Check Sheet

Company Name: Mid-Florida Mining
Permit Number: AO 42-77048
PSD Number:
Permit Engineer:

Application:

- [x] Initial Application
  - [x] Incompleteness Letters
  - [x] Responses
  - [ ] Waiver of Department Action
  - [ ] Department Response
  - [ ] Other

Cross References:

- [x] 4042-68788
- [ ] AC 42-043771
- [ ]

Intent:

- [x] Intent to Issue
- [x] Notice of Intent to Issue
- [x] Technical Evaluation
- [ ] BACT Determination
- [x] Unsigned Permit
- Correspondence with:
  - [ ] EPA
  - [ ] Park Services
  - [ ] Other
- [x] Proof of Publication
  - [ ] Petitions - (Related to extensions, hearings, etc.)
  - [ ] Waiver of Department Action
  - [ ] Other

Final Determination:

- [x] Final Determination
- [x] Signed Permit
- [ ] BACT Determination
  - [ ] Other

Post Permit Correspondence:

- [x] Extensions/Amendments/Modifications
- [ ] Other

PS Form 3811, Jan. 1979 — RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

● SENDER: Complete items 1, 2, and 3. Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
   - [x] Show to whom and date delivered.............. ¢
   - [ ] Show to whom, date and address of delivery...... ¢
   - [ ] RESTRICTED DELIVERY Show to whom and date delivered.............. ¢
   - [ ] RESTRICTED DELIVERY. Show to whom, date, and address of delivery $____

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:

Mr. Roy O. Camp
P. O. Box 68
Lowell, FL 32663

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.
	P408530303	

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐Addressee ☐Authorized agent

4. Mid Vla Mining - McBaggers

DATE OF DELIVERY 10/18/84

POSTMARK OCT 1984 USPO

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE:

CLERK'S INITIALS

☆GPO : 1979-300-459

P 408 530 303

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED— NOT FOR INTERNATIONAL MAIL

(See Reverse)

Sent to Mr. Roy O. Camp	
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 10/17/84	

PS Form 3800, Feb. 1982

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241

DEPARTMENT OF ENVIRONMENTAL REGULATION STATE OF FLORIDA

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

October 15, 1984

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. Roy O. Camp
Vice President, Operations
Mid-Florida Mining Company
Post Office Box 68
Lowell, Florida 32663

Dear Mr. Camp:

RE: Request to extend the expiration date of construction permit AC 42-77048

The department is in receipt of your request to extend the expiration date of the above referenced state construction permit. The department is in agreement with the request and the following shall be added or changed:

Expiration Date:

From: September 30, 1984
To: November 30, 1984

This letter must be attached to your construction permit, AC 42-77048, and shall become a part of that permit.

Sincerely,

Terry Cole for
Victoria J. Tschinkel
Secretary

VJT/agh

cc: Alex Alexander

DER
OCT 16 1984
BAQM

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

For Routing To District Offices And/Or To Other Than The Addressee	
To:	Loctn.:
To:	Loctn.:
To:	Loctn.:
From:	Date:
Reply Optional [ ] Date Due:	Reply Required [ ] Date Due: Info. Only [ ]

TO: Victoria J. Tschinkel, Secretary

FROM: C. H. Fancy, Deputy Bureau Chief, BAQM Clair Fancy

DATE: October 12, 1984

SUBJ: Approval and signature of a modification to extend the expiration date of the construction permit, No. AC 42-77048, for Mid-Florida Mining Company

Enclosed is a modification to the referenced construction permit and the bureau recommends approval.

CHF/ks

enclosure

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS
1213 N.W. 6th Street Gainesville, Florida 32601 (904) 377-5822

DER
OCT 4 1984
OM

SKEC 290-83-02

10/9 Bill T. Ed S. please handle

October 2, 1984

Mr. C. H. Fancy
Deputy Bureau Chief
Bureau of Air Quality Management
Florida Department of
Environmental Regulation
Northwest District Branch Office
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

Subject: Mid-Florida Mining Company
Lowell, Florida
Construction Permit AC42-77048

Dear Mr. Fancy:

On April 6, 1984, the Mid-Florida Mining Company of Lowell, Florida was issued Air Pollution Source Construction Permit AC42-77048 to connect a dried clay storage silo vent to a bag collector serving an existing clay dryer. The clay dryer was operating under Air Pollution Source Operating Permit No. A042-68788; a permit that was replaced by the subject Air Pollution Source Construction Permit. The subject Air Pollution Source Construction Permit expired on September 30, 1984.

