SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.

Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☐ Show to whom delivered, date, and addressee's address. *(Extra charge)*
2. ☐ Restricted Delivery *(Extra charge)*

3. Article Addressed to:
Martin asphalt Plant
1801 S. Nova Rd
S. Daytona, Fl
32019-1733

4. Article Number
P 256 396 177

Type of Service:
- ☐ Registered
- ☐ Insured
- ☒ Certified
- ☐ COD
- ☐ Express Mail
- ☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Addressee
X

6. Signature — Agent
X Linda Bryttan

7. Date of Delivery
11/19/90

8. Addressee's Address *(ONLY if requested and fee paid)*

PS Form **3811**, Apr. 1989 ★U.S.G.P.O. 1989-238-815 **DOMESTIC RETURN RECEIPT**

P 256 396 177

RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to Martin Asphalt	
Street and No. 1801 S Nova Rd	
P.O., State and ZIP Code S. Daytona, FL	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date 11-14-90	
AC 64-175033	

☆U.S.G.P.O. 1989-234-555

PS Form 3800, June 1985

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

In the Matter of
Application for Permits by:

Martin Asphalt Company
1801 S. Nova Road
South Daytona, Florida 32019-1733

DER File No. AC 64-175033

NOTICE OF PERMIT DENIAL

The applicant, Martin Asphalt Company, 1801 S. Nova Road, South Daytona, Florida, applied on January 16, 1990, to the Department of Environmental Regulation for a permit to construct (modify) an existing Astec asphalt plant to treat contaminated soil located in Debary, Volusia County, Florida.

The Department has permitting jurisdiction under Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-2 and 17-4. The project is not exempt from permitting procedures. The Department has determined that air construction permits are required for the proposed work.

The Department hereby denies the permit for the following reason:

1. Failure to respond to the Department's letter dated January 30, 1990, requesting additional information, including a proposal for an air pollution control system, to complete the application.

Without a satisfactory response, the Department lacked reasonable assurance that the proposed project will comply with F.A.C. Chapter 17-2.

A person whose substantial interests are affected by the Department's permit denial may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the permit applicant and the parties listed below must be filed within 14 days of receipt of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information:

(a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;
(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
(d) A statement of the material facts disputed by Petitioner, if any;
(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;
(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and
(g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application(s) have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of receipt of this notice in the Office in General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

This notice constitutes final agency action unless a petition is filed in accordance with the above paragraphs or unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition and conforms to Rule 17-103.070, F.A.C. Upon timely filing of a petition or a request for an extension of time this notice will not be effective until further Order of the Department.

Any party to this Notice of Permit Denial has the right to seek judicial review pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy with

the appropriate District Court of Appeal. Notice of Appeal must be filed within 30 days from the date the Notice of Permit Denial is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

STEVE SMALLWOOD, P.E., Director

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk herby certifies that this Notice of Permit Denial and all copies were mailed before the close of business on 11-14-90 to the listed persons.

FILED, on this date, pursuant to §120.52(9), Florida Statutes, with designated Department Clerk, receipt of which is hereby acknowledged.

Kim Dober 11-14-90.
Clerk Date

Copies furnished to:
Charles Collins, Central District
Gregory Gonzalez, Consultant

Florida Department of Environmental Regulation

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

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

October 4, 1990

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Robert D. Martin, CEO
Martin Asphalt Company
1801 S. Nova Road
South Daytona, Florida 32019-1733

Dear Mr. Martin:

Re: File No. AC 64-175033, Soil Remediation Unit

On January 30, 1990, the Bureau of Air Regulation requested you furnish us additional information to complete your application for permit to construct (modify) your asphalt plant to decontaminate soil. As of this date, the Bureau has not received the information requested in our January 30 letter.

Please let us know if you plan to pursue obtaining a permit to decontaminate soil with your asphalt plant. If you do not respond within 30 days from the receipt of this letter, the Bureau will assume you have changed your plans to modify this plant and will recommend denial of your request for the permit.

If you have any questions on this matter, please write to me or call Willard Hanks, review engineer, at (904) 488-1344.

Sincerely,

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

CHF/WH/plm

c: Charles Collins, Central District
Gregory Gonzales, Consultant

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee

To: _____ Location: _____

To: _____ Location: _____

To: _____ Location: _____

From: _____ Date: _____

Interoffice Memorandum

TO: Steve Smallwood

FROM: Clair Fancy

DATE: November 7, 1990

SUBJ: Notice of Permit Denial No. AC 64-175033
Martin Asphalt Company

Attached for your approval and signature is a "Notice of Permit Denial" for a construction permit application which would have allowed an existing asphalt plant to process contaminated soil. The Bureau is recommending that the permit be denied because the applicant failed to satisfactorily respond to our request for additional information.

I recommend your approval and signature.

CF/WH/plm

Attachment

11-9-90

...dress in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card ...g returned to you. The return receipt fee will provide you the name of the person delivered to and ...ate of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☐ Show to whom delivered, date, and addressee's address. *(Extra charge)*
2. ☐ Restricted Delivery *(Extra charge)*

3. Article Addressed to: Robert D. Martin Martin Asphalt Co 1801 S. Nova Rd S. Daytona, Fl 32019-1733	4. Article Number P 256 395 215 Type of Service: ☐ Registered ☐ Insured ☒ Certified ☐ COD ☐ Express Mail ☐ Return Receipt for Merchandise Always obtain signature of addressee or agent and DATE DELIVERED.
5. Signature — Addressee X Donna M. Hendrickson	8. Addressee's Address *(ONLY if requested and fee paid)*
6. Signature — Agent X	
7. Date of Delivery 10/9/90	

P 256 395 215

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to Robert D. Martin	
Street and No. Martin Asphalt	
P.O., State and ZIP Code S. Daytona, Fl	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date 10-4-90 AC 64-175033	

PS Form 3800, June 1985

☆U.S.G.P.O. 1989-234-555

Florida Department of Environmental Regulation

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

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

October 4, 1990

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Robert D. Martin, CEO
Martin Asphalt Company
1801 S. Nova Road
South Daytona, Florida 32019-1733

Dear Mr. Martin:

Re: File No. AC 64-175033, Soil Remediation Unit

On January 30, 1990, the Bureau of Air Regulation requested you furnish us additional information to complete your application for permit to construct (modify) your asphalt plant to decontaminate soil. As of this date, the Bureau has not received the information requested in our January 30 letter.

Please let us know if you plan to pursue obtaining a permit to decontaminate soil with your asphalt plant. If you do not respond within 30 days from the receipt of this letter, the Bureau will assume you have changed your plans to modify this plant and will recommend denial of your request for the permit.

If you have any questions on this matter, please write to me or call Willard Hanks, review engineer, at (904) 488-1344.

Sincerely,

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

CHF/WH/plm

c: Charles Collins, Central District
Gregory Gonzales, Consultant

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.

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2. ☐ Restricted Delivery *(Extra charge)*

3. Article Addressed to:

Mr. Robert D. Martin, CEO
Martin Asphalt Company
1801 S. Nova Road
South Daytona, FL 32019-1733

4. Article Number

P 938 762 824

Type of Service:

☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Address

X Donna M. Hendrickson

6. Signature — Agent

X

7. Date of Delivery

2/1/90

8. Addressee's Address *(ONLY if requested and fee paid)*

PS Form **3811**, Mar. 1988 ★ U.S.G.P.O. 1988-212-865 **DOMESTIC RETURN RECEIPT**

P 938 762 824

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to Mr. Robert D. Martin, Martin Asphalt Co.	
Street and No. 1801 S. Nova Rd.	
P.O., State and ZIP Code South Daytona, FL 32019-1733	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date Mailed: 1-30-90 Permit: AC 64-175033	

PS Form 3800, June 1985

Florida Department of Environmental Regulation

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

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

January 30, 1990

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Robert D. Martin, CEO
Martin Asphalt Company
1801 S. Nova Road
South Daytona, Florida 32019-1733

Dear Mr. Martin:

Re: File No. 64-175033, Soil Remediation Unit

The Department has made a preliminary review of your December 18, 1989, application for permit to construct (modify) an existing asphalt plant to decontaminate soil. The Department needs the issues listed below addressed before we can process this application.

1. The Department has deemed that VOC emissions from soil remediation units must be controlled (F.A.C. Rule 17-2.620). Please propose a VOC control device for your plant (afterburner or equivalent) and specify its minimum destruction/capture efficiency and the maximum VOC emissions (benzene and total VOC) from the unit.

2. The ISCST modeling study results indicates that there may be exceedances of the ambient air quality standards for sulfur dioxide. Please propose a strategy (lower sulfur content of fuel oil, higher stack, etc.) that will provide the Department with reasonable assurance that the ambient air quality standards will not be violated by this operation (F.A.C. Rule 17-4.070).

3. The application lists the maximum uncontrolled emissions of xylene as 17.24 lbs/hr. What are the maximum VOC emissions from this source (total BTEX and other organic compounds)?

We will resume processing the application after we receive the requested information. If you have any questions on this matter, please write to me or call Willard Hanks at (904) 488-1344.

Sincerely,

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

CHF/WH/plm

c: Charles Collins, Central District
Gregory Gonzales, Consultant

CROSS/TESSITORE & ASSOCIATES, P.A.
4763 S. CONWAY ROAD, SUITE F
ORLANDO, FLORIDA 32812
407/851-1484

January 10, 1990

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

RE: Your November 21, 1989 Correspondence to Martin Asphalt Company Air Permit Modifications
C/TA# M01.546

This is in reference to your subject letter. Mr. Pete Markam, of the Martin Company, informed us that they do not wish to pursue modification to the Daytona asphalt plant to remediate soil at this time. They are therefore requesting a withdrawal of the previously submitted Daytona application.

The Martin Asphalt Company is however requesting a new construction permit to remediate soil at the DeBary site. Please find enclosed:

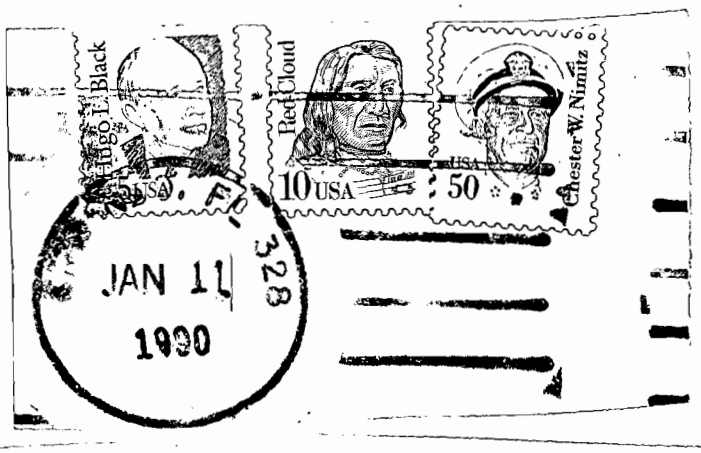
1) A copy of you November 21, 1989 correspondence.

2) Four (4) copies of the two revised front pages (to supersede the two front pages previously submitted) of the Application to Construct Air Pollution Source(s) to remediate soil at the DeBary asphalt plant.

3) A December 18, 1989 letter to the FDER from the Martin Asphalt Company.

4) A check in the amount of $2500.00, made payable to the FDER, for the application processing fee.

1031

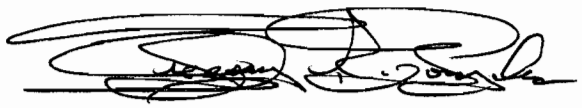


CROSS/TESSITORE & ASSOCIATES, P.A.
4763 South Conway Road, Suite F
Orlando, Florida 32812
(407) 851-1484

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

Should you have any questions, do not hesitate to call.

Sincerely,



Gregory R. Gonzales
Environmental Specialist

GRG/bdf
Enc. a/s
CC: Charles Collins - FDER
Pete Markam - Martin Asphalt Co.

MARTIN PAVING COMPANY
POST OFFICE BOX 2169
DAYTONA BEACH, FLORIDA 32115-2169
OFFICE (904) 761-8383

December 18, 1989

Florida Department of Environmental Regulation
3319 Maguire Blvd.
Orlando, FL 32803
Dear Sir:

Please find attached ~~six~~ Four copies of our application to modify the existing FDER permit for our DeBary Hot Mix Asphalt plant together with our check in the amount of $2,500.00.

We are only asking to be allowed to burn petroleum contaminated soil in our existing Hot Mix Asphalt plant. We will still produce Hot Mix Asphalt at the plant and we do not intend to construct anything new upon receipt of the permit.

We understand from conversation with the Tallahassee office of FDER that this application has to be treated as a new construction application. We have therefore checked the appropriate boxes on page one to reflect this.

Sincerely,

Peter A. Markham, P.E.

Executive Vice President

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

$2,500.00
1-16-90
Recpt. #117689

Bob Martinez
GOVERNOR

Dale Twachtman
SECRETARY

Alex Alexander
DISTRICT MANAGER

AC64-175033

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Soil Remediation Unit [X] New[1] [ ] Existing[1]

APPLICATION TYPE: [X] Construction [ ] Operation [ ] Modification

COMPANY NAME: Martin Asphalt Company COUNTY: Volusia

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) Dryer with baghouse

SOURCE LOCATION: Street Benson Junction Road City Debary

UTM: East 467880 North 3193050

Latitude 28 ° 52 ' 00 "N Longitude 81 ° 19 ' 50 "W

APPLICANT NAME AND TITLE: Robert D. Martin, CEO

APPLICANT ADDRESS: 1801 S. Nova Road, South Daytona, Florida 32019-1733

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Martin Asphalt Company

I certify that the statements made in this application for a construction permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: Robert D. Martin

Robert D. Martin, CEO
Name and Title (Please Type)

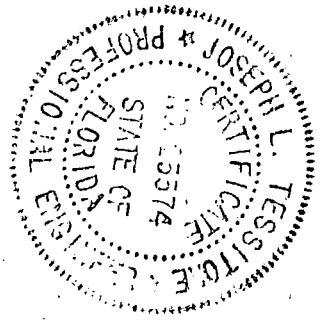
Date: 12/18/89 Telephone No. (904) 761-8384

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that

[1] See Florida Administrative Code Rule 17-2.100(57) and (104)

the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.



Signed Joseph L Tessitore

Joseph L. Tessitore, P.E. Vice President
Name (Please Type)

Cross/Tessitore and Associates; P.A.
Company Name (Please Type)

Suite F, 4763 S. Conway Rd. Orlando, FL 32812
Mailing Address (Please Type)

Florida Registration No. 23374 Date: 1-9-90 Telephone No. (407) 851- 1484

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

This project involves the remediation of contaminated soil through an existing Astec counter flow asphalt plant, at a process of 180 ton/hr. The particulate and hydrocarbon emissions from the contaminated soil are controlled by a primary collector and ASTEC model PBH 56 baghouse (see section II A attachment). The project will result in compliance with the F.D.E.R. regulations.

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction OCT. 1989 Completion of Construction Feb. 1990

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

ASTEC model PBH 56 baghouse $160,000.00

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

Permit No. A064-157157 Issued: 02/02/89

Expires: 01/01/94

MARTIN ASPHALT

[redacted] 631 530

BANK OF VOLUSIA COUNTY
DAYTONA BEACH, FLA. 32015

CHECK NO. 21152

TWENTY FIVE HUNDRED AND 00/100 DOLLARS

PAY TO THE ORDER OF:
F.D.E.R.
3319 MAGUIRE BLVD
SUITE 232
ORLANDO, FL. 32803

DATE
12/18/89

AMOUNT
$ 2,500.00

VOID AFTER 90 DAYS

Robert D. Martin
AUTHORIZED SIGNATURE

[redacted]

2600 Blair Stone Road
Tallahassee, FL 32399-2400

RE: Your November 21, 1989 Correspondence to Martin Asphalt Company Air Permit Modifications
C/TA# M01.546

This is in reference to your subject letter. Mr. Pete Markam, of the Martin Company, informed us that they do not wish to pursue modification to the Daytona asphalt plant to remediate soil at this time. They are therefore requesting a withdrawal of the previously submitted Daytona application.

The Martin Asphalt Company is however requesting a new construction permit to remediate soil at the DeBary site. Please find enclosed:

1) A copy of you November 21, 1989 correspondence.

2) Four (4) copies of the two revised front pages (to supersede the two front pages previously submitted) of the Application to Construct Air Pollution Source(s) to remediate soil at the DeBary asphalt plant.

3) A December 18, 1989 letter to the FDER from the Martin Asphalt Company.

4) A check in the amount of $2500.00, made payable to the FDER, for the application processing fee.

1031

SENDER: *Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.*

Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☐ Show to whom delivered, date, and addressee's address. *(Extra charge)*
2. ☐ Restricted Delivery *(Extra charge)*

3. Article Addressed to:	4. Article Number
Mr. Joseph L Tessitore, P.E. Cross/Tessitore and Associates, P.A. Suite F, 4763 S. Conway Road Orlando, Florida 32812	P 938 762 757 Type of Service: ☐ Registered ☐ Insured ☒ Certified ☐ COD ☐ Express Mail ☐ Return Receipt for Merchandise Always obtain signature of addressee or agent and DATE DELIVERED.
5. Signature — Address X	8. Addressee's Address *(ONLY if requested and fee paid)*
6. Signature — Agent X J Tessitore	
7. Date of Delivery 11/27/89	

PS Form **3811**, Mar. 1988 ★ U.S.G.P.O. 1988-212-865 **DOMESTIC RETURN RECEIPT**

P 938 762 757

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to Mr. Joseph L. Tessitore, P.E.	
Street and No.	
P.O., State and ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date Mailed: 11-21-89	

PS Form 3800, June 1985

Florida Department of Environmental Regulation

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

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

November 21, 1989

Mr. Joseph L. Tessitore, P.E.
Vice President
Cross/Tessitore and Associates, P.A.
Suite F, 4763 S. Conway Road
Orlando, Florida 32812

Dear Mr. Tessitore:

RE: Martin Asphalt Company
Air Permit Modifications

We are returning with this letter the $3,000 processing fee submitted with the above referenced air permit applications. A review of the information indicates that, because of the increase in emissions, new air construction permits will be required for these sources. The appropriate fee for these applications is $5,000 ($2,500 for each source). Please send the check to my attention at the Bureau of Air Regulation and indicate that it is an air construction permit processing fee. We will begin processing these applications as soon as the correct fee is received.

If you have any questions, please call Patty Adams at (904)488-1344 or write to me at the above address.

Sincerely,

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

CHF/pa

Enclosure

DEPARTMENT OF ENVIRONMENTAL REGULATION

DAILY CASH LISTING

DATE:_____ DATE BUREAU OF ACCTG. & BUDGETING RECEIVED:_____

COST CENTER_____

LISTER'S SIGNATURE_____ SIGNATURE OF RECEIVER:_____

REMITTED BY:	CHECK NO.	AMOUNT	RECEIPT NUMBER	REVENUE CODE	FILE NUMBER
Martin Asphalt Co.	21045	$ 3,000.00		001031	

TOTAL, this page: _____

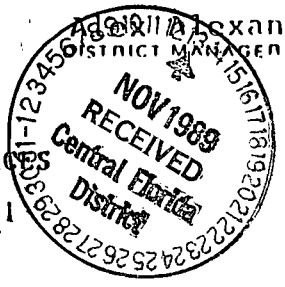
STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

Bob Martinez
GOVERNOR

Dale Twachtman
SECRETARY

Adam D. Alexander
DISTRICT MANAGER



APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Soil Remediation Unit [ ] New[1] [x] Existing[1]

APPLICATION TYPE: [ ] Construction [ ] Operation [x] Modification

COMPANY NAME: Martin Asphalt Company COUNTY: Volusia

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) Dryer with baghouse

SOURCE LOCATION: Street Benson Junction Road City Debary

UTM: East 467880 North 3193050

Latitude 28 ° 52 ' 00 "N Longitude 81 ° 19 ' 50 "W

APPLICANT NAME AND TITLE: Robert D. Martin, CEO

APPLICANT ADDRESS: 1801 S. Nova Road, South Daytona, Florida 32019-1733

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Martin Asphalt Company

I certify that the statements made in this application for a Modification permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: Robert D. Martin

Robert D. Martin, CEO
Name and Title (Please Type)

Date: 10/12/89 Telephone No. (904) 761-8384

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that

[1] See Florida Administrative Code Rule 17-2.100(57) and (104)

the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed Joseph L. Tessitore

Joseph L. Tessitore, P.E. Vice President
Name (Please Type)

Cross/Tessitore and Associates; P.A.
Company Name (Please Type)

Suite F, 4763 S. Conway Rd. Orlando, FL 32812
Mailing Address (Please Type)

Florida Registration No. 23374 Date: 10/30/89 Telephone No. (407) 851- 1484

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

This permit modification involves the remediation of soil through the existing ASTEC counter flow asphalt plant, at a process of 180 ton/hr. The particulate and hydrocarbon emissions from the contaminated soil are controlled by an ASTEC model PBH 56 baghouse (see section II A attachment). The project will result in full compliance with the F.D.E.R. regulations.

