0.5}\left(\frac{365-p}{365}\right) \quad \text{(kg/VKT)}$$

$$E = k(5.9)\left(\frac{s}{12}\right)\left(\frac{S}{30}\right)\left(\frac{W}{3}\right)^{0.7}\left(\frac{w}{4}\right)^{0.5}\left(\frac{365-p}{365}\right) \quad \text{(lb/VMT)}$$

TABLE 11.2.1-1. TYPICAL SILT CONTENT VALUES OF SURFACE MATERIAL ON INDUSTRIAL AND RURAL UNPAVED ROADS[a]

Industry	Road use or surface material	Plant sites	Test samples	Silt (wgt. %) Range	Silt (wgt. %) Mean
Copper smelting	Plant road	1	3	15.9 - 19.1	17.0
Iron and steel production	Plant road	9	20	4.0 - 16.0	8.0
Sand and gravel processing	Plant road	1	3	4.1 - 6.0	4.8
Stone quarrying and processing	Plant road	1	5	10.5 - 15.6	14.1
Taconite mining and processing	Haul road	1	12	3.7 - 9.7	5.8
	Service road	1	8	2.4 - 7.1	4.3
Western surface coal mining	Access road	2	2	4.9 - 5.3	5.1
	Haul road	3	21	2.8 - 18	8.4
	Scraper road	3	10	7.2 - 25	17
	Haul road (freshly graded)	2	5	18 - 29	24
Rural roads	Gravel	1	1	NA	5.0
	Dirt	2	5	5.8 - 68	28.5
	Crushed limestone	2	8	7.7 - 13	9.6

[a]References 4-11. NA = Not available.

where: E = emission factor
k = particle size multiplier (dimensionless)
s = silt content of road surface material (%)
S = mean vehicle speed, km/hr (mph)
W = mean vehicle weight, Mg (ton)
w = mean number of wheels
p = number of days with at least 0.254 mm (0.01 in.) of precipitation per year

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

Aerodynamic Particle Size Multiplier For Equation

≤30 um[a]	≤30 um	≤15 um	≤10 um	≤5um	≤2.5 um
1.0	0.80	0.50	0.36	0.20	0.095

[a] Stokes diameter

The number of wet days per year, p, for the geographical area of interest should be determined from local climatic data. Figure 11.2.1-1 gives the geographical distribution of the mean annual number of wet days per year in the United States.

The equation retains the assigned quality rating, if applied within the ranges of source conditions that were tested in developing the equation, as follows:

Ranges Of Source Conditions For Equation

Road silt content (wgt. %)	Mean vehicle weight		Mean vehicle speed		mean no. of wheels
	Mg	ton	km/hr	mph	
4.3 - 20	2.7 - 142	3 - 157	21 - 64	13 - 40	4 - 13

Also, to retain the quality rating of the equation when addressing a specific unpaved road, it is necessary that reliable correction parameter values be determined for the road in question. The field and laboratory procedures for determining road surface silt content are given in Reference 4. In the event that site specific values for correction parameters cannot be obtained, the appropriate mean values from Table 11.2.1-1 may be used, but the quality rating of the equation is reduced to B.

The equation was developed for calculating annual average emissions, and thus, is to be multiplied by annual vehicle distance traveled (VDT). Annual average values for each of the correction parameters are to be substituted for the equation. Worst case emissions, corresponding to dry road conditions, may be calculated by setting p = 0 in the equation (equivalent to dropping the last

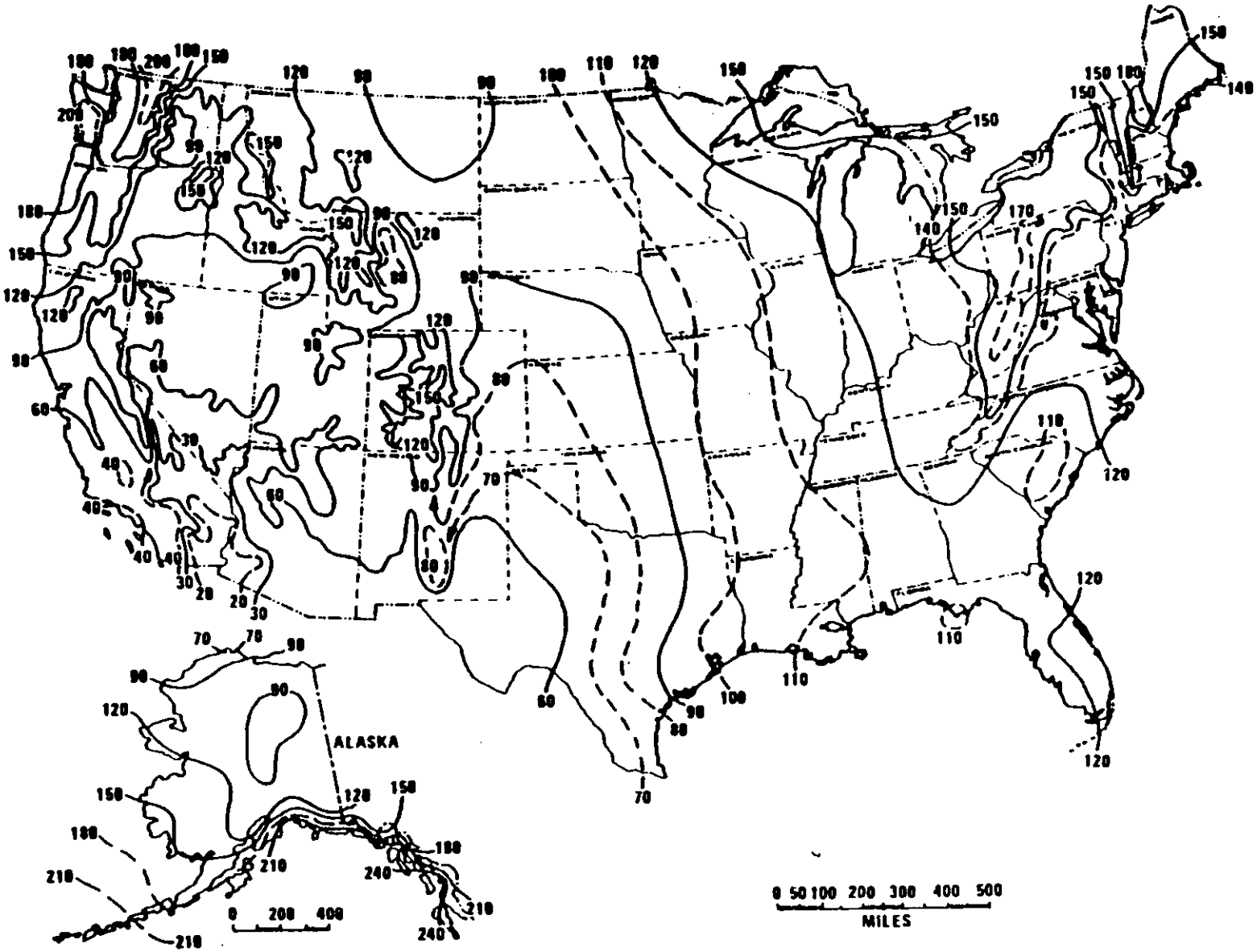


Figure 11.2.1-1. Mean number of days with 0.01 inch or more of precipitation in United States.[10]