The storage silo has been constructed and the vent connected to the baghouse serving the clay dryer. On September 12, 1984, Sholtes & Koogler, Environmental Consultants (SKEC) conducted air pollution emission measurements on the source to demonstrate compliance with the particulate matter emission limiting standard in the construction permit and certified completion of construction of the project.

The purpose of this letter is to request an extension of Permit AC42-77048 to November 30, 1984. This extension will allow us time to submit our test report to the St. Johns River District Office of the Florida Department of Environmental Regulation for review and will allow that office time to prepare and issue the Operating Permit for this source.

If there are any questions regarding this request for a permit extension or if additional information is needed, please feel free to contact me.

Very truly yours,

SHOLTES & KOOGLER,
ENVIRONMENTAL CONSULTANTS

John B. Koogler, Ph.D., P.E.

JBK:ssc

cc: Mr. Bill Thomas
Mr. A. T. Sawicki
Mr. James B. Kleekamp

PS Form 3811, Jan. 1979

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

● SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
- [x] Show to whom and date delivered .... ¢
- [ ] Show to whom, date and address of delivery.... ¢
- [ ] RESTRICTED DELIVERY
  Show to whom and date delivered .... ¢
- [ ] RESTRICTED DELIVERY.
  Show to whom, date, and address of delivery. $ ____

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:

Mr. Roy O. Camp
Post Office Box 68
Lowell, Florida 32663

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.
	0158263	

(Always obtain signature of addressee or agent)

I have received the article described above.

SIGNATURE ☐Addressee ☐Authorized agent

4. Kathy Se...

DATE OF DELIVERY 4/12/84

POSTMARK APR 1984 USPO

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE:

CLERK'S INITIALS

☆GPO : 1979-300-459

No. 0158263

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—NOT FOR INTERNATIONAL MAIL

(See Reverse)

SENT TO Mr. Roy O. Camp

STREET AND NO.

P.O., STATE AND ZIP CODE

CONSULT POSTMASTER FOR FEES	POSTAGE			$
	CERTIFIED FEE			¢
	OPTIONAL SERVICES	SPECIAL DELIVERY		¢
		RESTRICTED DELIVERY		¢
		RETURN RECEIPT SERVICE	SHOW TO WHOM AND DATE DELIVERED	¢
			SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
			SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
			SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES				$

POSTMARK OR DATE

4/11/84

PS Form 3800, Apr. 1976

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

April 9, 1984

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. Roy O. Camp
Vice President, Operations
Mid-Florida Mining Company
Post Office Box 68
Lowell, Florida 32663

Dear Mr. Camp:

Enclosed is Permit Number AC 42-77048, dated April 6, 1984, to Mid-Florida Mining Company, issued pursuant to Section 403, Florida Statutes.

Acceptance of this permit constitutes notice and agreement that the department will periodically review this permit for compliance, including site inspections where applicable, and may initiate enforcement actions for violation of the conditions and requirements thereof.

Sincerely,

C. H. Fancy, P.E.
Deputy Bureau Chief
Bureau of Air Quality
Management

CHF/pa

Enclosure

cc: John B. Koogler, Ph.D., P.E., Sholtes and Koogler
Environmental Consultants
Charles Collins, DER St. Johns River District

Final Determination

Mid-Florida Mining Company
Marion County

Dried Clay Storage Silo and Clay Dryer

Permit Number
AC 42-77048

Florida Department of Environmental Regulation
Bureau of Air Quality Management
Central Air Permitting

April 5, 1984

FINAL DETERMINATION

Mid-Florida Mining Company's application for permit to construct a dried clay storage silo and clay dryer at their plant in Lowell, Marion County, Florida has been reviewed by the Bureau of Air Quality Management. Public Notice of the Department's intent to issue the permit was published in the Ocala Star - Banner on March 3, 1984.

Copies of the preliminary determination have been available for public inspection at the Department's St. Johns River District Office and the Bureau of Air Quality Management Office in Tallahassee.

Comments on the proposed construction were received from Mr. John B. Koogler in behalf of the company.

Mr. Koogler requested that Specific Condition No. 16 be modified to reflect the wording of Specific Condition No. 21 of Permit AO 42-68788, which is incorporated in this construction permit.

After reviewing the material supplied by Mr. Koogler and a telephone conversation with Charles Collins of the St. Johns River District Office, the Bureau of Air Quality Management has agreed to modify Specific Condition No. 16.

The final action of the Department will be to issue the permit to construct with the changes discussed above.