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction OCT. 1989 Completion of Construction Feb. 1990

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

ASTEC model PBH 56 baghouse $160,000.00

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

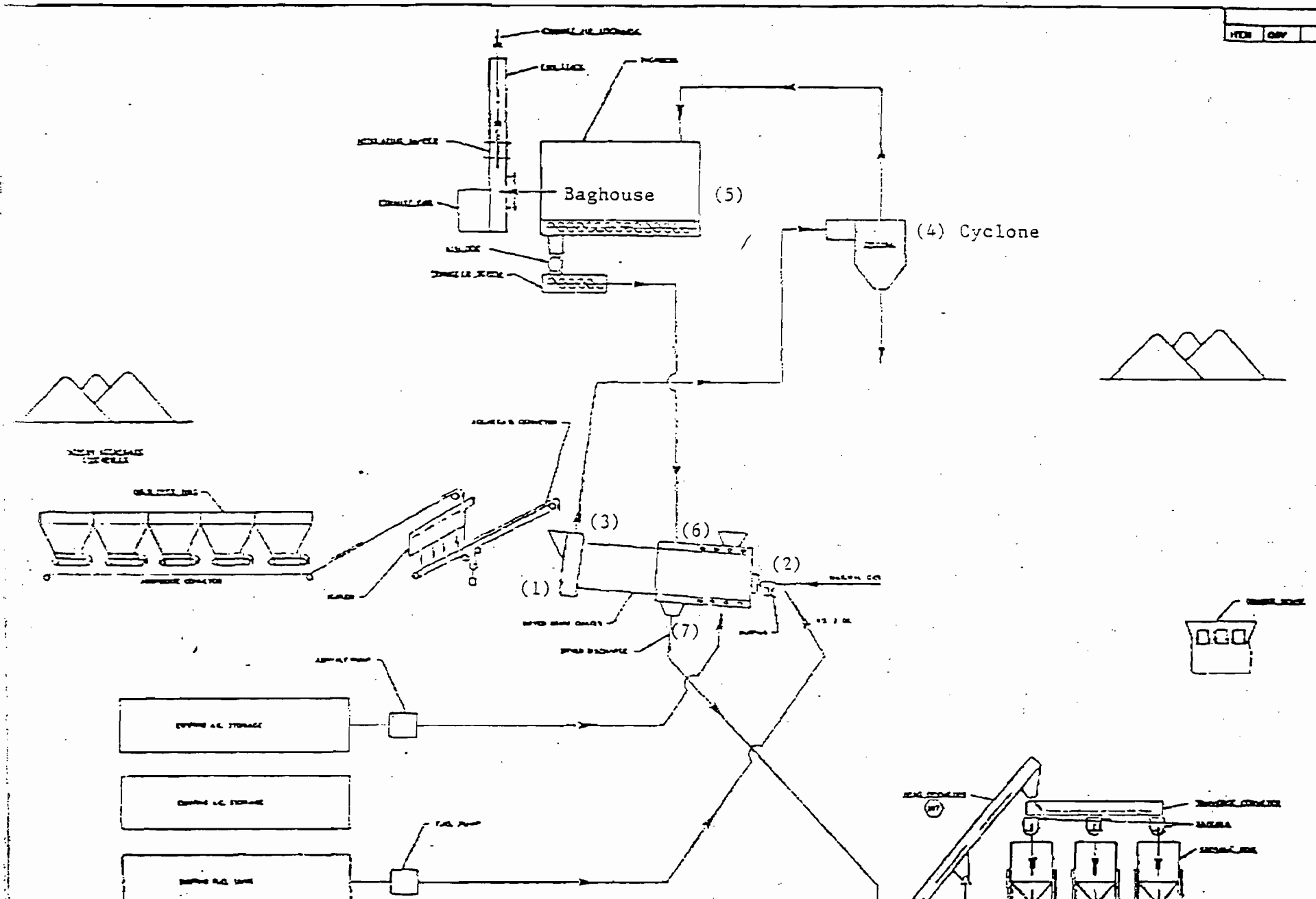
Permit No. A064-157157 Issued: 02/02/89

Expires: 01/01/94

SECTION II
ATTACHMENT A

Process Flow Description

The operation at the Martin Asphalt Company, Debary site, utilizes an ASTEC couterflow dryer. Contaminated soil enters the dryer chamber (1) at the end opposite the burner (2). Hot gases flow opposite the influx of soil and exits at the exhaust outlet (3). This hot gas is processed through a cyclone (4) and then the baghouse (5). Particulates removed in the baghouse are reintroduced to the dryer (6) as the filtered gas is emitted through the stack. Treated soil is discharged from the dryer disposal at (7), collected and stored in the soil storage facility. The soil is then analyzed to show compliance and further disposed.



MARTIN ASPHALT COMPANY
PROCESS FLOW DIAGRAM

E. Requested permitted equipment operating time: hrs/day 8 ; days/wk 5 ; wks/yr 50 ;

If power plant, hrs/yr N/A ; If seasonal, describe: N/A

F. If this is a new source or major modification, answer the following questions. (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? NO

   a. If yes, has "offset" been applied? -

   b. If yes, has "Lowest Achievable Emission Rate" been applied? -

   c. If yes, list non-attainment pollutants. -

2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. NO

3. Does the State "Prevention of Significant Deterioration" (PSD) requirement apply to this source? If yes, see Sections VI and VII. NO

4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? YES

5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? NO

H. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? NO

   a. If yes, for what pollutants? -

   b. If yes, in addition to the information required in this form, any information requested in Rule 17-2.650 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

F.4 NSPS for asphalt plants, reference 40 CFR, Part 60, Sub Part I.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants Type	Contaminants % Wt	Utilization Rate - lbs/hr	Relate to Flow Diagram
Contaminated Soil	Particulate	2	360,000	See Section V Item 6

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): 360,000

2. Product Weight (lbs/hr): 359,992

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

See Section V Item 3 for complete Summary

Name of Contaminant	Emission[1] Maximum lbs/hr	Emission[1] Actual T/yr	Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission lbs/hr	Potential[4] Emission T/yr	Relate to Flow Diagram
(1)Particulate	7.6	7.6	17-2.610 (2)	* 7.6	7.6	7.6	Section V Item 6
(2)Particulate	3.6	3.6	-	-	3.6	3.6	"
(3)Particulate	16.4	16.4	-	-	16.4	16.4	"
(4)Particulate	Negligible		-	-	Negligible		"

[1]See Section V, Item 2. * 0.04 GR/DSCF

[2]Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

[3]Calculated from operating rate and applicable standard.

[4]Emission, if source operated without control (See Section V, Item 3).

(1) Emissions from soil remediation unit including fuel emissions.
(2) Emissions from hopper loading.
(3) Emissions from vehicle traffic.
(4) Emissions from sand and aggregate storage piles.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): _____

2. Product Weight (lbs/hr): _____

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
SO_2	163.56	163.56	-	-	163.56	163.56	Section V Item 6
NO_x	32.74	32.74	-	-	32.74	32.74	"
CO	2.98	2.98	-	-	2.98	2.98	"
VOC (1)	0.17	0.17	-	-	0.17	0.17	"
VOC (2)	17.24	17.24	-	-	17.24	17.24	"

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

[3]Calculated from operating rate and applicable standard.

[4]Emission, if source operated without control (See Section V, Item 3).

(1) Emissions from fuel usage in burner.
(2) Emissions from soil concentrations. Refer to Table 1 for maximum emission breakdown and item 2 .

D. Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
ASTEC baghouse	Particulate	99.9%	> 10 Microns	See Section
Model PBH 56				V, Item 5
				(Basis for
				control device
				efficiency)

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
No. 5 fuel oil	595.3	595.3	90.486

*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis:

Percent Sulfur: 1.75 Percent Ash: Negligible

Density: 8 lbs/gal Typical Percent Nitrogen: Negligible

Heat Capacity: 19,000 BTU/lb 152,000 BTU/gal

Other Fuel Contaminants (which may cause air pollution): N/A

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average N/A Maximum N/A

G. Indicate liquid or solid wastes generated and method of disposal.

Used bags will be changed as needed and disposed of at a sanitary landfill. Captured solids are returned to the drum dryer/coater.

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: 20 ft. Stack Diameter: 30 in. x 44.5 in. (Rect) ft.

Gas Flow Rate: 64,140* ACFM 22,110 DSCFM Gas Exit Temperature: 500 °F.

Water Vapor Content: 37% (By volume) % Velocity: 115 FPS

See Appendix A Combustion Calculations

SECTION IV: INCINERATOR INFORMATION

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq.& Gas By-prod.)	Type VI (Solid By-prod.)
Actual lb/hr Incinerated							
Uncontrolled (lbs/hr)							

Description of Waste _____

Total Weight Incinerated (lbs/hr) _____ Design Capacity (lbs/hr) _____

Approximate Number of Hours of Operation per day _____ day/wk _____ wks/yr. _____

Manufacturer _____

Date Constructed _____ Model No. _____

	Volume $(ft)^3$	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diamter: _____ Stack Temp. _____

Gas Flow Rate: _____ ACFM _____ DSCFM* Velocity: _____ FPS

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner

[ ] Other (specify) _____

Brief description of operating characteristics of control devices: Gas containing the particulates is made to flow through Nomex filter bags. The dust is filtered from the exhaust gas stream, and the gases pass through the bags and are exhausted to the atmosphere. The bags are periodically shaken to knock the dust down to the bottom where it can be

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

Used bags are disposed of at a sanitary landfill. Captured solids are returned to the drum dryer/coater. Processed soil, after passing through the soil remediation unit, is the available for reclamation.

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]

2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.

3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).

4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.)

5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).

6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.

7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).

8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

9. The appropriate application fee in accordance with Rule 17-4.05. The check should be made payable to the Department of Environmental Regulation.

10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY N/A

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?

[ ] Yes [ ] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy)

[ ] Yes [ ] No

Contaminant	Rate or Concentration

C. What emission levels do you propose as best available control technology?

Contaminant	Rate or Concentration

D. Describe the existing control and treatment technology (if any).

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Cost:

*Explain method of determining

5. Useful Life:

6. Operating Costs:

7. Energy:

8. Maintenance Cost:

9. Emissions:

Contaminant	Rate or Concentration

10. Stack Parameters

a. Height: ft.

b. Diameter: ft.

c. Flow Rate: ACFM

d. Temperature: °F.

e. Velocity: FPS

C. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

2.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

[1]Explain method of determining efficiency.
[2]Energy to be reported in units of electrical power - KWH design rate.

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

3.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

4.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Costs:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected:

1. Control Device:

2. Efficiency:[1]

3. Capital Cost:

4. Useful Life:

5. Operating Cost:

6. Energy:[2]

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

[1]Explain method of determining efficiency.
[2]Energy to be reported in units of electrical power - KWH design rate.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

b. (1) Company:

(2) Mailing Address:

(3) City: (4) State:

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

10. Reason for selection and description of systems:

[1]Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

SECTION VII - PREVENTION OF SIGNIFICANT DETERIORATION N/A

A. Company Monitored Data

1. _____ no. sites _____ TSP _____ ( ) SO^2* _____ Wind spd/dir

Period of Monitoring ____/____/____ to ____/____/____
month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

*Specify bubbler (B) or continuous (C).

2. Instrumentation, Field and Laboratory

a. Was instrumentation EPA referenced or its equivalent? [ ] Yes [ ] No

b. Was instrumentation calibrated in accordance with Department procedures?

[ ] Yes [ ] No [ ] Unknown

B. Meteorological Data Used for Air Quality Modeling

1. _____ Year(s) of data from ____/____/____ to ____/____/____
month day year month day year

2. Surface data obtained from (location)_____

3. Upper air (mixing height) data obtained from (location)_____

4. Stability wind rose (STAR) data obtained from (location)_____

C. Computer Models Used

1. _____ Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate	
TSP	_____	grams/sec
SO^2	_____	grams/sec

E. Emission Data Used in Modeling

Attach list of emission sources. Emission data required is source name, description of point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

F. Attach all other information supportive to the PSD review.

G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.

MARTIN ASPHALT COMPANY

SECTION V

SUPPLEMENTAL REQUIREMENTS

ITEM 1 PROCESS INPUT RATE

Assumptions

Unit loading rate = 180 ton/hr
Operating time = 8 hr/day; 5 day/wk; 50 wk/yr; 2000 hr/yr

(180 ton/hr) x (2000 hr/yr) = 360,000 ton/yr

ITEM 2 EMISSION CALCULATIONS

PARTICULATE EMISSIONS

SOIL REMEDIATION UNIT

Assumptions

Unit loading rate	= 180 ton/hr
Baghouse efficiency	= 99.9%
Gas flow	= 22,110 DSCFM
Maximum allowable grain loading	= 0.04 gr/DSCF
Operating hours	= 2000 hrs/yr

ALLOWABLE AND ACTUAL EMISSIONS

Calculations

$$\frac{(0.04 \text{ gr/DSCF}) \times (22{,}110 \text{ DSCF}) \times (60 \text{ min/hr})}{(7000 \text{ gr/lb})} = 7.6 \text{ lb/hr}$$

$$\frac{(7.6 \text{ lb/hr}) \times (2000 \text{ hr/yr})}{(2000 \text{ lb/ton})} = 7.6 \text{ ton/yr Particulate}$$

HOPPER LOADING

Assumptions

Unit loading rate = 180 ton/hr
Emission factor; feed hopper loading = 0.02 lb/ton (as per Table 8.10-1, AP-42)

Calculations

$$\frac{(180 \text{ ton/hr}) \times (0.02 \text{ lb/ton}) \times (2000 \text{ hr/yr})}{(2000 \text{ lb/ton})} = 3.6 \text{ lb/yr}$$

VEHICLE TRAFFIC

Assumptions

Average truck capacity	= 22 tons
Unit loading rate	= 180 ton/hr
Operating time	= 2000 hrs/yr
Emission factor	= vehicle traffic 16 lb/vehicle mile traveled (as per table 8.10-1; AP-42)
Road distance from unit to hard road	= approximately 1/8 mile round trip

Calculations

$$\frac{(180 \text{ ton/hr})}{(2 \text{ ton/truck})} = 8.2 \text{ truck/hr}$$

$$(8.2 \text{ truck/hr}) \times (16 \text{ lb/ton mile}) \times (1/8 \text{ mile}) = 16.4 \text{ lb/hr}^*$$

$$\frac{(16.4 \text{ lb/hr}) \times (2000 \text{ hr/yr})}{(2000 \text{ lb/ton})} = 16.4 \text{ ton/yr}^*$$

* Does not include rain or periodic wash down of road.

WIND EROSION FROM SAND AND AGGREGATE STORAGE PILES

Assumptions

A 100'x100' concrete slab surrounded by walls on three sides will be constructed to contain the storage piles. The floor will have a downslope (from the open end to the closed end) of 0.5 inches. The storage pile slab will be separated into two equal sections. One section will contain the contaminated soil and the other section will contain the treated soil. Tarpoleum will be utilized in the covering of the storage piles when not in use. A schematic of the storage pile containment facility is presented in Appendix D.

Aggregate Storage Pile Area = 5000 ft^2

Emissions Factor = 3.5 lbs/acre/day (Table 8.10-1, AP-42)

Operating Hours = 8 hrs/day; 2000 hrs/yr

1 acre = 43,560 ft^2

Calculations

$$\frac{(5000\ ft^2)}{(43{,}560\ ft^2/acre)} = 0.115\ acres$$

$$\frac{(3.5\ lbs/acre/day) \times (0.115\ acres)}{(8\ hrs/day)} = 0.05\ lbs/hr$$

$$\frac{(0.05\ lbs/hr) \times (2000\ hrs/yr)}{(2000\ lbs/ton)} = 0.05\ tons/yr$$

TABLE 8.10-1. UNCONTROLLED PARTICULATE EMISSION FACTORS FOR CONCRETE BATCHING

Source	kg/Mg of material	lb/ton of material	lb/yd^3 of concrete[a]	Emission Factor Rating
Sand and aggregate transfer to elevated bin[b]	0.014	0.029	0.05	E
Cement unloading to elevated storage silo				
Pneumatic[c]	0.13	0.27	0.07	D
Bucket elevator[d]	0.12	0.24	0.06	E
Weigh hopper loading[e]	0.01	0.02	0.04	E
Truck loading (truck mix)[e]	0.01	0.02	0.04	E
Mixer loading (central mix)[e]	0.02	0.04	0.07	E
Vehicle traffic (unpaved road)[f]	4.5 kg/VKT	16 lb/VHT	0.28	C
Wind erosion from sand and aggregate storage piles[h]	3.9 kg/ hectare/day	3.5 lb/ acre/day	0.1[i]	D
Total process emissions (truck mix)[j]	0.05	0.10	0.20	E

[a]Based on a typical yd^3 weighing 1,818 kg (4,000 lb) and containing 227 kg (500 lb) cement, 564 kg (1,240 lb) sand, 864 kg (1,900 lb) coarse aggregate and 164 kg (360 lb) water.
[b]Reference 6.
[c]For uncontrolled emissions measured before filter. Based on two tests on pneumatic conveying controlled by a fabric filter.
[d]Reference 7. From test of mechanical unloading to hopper and subsequent transport of cement by enclosed bucket elevator to elevated bins with fabric socks over bin vent.
[e]Reference 5. Engineering judgement, based on observations and emission tests of similar controlled sources.
[f]From Section 11.2.1, with k = 0.8, s = 12, S = 20, W = 20, w = 14, and p = 100. VKT = vehicle kilometers traveled. VHT = vehicle miles traveled.
[g]Based on facility producing 23,100 m^3/yr (30,000 yd^3/yr), with average truck load of 6.2m^3 (8 yd^3) and plant road length of 161 meters (1/10 mile).
[h]From Section 8.19.1, for emissions <30 um for inactive storage piles.
[i]Assumes 1,011 m^2 (1/4 acre) of sand and aggregate storage at plant with production of 23,100 m^3/yr (30,000 yd^3/yr).
[j]Based on pneumatic conveying of cement at a truck mix facility. Does not include vehicle traffic or wind erosion from storage piles.

SECTION V

VOC EMISSIONS

SOIL REMEDIATION UNIT

Assumptions

Stack height = 20ft.
Gas flow rate = 64,140 ACFM
Gas exit temperature = 500 °F
Exhaust gas velocity = 115 ft/sec

Soil Conditions

* Maximum Xylene concentration in soil = 47.9 ppm
  Maximum soil input to burner = 180 ton/hr (2000 hr/yr)

* Maximum VOC emissions (on a worst case basis) would occur at maximum Xylene concentration since it makes up the greatest percentage of gasoline. See Table 1.

EMISSION CALCULATION

Soil VOC Concentration = 105.37 X 10^{-6} lb VOC/kg soil

$$\text{Soil Feed Rate} = \frac{(180 \text{ tons/hr}) \times (2000 \text{ lbs/ton})}{(2.2 \text{ lb/kg})} = 163{,}640 \text{ kg/hr}$$

(163,640 kg/hr) x (105.37 x 10^{-6} lb VOC/kg soil) = 17.243 lbs/hr VOC/180 ton/hr of soil

$$\frac{(17.243 \text{ lbs/hr VOC}) \times (2000 \text{ hr/yr})}{(2000 \text{ lb/ton})} = 17.243 \text{ ton VOC/yr emissions}$$

SECTION V

ITEM 2

EMISSIONS FROM FUEL COMBUSTION

UTILIZING OFF SPEC USED OILS

FUEL COMBUSTION CALCULATION INPUT PARAMETERS DATE: 27-Sep-89

HOURS OF OPERATION — Martin Paving

hrs/day	=	8	hrs/yr	=	2,000
days/wk	=	5			
wks/yr	=	50			

FUEL CONSUMPTION

Residual Oil (No. 5) Consumption = 1.1906 Million gal/yr

EMISSION FACTORS

Emission factors for Residual Oil are from AP-42, Table 1.3-1.