term from the equation). A separate set of nonclimatic correction parameters and a higher than normal VDT value may also be justified for the worst case average period (usually 24 hours). Similarly, in using the equation to calculate emissions for a 91 day season of the year, replace the term (365-p)/365 with the term (91-p)/91, and set p equal to the number of wet days in the 91 day period. Also, use appropriate seasonal values for the nonclimatic correction parameters and for VDT.

11.2.1.3 Controls

Common control techniques for unpaved roads are paving, surface treating with penetration chemicals, working into the roadbed of stabilization chemicals, watering, and traffic control regulations. Chemical stabilizers work either by binding the surface material or by enhancing moisture retention. Paving, as a control technique, is often not economically practical. Surface chemical treatment and watering can be accomplished with moderate to low costs, but frequent retreatments are required. Traffic controls, such as speed limits and traffic volume restrictions, provide moderate emission reductions but may be difficult to enforce. The control efficiency obtained by speed reduction can be calculated using the predictive emission factor equation given above.

The control efficiencies achievable by paving can be estimated by comparing emission factors for unpaved and paved road conditions, relative to airborne particle size range of interest. The predictive emission factor equation for paved roads, given in Section 11.2.6, requires estimation of the silt loading on the traveled portion of the paved surface, which in turn depends on whether the pavement is periodically cleaned. Unless curbing is to be installed, the effects of vehicle excursion onto shoulders (berms) also must be taken into account in estimating control efficiency.

The control efficiencies afforded by the periodic use of road stabilization chemicals are much more difficult to estimate. The application parameters which determine control efficiency include dilution ratio, application intensity (mass of diluted chemical per road area) and application frequency. Other factors that affect the performance of chemical stabilizers include vehicle characteristics (e. g., traffic volume, average weight) and road characteristics (e. g., bearing strength).

Besides water, petroleum resin products have historically been the dust suppressants most widely used on industrial unpaved roads. Figure 11.2.1-2 presents a method to estimate <u>average</u> control efficiencies associated with petroleum resins applied to unpaved roads. Several items should be noted:

1. The term "ground inventory" represents the total volume (per unit area) of petroleum resin concentrate (<u>not solution</u>) applied since the start of the dust control season.

2. Because petroleum resin products must be periodically reapplied to unpaved roads, the use of a time-averaged control efficiency value is appropriate. Figure 11.2.1-2 presents control efficiency values averaged over two common application intervals, two weeks and one month. Other application intervals will require interpolation.

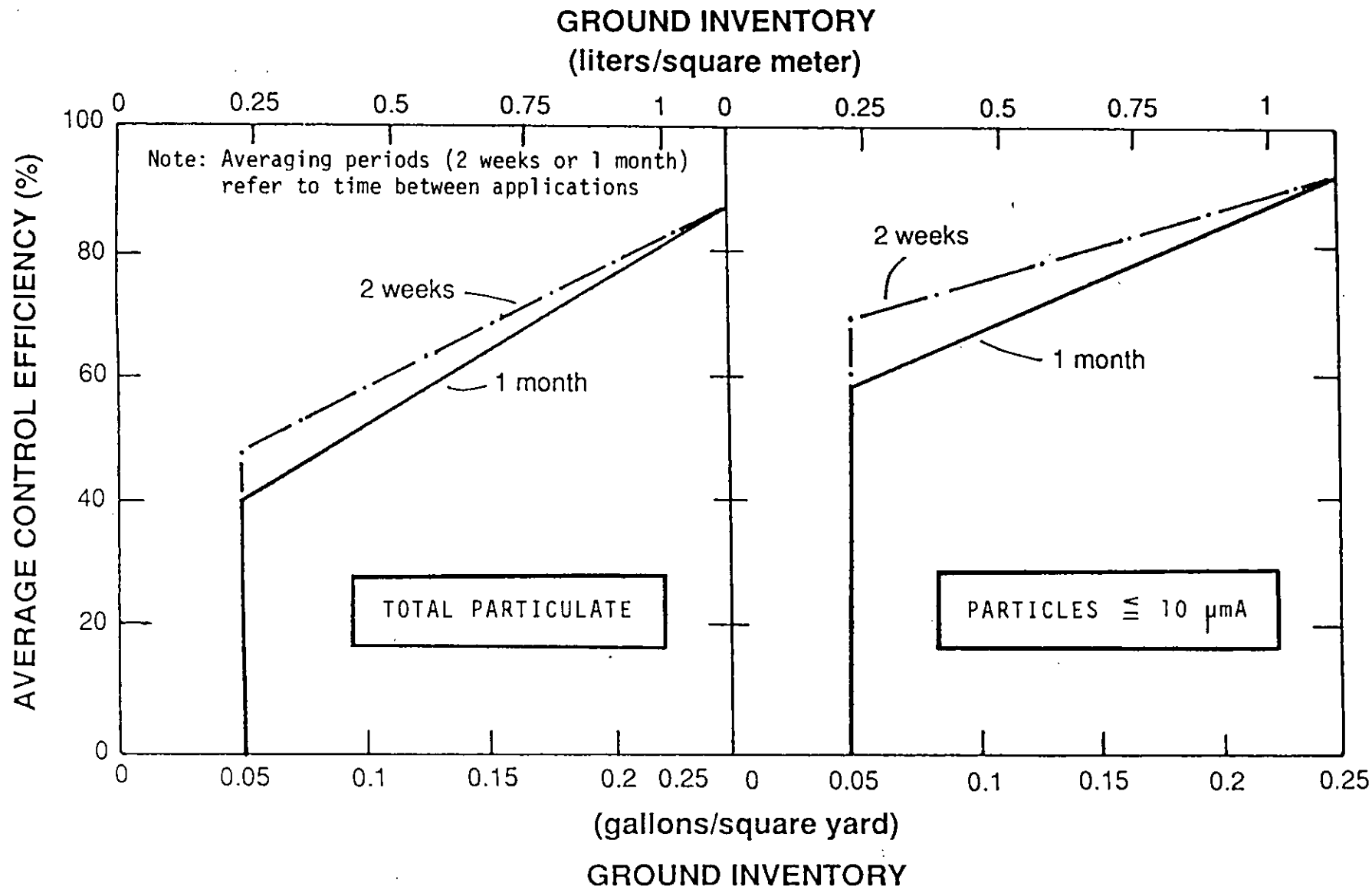


Figure 11.2.1-2. Average control efficiencies over common application intervals.