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

PERMITTEE:
Mid-Florida Mining Corporation
P. O. Box 68
Lowell, Florida 32663

Permit Number: AC 42-77048
Expiration Date: Sept. 30, 1984
County:Marion
Latitude/Longitude:29°19'52"N/ 82°11'28"W
Project:Dried Clay Storage Silo and Clay Dryer

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

For the construction of a 266,395 cubic feet capacity dried clay storage silo. The emissions will be controlled by an existing baghouse collector also servicing the clay rotary kiln dryer which is fired with #5 fuel oil and waste oils. The project is located at the existing facility of the Mid-Florida Mining Company, Lowell, Marion County, Florida.

Construction shall be in accordance with the attached permit application and additional information except as otherwise noted in the Specific Conditions.

Attachments are as follows:

1. Application to Construct an Air Pollution Source, DER Form 17-1.202(1).

2. C. H. Fancy's letter dated November 4, 1983.

3. Sholtes & Koogler letter dated December 15, 1983.

4. Permit Number AO 42-68788 for Clay Dryer.

PERMITTEE:
Mid-Florida Mining Company
Lowell, Florida

I. D. Number:
Permit Number: AC 42-77048
Expiration Date:Sept. 30, 1984

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the permittee and enforceable pursuant to the authority of Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is hereby placed on notice that the department will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or approval of any other department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant or aquatic life or property and penalties therefore caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and department rules, unless specifically authorized by an order from the department.

PERMITTEE:
Mid-Fla. Mining Co.

I. D. Number:
Permit Number:AC 42-77048
Expiration Date:Sept. 30, 1984

GENERAL CONDITIONS:

6. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized department personnel, upon presentation of credentials or other documents as may be required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:

a. Having access to and copying any records that must be kept under the conditions of the permit;

b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the department with the following information:

a. a description of and cause of non-compliance; and

b. the period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

PERMITTEE:
Mid-Fla. Mining Co.

I. D. Number:
Permit Number:AC 42-77048
Expiration Date: Sept. 30, 1984

GENERAL CONDITIONS:

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

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the department, may be used by the department as evidence in any enforcement case arising under the Florida Statutes or department rules, except where such use is proscribed by Sections 403.73 and 403.111, Florida Statutes.

10. The permittee agrees to comply with changes in department rules and Florida Statutes after a reasonable time for compliance, provided however, the permittee does not waive any other rights granted by Florida Statutes or department rules.

11. This permit is transferable only upon department approval in accordance with Florida Administrative Code Rules 17-4.12 and 17-30.30, as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the department.

12. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

13. This permit also constitutes:

- ( ) Determination of Best Available Control Technology (BACT)
- ( ) Determination of Prevention of Significant Deterioration (PSD)
- ( ) Compliance with New Source Performance Standards.

14. The permittee shall comply with the following monitoring and record keeping requirements:

a. Upon request, the permittee shall furnish all records and plans required under department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the department, during the course of any unresolved enforcement action.

PERMITTEE:
Mid-Fla. Mining Co.

I. D. Number:
Permit Number:AC 42-77048
Expiration Date:Sept. 30, 1984

GENERAL CONDITIONS:

b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by department rule.

c. Records of monitoring information shall include:

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

15. When requested by the department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the department, such facts or information shall be submitted or corrected promptly.

SPECIFIC CONDITIONS:

1. This construction permit replaces the current operating permit number AO 42-68788.
2. No objectionable odors will be allowed, as per Rule 17-2.620(2), FAC.
3. There shall be no discharges of liquid effluents or contaminated runoff from the plant site without approval from the department.
4. This permit does not preclude compliance with all relevant local permitting requirements and regulations.
5. All unconfined emissions of particulate matter generated at this site shall be adequately controlled (Rule 17-2.610(3), FAC). The area must be watered down should unconfined emissions occur.

PERMITTEE:
Mid-Fla. Mining Company

I. D. Number:
Permit Number: AC 42-77048
Expiration Date: Sept. 30, 1984

SPECIFIC CONDITIONS:

6. The baghouse shall be properly maintained to operate at approximately its rated efficiency.
7. The baghouse bags will be HAN1530SST composed of Dralon T homopolymer acrylic.
8. This rotary dryer is limited to a maximum input rate of 40.8 tons per hour input.
9. This dried clay storage silo is limited to a maximum input rate of 7.5 tons per hour input and 20 tons per hour output.
10. The emission limitation for this plant is 31.4 pounds per hour particulate matter as set forth in Rule 17-2.610(1), FAC.
11. Visible emissions shall be less than 20 percent opacity as set forth in Rule 17-2.610(2), FAC.
12. This rotary dryer can be fired only with waste oil, #5 fuel oil, terpene derivative type fuels, non-halogenated spent hydrocarbon solvent mixtures such as xylene, acetone, etc., or used kerosene.
13. The maximum amount of lead content in the waste oil is limited to a maximum of 1% or 10,000 ppm. Yearly waste oil fuel analysis must be conducted on the actual waste oil used on the site. This analysis is due at the same time as the stack test.
14. Terpene derivation type fuels are to be mixed 50/50 with waste oil.
15. Used kerosene from the Miami Herald is contaminated with newspaper ink and the fuel shall be sampled for PCB concentrations. If the concentration of PCB is below the detectable limit, the fuel can be utilized in a mixture up to and including 100%.
16. Non-halogenated spent hydrocarbon solvents shall be a permitted fuel at a maximum volume mixture of 20% with waste oils. The upper limit of chloride content will be 1.5% by weight and when blended in a 20/80 mixture will have actual limit of 0.3% chloride to prevent corrosive action on the baghouse filter material. The following will have an upper limit of 2,000 ppm: chromium, lead, copper, tin, aluminum, nickel, antimony, manganese, barium, phosphorus, zinc and molybdenum.
17. Statements made in the Engineer's September 16, 1983 letter to the department are relied upon and are made a part of the applications.
18. All solvent testing equipment must be calibrated at least once a year.
19. This plant is required to operate within 10 percent of permitted capacity during compliance test.

PERMITTEE:
Mid-Fla. Mining Company

I. D. Number:
Permit Number: AC 42-77048
Expiration Date: Sept. 30, 1984

SPECIFIC CONDITIONS:

20. This source shall be tested for particulate emissions in accordance with EPA Method #5 yearly.
21. All source sampling and monitoring must be in accordance with Rule 17-2.700, FAC, Stationary Point Source Emission Test Procedures.
22. The stack test data submitted must be as required in Rule 17-2.700(7), FAC, Test Reports.
23. Submit for this facility, each calendar year, an annual operations report for the preceding calendar year as per Rule 17-4.14, FAC.
24. Compliance tests will be submitted to DER's St. Johns River District Office-Air Programs within 45 days after completion of the tests.
25. Ten (10) day notification of compliance tests to DER's St. Johns River District Office - Air Programs is required.
26. After satisfactory completion of the initial compliance test and prior to ninety (90) days before the expiration of this permit, a complete application for an operating permit shall be submitted to the St. Johns River District Office. The permittee may continue to operate in compliance with all terms of this construction permit until its expiration date or the issuance of an operating permit. The department may extend the expiration date of this permit as authorized by Rule 17-2.210(1), FAC.

Issued this 6 day of April, 1984

STATE OF FLORIDA DEPARTMENT OF
ENVIRONMENTAL REGULATION

Victoria J Tschinkel

VICTORIA J. TSCHINKEL, Secretary

____ pages attached.

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

For Routing To District Offices And/Or To Other Than The Addressee		
To:	Loctn.:	
To:	Loctn.:	
To:	Loctn.:	
From:	Date:	
Reply Optional [ ]	Reply Required [ ]	Info. Only [ ]
Date Due:	Date Due:	

TO: Victoria J. Tschinkel

FROM: Steve Smallwood

DATE: April 5, 1984

SUBJ: Approval of Attached Air Construction Permit

Attached for your approval and signature is one Air Construction Permit for which the applicant is Mid-Florida Mining Company. The construction proposed is a dried clay storage silo and clay dryer at the company's facility in Lowell, Marion County, Florida.

Day 90, after which the permit would be issued by default, is April 8, 1984.

The Bureau recommends your approval and signature.

SS/pa

Attachment

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS
1213 N.W. 6th Street Gainesville, Florida 32601 (904) 377-5822

DER
OCT 4 1984
QM

SKEC 290-83-02

October 2, 1984

Mr. C. H. Fancy
Deputy Bureau Chief
Bureau of Air Quality Management
Florida Department of
Environmental Regulation
Northwest District Branch Office
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

Subject: Mid-Florida Mining Company
Lowell, Florida
Construction Permit AC42-77048

Dear Mr. Fancy:

On April 6, 1984, the Mid-Florida Mining Company of Lowell, Florida was issued Air Pollution Source Construction Permit AC42-77048 to connect a dried clay storage silo vent to a bag collector serving an existing clay dryer. The clay dryer was operating under Air Pollution Source Operating Permit No. A042-68788; a permit that was replaced by the subject Air Pollution Source Construction Permit. The subject Air Pollution Source Construction Permit expired on September 30, 1984.