Particulates (Uncontrolled)

lbs/1,000 gal of Residual Oil = 10 lbs/1,000 gal

Sulfur Dioxide

Residual Oil % Sulfur by Weight = 1.75 %
lbs/1,000 gal of Residual Oil = 157 lbs/1,000 gal of fu

Nitrogen Oxide

lbs/1,000 gal of Residual Oil = 55 lbs/1,000 gal

Carbon Monoxide

lbs/1,000 gal of Residual Oil = 5 lbs/1,000 gal

Hydrocarbon

lbs/1,000 gal of Residual Oil = 0.28 lbs/1,000 gal

ADDITIONAL DATA

Efficiency of Air Pollution Control = 99.97582 %

| ITEM 2 |

CALCULATION OF EMISSIONS

PARTICULATES

Residual Fuel Oil Consumption (No. 5)

$$\frac{1.1906 \text{ million gal/yr} \times 10.0 \text{ lb/1,000 gal}}{2{,}000 \text{ lbs/ton}} = 5.953 \text{ tons/yr}$$

Air Pollution Control Efficiency = 99.97582 %

Total Controlled Particulates =

5.953 tons/yr x (1 - 0.999758) = 0.001439 tons/yr

$$\frac{0.001439 \text{ tons/yr} \times 2{,}000 \text{ lbs/ton}}{2{,}000 \text{ hrs/yr}} = 0.001439 \text{ lbs/hr}$$

SULFUR DIOXIDE (SO2)

Residual Fuel Oil Consumption (No. 5)

Emission Factor = 157 lbs/1,000 gal x S, where

S = Fuel Oil % Sulfur by Wieght = 1.75 %

= 157 lbs/1,000 gal x 1.75

= 274.75 lbs/1,000 gal

$$\frac{1.1906 \text{ million gal/yr} \times 274.8 \text{ lb/1,000 gal}}{2{,}000 \text{ lbs/ton}} = 163.5586 \text{ tons/yr}$$

$$\frac{163.5586 \text{ tons/yr} \times 2{,}000 \text{ lbs/ton}}{2{,}000 \text{ hrs/yr}} = 163.5586 \text{ lbs/hr}$$

NITROGEN OXIDE (NOX)

Residual Fuel Oil Consumption (No. 5)

$$\frac{1.1906 \text{ million gal/yr} \times 55.0 \text{ lb/1,000 gal}}{2{,}000 \text{ lbs/ton}}$$

$$= 32.7415 \text{ tons/yr}$$

$$\frac{32.7415 \text{ tons/yr} \times 2{,}000 \text{ lbs/ton}}{2{,}000 \text{ hrs/yr}} = 32.7415 \text{ lbs/hr}$$

CARBON MONOXIDE (CO)

Residual Fuel Oil Consumption (No. 5)

$$\frac{1.1906 \text{ million gal/yr} \times 5.0 \text{ lb/1,000 gal}}{2{,}000 \text{ lbs/ton}}$$

$$= 2.9765 \text{ tons/yr}$$

$$\frac{2.9765 \text{ tons/yr} \times 2{,}000 \text{ lbs/ton}}{2{,}000 \text{ hrs/yr}} = 2.9765 \text{ lbs/hr}$$

HYDROCARBONS (HC)

Residual Fuel Oil Consumption (No. 5)

$$\frac{1.1906 \text{ million gal/yr} \times 0.3 \text{ lb/1,000 gal}}{2{,}000 \text{ lbs/ton}}$$

$$= 0.166684 \text{ tons/yr}$$

$$\frac{0.166684 \text{ tons/yr} \times 2{,}000 \text{ lbs/ton}}{2{,}000 \text{ hrs/yr}} = 0.166684 \text{ lbs/hr}$$

ITEM 3

FUEL COMBUSTION EMISSION CALCULATIONS SUMMARY

POLLUTANT	ACTUAL EMISSION RATE (LB/HR)	ACTUAL EMISSION RATE (TON/YR)	POTENTIAL EMISSION RATE (LB/HR)	POTENTIAL EMISSION RATE (TON/YR)
PARTICULATES	0.001439	0.001439	5.953	5.953
SULFUR DIOXIDE	163.5506	163.5506	163.5506	163.5506
NITROGEN OXIDE	32.7415	32.7415	32.7415	32.7415
CARBON MONOXIDE	2.9765	2.9765	2.9765	2.9765
HYDROCARBONS	0.166684	0.166684	0.166684	0.166684

SECTION V

ITEM 3 POTENTIAL EMISSIONS

PARTICULATE EMISSIONS

SOIL REMEDIATION UNIT, HOPPER LOADING, VEHICLE TRAFFIC, AND WIND EROSION FROM SAND AND AGGREGATE STORAGE PILES

Assumptions

Potential particulate emission are the same as the actual emissions.

VOC EMISSIONS

SOIL REMEDIATION UNIT

Assumptions

Potential VOC emission is the same as the actual emission since there is no control.

ITEM 4 AIR POLLUTION CONTROL

Assumptions

ASTEC model PBH 56 baghouse

No. bags in baghouse = 960 (9289 ft^2)

14 oz Nomex bags = 45/8" diameter x 8' long

Baghouse exhaust stack = 30" x 44.5" (rectangular)

Gas flow rate = 64,140 ACFM

Calculations

$$\frac{64,140 \text{ ACFM}}{9,289.4 \text{ ft}^2} = 6.9 \text{ ft/min}$$

Air to cloth ratio 6.9:1

ITEM 5 CONTROL DEVICE EFFICIENCY

See attached basis for control device efficiency

SECTION V - ITEM 5

BASIS FOR CONTROL DEVICE EFFICIENCY

No data was available for this plant's control device efficiency, therefore, a control device efficiency was calculated from data obtained from the stack test reports of two similar facilities. The two stack test reports are for the following:

C.W. Matthews Contracting Company, Inc.
Fairmont, Georgia, July 17, 1986

Biba Engineering, Ogahala, Nebraska, June 19, 1985

The calculations are as follows:

Uncontrolled Particulate Emission Factor for Asphalt (AP-42)

= .45 lb of Particulate/ton of Product

		Stack Test	
Stack Test Data:		C.W. Matthews	Biba Engineering
Production Rate		290 TPH	350 TPH
Actual Emissions	Run 1	1.4 lb/hr	6.4 lb/hr
	Run 2	0.9 lb/hr	5.8 lb/hr
	Run 3	1.3 lb/hr	6.3 lb/hr

Uncontrolled Particulate Emissions based on Production Rate

C.W. Matthews:	290 TPH x 45 lb/ton =	13,050 lb/hr
Biba Engineering:	350 TPH x 45 lb/ton =	15,750 lb/hr

SECTION V - ITEM 5 (cont'd)

Efficiencies Based on Uncontrolled Emissions and Actual Emissions from Stack Test Data

C.W. Matthews Stack Test

$$\text{Run 1} \quad 1 - \frac{1.4 \text{ lb/hr}}{13{,}050 \text{ lb/hr}} = 0.999892$$

$$\text{Run 2} \quad 1 - \frac{0.9 \text{ lb/hr}}{13{,}050 \text{ lb/hr}} = 0.999931$$

$$\text{Run 3} \quad 1 - \frac{1.3 \text{ lb/hr}}{13{,}050 \text{ lb/hr}} = 0.999900$$

$$\text{Average} = 0.999908$$

Biba Engineering Stack Test

$$\text{Run 1} \quad 1 - \frac{6.4 \text{ lb/hr}}{15{,}750 \text{ lb/hr}} = 0.999593$$

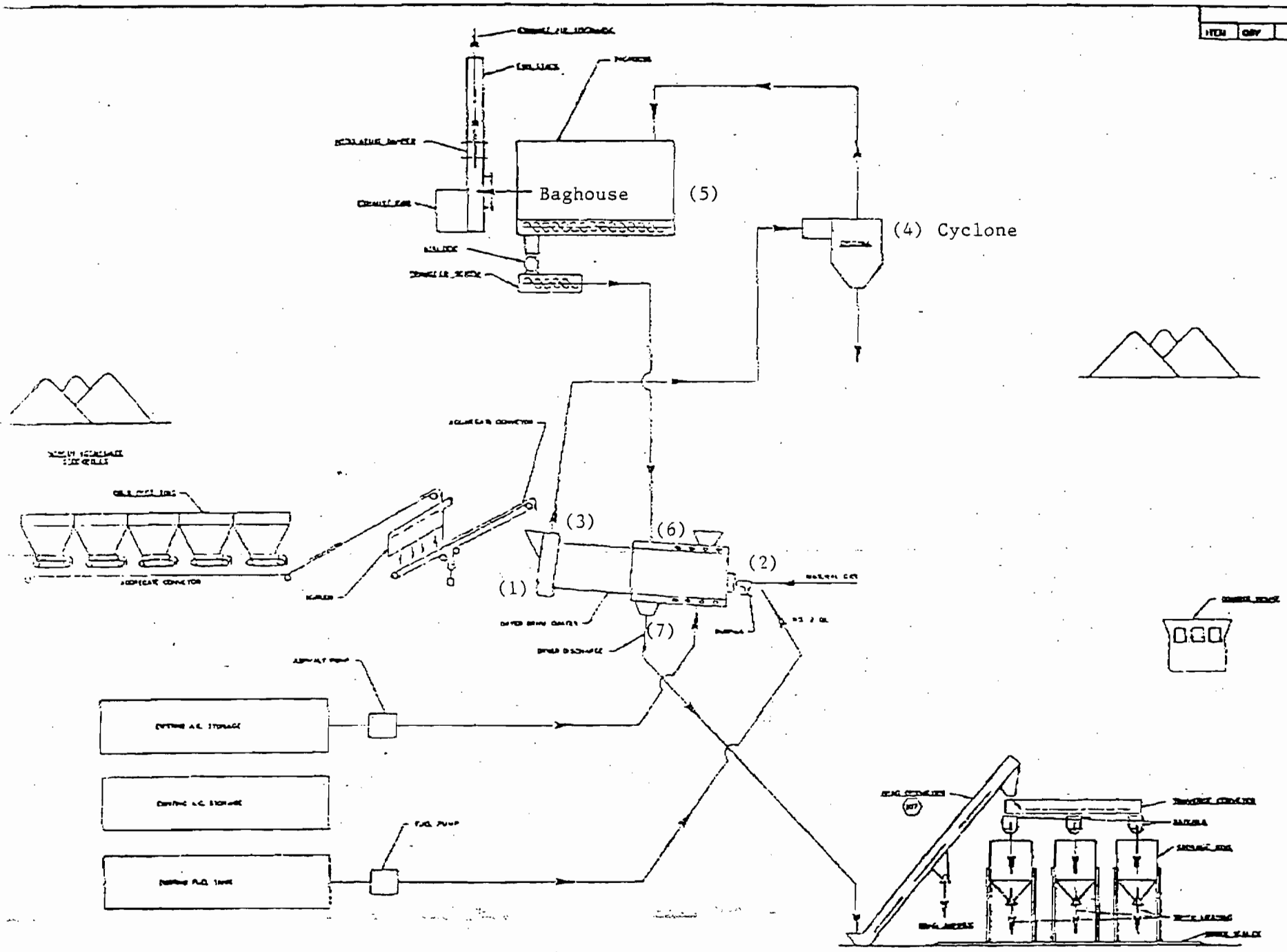
$$\text{Run 2} \quad 1 - \frac{5.8 \text{ lb/hr}}{15{,}750 \text{ lb/hr}} = 0.999631$$

$$\text{Run 3} \quad 1 - \frac{6.3 \text{ lb/hr}}{15{,}750 \text{ lb/hr}} = 0.999600$$

$$\text{Average} = 0.999608$$

Combined Average Efficinecy from Both Stack Tests = 0.999758

= 99.97582 %



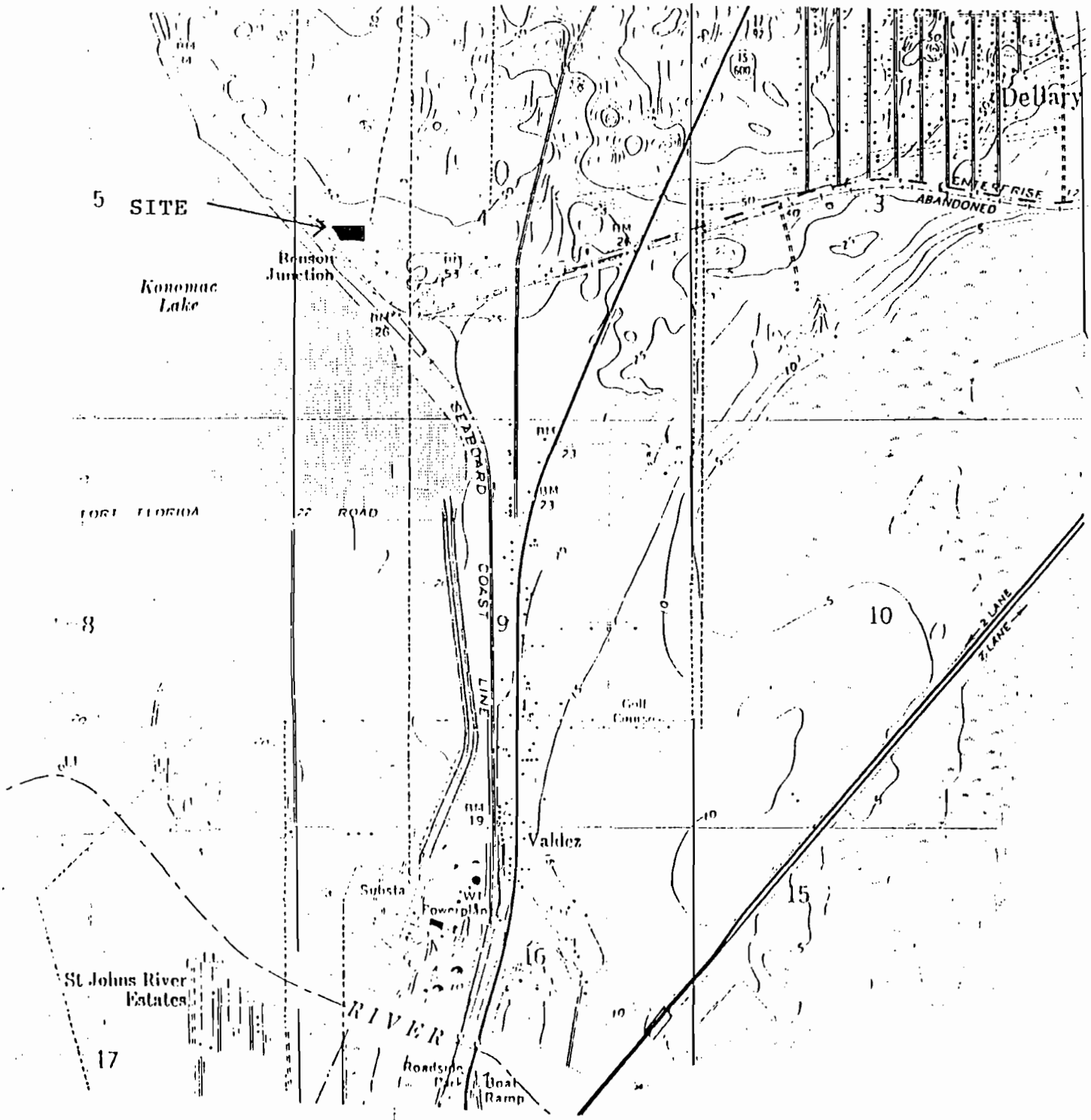
MARTIN ASPHALT COMPANY
PROCESS FLOW DIAGRAM

SECTION V

ITEM 7

AREA LOCATION MAP

MARTIN PAVING



LATITUDE- 28° 52' 00''
LONGITUDE- 81° 19' 50''

UTM COORDINATES

467880E
3193050N

CROSS/TESSITORE & ASSOC., P.A.

ENVIRONMENTAL ENGINEERS ORLANDO, FLORIDA

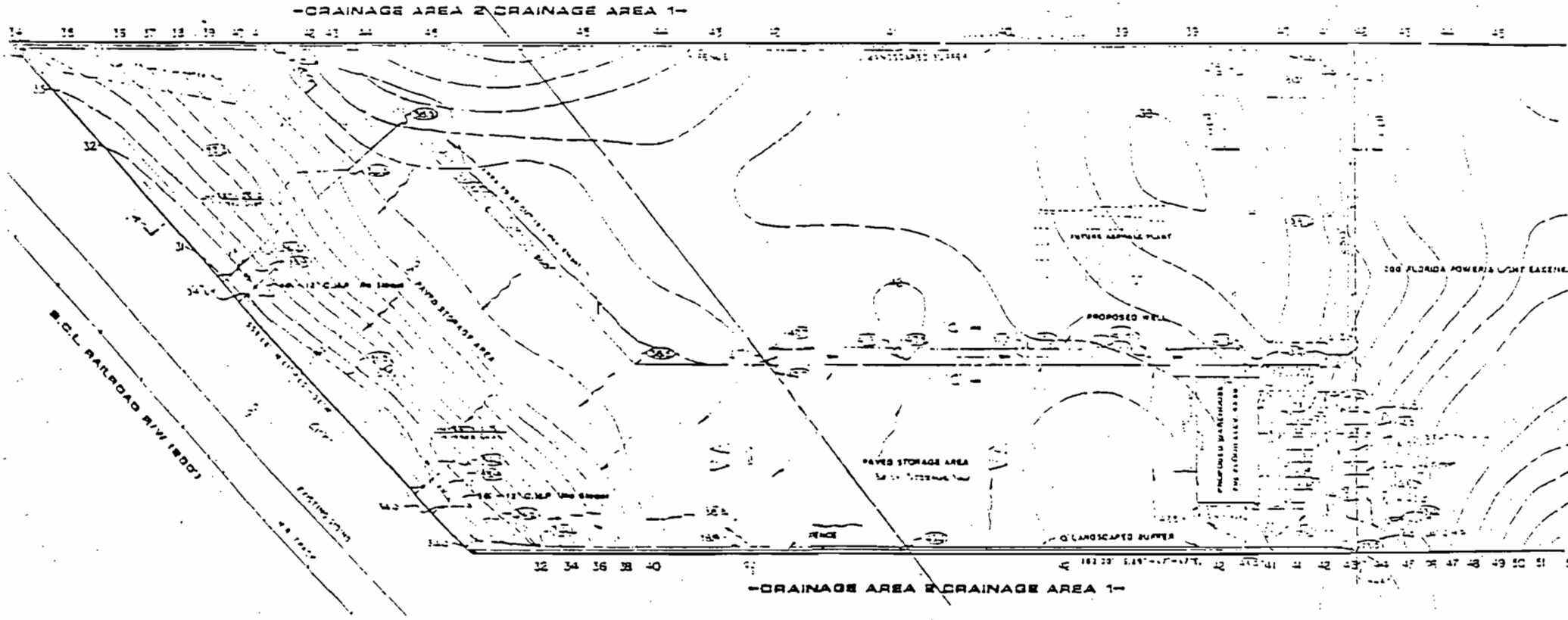
SECTION V

BEST AVAILABLE COPY

ITEM 8

PLOT PLAN OF FACILITY

MARTIN PAVING



APPENDIX A

ASPHALT PLANT BTU-ACF-DSCF

COMBUSTION CALCULATIONS

ASPHALT PLANT BTU-ACF-DSCF COMPUTATION INPUT PARAMETERS

DATE: 26-Sep-89

ELEVATION OF PLANT = 40 FT.

STACK AREA = 9.27 SQ. FT.

AGGREGATE PARAMETERS	ENTERING DRYER	EXITING DRYER
AGGREGATE TEMPERATURE	70 DEG F	450 DEG F
AIR AND GAS TEMPERATURE	70 DEG F	500 DEG F
MOISTURE CONTENT OF AGGREGATE	10 %	0.5 %

NUMBER	FUEL	UNITS
1)	NATURAL GAS	CU.FT.
2)	PROPANE	GAL
3)	BUTANE	GAL
4)	NO. 1 FUEL OIL	GAL
5)	NO. 2 FUEL OIL	GAL
6)	NO. 4 FUEL OIL	GAL
7)	NO. 5 FUEL OIL	GAL
8)	NO. 6 FUEL OIL	GAL

ENTER NUMBER OF FUEL USED: 7

FUEL PARAMETERS

FUEL	=	NO. 5 FUEL OIL	
UNIT	=	GAL	
BTU NOMINAL/UNIT OF FUEL	=	152,000	BTU/UNIT
G	=	26.900	
V	=	8.40	
CU.FT. OF AIR REQUIRED/UNIT OF FUEL	=	1,540.00	CU.FT./UNIT
DSCF/UNIT OF FUEL	=	1,495.00	DSCF/UNIT
ACF - CU.FT. OF WET EXHAUST/UNIT OF FUEL	=	1,610.00	ACF/UNIT

PRODUCTION PARAMETERS

TONS OF MIX PRODUCED PER HOUR	=	180	TONS/HR
ASPHALT CONTENT OF MIX (%)	=	0	%

ASPHALT PLANT BTU-ACF-DSCF COMPUTATION

	AIR VOLUME - RATIO, R, TO STOICHIMETRIC						
	1	1.5	2	2.5	3	4	5
8) CUBIC FEET OF UNBURNED AIR line 7 x 0, 0.5, 1.0, etc.	0	2,425	4,850	7,275	9,700	14,550	19,400
9) BTU'S TO HEAT UNBURNED AIR line 8 x BTU's/cu.ft.air 8.31	0	20,200	40,300	60,500	80,600	120,900	161,200
10) BTU'S FOT STOICHIOMETRIC CONDITIONS line 5	409,500	409,500	409,500	409,500	409,500	409,500	409,500
11) TOTAL BTU'S line 9 + line 10	409,500	429,700	449,800	470,000	490,100	530,400	570,700
12) FUEL NEEDED TO PRODUCE TOTAL BTU'S line 11/BTU's av/unit 129,941	3.151	3.307	3.462	3.617	3.772	4.082	4.392
13) DSCF FROM COMBUSTION GASES line 12 x scf/unit 1,495	4,710	4,940	5,180	5,410	5,640	6,100	6,570
14) TOTAL DSCF AT SEA LEVEL line 13 + line 8	4,710	7,365	10,030	12,685	15,340	20,650	25,970
15) DSCF AT 40 FT. ELEVATION line 14 x elevation corr. 1	4,710	7,370	10,030	12,690	15,340	20,650	25,970
16) ACF FROM COMBUSTION GASES line 12 x ACF/unit 2,915.68	9,190	9,640	10,090	10,550	11,000	11,900	12,810
17) ACF FROM WATER VAPOR water ev. 190 x cuft/lb 38.7	7,350	7,350	7,350	7,350	7,350	7,350	7,350
18) ACF FROM UNBURNED AIR line 8 x temp. corr. 1.81	0	4,390	8,780	13,170	17,560	26,340	35,110
19) TOTAL ACF AT SEA LEVEL line 16 + line 17 + line 18	16,540	21,380	26,220	31,070	35,910	45,590	55,270
20) ACF AT 40 FT. ELEVATION line 19 x elevation corr. 1	16,540	21,380	26,220	31,070	35,910	45,590	55,270

ASPHALT PLANT BTU-ACF-DSCF COMPUTATION

21) TONS OF AGGREGATE DRIED PER HOUR tons of mix produced/hour 180 x (1 - asphalt content 0)		180 TONS/HR
22) TONS OF AGGREGATE DRIED PER MINUTE line 21/60	=	3.00 TONS/MIN.