3. Note that zero efficiency is assigned until the ground inventory reaches 0.2 liters per square meter (0.05 gallons per square yard).

As an example of the use of Figure 11.2.1-2, suppose that the equation has been used to estimate an emission factor of 2.0 kilograms per vehicle kilometer traveled for particles equal to or less than 10 microns from a particular road. Also, suppose that, starting on May 1, the road is treated with 1 liter per square meter of a (1 part petroleum resin to 5 parts water) solution on the first of each month until October. Then, the following average controlled emission factors are found:

Period	Ground Inventory (L/m^2)	Average Control Efficiency[a] (%)	Average Controlled Emission Factor (kg/VKT)
May	0.17	0	2.0
June	0.33	62	0.76
July	0.50	68	0.64
August	0.67	74	0.52
September	0.83	80	0.40

[a]From Figure 11.2.1-2, $\leq$ 10 um. Zero efficiency assigned if ground inventory is less than 0.2 L/m^2 (0.05 gal/yd^2).

Newer dust suppressants have been successful in controlling emissions from unpaved roads. Specific test results for those chemicals, as well as for petroleum resins, are provided in References 14 through 16.

References for Section 11.2.1

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9. K. Axetell and C. Cowherd, Jr., Improved Emission Factors For Fugitive Dust From Western Surface Coal Mining Sources, 2 Volumes, EPA Contract No. 68-03-2924, PEI, Inc., Kansas City, MO, July 1981.

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11.2.3 AGGREGATE HANDLING AND STORAGE PILES

11.2.3.1 General

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

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

11.2.3.2 Emissions And Correction Parameters

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

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

Silt (particles equal to or less than 75 microns in diameter) content is determined by measuring the portion of dry aggregate material that passes through a 200 mesh screen, using ASTM-C-136 method. Table 11.2.3-1 summarizes measured silt and moisture values for industrial aggregate materials.

11.2.3.3 Predictive Emission Factor Equations

Total dust emissions from aggregate storage piles are contributions of several distinct source activities within the storage cycle:

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

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

TABLE 11.2.3-1. TYPICAL SILT AND MOISTURE CONTENT VALUES OF MATERIALS AT VARIOUS INDUSTRIES

Industry	Material	Silt (%)			Moisture (%)		
		No. of test samplers	Range	Mean	No. of test samplers	Range	Mean
Iron and steel production[a]	Pellet ore	10	1.4 - 13	4.9	8	0.64 - 3.5	2.1
	Lump ore	9	2.8 - 19	9.5	6	1.6 - 8.1	5.4
	Coal	7	2 - 7.7	5	6	2.8 - 11	4.8
	Slag	3	3 - 7.3	5.3	3	0.25 - 2.2	0.92
	Flue dust	2	14 - 23	18.0	0	NA	NA
	Coke breeze	1		5.4	1		6.4
	Blended ore	1		15.0	1		6.6
	Sinter	1		0.7	0	NA	NA
	Limestone	1		0.4	0	NA	NA
Stone quarrying and processing[b]	Crushed limestone	2	1.3 - 1.9	1.6	2	0.3 - 1.1	0.7
Taconite mining and processing[c]	Pellets	9	2.2 - 5.4	3.4	7	0.05 - 2.3	0.9
	Tailings	2	NA	11.0	1		0.35
Western surface coal mining[d]	Coal	15	3.4 - 16	6.2	7	2.8 - 20	6.9
	Overburden	15	3.8 - 15	7.5	0	NA	NA
	Exposed ground	3	5.1 - 21	15.0	3	0.8 - 6.4	3.4
Coal fired power generation[e]	Coal	60	0.6 - 4.8	2.2	59	2.7 - 7.4	4.5

[a] References 2-5. NA = not applicable.
[b] Reference 1.
[c] Reference 6.
[d] Reference 7.
[e] Reference 8. Values reflect "as received" conditions of a single power plant.

The quantity of particulate emissions generated by either type of drop operation, per ton of material transferred, may be estimated, with a rating of A, using the following empirical expression[2]:

$$E = k(0.0016)\ \frac{\left(\frac{U}{2.2}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}}\ (kg/Mg)$$

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

where: E = emission factor
k = particle size multiplier (dimensionless)
U = mean wind speed, m/s (mph)
M = material moisture content (%)

The particle size multiplier, k, varies with aerodynamic particle diameter, as shown in Table 11.2.3-2.

TABLE 11.2.3-2. AERODYNAMIC PARTICLE SIZE MULTIPLIER (k)

<30 um	<15 um	<10 um	<5 um	<2.5 um
0.74	0.48	0.35	0.20	0.11

The equation retains the assigned quality rating if applied within the ranges of source conditions that were tested in developing the equation, as given in Table 11.2.3-3. Note that silt content is included in Table 11.2.3-3, even though silt content does not appear as a correction parameter in the equation. While it is reasonable to expect that silt content and emission factors are interrelated, no significant correlation between the two was found during the derivation of the equation, probably because most tests with high silt contents were conducted under lower winds, and vice versa. It is recommended that estimates from the equation be reduced one quality rating level, if the silt content used in a particular application falls outside the range given in Table 11.2.3-3.

TABLE 11.2.3-3. RANGES OF SOURCE CONDITIONS FOR EQUATION 1

Silt Content	Moisture Content	Wind Speed (m/s)	Wind Speed (mph)
0.44 - 19	0.25 - 4.8	0.6 - 6.7	1.3 - 15

Also, to retain the equation's quality rating when applied to a specific facility, it is necessary that reliable correction parameters be determined for the specific sources of interest. The field and laboratory procedures for aggregate sampling are given in Reference 3. In the event that site specific values for correction parameters cannot be obtained, the appropriate mean values from Table 11.2.3-1 may be used, but, in that case, the quality rating of the equation is reduced by one level.

For emissions from equipment traffic (trucks, front end loaders, dozers, etc.) traveling between or on piles, it is recommended that the equations for vehicle traffic on unpaved surfaces be used (see Section 11.2.1). For vehicle travel between storage piles, the silt value(s) for the areas among the piles (which may differ from the silt values for the stored materials) should be used.

Worst case emissions from storage pile areas occur under dry windy conditions. Worst case emissions from materials handling operations may be calculated by substituting into the equation appropriate values for aggregate material moisture content and for anticipated wind speeds during the worst case averaging period, usually 24 hours. The treatment of dry conditions for vehicle traffic (Section 11.2.1), centering on parameter p, follows the methodology described in Section 11.2.1. Also, a separate set of nonclimatic correction parameters and source extent values corresponding to higher than normal storage pile activity may be justified for the worst case averaging period.

11.2.3.4 Controls

Watering and chemical wetting agents are the principal means for control of aggregate storage pile emissions. Enclosure or covering of inactive piles to reduce wind erosion can also reduce emissions. Watering is useful mainly to reduce emissions from vehicle traffic in the storage pile area. Watering of the storage piles themselves typically has only a very temporary slight effect on total emissions. A much more effective technique is to apply chemical wetting agents for better wetting of fines and longer retention of the moisture film. Continuous chemical treatment of material loaded onto piles, coupled with watering or treatment of roadways, can reduce total particulate emissions from aggregate storage operations by up to 90 percent.[9]

References for Section 11.2.3

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CONTROL EFFICIENCY REFERENCES

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(DE85010939)

Energy

FOSSIL

TECHNICAL GUIDE FOR ESTIMATING FUGITIVE DUST IMPACTS FROM COAL HANDLING OPERATIONS

By
George C. Howroyd

September 1984

Work Performed Under Contract No. AC01-80RG10312

Dames & Moore
Atlanta, Georgia

Technical Information Center
Office of Scientific and Technical Information
United States Department of Energy

TABLE 4-9

ESTIMATED DUST CONTROL EFFICIENCIES FOR FUGITIVE DUST EMISSIONS FROM LIMESTONE HANDLING AND STORAGE OPERATIONS

Activity		Control Method	Estimated Control Efficiencies (%)	References
A. Load-In		- water sprays	75	Bohn, et al. (1978)
			40	EPA (1977b)
		- chemicals	<99	EPA (1977b)
			80-90	Jutze, et al. (1977)
	*	- enclosure	70-90	Jutze, et al. (1977)
		- enclosure with chemical wetting	95	Davis, et al. (1981)
	*	- partial enclosure with telescopic chute	90	TRW (1982)
		- wind guards	50	Bohn, et al. (1978)
		- stone ladder	80	Bohn, et al. (1978)
		- telescopic chutes	75	Bohn, et al. (1978) Jutze, et al. (1977)
		- stacker spreader	25	Bohn, et al. (1978)
		- micron-sized foam spray	99	Cole & Ayers (1983)
		- micron-droplet spray	90	Kretch (1983)
B. Pile Traffic & Maintenance		- carryover of water/chemical from load-in	60	Davis, et al. (1981)
C. Wind Erosion		- water sprays	50	Bohn, et al. (1978)
		- chemical	70	Bohn, et al. (1978)
		- water/chemical carryover from load-in	80	Davis, et al. (1978)
		- wind breaks/fences	30	Bohn, et al. (1978)
		- vegetative cover	70	Bohn, et al. (1978)
		- partial enclosure - active pile	70	TRW (1982)

TABLE 4-9 (Continued)

Activity		Control Method	Estimated Control Efficiencies (%)	References
D. Load-Out		- water sprays	40	EPA (1977b)
		- chemicals	<99	EPA (1977b)
	*	- water sprays	80	Bohn, et al. (1978)
			50	Jutze, et al. (1977)
		- enclosure with bag filter	99	Bohn, et al. (1978), TRW (1982)
		- enclosure with chemical wetting	99	Davis, et al. (1981)
		- telescopic chute with dust suppressant carryover from storage pile	75	Davis, et al. (1981)
		- stacker/reclaimer	40	Jutze et al. (1977)
	*	- under-pile conveyor	80	Jutze et al. (1977)
		- micron-sized foam spray	99	Cole & Ayers (1983)
		- micron droplet spray	90	Kretch (1983)

WIND EROSION CALCULATIONS

WIND EROSION FROM SLAG PILE

Spreadsheet as of 09:29:27 on 06-27-1995

Input Filename: tslag1.epc
Inventory area: Tarmac Slag Pile 1
Source ID: Tslag1 Filename: A:\Tslag1.EPC

Emissions estimate year: 1995
Based on wind data year: 1990
Fastest mile filename: miami90.met
System of units: English
Source life (inclusive days of year)
Start day: 1
End day: 346 2nd Day set equal to last day in fastest mile of wind file!
F=flat area, PC=conical pile, PO=oval pile: PC
Pile height (ft) :20
Pile diameter (ft) :70
Area (sq ft): 4430.211
Material description: Slag
Percent moisture content: 6
Percent silt content: 5
Threshold friction velocity, U*t, (cm/sec): 102
Roughness height (cm): 0.1
Mode (mm) of size distribution 2.844418# (# denotes calculated value)
Lc value (cf. Fig. 6-3 of reference manual):

Frequency of disturbance information :
Us/Ur = .9 -- subarea # 1 -- 50 % of regime disturbed every 1 day(s)
Us/Ur = .9 -- subarea # 2 -- 50 % of regime disturbed every 1 day(s)
Us/Ur = .6 -- subarea # 1 -- 50 % of regime disturbed every 1 day(s)
Us/Ur = .6 -- subarea # 2 -- 50 % of regime disturbed every 1 day(s)
Us/Ur = .2 -- subarea # 1 -- 50 % of regime disturbed every 1 day(s)
Us/Ur = .2 -- subarea # 2 -- 50 % of regime disturbed every 1 day(s)