	AIR VOLUME - RATIO, R, TO STOICHIMETRIC						
	1	1.5	2	2.5	3	4	5
23) FUEL REQUIRED PER TON OF AGGREGATE line 12	3.151	3.307	3.462	3.617	3.772	4.082	4.392
24) FUEL REQUIRED PER HOUR line 23 x line 21	567.2	595.3	623.2	651.1	679.0	734.8	790.6
25) DSCF PER TON OF AGGREGATE line 15	4,710	7,370	10,030	12,690	15,340	20,650	25,970
26) DSCF PER MINUTE line 25 x line 22	14,130	22,110	30,090	38,070	46,020	61,950	77,910
27) ACF PER TON OF AGGREGATE line 20	16,540	21,380	26,220	31,070	35,910	45,590	55,270
28) ACF PER MINUTE line 27 x line 22	49,620	64,140	78,660	93,210	107,730	136,770	165,810

ASPHALT PLANT BTU-ACF-DSCF COMPUTATION

1) BTU'S TO HEAT WATER IN DRIED AGGREGATE lbs of water 10 x temperature rise 142		1,420 BTU
2) BTU'S TO HEAT AGGREGATE IN DRIED AGGREGATE lbs of agg. 1,990 x 0.2 x temperature rise 380		151,240 BTU
3) BTU'S TO EVAPORATE WATER FROM AGGREGATE lbs of water evaporated 190 x heat applied to evaporate water 1,249		237,310 BTU
4) BTU'S TO HEAT AND DRY AGGREGATE line 1 + line 2 + line 3		389,970 BTU
5) INCREASED FOR LOSSES DUE TO RADIATION BTU'S FOR STOICHIOMETRIC CONDITIONS line 4 x 1.05		409,500 BTU
6) FUEL NEEDED TO PRODUCE BTU'S FOR STOICH. CONDTIONS line 5/BTU's available per unit of fuel 129,941		3.151 UNITS
7) AIR REQUIRED TO BURN FUEL FOR STOICHIOMETRIC VOLUME line 6 x air required per unit of fuel 1,540		4,850 CU.FT.

ASPHALT PLANT SUMMARY (ASSUMES 50% EXCESS AIR)

ACFM	64,140 ACFM
SCFM	35,277 SCFM
DSCFM	22,110 DSCFM
% H20 (by volume)	37 %
% H20 (by weight)	27 %
VELOCITY	115 FT/SEC
FUEL USAGE	595.3 UNIT/HOUR

APPENDIX B

ISCST

AIR QUALITY IMPACT

MODELING STUDY

*** Martin Paving - Soil Venting Asphalt Plant ***

CALCULATE (CONCENTRATION=1,DEPOSITION=2)	ISW(1) = 1
RECEPTOR GRID SYSTEM (RECTANGULAR=1 OR 3, POLAR=2 OR 4)	ISW(2) = 3
DISCRETE RECEPTOR SYSTEM (RECTANGULAR=1,POLAR=2)	ISW(3) = 1
TERRAIN ELEVATIONS ARE READ (YES=1,NO=0)	ISW(4) = 0
CALCULATIONS ARE WRITTEN TO TAPE (YES=1,NO=0)	ISW(5) = 0
LIST ALL INPUT DATA (NO=0,YES=1,MET DATA ALSO=2)	ISW(6) = 2
COMPUTE AVERAGE CONCENTRATION (OR TOTAL DEPOSITION)	
WITH THE FOLLOWING TIME PERIODS:	
HOURLY (YES=1,NO=0)	ISW(7) = 1
2-HOUR (YES=1,NO=0)	ISW(8) = 0
3-HOUR (YES=1,NO=0)	ISW(9) = 0
4-HOUR (YES=1,NO=0)	ISW(10) = 0
6-HOUR (YES=1,NO=0)	ISW(11) = 0
8-HOUR (YES=1,NO=0)	ISW(12) = 0
12-HOUR (YES=1,NO=0)	ISW(13) = 0
24-HOUR (YES=1,NO=0)	ISW(14) = 0
PRINT 'N'-DAY TABLE(S) (YES=1,NO=0)	ISW(15) = 0
PRINT THE FOLLOWING TYPES OF TABLES WHOSE TIME PERIODS ARE	
SPECIFIED BY ISW(7) THROUGH ISW(14):	
DAILY TABLES (YES=1,NO=0)	ISW(16) = 0
HIGHEST & SECOND HIGHEST TABLES (YES=1,NO=0)	ISW(17) = 1
MAXIMUM 50 TABLES (YES=1,NO=0)	ISW(18) = 0
METEOROLOGICAL DATA INPUT METHOD (PRE-PROCESSED=1,CARD=2)	ISW(19) = 2
RURAL-URBAN OPTION (RU.=0,UR. MODE 1=1,UR. MODE 2=2,UR. MODE 3=3)	ISW(20) = 0
WIND PROFILE EXPONENT VALUES (DEFAULTS=1,USER ENTERS=2,3)	ISW(21) = 1
VERTICAL POT. TEMP. GRADIENT VALUES (DEFAULTS=1,USER ENTERS=2,3)	ISW(22) = 1
SCALE EMISSION RATES FOR ALL SOURCES (NO=0,YES>0)	ISW(23) = 0
PROGRAM CALCULATES FINAL PLUME RISE ONLY (YES=1,NO=2)	ISW(24) = 1
PROGRAM ADJUSTS ALL STACK HEIGHTS FOR DOWNWASH (YES=2,NO=1)	ISW(25) = 2
PROGRAM USES BUOYANCY INDUCED DISPERSION (YES=1,NO=2)	ISW(26) = 1
CONCENTRATIONS DURING CALM PERIODS SET = 0 (YES=1,NO=2)	ISW(27) = 2
REG. DEFAULT OPTION CHOSEN (YES=1,NO=2)	ISW(28) = 2
TYPE OF POLLUTANT TO BE MODELLED (1=SO2,2=OTHER)	ISW(29) = 2
DEBUG OPTION CHOSEN (YES=1,NO=2)	ISW(30) = 2
ABOVE GROUND (FLAGPOLE) RECEPTORS USED (YES=1,NO=0)	ISW(31) = 0
NUMBER OF INPUT SOURCES	NSOURC = 1
NUMBER OF SOURCE GROUPS (=0,ALL SOURCES)	NGROUP = 0
TIME PERIOD INTERVAL TO BE PRINTED (=0,ALL INTERVALS)	IPERD = 0
NUMBER OF X (RANGE) GRID VALUES	NXPNTS = 40
NUMBER OF Y (THETA) GRID VALUES	NYPNTS = 1
NUMBER OF DISCRETE RECEPTORS	NXWYPT = 3
NUMBER OF HOURS PER DAY IN METEOROLOGICAL DATA	NHOURS = 24
NUMBER OF DAYS OF METEOROLOGICAL DATA	NDAYS = 2
SOURCE EMISSION RATE UNITS CONVERSION FACTOR	TK =.10000E+07
HEIGHT ABOVE GROUND AT WHICH WIND SPEED WAS MEASURED	ZR = 10.00 METERS
LOGICAL UNIT NUMBER OF METEOROLOGICAL DATA	IMET = 5
ALLOCATED DATA STORAGE	LIMIT = 43500 WORDS
REQUIRED DATA STORAGE FOR THIS PROBLEM RUN	MIMIT = 635 WORDS

*** Martin Paving - Soil Venting Asphalt Plant ***

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** X-COORDINATES OF RECTANGULAR GRID SYSTEM ***
(METERS)

100.0, 200.0, 300.0, 400.0, 500.0, 600.0, 700.0, 800.0, 900.0, 1000.0,
1100.0, 1200.0, 1300.0, 1400.0, 1500.0, 1600.0, 1700.0, 1800.0, 1900.0, 2000.0,
2100.0, 2200.0, 2300.0, 2400.0, 2500.0, 2600.0, 2700.0, 2800.0, 2900.0, 3000.0,
3100.0, 3200.0, 3300.0, 3400.0, 3500.0, 3600.0, 3700.0, 3800.0, 3900.0, 4000.0,

*** Y-COORDINATES OF RECTANGULAR GRID SYSTEM ***
(METERS)

.0,

*** X,Y COORDINATES OF DISCRETE RECEPTORS ***
(METERS)

(25.0, .0), (50.0, .0), (75.0, .0), (

1

*** Martin Paving - Soil Venting Asphalt Plant ***

*** SOURCE DATA ***

SOURCE NUMBER	TYPE	WAKE	NUMBER PART. CATS.	EMISSION RATE TYPE=0,1 (GRAMS/SEC) TYPE=2 (GRAMS/SEC) *PER METER**2	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	HEIGHT (METERS)	TEMP. TYPE=0 (DEG.K); VERT.DIM TYPE=1 (METERS)	EXIT VEL. TYPE=0 (M/SEC); HORZ.DIM TYPE=1,2 (METERS)	DIAMETER TYPE=0 (METERS)	BLDG. HEIGHT TYPE=0 (METERS)	BLDG. LENGTH TYPE=0 (METERS)	BLDG. WIDTH TYPE=0 (METERS)
1	0	0	0	.10000E+01	.0	.0	.0	6.10	533.15	35.05	1.05	-7.01	11.34	11.34

1

*** Martin Paving - Soil Venting Asphalt Plant ***

*** DIRECTION SPECIFIC BUILDING DIMENSIONS ***

SOURCE 1

IFV	BH	BW	IFV	BH	BW	IFV	BH	BW	IFV	BH	BW	IFV	BH	BW	IFV	BH	BW
1	7.0,	12.8,	2	7.0,	12.8,	3	7.0,	12.8,	4	7.0,	12.8,	5	7.0,	12.8,	6	7.0,	12.8,
7	7.0,	12.8,	8	7.0,	12.8,	9	7.0,	12.8,	10	7.0,	12.8,	11	7.0,	12.8,	12	7.0,	12.8,
13	7.0,	12.8,	14	7.0,	12.8,	15	7.0,	12.8,	16	7.0,	12.8,	17	7.0,	12.8,	18	7.0,	12.8,
19	7.0,	12.8,	20	7.0,	12.8,	21	7.0,	12.8,	22	7.0,	12.8,	23	7.0,	12.8,	24	7.0,	12.8,
25	7.0,	12.8,	26	7.0,	12.8,	27	7.0,	12.8,	28	7.0,	12.8,	29	7.0,	12.8,	30	7.0,	12.8,
31	7.0,	12.8,	32	7.0,	12.8,	33	7.0,	12.8,	34	7.0,	12.8,	35	7.0,	12.8,	36	7.0,	12.8,

*** Martin Paving - Soil Venting Asphalt Plant ***

* METEOROLOGICAL DATA FOR DAY 1 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	90.0	1.00	1000.0	293.0	.0000	1	.0700	.000000E+00
2	90.0	2.00	1000.0	293.0	.0000	1	.0700	.000000E+00
3	90.0	3.00	1000.0	293.0	.0000	1	.0700	.000000E+00
4	90.0	1.00	1000.0	293.0	.0000	2	.0700	.000000E+00
5	90.0	2.00	1000.0	293.0	.0000	2	.0700	.000000E+00
6	90.0	3.00	1000.0	293.0	.0000	2	.0700	.000000E+00
7	90.0	4.00	1000.0	293.0	.0000	2	.0700	.000000E+00
8	90.0	5.00	1000.0	293.0	.0000	2	.0700	.000000E+00
9	90.0	1.00	1000.0	293.0	.0000	3	.1000	.000000E+00
10	90.0	2.00	1000.0	293.0	.0000	3	.1000	.000000E+00
11	90.0	3.00	1000.0	293.0	.0000	3	.1000	.000000E+00
12	90.0	4.00	1000.0	293.0	.0000	3	.1000	.000000E+00
13	90.0	5.00	1000.0	293.0	.0000	3	.1000	.000000E+00
14	90.0	6.00	1000.0	293.0	.0000	3	.1000	.000000E+00
15	90.0	7.00	1000.0	293.0	.0000	3	.1000	.000000E+00
16	90.0	8.00	1000.0	293.0	.0000	3	.1000	.000000E+00
17	90.0	9.00	1000.0	293.0	.0000	3	.1000	.000000E+00
18	90.0	10.00	1000.0	293.0	.0000	3	.1000	.000000E+00
19	90.0	12.00	1000.0	293.0	.0000	3	.1000	.000000E+00
20	90.0	14.00	1000.0	293.0	.0000	3	.1000	.000000E+00
21	90.0	16.00	1000.0	293.0	.0000	3	.1000	.000000E+00
22	90.0	18.00	1000.0	293.0	.0000	3	.1000	.000000E+00
23	90.0	20.00	1000.0	293.0	.0000	3	.1000	.000000E+00
24	90.0	1.00	1000.0	293.0	.0000	4	.1500	.000000E+00

*** Martin Paving - Soil Venting Asphalt Plant ***

* METEOROLOGICAL DATA FOR DAY 2 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	90.0	2.00	1000.0	293.0	.0000	4	.1500	.000000E+00
2	90.0	3.00	1000.0	293.0	.0000	4	.1500	.000000E+00
3	90.0	4.00	1000.0	293.0	.0000	4	.1500	.000000E+00
4	90.0	5.00	1000.0	293.0	.0000	4	.1500	.000000E+00
5	90.0	6.00	1000.0	293.0	.0000	4	.1500	.000000E+00
6	90.0	7.00	1000.0	293.0	.0000	4	.1500	.000000E+00
7	90.0	8.00	1000.0	293.0	.0000	4	.1500	.000000E+00
8	90.0	9.00	1000.0	293.0	.0000	4	.1500	.000000E+00
9	90.0	10.00	1000.0	293.0	.0000	4	.1500	.000000E+00
10	90.0	12.00	1000.0	293.0	.0000	4	.1500	.000000E+00
11	90.0	14.00	1000.0	293.0	.0000	4	.1500	.000000E+00
12	90.0	16.00	1000.0	293.0	.0000	4	.1500	.000000E+00
13	90.0	18.00	1000.0	293.0	.0000	4	.1500	.000000E+00
14	90.0	20.00	1000.0	293.0	.0000	4	.1500	.000000E+00
15	90.0	1.20	1000.0	293.0	.0200	5	.3500	.000000E+00
16	90.0	2.00	1000.0	293.0	.0200	5	.3500	.000000E+00
17	90.0	3.00	1000.0	293.0	.0200	5	.3500	.000000E+00
18	90.0	4.00	1000.0	293.0	.0200	5	.3500	.000000E+00
19	90.0	5.00	1000.0	293.0	.0200	5	.3500	.000000E+00
20	90.0	1.00	1000.0	293.0	.0350	6	.5500	.000000E+00
21	90.0	2.00	1000.0	293.0	.0350	6	.5500	.000000E+00
22	90.0	3.00	1000.0	293.0	.0350	6	.5500	.000000E+00
23	90.0	4.00	1000.0	293.0	.0350	6	.5500	.000000E+00
24	90.0	5.00	1000.0	293.0	.0350	6	.5500	.000000E+00

1 HIGH 1-HR SGROUP#

*** Martin Paving - Soil Venting Asphalt Plant ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 201.94100 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS)	X-AXIS (METERS) 100.0	200.0	300.0	400.0	500.0
.0	201.94100 (2,11)	73.69700 (2,12)	39.24767 (2,12)	24.66625 (2,12)	17.13303 (2,12)

1 HIGH 1-HR SGROUP#

*** Martin Paving - Soil Venting Asphalt Plant ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 201.94100 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS)	X-AXIS (METERS) 600.0	700.0	800.0	900.0	1000.0
.0	13.96356 (2,12)	11.95586 (2,11)	10.37559 (2,10)	9.22557 (2,10)	8.30964 (2,10)

1 HIGH 1-HR SGROUP#

*** Martin Paving - Soil Venting Asphalt Plant ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 201.94100 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS)	X-AXIS (METERS) 1100.0	1200.0	1300.0	1400.0	1500.0
.0	7.51479 (2, 9)	6.93081 (2, 9)	6.40130 (2, 9)	5.93581 (2, 8)	5.55457 (2, 8)

1 HIGH 1-HR SGROUP#

*** Martin Paving - Soil Venting Asphalt Plant ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 201.94100 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS)	X-AXIS (METERS) 1600.0	1700.0	1800.0	1900.0	2000.0
.0	5.20393 (2, 8)	4.89885 (2, 7)	4.64104 (2, 7)	4.39980 (2, 7)	4.17471 (2, 7)

1 HIGH 1-HR SGROUP#

*** Martin Paving - Soil Venting Asphalt Plant ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 201.94100 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS)	X-AXIS (METERS) 2100.0	2200.0	2300.0	2400.0	2500.0
.0	3.98294 (2, 6)	4.01676 (2,16)	4.09550 (2,16)	4.16475 (2,16)	4.22510 (2,16)

1 HIGH 1-HR SGROUP#

*** Martin Paving - Soil Venting Asphalt Plant ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 201.94100 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS)	X-AXIS (METERS) 2600.0	2700.0	2800.0	2900.0	3000.0
.0	4.27713 (2,16)	4.34744 (2,15)	4.42484 (2,15)	4.49570 (2,15)	4.56029 (2,15)

1 HIGH 1-HR SGROUP#

*** Martin Paving - Soil Venting Asphalt Plant ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 201.94100 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS)	X-AXIS (METERS) 3100.0	3200.0	3300.0	3400.0	3500.0
.0	4.61890 (2,15)	4.67180 (2,15)	4.71926 (2,15)	4.76157 (2,15)	4.79900 (2,15)

1 HIGH 1-HR SGROUP#

*** Martin Paving - Soil Venting Asphalt Plant ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 201.94100 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS)	X-AXIS (METERS) 3600.0	3700.0	3800.0	3900.0	4000.0
.0	4.83180 (2,15)	4.86024 (2,15)	4.88456 (2,15)	4.90501 (2,15)	4.92182 (2,15)

HIGH 1-HR SGROUP#

*** Martin Paving - Soil Venting Asphalt Plant ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
25.0	.0	643.71110	(2,12)	50.0	.0	402.31300	(2,11)
75.0	.0	291.54000	(2,11)				

1 2ND HIGH 1-HR SGROUP#

1 *** Martin Paving - Soil Venting Asphalt Plant ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 195.05040 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS)	X-AXIS (METERS) 100.0	200.0	300.0	400.0	500.0
.0	195.05040 (2,12)	72.89422 (2,11)	38.48792 (2,13)	24.36476 (2,13)	16.97284 (2,13)

1 2ND HIGH 1-HR SGROUP#

1 *** Martin Paving - Soil Venting Asphalt Plant ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 195.05040 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS)	X-AXIS (METERS) 600.0	700.0	800.0	900.0	1000.0
.0	13.92591 (2,11)	11.64418 (2,12)	10.29857 (2,11)	8.92852 (2,11)	8.15084 (2, 9)

1 2ND HIGH 1-HR SGROUP#

1 *** Martin Paving - Soil Venting Asphalt Plant ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 195.05040 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS)	X-AXIS (METERS) 1100.0	1200.0	1300.0	1400.0	1500.0
.0	7.48310 (2,10)	6.78858 (2, 8)	6.34787 (2, 8)	5.92411 (2, 9)	5.49510 (2, 9)

1 2ND HIGH
1-HR
SGROUP#

*** Martin Paving - Soil Venting Asphalt Plant ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 195.05040 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS) /	X-AXIS (METERS) 1600.0	1700.0	1800.0	1900.0	2000.0
.0 /	5.17311 (2, 7)	4.88245 (2, 8)	4.58808 (2, 8)	4.34193 (2, 6)	4.15864 (2, 6)

1 2ND HIGH
1-HR
SGROUP#

*** Martin Paving - Soil Venting Asphalt Plant ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 195.05040 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS) /	X-AXIS (METERS) 2100.0	2200.0	2300.0	2400.0	2500.0
.0 /	3.96501 (2, 7)	3.96034 (2,17)	4.00121 (2,17)	4.07355 (2,15)	4.17203 (2,15)

1 2ND HIGH
1-HR
SGROUP#

*** Martin Paving - Soil Venting Asphalt Plant ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 195.05040 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS) /	X-AXIS (METERS) 2600.0	2700.0	2800.0	2900.0	3000.0
.0 /	4.26325 (2,15)	4.32141 (2,16)	4.35849 (2,16)	4.38891 (2,16)	4.41318 (2,16)

1 2ND HIGH
1-HR
SGROUP#

1

*** Martin Paving - Soil Venting Asphalt Plant ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 195.05040 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS)	X-AXIS (METERS) 3100.0	3200.0	3300.0	3400.0	3500.0
.0	4.43177 (2,16)	4.44515 (2,16)	4.45374 (2,16)	4.45794 (2,16)	4.45813 (2,16)

1 2ND HIGH
1-HR
SGROUP#

1

*** Martin Paving - Soil Venting Asphalt Plant ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 195.05040 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS)	X-AXIS (METERS) 3600.0	3700.0	3800.0	3900.0	4000.0
.0	4.45465 (2,16)	4.45447 (2,21)	4.47984 (2,21)	4.50266 (2,21)	4.52306 (2,21)

1 2ND HIGH
1-HR
SGROUP#

1

*** Martin Paving - Soil Venting Asphalt Plant ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
25.0	.0	627.21340	(2,11)	50.0	.0	397.97020	(2,12)
75.0	.0	279.57590	(2,10)				

RUN ENDED ON 09-26-89 AT 11:09:51

APPENDIX C

CALCULATION OF MAXIMUM SOIL VOC CONCENTRATION

APPENDIX C

SOIL VOC CONCENTRATION METHODOLOGY

1) Established Acceptable Ambient Ground Level Concentration

The threshold limitation values (TLV's) for the constituents of Table 1 are established from available sources. Since the plant operating hours are 40 hours per week or less the TLV is factored by 1/100. This will give the values for the acceptable (allowable) ambient concentration for each constituent.

2) Established Stack Emission Limits Based on Acceptable Ground Level Concentration

The stack emission limits where calculated by using the ISCST model. This modeling technique determines the dilution from the stack to the ground based on the surrounding structures and atmospheric conditions. Based on this dilution factor and the acceptable ground level concentration the stack emission limits are determined and presented in Table 1. The ISCST model is presented in Appendix B.

3) Established Soil Feed Concentration Limits Based on Stack Emission Limits

The maximum soil feed concentrations are determined by the ratio of the stack emission limits to the total soil input to the plant and converted into units of parts per million (ppm). An example calculation is shown and the summary data is presented in Table 1.

Stack Emissions Limit Calculation

Example Calculation (For Xylene)

Model based on 1 gm/sec = 7.9295 lb/hr
Maximum 1-hr concentration = 201.941 ug/m³ @ 100 m downwind

$$\frac{7.9295 \text{ lb/hr}}{201/941 \text{ ug/m}^3} = \frac{\text{Stack Emission Limit}}{439.14 \text{ ug/m}^3}$$

$$\text{Stack emission limit} = \frac{(7.9295 \text{ lb/hr}) \times (439.14 \text{ ug/m}^3)}{(201.941 \text{ ug/m}^3)} = 17.243 \text{ lb/hr}$$

Maximum Feed Concentration Calculation (ppm)

$$\frac{\text{Stack emission (lb/hr)}}{\text{Total input (lb/hr)}} = A$$

$$\frac{A}{X} = \frac{0.01}{10,000}$$

$$\frac{10,000\ A}{0.01} = X$$

- Xylene Feed Concentration $= \frac{(17.243 \text{ lb/hr})}{(360,000 \text{ lb/hr})} = 47.89 \times 10^{-6}$
- Max. Feed Concentration $= \frac{(47.89 \times 10^{-6}) \times (10,000)}{(0.01)} = 47.89$

Ambient Air Concentration

Ambient Temperature = 5/9 (70 °F -32) = 21 °C

$$ppm = \frac{(ug/m^3)\ (Vo)}{(MW)\ (1000)}$$

Where Vo = volume per mole (22.414) at 0 °C and 1 atm

@ 70 °F = 21°

$$Vo = \frac{(22.414)(21 + 273)}{273} = 24.138$$

Allowable Ambient Concentration

Benzene: $\frac{(0.01\ ppm)x(78.12)x(1000)}{(24.138)} = 32.364\ ug/m^3$

Toluene: $\frac{(0.1\ ppm)x(92.15)x(1000)}{(24.138)} = 381.76\ mg/m^3$

Xylene: $\frac{(0.1ppm)x(106)x(1000)}{(24.138)} = 439.14\ ug/m^3$

Ethylbenzene: $\frac{(0.1\ ppm)x(104)x(1000)}{(24.138)} = 430.85\ ug/m^3$

TABLE 1
MAXIMUM AMBIENT AIR CONCENTRATIONS

Compound	TLV (ppm)	Allowable Ambient (ppm)*	Allowable Ambient (ug/m^3)	Emission Limit (lb/hr)**	Max. Feed Concentration (ppm)
Benzene	1	0.01	32.36	1.27	3.53
Toluene	10	0.1	381.76	14.99	41.64
Xylene	10	0.1	439.14	17.23	47.89
Ethylbenzene	10	0.1	430.85	16.92	46.99

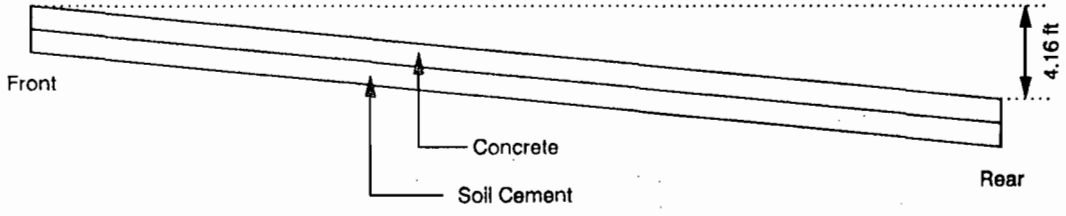
* This limit is based on 1/100 of the threshold limitation value of the compound.

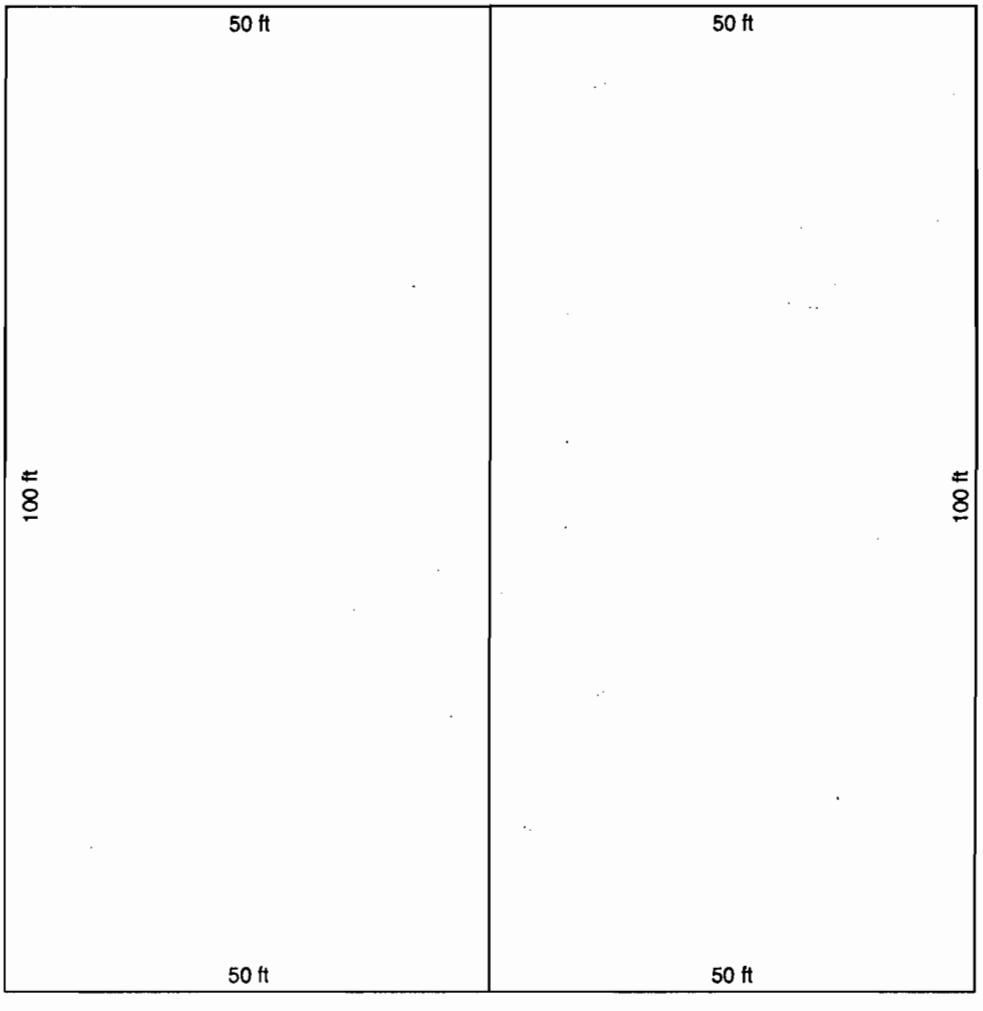
** The worst case scenario assumes VOC's are all Xylene for ISCST modeling at 1 gm/sec emissions.

APPENDIX D

SOIL STORAGE BUILDING DATA

Martin Asphalt Company
Soil Storage Facility Concrete Pad

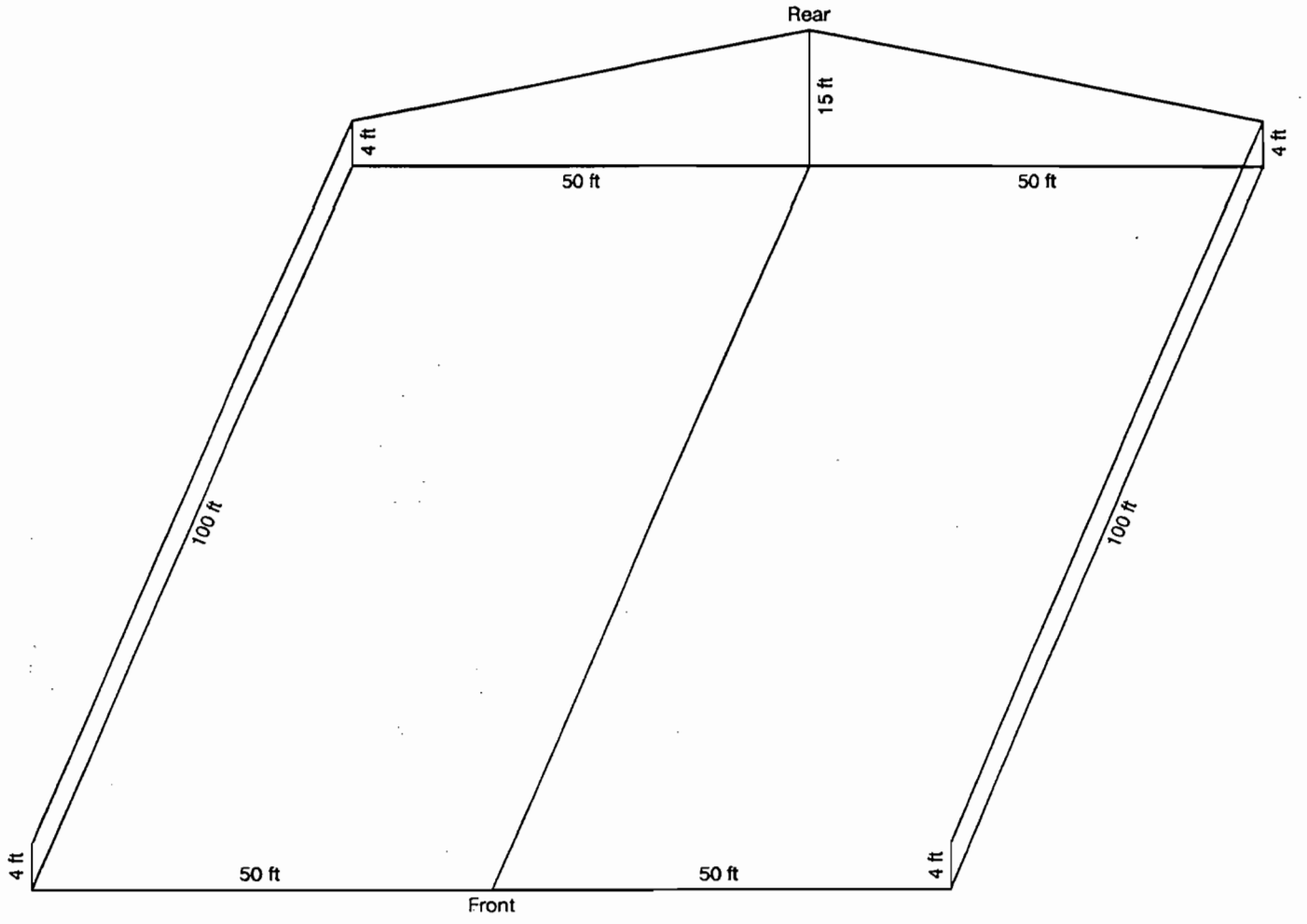




C T A Cross/Tessitore & Assoc., P.A.
Environmental Engineers Orlando, Florida

Martin Asphalt Company

Soil Storage Facility Concrete Pad & Walls



C T A Cross/Tessitore & Assoc., P.A.
Environmental Engineers Orlando, Florida

Withdrawn

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

Bob Martinez
GOVERNOR
Dale Twachtman
SECRETARY
Alex Alexander
DISTRICT MANAGER

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Soil Remediation Unit [ ] New[1] [x] Existing[1]

APPLICATION TYPE: [ ] Construction [ ] Operation [x] Modification

COMPANY NAME: Martin Asphalt Company COUNTY: Volusia

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) Dryer with baghouse

SOURCE LOCATION: Street Clyde Morris Boulevard City West of S. Daytona

UTM: East 17-496675 North 3224370

Latitude 29 ° 09 ' 12 "N Longitude 81 ° 58 ' 30 "W

APPLICANT NAME AND TITLE: Richard K. Martin, President

APPLICANT ADDRESS: 1801 S. Nova Road, South Daytona, Florida 32019-1733

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Martin Asphalt Company

I certify that the statements made in this application for a Modification permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: RK Martin

Richard K. Martin, President
Name and Title (Please Type)

Date: 10/19/89 Telephone No. (904) 761-8384

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that

[1] See Florida Administrative Code Rule 17-2.100(57) and (104)

the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed Joseph L. Tessitore

Joseph L. Tessitore, P.E. Vice President
Name (Please Type)

Cross/Tessitore and Associates, P.A.
Company Name (Please Type)

Suite F, 4763 S. Conway Road Orlando, FL 32812
Mailing Address (Please Type)

Florida Registration No. 23374 Date: 10/30/89 Telephone No. (407) 851-1484

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

This permit modification involves the remediation of soil through the existing ASTEC parallel flow asphalt plant. The system is equipped with an ASTEC SSFS-60 baghouse (see section II A attachment). The project will result in full compliance with FDER regulations.

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction Oct. 1989 Completion of Construction Feb. 1990

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

ASTEC Model SSFS-60 baghouse: $157,000.00

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

A064-153244 Issued- 6/5/89, Expires- 5/20/94

SECTION II

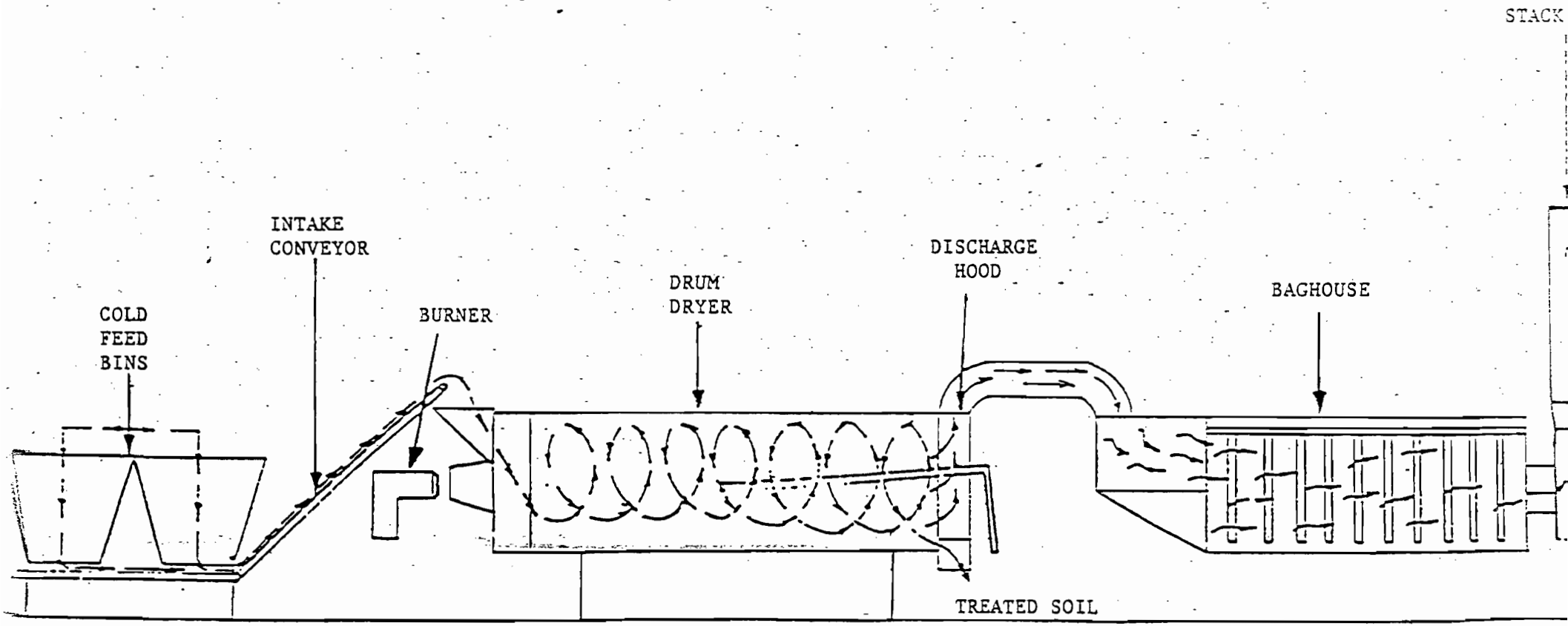
ATTACHMENT A

Process Flow Description

The operation at the Martin Asphalt Company, Daytona Beach site, utilizes an ASTEC parallel flow drum dryer with an ASTEC model SSFS-60 baghouse for air pollution control (see attached figure). *Contaminated soil enters the dryer from the cold feed bins by way of an intake conveyor. The hot gases of combustion flow through the dryer and exit into the discharge hood, where it is directed into the baghouse. The baghouse removes particulate with 99% efficiency. The treated soil is discharged from the dryer, collected and stored in the soil storage facility. The soil is then analyzed to show compliance and further disposed.

* Contaminated soil may contain sludge from the truck wash operation (see Appendix E).

MARTIN ASPHALT COMPANY
PROCESS FLOW DIAGRAM



E. Requested permitted equipment operating time: hrs/day 8 ; days/wk 5 ; wks/yr 50 ;

If power plant, hrs/yr N/A ; If seasonal, describe: N/A

F. If this is a new source or major modification, answer the following questions. (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? NO

   a. If yes, has "offset" been applied? -

   b. If yes, has "Lowest Achievable Emission Rate" been applied? -

   c. If yes, list non-attainment pollutants. -

2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. NO

3. Does the State "Prevention of Significant Deterioriation" (PSD) requirement apply to this source? If yes, see Sections VI and VII. NO

4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? YES

5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? NO

H. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? NO

   a. If yes, for what pollutants? -

   b. If yes, in addition to the information required in this form, any information requested in Rule 17-2.650 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

F.4 NSPS for asphalt plants, reference 40 CFR, Part 60, Sub Part I.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants Type	Contaminants % Wt	Utilization Rate - lbs/hr	Relate to Flow Diagram
Contaminated Soil	Particulate	2	360,000	See Section V, Item 6

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): 360,000

2. Product Weight (lbs/hr): 359,984

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Name of Contaminant	Emission[1] Maximum lbs/hr	Emission[1] Actual T/yr	Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission lbs/hr	Potential[4] Emission T/yr	Relate to Flow Diagram
1) Particulate	7.6	7.6	17-2.610 (2)	*7.6	7.6	7.6	Section V Item 6
2) Particulate	3.6	3.6	-	-	3.6	3.6	"
3) Particulate	16.4	16.4	-	-	16.4	16.4	"
4)Particulate	Negligible		-	-	Negligible		"

[1]See Section V, Item 2. *0.04 gr/DSCF

[2]Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

[3]Calculated from operating rate and applicable standard.

[4]Emission, if source operated without control (See Section V, Item 3).

1) Emissions from soil remediation unit including fuel emissions.
2) Emissions form hopper loading.
3) Emissions from vehicle traffic.
4) Emissions from sand and aggregate storage pile.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): _____

2. Product Weight (lbs/hr): _____

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
SO_2	163.56	163.56	-	-	163.56	163.56	Section V Item 6
NO_x	32.74	32.74	-	-	32.74	32.74	"
CO	2.98	2.98	-	-	2.98	2.98	"
VOC (1)	0.17	0.17	-	-	0.17	0.17	"
VOC (2)	7.72	7.72	-	-	7.72	7.72	"

[1] See Section V, Item 2.

[2] Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

[3] Calculated from operating rate and applicable standard.

[4] Emission, if source operated without control (See Section V, Item 3).

1) Emissions from fuel usage in burner.
2) Emissions from soil concentrations. Refer to Table 1 for maximum emission breakdown and Item 2 .

D. Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
ASTEC baghouse	Particulate	99.0%		See Section
Model SSFS- 60				V, Item 5
				(basis for
				control
				device
				efficiency)

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
No. 5 fuel oil	595.3	595.3	90.49
(Off specification used oil)			

*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis:

Percent Sulfur: 1.75 Percent Ash: Negligible

Density: 8 lbs/gal Typical Percent Nitrogen: Negligible

Heat Capacity: 19,000 BTU/lb 152,000 BTU/gal

Other Fuel Contaminants (which may cause air pollution): N/A

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average N/A Maximum N/A

G. Indicate liquid or solid wastes generated and method of disposal.

Used bags will be changed as needed and disposed of at a sanitary landfill.

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: 32 ft. Stack Diameter: 4.0 ft.

Gas Flow Rate: 64,140 * ACFM 22,110 DSCFM Gas Exit Temperature: 500 °F.

Water Vapor Content: 37% (by volume) % Velocity: 85 FPS

* See Appendix A- Combustion Calculations

SECTION IV: INCINERATOR INFORMATION

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq.& Gas By-prod.)	Type VI (Solid By-prod.)
Actual lb/hr Incinerated							
Uncontrolled (lbs/hr)							

Description of Waste _____

Total Weight Incinerated (lbs/hr) _____ Design Capacity (lbs/hr) _____

Approximate Number of Hours of Operation per day _____ day/wk _____ wks/yr. _____

Manufacturer _____

Date Constructed _____ Model No. _____

	Volume $(ft)^3$	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diamter: _____ Stack Temp. _____

Gas Flow Rate: _____ ACFM _____ DSCFM* Velocity: _____ FPS

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner

[ ] Other (specify) _____

Brief description of operating characteristics of control devices: Gas containing the particulate is made to flow through the baghouse filters. The dust is filtered from the exhaust gas stream as the gases pass through the filter bags and are exhausted to the atmosphere. The filter bags are periodically shaken to knock the dust down to the bottom where it can be removed for disposal.