Total emissions emitted over the period: 12388.81 g

Threshold velocity = 102 cm/s
Control: Effective windspeed ratio = 1

Us/Ur = .9 Disturbance interval = 1 days

Period 25 - 26 high on 26 1.062787 m/s 14.51838 g emitted
Period 26 - 27 high on 26 1.062787 m/s 14.51838 g emitted
Period 41 - 42 high on 42 1.062787 m/s 14.51838 g emitted
Period 42 - 43 high on 42 1.062787 m/s 14.51838 g emitted
Period 45 - 46 high on 46 1.062787 m/s 14.51838 g emitted
Period 46 - 47 high on 46 1.062787 m/s 14.51838 g emitted
Period 52 - 53 high on 53 1.232833 m/s 98.1353 g emitted
Period 53 - 54 high on 53 1.232833 m/s 98.1353 g emitted
Period 56 - 57 high on 57 1.232833 m/s 98.1353 g emitted
Period 57 - 58 high on 57 1.232833 m/s 98.1353 g emitted
Period 58 - 59 high on 58 1.190322 m/s 73.34848 g emitted
Period 61 - 62 high on 62 1.020276 m/s 8.516572E-02 g emitted
Period 62 - 63 high on 62 1.020276 m/s 8.516572E-02 g emitted

Period 65 - 66 high on 66 1.190322 m/s 73.34848 g emitted
Period 66 - 67 high on 66 1.190322 m/s 73.34848 g emitted
Period 74 - 75 high on 75 1.062787 m/s 14.51838 g emitted
Period 75 - 76 high on 75 1.062787 m/s 14.51838 g emitted
Period 80 - 81 high on 81 1.020276 m/s 8.516572E-02 g emitted
Period 81 - 82 high on 81 1.020276 m/s 8.516572E-02 g emitted
Period 88 - 89 high on 89 1.105299 m/s 31.53999 g emitted
Period 89 - 90 high on 89 1.105299 m/s 31.53999 g emitted
Period 92 - 93 high on 93 1.190322 m/s 73.34848 g emitted
Period 93 - 94 high on 93 1.190322 m/s 73.34848 g emitted
Period 104 - 105 high on 105 1.105299 m/s 31.53999 g emitted
Period 105 - 106 high on 105 1.105299 m/s 31.53999 g emitted
Period 108 - 109 high on 109 1.062787 m/s 14.51838 g emitted
Period 109 - 110 high on 109 1.062787 m/s 14.51838 g emitted
Period 143 - 144 high on 144 1.020276 m/s 8.516572E-02 g emitted
Period 144 - 145 high on 144 1.020276 m/s 8.516572E-02 g emitted
Period 145 - 146 high on 146 1.190322 m/s 73.34848 g emitted
Period 146 - 147 high on 146 1.190322 m/s 73.34848 g emitted
Period 147 - 148 high on 147 1.105299 m/s 31.53999 g emitted
Period 151 - 152 high on 152 1.827994 m/s 716.9332 g emitted
Period 152 - 153 high on 152 1.827994 m/s 716.9332 g emitted
Period 159 - 160 high on 160 1.020276 m/s 8.516572E-02 g emitted
Period 160 - 161 high on 160 1.020276 m/s 8.516572E-02 g emitted
Period 161 - 162 high on 162 1.105299 m/s 31.53999 g emitted
Period 162 - 163 high on 162 1.105299 m/s 31.53999 g emitted
Period 179 - 180 high on 180 1.062787 m/s 14.51838 g emitted
Period 180 - 181 high on 180 1.062787 m/s 14.51838 g emitted
Period 189 - 190 high on 190 1.062787 m/s 14.51838 g emitted
Period 190 - 191 high on 190 1.062787 m/s 14.51838 g emitted
Period 192 - 193 high on 193 1.062787 m/s 14.51838 g emitted
Period 193 - 194 high on 193 1.062787 m/s 14.51838 g emitted
Period 198 - 199 high on 199 1.232833 m/s 98.1353 g emitted
Period 199 - 200 high on 199 1.232833 m/s 98.1353 g emitted
Period 204 - 205 high on 205 1.487902 m/s 301.2126 g emitted
Period 205 - 206 high on 205 1.487902 m/s 301.2126 g emitted
Period 250 - 251 high on 251 1.487902 m/s 301.2126 g emitted
Period 251 - 252 high on 252 1.572925 m/s 389.6124 g emitted
Period 252 - 253 high on 252 1.572925 m/s 389.6124 g emitted
Period 273 - 274 high on 274 1.062787 m/s 14.51838 g emitted
Period 274 - 275 high on 274 1.062787 m/s 14.51838 g emitted
Period 281 - 282 high on 282 1.360368 m/s 188.0262 g emitted
Period 282 - 283 high on 282 1.360368 m/s 188.0262 g emitted
Period 283 - 284 high on 283 1.190322 m/s 73.34848 g emitted
Period 302 - 303 high on 303 1.275344 m/s 125.5104 g emitted
Period 303 - 304 high on 303 1.275344 m/s 125.5104 g emitted
Period 305 - 306 high on 306 1.020276 m/s 8.516572E-02 g emitted
Period 306 - 307 high on 306 1.020276 m/s 8.516572E-02 g emitted

Summary for Us/Ur = .9 Disturbance Interval = 1
5402.364 Total g emitted over 1 - 346

Us/Ur = .9 Disturbance interval = 1 days

Period 25 - 26 high on 26 1.062787 m/s 14.51838 g emitted
Period 26 - 27 high on 26 1.062787 m/s 14.51838 g emitted
Period 41 - 42 high on 42 1.062787 m/s 14.51838 g emitted
Period 42 - 43 high on 42 1.062787 m/s 14.51838 g emitted
Period 45 - 46 high on 46 1.062787 m/s 14.51838 g emitted
Period 46 - 47 high on 46 1.062787 m/s 14.51838 g emitted
Period 52 - 53 high on 53 1.232833 m/s 98.1353 g emitted

Period 53 - 54 high on 53 1.232833 m/s 98.1353 g emitted
Period 56 - 57 high on 57 1.232833 m/s 98.1353 g emitted
Period 57 - 58 high on 57 1.232833 m/s 98.1353 g emitted
Period 58 - 59 high on 58 1.190322 m/s 73.34848 g emitted
Period 61 - 62 high on 62 1.020276 m/s 8.516572E-02 g emitted
Period 62 - 63 high on 62 1.020276 m/s 8.516572E-02 g emitted
Period 65 - 66 high on 66 1.190322 m/s 73.34848 g emitted
Period 66 - 67 high on 66 1.190322 m/s 73.34848 g emitted
Period 74 - 75 high on 75 1.062787 m/s 14.51838 g emitted
Period 75 - 76 high on 75 1.062787 m/s 14.51838 g emitted
Period 80 - 81 high on 81 1.020276 m/s 8.516572E-02 g emitted
Period 81 - 82 high on 81 1.020276 m/s 8.516572E-02 g emitted
Period 88 - 89 high on 89 1.105299 m/s 31.53999 g emitted
Period 89 - 90 high on 89 1.105299 m/s 31.53999 g emitted
Period 92 - 93 high on 93 1.190322 m/s 73.34848 g emitted
Period 93 - 94 high on 93 1.190322 m/s 73.34848 g emitted
Period 104 - 105 high on 105 1.105299 m/s 31.53999 g emitted
Period 105 - 106 high on 105 1.105299 m/s 31.53999 g emitted
Period 108 - 109 high on 109 1.062787 m/s 14.51838 g emitted
Period 109 - 110 high on 109 1.062787 m/s 14.51838 g emitted
Period 143 - 144 high on 144 1.020276 m/s 8.516572E-02 g emitted
Period 144 - 145 high on 144 1.020276 m/s 8.516572E-02 g emitted
Period 145 - 146 high on 146 1.190322 m/s 73.34848 g emitted
Period 146 - 147 high on 146 1.190322 m/s 73.34848 g emitted
Period 147 - 148 high on 147 1.105299 m/s 31.53999 g emitted
Period 151 - 152 high on 152 1.827994 m/s 716.9332 g emitted
Period 152 - 153 high on 152 1.827994 m/s 716.9332 g emitted
Period 159 - 160 high on 160 1.020276 m/s 8.516572E-02 g emitted
Period 160 - 161 high on 160 1.020276 m/s 8.516572E-02 g emitted
Period 161 - 162 high on 162 1.105299 m/s 31.53999 g emitted
Period 162 - 163 high on 162 1.105299 m/s 31.53999 g emitted
Period 179 - 180 high on 180 1.062787 m/s 14.51838 g emitted
Period 180 - 181 high on 180 1.062787 m/s 14.51838 g emitted
Period 189 - 190 high on 190 1.062787 m/s 14.51838 g emitted
Period 190 - 191 high on 190 1.062787 m/s 14.51838 g emitted
Period 192 - 193 high on 193 1.062787 m/s 14.51838 g emitted
Period 193 - 194 high on 193 1.062787 m/s 14.51838 g emitted
Period 198 - 199 high on 199 1.232833 m/s 98.1353 g emitted
Period 199 - 200 high on 199 1.232833 m/s 98.1353 g emitted
Period 204 - 205 high on 205 1.487902 m/s 301.2126 g emitted
Period 205 - 206 high on 205 1.487902 m/s 301.2126 g emitted
Period 250 - 251 high on 251 1.487902 m/s 301.2126 g emitted
Period 251 - 252 high on 252 1.572925 m/s 389.6124 g emitted
Period 252 - 253 high on 252 1.572925 m/s 389.6124 g emitted
Period 273 - 274 high on 274 1.062787 m/s 14.51838 g emitted
Period 274 - 275 high on 274 1.062787 m/s 14.51838 g emitted
Period 281 - 282 high on 282 1.360368 m/s 188.0262 g emitted
Period 282 - 283 high on 282 1.360368 m/s 188.0262 g emitted
Period 283 - 284 high on 283 1.190322 m/s 73.34848 g emitted
Period 302 - 303 high on 303 1.275344 m/s 125.5104 g emitted
Period 303 - 304 high on 303 1.275344 m/s 125.5104 g emitted
Period 305 - 306 high on 306 1.020276 m/s 8.516572E-02 g emitted
Period 306 - 307 high on 306 1.020276 m/s 8.516572E-02 g emitted

Summary for Us/Ur = .9 Disturbance Interval = 1
5402.364 Total g emitted over 1 - 346

Us/Ur = .6 Disturbance interval = 1 days

Period 151 - 152 high on 152 1.218663 m/s 358.3416 g emitted

```
Period  152 - 153  high on  152   1.218663  m/s  358.3416  g emitted
Period  251 - 252  high on  252   1.048617  m/s  37.67894  g emitted
Period  252 - 253  high on  252   1.048617  m/s  37.67894  g emitted

Summary for Us/Ur =  .6      Disturbance Interval =  1
 792.0411  Total g emitted over  1  -  346
---------------------------------------------------------------
Us/Ur =  .6    Disturbance interval = 1  days

Period  151 - 152  high on  152   1.218663  m/s  358.3416  g emitted
Period  152 - 153  high on  152   1.218663  m/s  358.3416  g emitted
Period  251 - 252  high on  252   1.048617  m/s  37.67894  g emitted
Period  252 - 253  high on  252   1.048617  m/s  37.67894  g emitted

Summary for Us/Ur =  .6      Disturbance Interval =  1
 792.0411  Total g emitted over  1  -  346
---------------------------------------------------------------
Us/Ur =  .2    Disturbance interval = 1  days


Summary for Us/Ur =  .2      Disturbance Interval =  1
 0  Total g emitted over  1  -  346
---------------------------------------------------------------
Us/Ur =  .2    Disturbance interval = 1  days


Summary for Us/Ur =  .2      Disturbance Interval =  1
 0  Total g emitted over  1  -  346
---------------------------------------------------------------
Summary for entire source:  12388.81   g emitted over period  1  -  346
NOTE: For a variety of reasons given in the user manual, the erosion estimates
      presented above may be considered as CONSERVATIVELY HIGH.  See the
      user manual for more information.
```

WIND EROSION FROM DRY SLAG PILE

Spreadsheet as of 09:49:12 on 06-27-1995

Input Filename: tslag2.epc
Inventory area: Tarmac Slag Pile 2
Source ID: tslag2 Filename: A:\tslag2.EPC

Emissions estimate year: 1995
Based on wind data year: 1990
Fastest mile filename: miami90.met
System of units: English
Source life (inclusive days of year)
Start day: 1
End day: 346 2nd Day set equal to last day in fastest mile of wind file!
F=flat area, PC=conical pile, PO=oval pile: PC
Pile height (ft) :20
Pile diameter (ft) :70
Area (sq ft): 4430.211
Material description: Slag
Percent moisture content: 3
Percent silt content: 5
Threshold friction velocity, U*t, (cm/sec): 102
Roughness height (cm): 0.1
Mode (mm) of size distribution 2.844418# (# denotes calculated value)
Lc value (cf. Fig. 6-3 of reference manual):