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

Used bags are disposed of at a sanitary landfill. Processed soil, after passing through the soil remediation unit, is then available for reclamation.

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]

2. For a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. For an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.

3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).

4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.)

5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).

6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.

7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).

8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

. The appropriate application fee in accordance with Rule 17-4.05. The check should be made payable to the Department of Environmental Regulation.

O. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY N/A

. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?

[ ] Yes [ ] No

Contaminant	Rate or Concentration

. Has EPA declared the best available control technology for this class of sources (If yes, attach copy)

[ ] Yes [ ] No

Contaminant	Rate or Concentration

. What emission levels do you propose as best available control technology?

Contaminant	Rate or Concentration

. Describe the existing control and treatment technology (if any).

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:

Explain method of determining

5. Useful Life:

6. Operating Costs:

7. Energy:

8. Maintenance Cost:

9. Emissions:

Contaminant	Rate or Concentration

10. Stack Parameters

a. Height: ft.

b. Diameter: ft.

c. Flow Rate: ACFM

d. Temperature: °F.

e. Velocity: FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

2.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

[1]Explain method of determining efficiency.
[2]Energy to be reported in units of electrical power - KWH design rate.

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

3.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

4.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Costs:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

Describe the control technology selected:

1. Control Device:

2. Efficiency:[1]

3. Capital Cost:

4. Useful Life:

5. Operating Cost:

6. Energy:[2]

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

[1] Explain method of determining efficiency.
[2] Energy to be reported in units of electrical power - KWH design rate.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

b. (1) Company:

(2) Mailing Address:

(3) City: (4) State:

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

10. Reason for selection and description of systems:

Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

SECTION VII - PREVENTION OF SIGNIFICANT DETERIORATION N/A

. Company Monitored Data

1. _____ no. sites _____ TSP _____ ( ) SO^2* _____ Wind spd/dir

Period of Monitoring _____/_____/_____ to _____/_____/_____
month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

Specify bubbler (B) or continuous (C).

2. Instrumentation, Field and Laboratory

a. Was instrumentation EPA referenced or its equivalent? [ ] Yes [ ] No

b. Was instrumentation calibrated in accordance with Department procedures?

[ ] Yes [ ] No [ ] Unknown

. Meteorological Data Used for Air Quality Modeling

1. _____ Year(s) of data from ____/____/____ to ____/____/____
month day year month day year

2. Surface data obtained from (location)_____

3. Upper air (mixing height) data obtained from (location)_____

4. Stability wind rose (STAR) data obtained from (location)_____

C. Computer Models Used

1. _____ Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate	
TSP	_____	grams/sec
SO^2	_____	grams/sec

E. Emission Data Used in Modeling

Attach list of emission sources. Emission data required is source name, description of point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

. Attach all other information supportive to the PSD review.

. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.

MARTIN ASPHALT COMPANY

SECTION V
SUPPLEMENTAL REQUIREMENTS

ITEM 1 PROCESS INPUT RATE

Assumptions

Unit loading rate = 180 ton/hr
Operating time = 8 hr/day; 5 day/wk; 50 wk/yr; 2000 hr/yr

(180 ton/hr)x(2000 hr/yr) = 360,000 ton/yr

ITEM 2 EMISSION CALCULATIONS

PARTICULATE EMISSIONS

SOIL REMEDIATION UNIT

Assumptions

Unit loading rate	= 180 ton/hr
Baghouse efficiency	= 99.0%
Gas flow	= 22,110 DSCFM (see Appendix A)
Maximum allowable grain loading	= 0.04 gr/DSCF
Operating hours	= 2000 hrs/yr

ALLOWABLE AND ACTUAL EMISSIONS

Calculations

$$\frac{(0.04\ \text{gr/DSCF}) \times (22{,}110\ \text{DSCF}) \times (60\ \text{min/hr})}{(7000\ \text{gr/lb})} = 7.6\ \text{lb/hr}$$

$$\frac{(7.6\ \text{lb/hr}) \times (2000\ \text{hr/yr})}{(2000\ \text{lb/ton})} = 7.6\ \text{ton/yr particulate}$$

HOPPER LOADING

Assumptions

Unit loading rate = 180 ton/hr
Emission factor; feed hopper loading = 0.02 lb/ton (as per Table 8.10-1, AP-42)

Calculations

(180 ton/hr)x(0.02 lb/ton) = 3.6 lb/hr

(3.6 lb/hr)x(2000 lb/ton)/(2000 lb/ton) = 3.6 ton/yr

VEHICLE TRAFFIC

Assumptions

Average truck capacity = 22 tons
Unit loading rate = 180 ton/hr
Operating time = 2000 hrs/yr
Emission factor vehicle traffic = 16 lb/vehicle mile traveled (as per table 8.10-1; AP-42)

Road distance from unit to hard road = approximately 1/8 mile round trip

Calculations

$\frac{(180 \text{ ton/hr})}{(22 \text{ ton/truck})} = 8.2$ truck/hr

(8.2 truck/hr) x (16 lb/veh mile) x (1/8 mile) = 16.4 lb/hr*

(16.4 lb/hr) x (2000 hr/yr)/(2000 lb/ton) = 16.4 ton/yr*

* Does not include rain or periodic wash down of road.

WIND EROSION FROM SAND AND AGGREGATE STORAGE PILES

Assumptions

A 100'x100' concrete slab surrounded by walls on three sides will be constructed to contain the storage piles. The floor will have a downslope (from the open end to the closed end) of 0.5 inches. The storage pile slab will be separated into two equal sections. One section will contain the contaminated soil and the other section will contain the treated soil. Tarpoleum will be utilized in the covering of the storage piles when not in use. A schematic of the storage pile containment facility is presented in Appendix D.

Aggregate Storage Pile Area = 5000 ft^2

Emissions Factor = 3.5 lbs/acre/day (Table 8.10-1, AP-42)

Operating Hours = 8 hrs/day; 2000 hrs/yr

1 acre = 43,560 ft^2

Calculations

$$\frac{(5000\ ft^2)}{(43{,}560\ ft^2/acre)} = 0.115\ acre$$

$$\frac{(3.5\ lbs/acre/day) \times (0.115\ acres)}{(8\ hrs/day)} = 0.05\ lbs/hr$$

$$\frac{(0.05\ lbs/hr) \times (2000\ hrs/yr)}{(2000\ lbs/ton)} = 0.05\ tons/yr$$

TABLE 8.10-1. UNCONTROLLED PARTICULATE EMISSION FACTORS FOR CONCRETE BATCHING

Source	kg/Mg of material	lb/ton of material	lb/yd^3 of concrete[a]	Emission Factor Rating
Sand and aggregate transfer to elevated bin[b]	0.014	0.029	0.05	E
Cement unloading to elevated storage silo				
Pneumatic[c]	0.11	0.21	0.07	D
Bucket elevator[d]	0.12	0.24	0.06	E
Weigh hopper loading[e]	0.01	0.02	0.04	E
Truck loading (truck mix)[e]	0.01	0.02	0.04	E
Mixer loading (central mix)[e]	0.02	0.04	0.07	E
Vehicle traffic (unpaved road)[f]	4.5 kg/VKT	16 lb/VHT	0.28	C
Wind erosion from sand and aggregate storage piles[h]	1.9 kg/ hectare/day	3.5 lb/ acre/day	0.1[i]	D
Total process emissions (truck mix)[j]	0.05	0.10	0.20	E

[a]Based on a typical yd^3 weighing 1,818 kg (4,000 lb) and containing 227 kg (500 lb) cement, 564 kg (1,240 lb) sand, 864 kg (1,900 lb) coarse aggregate and 164 kg (360 lb) water.

[b]Reference 6.

[c]For uncontrolled emissions measured before filter. Based on two tests on pneumatic conveying controlled by a fabric filter.

[d]Reference 7. From test of mechanical unloading to hopper and subsequent transport of cement by enclosed bucket elevator to elevated bins with fabric socks over bin vent.

[e]Reference 5. Engineering judgement, based on observations and emission tests of similar controlled sources.

[f]From Section 11.2.1, with k = 0.8, s = 12, S = 20, W = 20, w = 14, and p = 100. VKT = vehicle kilometers traveled. VHT = vehicle miles traveled.

[g]Based on facility producing 23,100 m^3/yr (30,000 yd^3/yr), with average truck load of 6.2m^3 (8 yd^3) and plant road length of 161 meters (1/10 mile).

[h]From Section 8.19.1, for emissions <30 um for inactive storage piles.

[i]Assumes 1,011 m^2 (1/4 acre) of sand and aggregate storage at plant with production of 23,100 m^3/yr (30,000 yd^3/yr).

[j]Based on pneumatic conveying of cement at a truck mix facility. Does not include vehicle traffic or wind erosion from storage piles.

SECTION V

VOC EMISSIONS

SOIL REMEDIATION UNIT

Assumptions

Stack height	= 32ft.
Gas flow rate	= 64,140 ACFM
Gas exit temperature	= 500 °F
Exhaust gas velocity	= 85 ft/sec

Soil Conditions

* Maximum Xylene concentration in soil = 21.45 ppm
  Maximum soil input to burner = 180 ton/hr (2000 hr/yr)

* Maximum VOC emissions (on a worst case basis) would occur at maximum Xylene concentration since it makes up the greatest percentage of gasoline. See Table 1.

EMISSION CALCULATION

Soil VOC concentration = 47.18×10^{-6} lb VOC/kg soil

$$\text{Soil Feed Rate} = \frac{(180 \text{ ton/hr}) \times (2000 \text{ lb/ton})}{(2.2 \text{ lb/kg})} = 163{,}640 \text{ kg/hr}$$

$$(163{,}640 \text{ kg/hr}) \times (47.18 \times 10^{-6} \frac{\text{lb VOC}}{\text{kg soil}}) = 7.72 \text{ lb/hr VOC/180 ton/hr of soil emissions}$$

$$\frac{(7.72 \text{ lb/hr VOC})(2000 \text{ hr/yr})}{(2000 \text{ lb/ton})} = 7.72 \text{ ton VOC/yr emissions}$$

SECTION V

ITEM 2

EMISSIONS FROM FUEL COMBUSTION

UTILIZING OFF SPEC USED OILS

FUEL COMBUSTION CALCULATION INPUT PARAMETERS DATE: 27-Sep-89

HOURS OF OPERATION — Martin Paving

hrs/day	=	8	hrs/yr	=	2,000
days/wk	=	5			
wks/yr	=	50			

FUEL CONSUMPTION

Residual Oil (No. 5) Consumption = 1.1906 Million gal/yr

EMISSION FACTORS

Emission factors for Residual Oil are from AP-42, Table 1.3-1.

Particulates (Uncontrolled)

lbs/1,000 gal of Residual Oil = 10 lbs/1,000 gal

Sulfur Dioxide

Residual Oil % Sulfur by Weight = 1.75 %
lbs/1,000 gal of Residual Oil = 157 lbs/1,000 gal of fu

Nitrogen Oxide

lbs/1,000 gal of Residual Oil = 55 lbs/1,000 gal

Carbon Monoxide

lbs/1,000 gal of Residual Oil = 5 lbs/1,000 gal

Hydrocarbon

lbs/1,000 gal of Residual Oil = 0.28 lbs/1,000 gal

ADDITIONAL DATA

Efficiency of Air Pollution Control = 99.97582 %

| ITEM 2 |

CALCULATION OF EMISSIONS

PARTICULATES

Residual Fuel Oil Consumption (No. 5)

$$\frac{1.1906 \text{ million gal/yr} \times 10.0 \text{ lb/1,000 gal}}{2{,}000 \text{ lbs/ton}} = 5.953 \text{ tons/yr}$$

Air Pollution Control Efficiency = 99.97582 %

Total Controlled Particulates =

5.953 tons/yr × (1 − 0.999758) = 0.001439 tons/yr

$$\frac{0.001439 \text{ tons/yr} \times 2{,}000 \text{ lbs/ton}}{2{,}000 \text{ hrs/yr}} = 0.001439 \text{ lbs/hr}$$

SULFUR DIOXIDE (SO2)

Residual Fuel Oil Consumption (No. 5)

Emission Factor = 157 lbs/1,000 gal × S, where

S = Fuel Oil % Sulfur by Wieght = 1.75 %

= 157 lbs/1,000 gal × 1.75

= 274.75 lbs/1,000 gal

$$\frac{1.1906 \text{ million gal/yr} \times 274.8 \text{ lb/1,000 gal}}{2{,}000 \text{ lbs/ton}} = 163.5506 \text{ tons/yr}$$

$$\frac{163.5506 \text{ tons/yr} \times 2{,}000 \text{ lbs/ton}}{2{,}000 \text{ hrs/yr}} = 163.5586 \text{ lbs/hr}$$

NITROGEN OXIDE (NOX)

Residual Fuel Oil Consumption (No. 5)

$$\frac{1.1906 \text{ million gal/yr} \times 55.0 \text{ lb/1,000 gal}}{2{,}000 \text{ lbs/ton}}$$

$$= 32.7415 \text{ tons/yr}$$

$$\frac{32.7415 \text{ tons/yr} \times 2{,}000 \text{ lbs/ton}}{2{,}000 \text{ hrs/yr}} = 32.7415 \text{ lbs/hr}$$

CARBON MONOXIDE (CO)

Residual Fuel Oil Consumption (No. 5)

$$\frac{1.1906 \text{ million gal/yr} \times 5.0 \text{ lb/1,000 gal}}{2{,}000 \text{ lbs/ton}}$$

$$= 2.9765 \text{ tons/yr}$$

$$\frac{2.9765 \text{ tons/yr} \times 2{,}000 \text{ lbs/ton}}{2{,}000 \text{ hrs/yr}} = 2.9765 \text{ lbs/hr}$$

HYDROCARBONS (HC)

Residual Fuel Oil Consumption (No. 5)

$$\frac{1.1906 \text{ million gal/yr} \times 0.3 \text{ lb/1,000 gal}}{2{,}000 \text{ lbs/ton}}$$

$$= 0.166684 \text{ tons/yr}$$

$$\frac{0.166684 \text{ tons/yr} \times 2{,}000 \text{ lbs/ton}}{2{,}000 \text{ hrs/yr}} = 0.166684 \text{ lbs/hr}$$

ITEM 3

FUEL COMBUSTION EMISSION CALCULATIONS SUMMARY

POLLUTANT	ACTUAL EMISSION RATE (LB/HR)	ACTUAL EMISSION RATE (TON/YR)	POTENTIAL EMISSION RATE (LB/HR)	POTENTIAL EMISSION RATE (TON/YR)
PARTICULATES	0.001439	0.001439	5.953	5.953
SULFUR DIOXIDE	163.5586	163.5586	163.5586	163.5586
NITROGEN OXIDE	32.7415	32.7415	32.7415	32.7415
CARBON MONOXIDE	2.9765	2.9765	2.9765	2.9765
HYDROCARBONS	0.166684	0.166684	0.166684	0.166684

SECTION V

ITEM 3 POTENTIAL EMISSIONS

PARTICULATE EMISSIONS

SOIL REMEDIATION UNIT, HOPPER LOADING, VEHICLE TRAFFIC, AND WIND EROSION FROM SAND AND AGGREGATE STORAGE PILES

Assumptions

Potential particulate emission is the same as the actual emission.

VOC EMISSIONS

SOIL REMEDIATION UNIT

Assumption

Potential VOC emission is the same as the actual emission since there is no control.

ITEM 4 AIR POLLUTION CONTROL

Assumptions

ASTEC model SSFS - 60 baghouse
Gas flow rate = 64,140 ACFM
Baghouse exhaust stack = 4.0 ft. Diameter
No. bags in baghouse = 429 (9566.7 sq.ft.)
Length of bag = 14.0 ft.

Calculations

(64,140 cu.ft./min)/(9566.7 ft^2) = 6.7 ft/min

Air to cloth ratio 6.7:1

ITEM 5 CONTROL DEVICE EFFICIENCY

Assumptions

Potential emission loading to baghouse = 767.7 lb/hr

Actual emissions from baghouse = 7.6 lb/hr

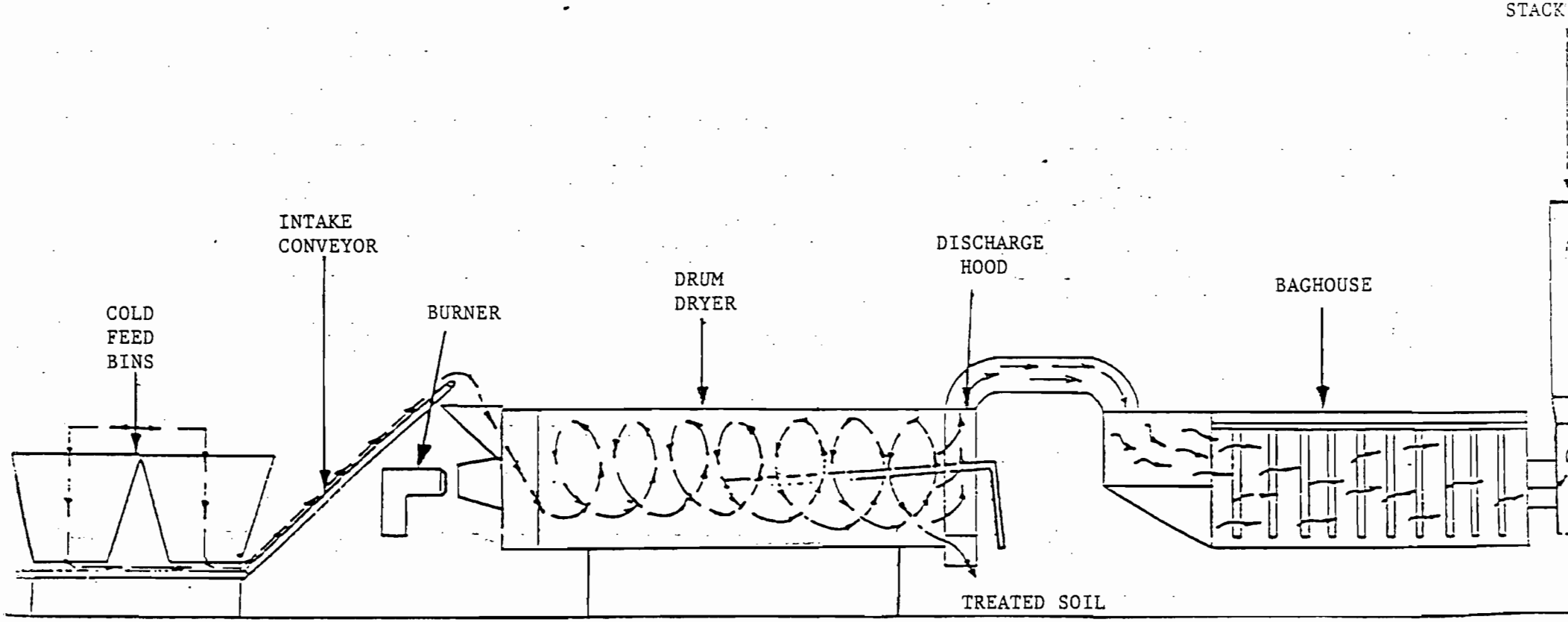
$$\text{Efficiency} = \frac{\text{Potential - Actual}}{\text{Potential}} \times 100$$

Calculations

$$\frac{(767.7 \text{ lb/hr}) - (7.6 \text{ lb/hr})}{(767.7 \text{ lb/hr})} \times 100 = 99\%$$