Frequency of disturbance information :
Us/Ur = .9 -- subarea # 1 -- 50 % of regime disturbed every 1 day(s)
Us/Ur = .9 -- subarea # 2 -- 50 % of regime disturbed every 1 day(s)
Us/Ur = .6 -- subarea # 1 -- 50 % of regime disturbed every 1 day(s)
Us/Ur = .6 -- subarea # 2 -- 50 % of regime disturbed every 1 day(s)
Us/Ur = .2 -- subarea # 1 -- 50 % of regime disturbed every 1 day(s)
Us/Ur = .2 -- subarea # 2 -- 50 % of regime disturbed every 1 day(s)

Total emissions emitted over the period: 12388.81 g

Threshold velocity = 102 cm/s
Control: Effective windspeed ratio = 1

Us/Ur = .9 Disturbance interval = 1 days

Period 25 - 26 high on 26 1.062787 m/s 14.51838 g emitted
Period 26 - 27 high on 26 1.062787 m/s 14.51838 g emitted
Period 41 - 42 high on 42 1.062787 m/s 14.51838 g emitted
Period 42 - 43 high on 42 1.062787 m/s 14.51838 g emitted
Period 45 - 46 high on 46 1.062787 m/s 14.51838 g emitted
Period 46 - 47 high on 46 1.062787 m/s 14.51838 g emitted
Period 52 - 53 high on 53 1.232833 m/s 98.1353 g emitted
Period 53 - 54 high on 53 1.232833 m/s 98.1353 g emitted
Period 56 - 57 high on 57 1.232833 m/s 98.1353 g emitted
Period 57 - 58 high on 57 1.232833 m/s 98.1353 g emitted
Period 58 - 59 high on 58 1.190322 m/s 73.34848 g emitted
Period 61 - 62 high on 62 1.020276 m/s 8.516572E-02 g emitted
Period 62 - 63 high on 62 1.020276 m/s 8.516572E-02 g emitted

```
Period  65 - 66  high on  66   1.190322  m/s  73.34848  g emitted
Period  66 - 67  high on  66   1.190322  m/s  73.34848  g emitted
Period  74 - 75  high on  75   1.062787  m/s  14.51838  g emitted
Period  75 - 76  high on  75   1.062787  m/s  14.51838  g emitted
Period  80 - 81  high on  81   1.020276  m/s  8.516572E-02  g emitted
Period  81 - 82  high on  81   1.020276  m/s  8.516572E-02  g emitted
Period  88 - 89  high on  89   1.105299  m/s  31.53999  g emitted
Period  89 - 90  high on  89   1.105299  m/s  31.53999  g emitted
Period  92 - 93  high on  93   1.190322  m/s  73.34848  g emitted
Period  93 - 94  high on  93   1.190322  m/s  73.34848  g emitted
Period  104 - 105  high on  105   1.105299  m/s  31.53999  g emitted
Period  105 - 106  high on  105   1.105299  m/s  31.53999  g emitted
Period  108 - 109  high on  109   1.062787  m/s  14.51838  g emitted
Period  109 - 110  high on  109   1.062787  m/s  14.51838  g emitted
Period  143 - 144  high on  144   1.020276  m/s  8.516572E-02  g emitted
Period  144 - 145  high on  144   1.020276  m/s  8.516572E-02  g emitted
Period  145 - 146  high on  146   1.190322  m/s  73.34848  g emitted
Period  146 - 147  high on  146   1.190322  m/s  73.34848  g emitted
Period  147 - 148  high on  147   1.105299  m/s  31.53999  g emitted
Period  151 - 152  high on  152   1.827994  m/s  716.9332  g emitted
Period  152 - 153  high on  152   1.827994  m/s  716.9332  g emitted
Period  159 - 160  high on  160   1.020276  m/s  8.516572E-02  g emitted
Period  160 - 161  high on  160   1.020276  m/s  8.516572E-02  g emitted
Period  161 - 162  high on  162   1.105299  m/s  31.53999  g emitted
Period  162 - 163  high on  162   1.105299  m/s  31.53999  g emitted
Period  179 - 180  high on  180   1.062787  m/s  14.51838  g emitted
Period  180 - 181  high on  180   1.062787  m/s  14.51838  g emitted
Period  189 - 190  high on  190   1.062787  m/s  14.51838  g emitted
Period  190 - 191  high on  190   1.062787  m/s  14.51838  g emitted
Period  192 - 193  high on  193   1.062787  m/s  14.51838  g emitted
Period  193 - 194  high on  193   1.062787  m/s  14.51838  g emitted
Period  198 - 199  high on  199   1.232833  m/s  98.1353  g emitted
Period  199 - 200  high on  199   1.232833  m/s  98.1353  g emitted
Period  204 - 205  high on  205   1.487902  m/s  301.2126  g emitted
Period  205 - 206  high on  205   1.487902  m/s  301.2126  g emitted
Period  250 - 251  high on  251   1.487902  m/s  301.2126  g emitted
Period  251 - 252  high on  252   1.572925  m/s  389.6124  g emitted
Period  252 - 253  high on  252   1.572925  m/s  389.6124  g emitted
Period  273 - 274  high on  274   1.062787  m/s  14.51838  g emitted
Period  274 - 275  high on  274   1.062787  m/s  14.51838  g emitted
Period  281 - 282  high on  282   1.360368  m/s  188.0262  g emitted
Period  282 - 283  high on  282   1.360368  m/s  188.0262  g emitted
Period  283 - 284  high on  283   1.190322  m/s  73.34848  g emitted
Period  302 - 303  high on  303   1.275344  m/s  125.5104  g emitted
Period  303 - 304  high on  303   1.275344  m/s  125.5104  g emitted
Period  305 - 306  high on  306   1.020276  m/s  8.516572E-02  g emitted
Period  306 - 307  high on  306   1.020276  m/s  8.516572E-02  g emitted

Summary for Us/Ur =  .9      Disturbance Interval =  1
 5402.364  Total g emitted over  1  -  346
------------------------------------------------------------------
Us/Ur =  .9    Disturbance interval = 1  days

Period  25 - 26  high on  26   1.062787  m/s  14.51838  g emitted
Period  26 - 27  high on  26   1.062787  m/s  14.51838  g emitted
Period  41 - 42  high on  42   1.062787  m/s  14.51838  g emitted
Period  42 - 43  high on  42   1.062787  m/s  14.51838  g emitted
Period  45 - 46  high on  46   1.062787  m/s  14.51838  g emitted
Period  46 - 47  high on  46   1.062787  m/s  14.51838  g emitted
Period  52 - 53  high on  53   1.232833  m/s  98.1353  g emitted
```

```
Period  53 - 54  high on  53   1.232833  m/s  98.1353  g emitted
Period  56 - 57  high on  57   1.232833  m/s  98.1353  g emitted
Period  57 - 58  high on  57   1.232833  m/s  98.1353  g emitted
Period  58 - 59  high on  58   1.190322  m/s  73.34848  g emitted
Period  61 - 62  high on  62   1.020276  m/s  8.516572E-02  g emitted
Period  62 - 63  high on  62   1.020276  m/s  8.516572E-02  g emitted
Period  65 - 66  high on  66   1.190322  m/s  73.34848  g emitted
Period  66 - 67  high on  66   1.190322  m/s  73.34848  g emitted
Period  74 - 75  high on  75   1.062787  m/s  14.51838  g emitted
Period  75 - 76  high on  75   1.062787  m/s  14.51838  g emitted
Period  80 - 81  high on  81   1.020276  m/s  8.516572E-02  g emitted
Period  81 - 82  high on  81   1.020276  m/s  8.516572E-02  g emitted
Period  88 - 89  high on  89   1.105299  m/s  31.53999  g emitted
Period  89 - 90  high on  89   1.105299  m/s  31.53999  g emitted
Period  92 - 93  high on  93   1.190322  m/s  73.34848  g emitted
Period  93 - 94  high on  93   1.190322  m/s  73.34848  g emitted
Period  104 - 105  high on  105   1.105299  m/s  31.53999  g emitted
Period  105 - 106  high on  105   1.105299  m/s  31.53999  g emitted
Period  108 - 109  high on  109   1.062787  m/s  14.51838  g emitted
Period  109 - 110  high on  109   1.062787  m/s  14.51838  g emitted
Period  143 - 144  high on  144   1.020276  m/s  8.516572E-02  g emitted
Period  144 - 145  high on  144   1.020276  m/s  8.516572E-02  g emitted
Period  145 - 146  high on  146   1.190322  m/s  73.34848  g emitted
Period  146 - 147  high on  146   1.190322  m/s  73.34848  g emitted
Period  147 - 148  high on  147   1.105299  m/s  31.53999  g emitted
Period  151 - 152  high on  152   1.827994  m/s  716.9332  g emitted
Period  152 - 153  high on  152   1.827994  m/s  716.9332  g emitted
Period  159 - 160  high on  160   1.020276  m/s  8.516572E-02  g emitted
Period  160 - 161  high on  160   1.020276  m/s  8.516572E-02  g emitted
Period  161 - 162  high on  162   1.105299  m/s  31.53999  g emitted
Period  162 - 163  high on  162   1.105299  m/s  31.53999  g emitted
Period  179 - 180  high on  180   1.062787  m/s  14.51838  g emitted
Period  180 - 181  high on  180   1.062787  m/s  14.51838  g emitted
Period  189 - 190  high on  190   1.062787  m/s  14.51838  g emitted
Period  190 - 191  high on  190   1.062787  m/s  14.51838  g emitted
Period  192 - 193  high on  193   1.062787  m/s  14.51838  g emitted
Period  193 - 194  high on  193   1.062787  m/s  14.51838  g emitted
Period  198 - 199  high on  199   1.232833  m/s  98.1353  g emitted
Period  199 - 200  high on  199   1.232833  m/s  98.1353  g emitted
Period  204 - 205  high on  205   1.487902  m/s  301.2126  g emitted
Period  205 - 206  high on  205   1.487902  m/s  301.2126  g emitted
Period  250 - 251  high on  251   1.487902  m/s  301.2126  g emitted
Period  251 - 252  high on  252   1.572925  m/s  389.6124  g emitted
Period  252 - 253  high on  252   1.572925  m/s  389.6124  g emitted
Period  273 - 274  high on  274   1.062787  m/s  14.51838  g emitted
Period  274 - 275  high on  274   1.062787  m/s  14.51838  g emitted
Period  281 - 282  high on  282   1.360368  m/s  188.0262  g emitted
Period  282 - 283  high on  282   1.360368  m/s  188.0262  g emitted
Period  283 - 284  high on  283   1.190322  m/s  73.34848  g emitted
Period  302 - 303  high on  303   1.275344  m/s  125.5104  g emitted
Period  303 - 304  high on  303   1.275344  m/s  125.5104  g emitted
Period  305 - 306  high on  306   1.020276  m/s  8.516572E-02  g emitted
Period  306 - 307  high on  306   1.020276  m/s  8.516572E-02  g emitted

Summary for Us/Ur =  .9      Disturbance Interval =  1
 5402.364  Total g emitted over  1  -  346
---------------------------------------------------------------
Us/Ur =  .6    Disturbance interval = 1  days

Period  151 - 152  high on  152   1.218663  m/s  358.3416  g emitted
```

```
Period  152 - 153  high on  152   1.218663  m/s  358.3416  g emitted
Period  251 - 252  high on  252   1.048617  m/s  37.67894  g emitted
Period  252 - 253  high on  252   1.048617  m/s  37.67894  g emitted

Summary for Us/Ur =  .6      Disturbance Interval =  1
 792.0411  Total g emitted over  1  -  346
-------------------------------------------------------------------
Us/Ur =  .6    Disturbance interval = 1  days

Period  151 - 152  high on  152   1.218663  m/s  358.3416  g emitted
Period  152 - 153  high on  152   1.218663  m/s  358.3416  g emitted
Period  251 - 252  high on  252   1.048617  m/s  37.67894  g emitted
Period  252 - 253  high on  252   1.048617  m/s  37.67894  g emitted

Summary for Us/Ur =  .6      Disturbance Interval =  1
 792.0411  Total g emitted over  1  -  346
-------------------------------------------------------------------
Us/Ur =  .2    Disturbance interval = 1  days


Summary for Us/Ur =  .2      Disturbance Interval =  1
 0  Total g emitted over  1  -  346
-------------------------------------------------------------------
Us/Ur =  .2    Disturbance interval = 1  days


Summary for Us/Ur =  .2      Disturbance Interval =  1
 0  Total g emitted over  1  -  346
-------------------------------------------------------------------
Summary for entire source:  12388.81   g emitted over period  1  -  346
NOTE: For a variety of reasons given in the user manual, the erosion estimates
      presented above may be considered as CONSERVATIVELY HIGH.  See the
      user manual for more information.
```