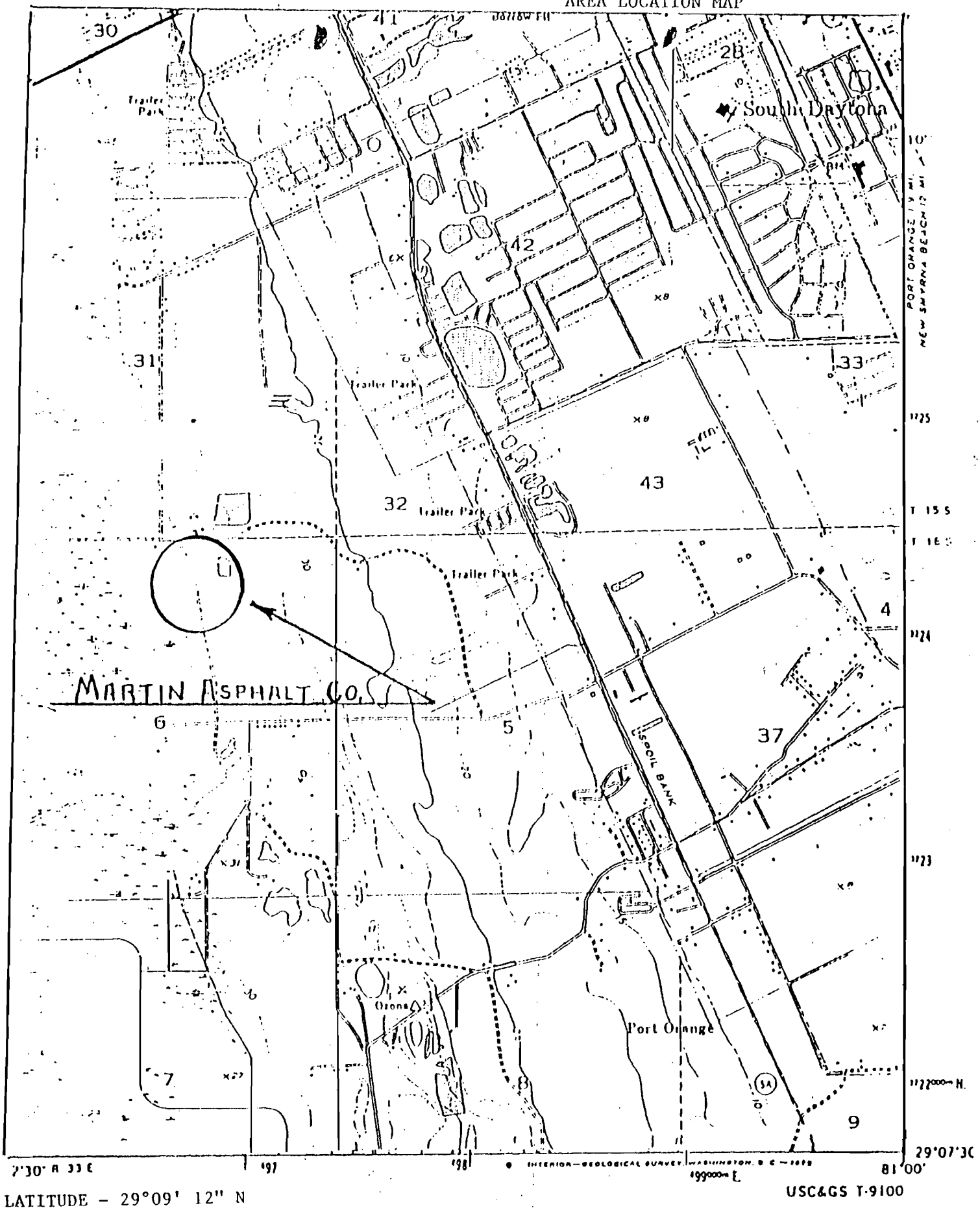
SECTION V
ITEM 6

MARTIN ASPHALT COMPANY
PROCESS FLOW DIAGRAM



ITEM 7

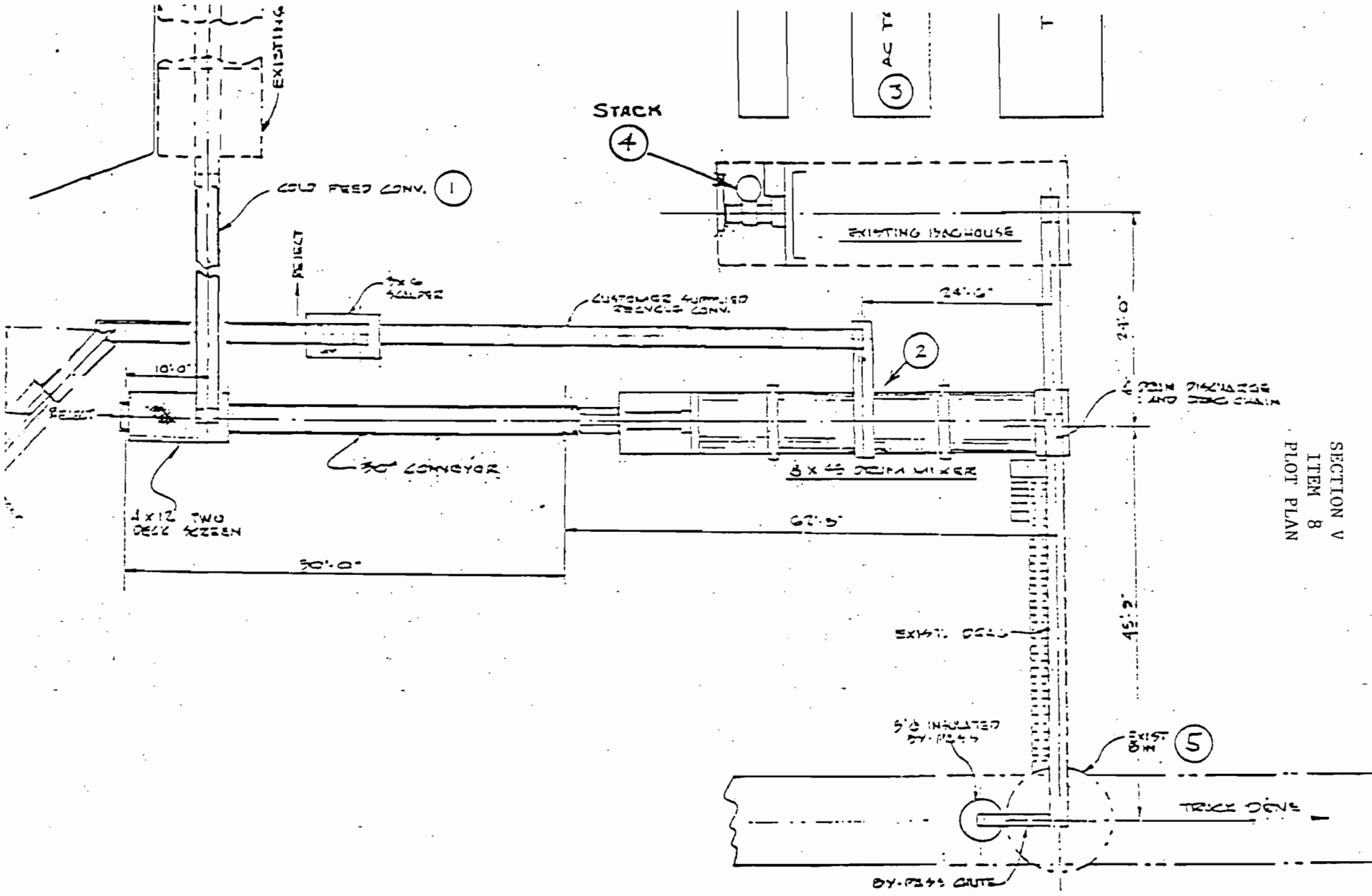
AREA LOCATION MAP



LATITUDE - 29°09' 12" N
LONGITUDE - 81°58' 30" W

C T A	Cross/Tessitore & Associates, P.A. Environmental Engineers Orlando, Florida

BEST AVAILABLE COPY



SECTION V
ITEM 8
PLOT PLAN

C T A	Cross/Tessitore & Associates, P.A. Environmental Engineers — Orlando, Florida

ASPHALT PLANT BTU-ACF-DSCF COMPUTATION INPUT PARAMETERS

DATE: 04-Oct-89

ELEVATION OF PLANT = 50 FT.

STACK AREA = 12.57 SQ. FT.

AGGREGATE PARAMETERS	ENTERING DRYER	EXITING DRYER
AGGREGATE TEMPERATURE	70 DEG F	450 DEG F
AIR AND GAS TEMPERATURE	70 DEG F	500 DEG F
MOISTURE CONTENT OF AGGREGATE	10 %	0.5 %

NUMBER	FUEL	UNITS
1)	NATURAL GAS	CU.FT.
2)	PROPANE	GAL
3)	BUTANE	GAL
4)	NO. 1 FUEL OIL	GAL
5)	NO. 2 FUEL OIL	GAL
6)	NO. 4 FUEL OIL	GAL
7)	NO. 5 FUEL OIL	GAL
8)	NO. 6 FUEL OIL	GAL

ENTER NUMBER OF FUEL USED: 7

FUEL PARAMETERS

FUEL	=	NO. 5 FUEL OIL	
UNIT	=	GAL	
BTU NOMINAL/UNIT OF FUEL	=	152,000	BTU/UNIT
G	=	26.900	
V	=	8.40	
CU.FT. OF AIR REQUIRED/UNIT OF FUEL	=	1,540.00	CU.FT./UNIT
DSCF/UNIT OF FUEL	=	1,495.00	DSCF/UNIT
ACF - CU.FT. OF WET EXHAUST/UNIT OF FUEL	=	1,610.00	ACF/UNIT

PRODUCTION PARAMETERS

TONS OF MIX PRODUCED PER HOUR	=	180	TONS/HR
ASPHALT CONTENT OF MIX (%)	=	0	%

ASPHALT PLANT BTU-ACF-DSCF COMPUTATION

1) BTU'S TO HEAT WATER IN DRIED AGGREGATE lbs of water 10 x temperature rise 142	1,420 BTU
2) BTU'S TO HEAT AGGREGATE IN DRIED AGGREGATE lbs of agg. 1,930 x 0.2 x temperature rise 380	151,240 BTU
3) BTU'S TO EVAPORATE WATER FROM AGGREGATE lbs of water evaporated 190 x heat applied to evaporate water 1,249	237,310 BTU
4) BTU'S TO HEAT AND DRY AGGREGATE line 1 + line 2 + line 3	389,970 BTU
5) INCREASED FOR LOSSES DUE TO RADIATION BTU'S FOR STOICHIOMETRIC CONDITIONS line 4 x 1.05	409,500 BTU
6) FUEL NEEDED TO PRODUCE BTU'S FOR STOICH. CONDTIONS line 5/BTU's available per unit of fuel 129,941	3.151 UNITS
7) AIR REQUIRED TO BURN FUEL FOR STOICHIOMETRIC VOLUME line 6 x air required per unit of fuel 1,540	4,850 CU.FT.

ASPHALT PLANT BTU-ACF-DSCF COMPUTATION

	AIR VOLUME - RATIO, R, TO STOICHIMETRIC						
	1	1.5	2	2.5	3	4	5
8) CUBIC FEET OF UNBURNED AIR line 7 x 0, 0.5, 1.0, etc.	0	2,425	4,850	7,275	9,700	14,550	19,400
9) BTU'S TO HEAT UNBURNED AIR line 8 x BTU's/cu.ft.air 8.31	0	20,200	40,300	60,500	80,600	120,900	161,200
10) BTU'S FOT STOICHIOMETRIC CONDITIONS line 5	409,500	409,500	409,500	409,500	409,500	409,500	409,500
11) TOTAL BTU'S line 9 + line 10	409,500	429,700	449,800	470,000	490,100	530,400	570,700
12) FUEL NEEDED TO PRODUCE TOTAL BTU'S line 11/BTU's av/unit 129,941	3.151	3.307	3.462	3.617	3.772	4.082	4.392
13) DSCF FROM COMBUSTION GASES line 12 x scf/unit 1,495	4,710	4,940	5,180	5,410	5,640	6,100	6,570
14) TOTAL DSCF AT SEA LEVEL line 13 + line 8	4,710	7,365	10,030	12,685	15,340	20,650	25,970
15) DSCF AT 50 FT. ELEVATION line 14 x elevation corr. 1	4,710	7,370	10,030	12,690	15,340	20,650	25,970
16) ACF FROM COMBUSTION GASES line 12 x ACF/unit 2,915.68	9,190	9,640	10,090	10,550	11,000	11,900	12,810
17) ACF FROM WATER VAPOR water ev. 190 x cuft/lb 38.7	7,350	7,350	7,350	7,350	7,350	7,350	7,350
18) ACF FROM UNBURNED AIR line 8 x temp. corr. 1.81	0	4,390	8,780	13,170	17,560	26,340	35,110
19) TOTAL ACF AT SEA LEVEL line 16 + line 17 + line 18	16,540	21,380	26,220	31,070	35,910	45,590	55,270
20) ACF AT 50 FT. ELEVATION line 19 x elevation corr. 1	16,540	21,380	26,220	31,070	35,910	45,590	55,270

ASPHALT PLANT BTU-ACF-DSCF COMPUTATION

21) TONS OF AGGREGATE DRIED PER HOUR tons of mix produced/hour	180	x	(1 -	asphalt content	0)	=	180 TONS/HR	
22) TONS OF AGGREGATE DRIED PER MINUTE line 21/60						=	3.00 TONS/MIN.	

	AIR VOLUME - RATIO, R, TO STOICHIMETRIC						
	1	1.5	2	2.5	3	4	5
23) FUEL REQUIRED PER TON OF AGGREGATE line 12	3.151	3.307	3.462	3.617	3.772	4.082	4.392
24) FUEL REQUIRED PER HOUR line 23 x line 21	567.2	595.3	623.2	651.1	679.0	734.8	790.6
25) DSCF PER TON OF AGGREGATE line 15	4,710	7,370	10,030	12,690	15,340	20,650	25,970
26) DSCF PER MINUTE line 25 x line 22	14,130	22,110	30,090	38,070	46,020	61,950	77,910
27) ACF PER TON OF AGGREGATE line 20	16,540	21,380	26,220	31,070	35,910	45,590	55,270
28) ACF PER MINUTE line 27 x line 22	49,620	64,140	78,660	93,210	107,730	136,770	165,810

ASPHALT PLANT SUMMARY (ASSUMES 50% EXCESS AIR)

ACFM	64,140 ACFM
SCFM	35,277 SCFM
DSCFM	22,110 DSCFM
% H20 (by volume)	37 %
% H20 (by weight)	27 %
VELOCITY	85 FT/SEC
FUEL USAGE	595.3 UNIT/HOUR

APPENDIX B

ISCST

AIR QUALITY IMPACT

MODELING STUDY

ISCST - VERSION 3.4 (DATED 88348)

IBM-PC VERSION (1.64)

SERIAL NUMBER 5070 SOLD TO CROSS/TESSITORE & ASSOC.
RUN BEGAN ON 10-05-89 AT 10:30:59

1

*** Martin Asphalt Plant - Daytona ***

CALCULATE (CONCENTRATION=1,DEPOSITION=2)	ISW(1) = 1
RECEPTOR GRID SYSTEM (RECTANGULAR=1 OR 3, POLAR=2 OR 4)	ISW(2) = 3
DISCRETE RECEPTOR SYSTEM (RECTANGULAR=1,POLAR=2)	ISW(3) = 1
TERRAIN ELEVATIONS ARE READ (YES=1,NO=0)	ISW(4) = 0
CALCULATIONS ARE WRITTEN TO TAPE (YES=1,NO=0)	ISW(5) = 0
LIST ALL INPUT DATA (NO=0,YES=1,MET DATA ALSO=2)	ISW(6) = 2
COMPUTE AVERAGE CONCENTRATION (OR TOTAL DEPOSITION)	
WITH THE FOLLOWING TIME PERIODS:	
HOURLY (YES=1,NO=0)	ISW(7) = 1
2-HOUR (YES=1,NO=0)	ISW(8) = 0
3-HOUR (YES=1,NO=0)	ISW(9) = 0
4-HOUR (YES=1,NO=0)	ISW(10) = 0
6-HOUR (YES=1,NO=0)	ISW(11) = 0
8-HOUR (YES=1,NO=0)	ISW(12) = 0
12-HOUR (YES=1,NO=0)	ISW(13) = 0
24-HOUR (YES=1,NO=0)	ISW(14) = 0
PRINT 'N'-DAY TABLE(S) (YES=1,NO=0)	ISW(15) = 0
PRINT THE FOLLOWING TYPES OF TABLES WHOSE TIME PERIODS ARE	
SPECIFIED BY ISW(7) THROUGH ISW(14):	
DAILY TABLES (YES=1,NO=0)	ISW(16) = 0
HIGHEST & SECOND HIGHEST TABLES (YES=1,NO=0)	ISW(17) = 1
MAXIMUM 50 TABLES (YES=1,NO=0)	ISW(18) = 0
METEOROLOGICAL DATA INPUT METHOD (PRE-PROCESSED=1,CARD=2)	ISW(19) = 2
RURAL-URBAN OPTION (RU.=0,UR. MODE 1=1,UR. MODE 2=2,UR. MODE 3=3)	ISW(20) = 0
WIND PROFILE EXPONENT VALUES (DEFAULTS=1,USER ENTERS=2,3)	ISW(21) = 1
VERTICAL POT. TEMP. GRADIENT VALUES (DEFAULTS=1,USER ENTERS=2,3)	ISW(22) = 1
SCALE EMISSION RATES FOR ALL SOURCES (NO=0,YES)0)	ISW(23) = 0
PROGRAM CALCULATES FINAL PLUME RISE ONLY (YES=1,NO=2)	ISW(24) = 1
PROGRAM ADJUSTS ALL STACK HEIGHTS FOR DOWNWASH (YES=2,NO=1)	ISW(25) = 2
PROGRAM USES BUOYANCY INDUCED DISPERSION (YES=1,NO=2)	ISW(26) = 1
CONCENTRATIONS DURING CALM PERIODS SET = 0 (YES=1,NO=2)	ISW(27) = 2
REG. DEFAULT OPTION CHOSEN (YES=1,NO=2)	ISW(28) = 2
TYPE OF POLLUTANT TO BE MODELLED (1=SO2,2=OTHER)	ISW(29) = 2
DEBUG OPTION CHOSEN (YES=1,NO=2)	ISW(30) = 2
ABOVE GROUND (FLAGPOLE) RECEPTORS USED (YES=1,NO=0)	ISW(31) = 0
NUMBER OF INPUT SOURCES	NSOURC = 1
NUMBER OF SOURCE GROUPS (=0,ALL SOURCES)	NGROUP = 0
TIME PERIOD INTERVAL TO BE PRINTED (=0,ALL INTERVALS)	IPERD = 0
NUMBER OF X (RANGE) GRID VALUES	NXPNTS = 40
NUMBER OF Y (THETA) GRID VALUES	NYPNTS = 1
NUMBER OF DISCRETE RECEPTORS	NXWYPT = 3
NUMBER OF HOURS PER DAY IN METEOROLOGICAL DATA	NHOURS = 24
NUMBER OF DAYS OF METEOROLOGICAL DATA	NDAYS = 2
SOURCE EMISSION RATE UNITS CONVERSION FACTOR	TK =.1000E+07
HEIGHT ABOVE GROUND AT WHICH WIND SPEED WAS MEASURED	ZR = 10.00 METERS
LOGICAL UNIT NUMBER OF METEOROLOGICAL DATA	IMET = 5
ALLOCATED DATA STORAGE	LIMIT = 43500 WORDS
REQUIRED DATA STORAGE FOR THIS PROBLEM RUN	MIMIT = 635 WORDS

1

*** Martin Asphalt Plant - Daytona ***

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** X-COORDINATES OF RECTANGULAR GRID SYSTEM ***
(METERS)

100.0,	200.0,	300.0,	400.0,	500.0,	600.0,	700.0,	800.0,	900.0,	1000.0,
1100.0,	1200.0,	1300.0,	1400.0,	1500.0,	1600.0,	1700.0,	1800.0,	1900.0,	2000.0,
2100.0,	2200.0,	2300.0,	2400.0,	2500.0,	2600.0,	2700.0,	2800.0,	2900.0,	3000.0,
3100.0,	3200.0,	3300.0,	3400.0,	3500.0,	3600.0,	3700.0,	3800.0,	3900.0,	4000.0,

*** Y-COORDINATES OF RECTANGULAR GRID SYSTEM ***
(METERS)

.0,

*** X,Y COORDINATES OF DISCRETE RECEPTORS ***
(METERS)

(25.0, .0), (50.0, .0), (75.0, .0), (

1

*** Martin Asphalt Plant - Daytona ***

*** SOURCE DATA ***

SOURCE NUMBER	T Y P E	W A K E	NUMBER PART. CATS.	EMISSION RATE TYPE=0,1 (GRAMS/SEC) TYPE=2 (GRAMS/SEC) *PER METER**2	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	HEIGHT (METERS)	TEMP. TYPE=0 (DEG.K); VERT.DIM TYPE=1 (METERS)	EXIT VEL. TYPE=0 (M/SEC); HORZ.DIM TYPE=1,2 (METERS)	DIAMETER TYPE=0 (METERS)	BLDG. HEIGHT TYPE=0 (METERS)	BLDG. LENGTH TYPE=0 (METERS)	BLDG. WIDTH TYPE=0 (METERS)
1	0	0	0	.10000E+01	.0	.0	.0	3.14	533.15	25.91	1.22	-16.38	6.48	6.48

1

*** Martin Asphalt Plant - Daytona ***

*** DIRECTION SPECIFIC BUILDING DIMENSIONS ***

SOURCE 1

IFV	BH	BW	IFV	BH	BW	IFV	BH	BW	IFV	BH	BW	IFV	BH	BW	IFV	BH	BW
1	16.4,	7.3,	2	16.4,	7.3,	3	16.4,	7.3,	4	16.4,	7.3,	5	16.4,	7.3,	6	16.4,	7.3,
7	16.4,	7.3,	8	16.4,	7.3,	9	16.4,	7.3,	10	16.4,	7.3,	11	16.4,	7.3,	12	16.4,	7.3,
13	16.4,	7.3,	14	16.4,	7.3,	15	16.4,	7.3,	16	16.4,	7.3,	17	16.4,	7.3,	18	16.4,	7.3,
19	16.4,	7.3,	20	16.4,	7.3,	21	16.4,	7.3,	22	16.4,	7.3,	23	16.4,	7.3,	24	16.4,	7.3,
25	16.4,	7.3,	26	16.4,	7.3,	27	16.4,	7.3,	28	16.4,	7.3,	29	16.4,	7.3,	30	16.4,	7.3,
31	16.4,	7.3,	32	16.4,	7.3,	33	16.4,	7.3,	34	16.4,	7.3,	35	16.4,	7.3,	36	16.4,	7.3,

*** Martin Asphalt Plant - Daytona ***

* METEOROLOGICAL DATA FOR DAY 1 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	90.0	1.00	1000.0	293.0	.0000	1	.0700	.000000E+00
2	90.0	2.00	1000.0	293.0	.0000	1	.0700	.000000E+00
3	90.0	3.00	1000.0	293.0	.0000	1	.0700	.000000E+00
4	90.0	1.00	1000.0	293.0	.0000	2	.0700	.000000E+00
5	90.0	2.00	1000.0	293.0	.0000	2	.0700	.000000E+00
6	90.0	3.00	1000.0	293.0	.0000	2	.0700	.000000E+00
7	90.0	4.00	1000.0	293.0	.0000	2	.0700	.000000E+00
8	90.0	5.00	1000.0	293.0	.0000	2	.0700	.000000E+00
9	90.0	1.00	1000.0	293.0	.0000	3	.1000	.000000E+00
10	90.0	2.00	1000.0	293.0	.0000	3	.1000	.000000E+00
11	90.0	3.00	1000.0	293.0	.0000	3	.1000	.000000E+00
12	90.0	4.00	1000.0	293.0	.0000	3	.1000	.000000E+00
13	90.0	5.00	1000.0	293.0	.0000	3	.1000	.000000E+00
14	90.0	6.00	1000.0	293.0	.0000	3	.1000	.000000E+00
15	90.0	7.00	1000.0	293.0	.0000	3	.1000	.000000E+00
16	90.0	8.00	1000.0	293.0	.0000	3	.1000	.000000E+00
17	90.0	9.00	1000.0	293.0	.0000	3	.1000	.000000E+00
18	90.0	10.00	1000.0	293.0	.0000	3	.1000	.000000E+00
19	90.0	12.00	1000.0	293.0	.0000	3	.1000	.000000E+00
20	90.0	14.00	1000.0	293.0	.0000	3	.1000	.000000E+00
21	90.0	16.00	1000.0	293.0	.0000	3	.1000	.000000E+00
22	90.0	18.00	1000.0	293.0	.0000	3	.1000	.000000E+00
23	90.0	20.00	1000.0	293.0	.0000	3	.1000	.000000E+00
24	90.0	1.00	1000.0	293.0	.0000	4	.1500	.000000E+00

*** Martin Asphalt Plant - Daytona ***

* METEOROLOGICAL DATA FOR DAY 2 *

HOUR	FLOW VECTOR (DEGREES)	WIND SPEED (MPS)	MIXING HEIGHT (METERS)	TEMP. (DEG. K)	POT. TEMP. GRADIENT (DEG. K PER METER)	STABILITY CATEGORY	WIND PROFILE EXPONENT	DECAY COEFFICIENT (PER SEC)
1	90.0	2.00	1000.0	293.0	.0000	4	.1500	.000000E+00
2	90.0	3.00	1000.0	293.0	.0000	4	.1500	.000000E+00
3	90.0	4.00	1000.0	293.0	.0000	4	.1500	.000000E+00
4	90.0	5.00	1000.0	293.0	.0000	4	.1500	.000000E+00
5	90.0	6.00	1000.0	293.0	.0000	4	.1500	.000000E+00
6	90.0	7.00	1000.0	293.0	.0000	4	.1500	.000000E+00
7	90.0	8.00	1000.0	293.0	.0000	4	.1500	.000000E+00
8	90.0	9.00	1000.0	293.0	.0000	4	.1500	.000000E+00
9	90.0	10.00	1000.0	293.0	.0000	4	.1500	.000000E+00
10	90.0	12.00	1000.0	293.0	.0000	4	.1500	.000000E+00
11	90.0	14.00	1000.0	293.0	.0000	4	.1500	.000000E+00
12	90.0	16.00	1000.0	293.0	.0000	4	.1500	.000000E+00
13	90.0	18.00	1000.0	293.0	.0000	4	.1500	.000000E+00
14	90.0	20.00	1000.0	293.0	.0000	4	.1500	.000000E+00
15	90.0	1.20	1000.0	293.0	.0200	5	.3500	.000000E+00
16	90.0	2.00	1000.0	293.0	.0200	5	.3500	.000000E+00
17	90.0	3.00	1000.0	293.0	.0200	5	.3500	.000000E+00
18	90.0	4.00	1000.0	293.0	.0200	5	.3500	.000000E+00
19	90.0	5.00	1000.0	293.0	.0200	5	.3500	.000000E+00
20	90.0	1.00	1000.0	293.0	.0350	6	.5500	.000000E+00
21	90.0	2.00	1000.0	293.0	.0350	6	.5500	.000000E+00
22	90.0	3.00	1000.0	293.0	.0350	6	.5500	.000000E+00
23	90.0	4.00	1000.0	293.0	.0350	6	.5500	.000000E+00
24	90.0	5.00	1000.0	293.0	.0350	6	.5500	.000000E+00

1 HIGH 1-HR SGROUP#

*** Martin Asphalt Plant - Daytona ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 178.71140 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS) /	X-AXIS (METERS) 100.0	200.0	300.0	400.0	500.0
.0 /	178.71140 (2, 9)	66.63155 (2,10)	36.39151 (2,11)	23.29931 (2,11)	16.35496 (2,11)

1 HIGH 1-HR SGROUP#

*** Martin Asphalt Plant - Daytona ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 178.71140 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS) /	X-AXIS (METERS) 600.0	700.0	800.0	900.0	1000.0
.0 /	13.64909 (2,11)	11.83379 (2,10)	10.39483 (2,10)	9.28840 (2,10)	8.47841 (2, 9)

1 HIGH 1-HR SGROUP#

*** Martin Asphalt Plant - Daytona ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 178.71140 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS) /	X-AXIS (METERS) 1100.0	1200.0	1300.0	1400.0	1500.0
.0 /	7.75010 (2, 9)	7.14457 (2, 8)	6.62821 (2, 8)	6.15930 (2, 8)	5.73474 (2, 8)

1 HIGH 1-HR SGROUP#

1 *** Martin Asphalt Plant - Daytona ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 178.71140 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS) /	X-AXIS (METERS) 1600.0	1700.0	1800.0	1900.0	2000.0
.0 /	5.38836 (2, 7)	5.08023 (2, 7)	4.79512 (2, 7)	4.53154 (2, 7)	4.30744 (2, 6)

1 HIGH 1-HR SGROUP#

1 *** Martin Asphalt Plant - Daytona ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 178.71140 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS) /	X-AXIS (METERS) 2100.0	2200.0	2300.0	2400.0	2500.0
.0 /	4.11400 (2, 6)	3.93132 (2, 6)	3.94780 (2,19)	3.96204 (2,19)	4.07640 (2,24)

1 HIGH 1-HR SGROUP#

1 *** Martin Asphalt Plant - Daytona ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 178.71140 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS) /	X-AXIS (METERS) 2600.0	2700.0	2800.0	2900.0	3000.0
.0 /	4.19203 (2,24)	4.29302 (2,24)	4.38041 (2,24)	4.45526 (2,24)	4.37880 (2,24)

1 HIGH 1-HR SGROUP#

*** Martin Asphalt Plant - Daytona ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 178.71140 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS)	X-AXIS (METERS) 3100.0	3200.0	3300.0	3400.0	3500.0
.0 /	4.41276 (2,24)	4.43937 (2,24)	4.45936 (2,24)	4.47335 (2,24)	4.48194 (2,24)

1 HIGH 1-HR SGROUP#

*** Martin Asphalt Plant - Daytona ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 178.71140 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS)	X-AXIS (METERS) 3600.0	3700.0	3800.0	3900.0	4000.0
.0 /	4.48568 (2,24)	4.48504 (2,24)	4.48048 (2,24)	4.47239 (2,24)	4.46116 (2,24)

1 HIGH 1-HR SGROUP#

*** Martin Asphalt Plant - Daytona ***

* HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
25.0	.0	450.86300	(2, 8)	50.0	.0	377.48080	(2, 8)
75.0	.0	263.65810	(2, 8)				

1 2ND HIGH
1-HR
SGROUP#

1

*** Martin Asphalt Plant - Daytona ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 176.17870 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS)	X-AXIS (METERS) 100.0	200.0	300.0	400.0	500.0
.0	176.17870 (2, 8)	65.95529 (2,11)	35.55511 (2,12)	23.06023 (2,12)	16.30331 (2,12)

1 2ND HIGH
1-HR
SGROUP#

1

*** Martin Asphalt Plant - Daytona ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 176.17870 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS)	X-AXIS (METERS) 600.0	700.0	800.0	900.0	1000.0
.0	13.46061 (2,10)	11.62601 (2,11)	10.28186 (2, 9)	9.28143 (2, 9)	8.31998 (2, 8)

1 2ND HIGH
1-HR
SGROUP#

1

*** Martin Asphalt Plant - Daytona ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 176.17870 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS)	X-AXIS (METERS) 1100.0	1200.0	1300.0	1400.0	1500.0
.0	7.70952 (2, 8)	7.10239 (2, 9)	6.52800 (2, 9)	6.07560 (2, 7)	5.72015 (2, 7)

1 2ND HIGH 1-HR SGROUP#

*** Martin Asphalt Plant - Daytona ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 176.17870 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS) /	X-AXIS (METERS) 1600.0	1700.0	1800.0	1900.0	2000.0
.0 /	5.35065 (2, 8)	5.00303 (2, 8)	4.72631 (2, 6)	4.51166 (2, 6)	4.28805 (2, 7)

1 2ND HIGH 1-HR SGROUP#

*** Martin Asphalt Plant - Daytona ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 176.17870 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS) /	X-AXIS (METERS) 2100.0	2200.0	2300.0	2400.0	2500.0
.0 /	4.06310 (2, 7)	3.91932 (2,19)	3.79705 (2,24)	3.94507 (2,24)	3.96418 (2,19)

1 2ND HIGH 1-HR SGROUP#

*** Martin Asphalt Plant - Daytona ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 176.17870 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS) /	X-AXIS (METERS) 2600.0	2700.0	2800.0	2900.0	3000.0
.0 /	3.95605 (2,19)	3.93928 (2,19)	3.91526 (2,19)	3.94531 (2,15)	4.01577 (2,15)

1 2ND HIGH 1-HR SGROUP#

*** Martin Asphalt Plant - Daytona ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 176.17870 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS) /	X-AXIS (METERS) 3100.0	3200.0	3300.0	3400.0	3500.0
.0 /	4.08072 (2,15)	4.14036 (2,15)	4.19492 (2,15)	4.24462 (2,15)	4.28966 (2,15)

1 2ND HIGH 1-HR SGROUP#

*** Martin Asphalt Plant - Daytona ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE RECEPTOR GRID *

* MAXIMUM VALUE EQUALS 176.17870 AND OCCURRED AT (100.0, .0) *

Y-AXIS (METERS) /	X-AXIS (METERS) 3600.0	3700.0	3800.0	3900.0	4000.0
.0 /	4.33028 (2,15)	4.36668 (2,15)	4.39308 (2,15)	4.42768 (2,15)	4.45269 (2,15)

1 2ND HIGH 1-HR SGROUP#

*** Martin Asphalt Plant - Daytona ***

* SECOND HIGHEST 1-HOUR AVERAGE CONCENTRATION (MICROGRAMS/CUBIC METER) *
* FROM ALL SOURCES *
* FOR THE DISCRETE RECEPTOR POINTS *

- X -	- Y -	CON.	(DAY,HOUR)	- X -	- Y -	CON.	(DAY,HOUR)
25.0	.0	428.25400	(2, 9)	50.0	.0	362.97270	(2, 9)
75.0	.0	253.03880	(2, 9)				

RUN ENDED ON 10-05-83 AT 10:31:10

APPENDIX C

CALCULATION OF MAXIMUM SOIL VOC CONCENTRATION

APPENDIX C

SOIL VOC CONCENTRATION METHODOLOGY

1) Established Acceptable Ambient Ground Level Concentration

The threshold limitation values (TLV's) for the constituents of Table 1 are established from available sources. Since the plant operating hours are 40 hours per week or less the TLV is factored by 1/100. This will give the values for the acceptable (allowable) ambient concentration for each constituent.

2) Established Stack Emission Limits Based on Acceptable Ground Level Concentration

The stack emission limits where calculated by using the ISCST model. This modeling technique determines the dilution from the stack to the ground based on the surrounding structures and atmospheric conditions. Based on this dilution factor and the acceptable ground level concentration the stack emission limits are determined and presented in Table 1. The ISCST model is presented in Appendix B.

3) Established Soil Feed Concentration Limits Based on Stack Emission Limits

The maximum soil feed concentrations are determined by the ratio of the stack emission limits to the total soil input to the plant and converted into units of parts per million (ppm). An example calculation is shown and the summary data is presented in Table 1.

Ambient Air Concentrations

Ambient Temperature = 5/9 (70 °F -32) = 21 °C

$$ppm = \frac{(ug/m^3)\ (Vo)}{(MW)\ (1000)}$$

Where Vo = volume per mole (22.414) at 0 °C and 1 atm

@ 21 °C

$$Vo = \frac{(22.414) \times (21 + 273)}{(273)} = 24.138$$

Max. Allowable Ambient Concentration

Benzene: $\frac{(0.01\ ppm) \times (78.12) \times (1000)}{(24.138)} = 32.364\ ug/m^3$

Toluene: $\frac{(0.1\ ppm) \times (92.15) \times (1000)}{(24.138)} = 381.76\ mg/m^3$

Xylene: $\frac{(0.1ppm) \times (106) \times (1000)}{(24.138)} = 439.14\ ug/m^3$

Ethylbenzene: $\frac{(0.1\ ppm) \times (104) \times (1000)}{(24.138)} = 430.85\ ug/m^3$

Stack Emissions Limit Calculation

Example Calculation (For Xylene)

Model based on 1 gm/sec = 7.9295 lb/hr
Maximum 1-hr concentration = 450.86 ug/m³ @ 25 m downwind

$$\frac{7.9295\ lb/hr}{450.86\ ug/m^3} = \frac{\text{Stack Emission Limit}}{439.14\ ug/m^3}$$

Stack emission limit = $\frac{(7.9295\ lb/hr) \times (439.14\ ug/m^3)}{(450.86\ ug/m^3)} = 7.72\ lb/hr$

Maximum Feed Concentration Calculation (ppm)

$$\frac{\text{Stack emission (lb/hr)}}{\text{Total input (lb/hr)}} = A$$

$$\frac{A}{X} = \frac{0.01}{10{,}000}$$

$$\frac{10{,}000\ A}{0.01} = X$$

X = Maximum feed concentration

$$\frac{(7.72\ \text{lb/hr})}{(180\ \text{ton/hr}) \times (2000\ \text{lb/ton})} = 21.454 \times 10^{-6}$$

By ratio: $\frac{21.454 \times 10^{-6}}{\text{Max.feed conc.}} = \frac{0.01}{10{,}000}$

Max. feed concentration = $\frac{(21.454 \times 10^{-6}) \times (10{,}000)}{(0.01)} = 21.45$ ppm

TABLE 1
MAXIMUM AMBIENT AIR CONCENTRATIONS

Compound	TLV (ppm)	Allowable Ambient (ppm)*	Allowable Ambient (ug/m^3)	Emission Limit (lb/hr)**	Max. Feed Concentration (ppm)
Benzene	1	0.01	32.36	0.57	1.58
Toluene	10	0.1	381.76	6.71	18.65
Xylene	10	0.1	439.14	7.72	21.45
Ethylbenzene	10	0.1	430.85	7.58	21.05

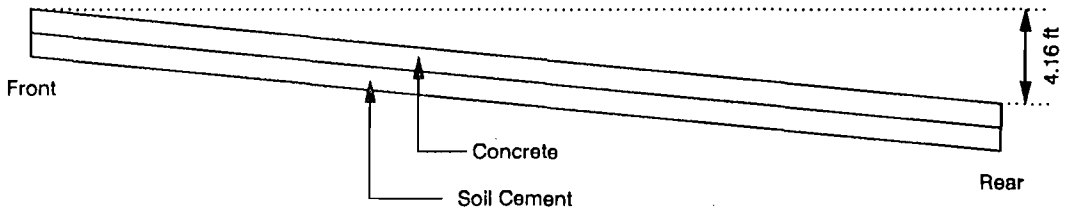
* This limit is based on 1/100 of the threshold limitation value of the compound.

** The worst case scenario assumes VOC's are all Xylene for ISCST modeling at 1 gm/sec emissions.

APPENDIX D

SOIL STORAGE FACILITY DATA

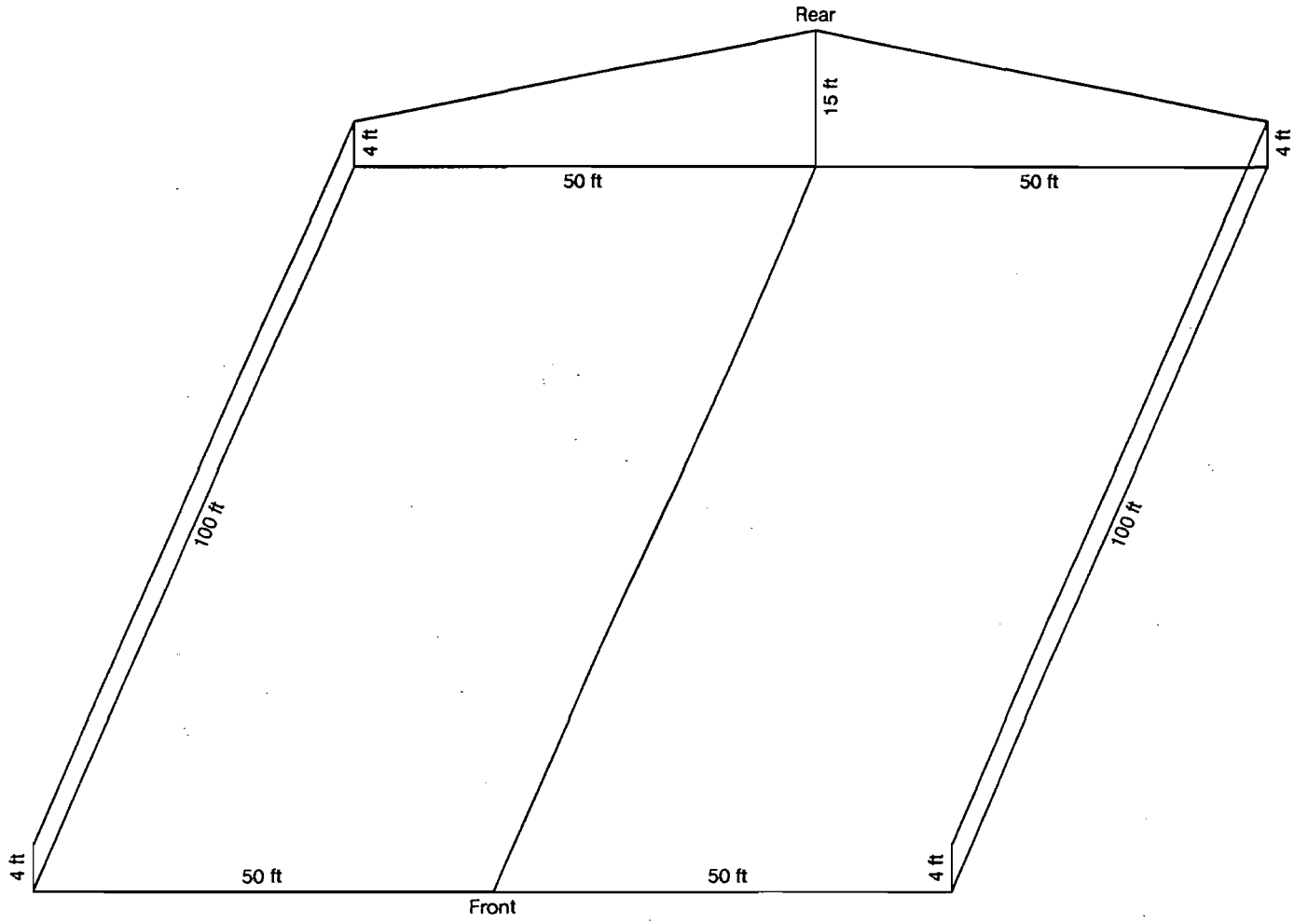
Martin Asphalt Company
Soil Storage Facility Concrete Pad



C T A Cross/Tessitore & Assoc., P.A.
Environmental Engineers Orlando, Florida

Martin Asphalt Company

Soil Storage Facility Concrete Pad & Walls



C T A Cross/Tessitore & Assoc., P.A.
Environmental Engineers Orlando, Florida

APPENDIX E

SLUDGE FROM TRUCK WASH OPERATION ANALYSIS DATA

HOWCO
ENVIRONMENTAL SERVICES LTD.

Laboratory Number 1102

Sample Type Sludge

Date Received June 9, 1989

For Martin Companies
1801 South Nova Rd.
South Daytona, Fl. 32119

Generator Martin Companies

Attention Glen Hume

CERTIFICATE OF ANALYSIS

LABORATORY NUMBER	MARKS	PARAMETER	CONCENTRATION	UNIT
1102		Arsenic	< 0.1	mg/l
		Barium	< 10.0	mg/l
		Cadmium	< 0.1	mg/l
		Chromium	< 0.5	mg/l
		Lead	< 0.5	mg/l
		Mercury	< 0.1	mg/l
		Selenium	< 0.1	mg/l
		Silver	< 0.5	mg/l

Remarks: Sludge by E.P. Toxicity

Continued on Page 2

All analyses are made in accordance with E.P.A., A.S.T.M., Standard Methods or other approved methods.

Respectfully submitted

C. Michael Williams
Environmental Chemist

CERTIFICATE OF ANALYSIS

LABORATORY NUMBER	MARKS	PARAMETER	CONCENTRATION	UNIT
1102		Corrosivity	Not corrosive	
		pH	9.7	
		Ignitability	Not ignitable	
		Flashpoint	142 degrees	F
		Reactivity	Not reactive	

Remarks: _____

_____

All analyses are made in accordance with E.P.A., A.S.T.M., Standard Methods or other approved methods.

Respectfully submitted

C. Michael Williams

C. Michael Williams
Environmental Chemist