The storage silo has been constructed and the vent connected to the baghouse serving the clay dryer. On September 12, 1984, Sholtes & Koogler, Environmental Consultants (SKEC) conducted air pollution emission measurements on the source to demonstrate compliance with the particulate matter emission limiting standard in the construction permit and certified completion of construction of the project.

The purpose of this letter is to request an extension of Permit AC42-77048 to November 30, 1984. This extension will allow us time to submit our test report to the St. Johns River District Office of the Florida Department of Environmental Regulation for review and will allow that office time to prepare and issue the Operating Permit for this source.

If there are any questions regarding this request for a permit extension or if additional information is needed, please feel free to contact me.

Very truly yours,

SHOLTES & KOOGLER,
ENVIRONMENTAL CONSULTANTS

John B. Koogler, Ph.D., P.E.

JBK:ssc

cc: Mr. Bill Thomas
Mr. A. T. Sawicki
Mr. James B. Kleekamp

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS
1213 N.W. 6th Street Gainesville, Florida 32601 (904) 377-5822
SKEC 290-83-02

March 23, 1984

Mr. Clair Fancy
Florida Department of
Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

DER
MAR 26 1984
BAQM

Subject: Mid-Florida Mining Company
Marion County, Florida
Clay Dryer and Clay Storage Silo
Permit AC24-77048

Dear Mr. Fancy:

On February 3, 1984, I sent the attached letter to Mr. Charles Collins of the FDER St. Johns River District Office regarding the subject facility. In this letter, I requested a modification of Specific Condition 21 which was added to Air Pollution Source Operating Permit A042-68788 on October 19, 1983. Permit A042-68788 is the operating permit under which the Mid-Florida Mining clay dryer presently operates and the permit which will be replaced by the subject permit.

Specific Condition 21 of Permit A042-68788 was incorporated in the subject permit as Specific Condition 16. This Condition restricts the concentration of chromium, lead, copper, tin, aluminum, nickel, antimony, manganese, barium, phosphorus, zinc and molybdenum in a mixture of 20 percent non-halogenated spent hydrocarbon solvents and 80 percent waste oil to 400 parts per million. In my letter of February 3, 1984 to Mr. Collins, we requested that the 400 parts per million limit be removed. Support for this request is provided in the letter to Mr. Collins, a copy of which is attached.

Based upon information contained in the attached letter we are also requesting of you that the 400 parts per million limit on the specific heavy metals be removed from Permit Condition 16 of draft Permit AC42-77058. If there are any questions regarding this matter or if additional information is necessary, please contact me.

Very truly yours,

SHOLTES & KOOGLER,
ENVIRONMENTAL CONSULTANTS, INC.

John B. Koogler, Ph.D., P.E.

JBK:ldh
Enclosure

cc: Mr. Jim Kleekamp

Clair Fancy

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

ST. JOHNS RIVER DISTRICT
3319 MAGUIRE BOULEVARD
SUITE 232
ORLANDO, FLORIDA 32803-3767

DEPARTMENT OF ENVIRONMENTAL REGULATION STATE OF FLORIDA

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

A. ALEXANDER,
DISTRICT MANAGER

March 20, 1984

Roy O. Camp
Vice President Operations
Mid-Florida Mining Company
Post Office Box 68
Lowell, Florida 32663

DER
MAR 26 1984
BAQM

Dear Mr. Camp:

Marion County - AP
Fullers Earth Rotary Dryer
Modification of Conditions
Permit No. AO42-68788

We are in receipt of your request for a modification of the permit conditions. The conditions are changed as follows:

Condition	From
Part of Condition #21 DELETE	Once mixed 20max/80 the actual limit is 400 ppm.

This letter must be attached to your permit and becomes a part of that permit.

Sincerely,

Charles M. Collins

for A. Alexander, P.E.
District Manager

AA:rce

cc: John B. Koogler
Clair Fancy

MID-FLORIDA MINING COMPANY

BOX 68, LOWELL, FLORIDA 32663 AC 904 732-7227

March 09, 1984

CERTIFIED MAIL

RETURN RECEIPT

Patty

DER
MAR 13 1984
BAQM

Mr. C. H. ~~Fancy~~, P. E.
Deputy Chief
Bureau of Air Quality Management
State of Florida
Department of Environmental Regulation
Twin Towers Office Building
2600 Blairstone Road
Tallahassee, Florida 32301-8241

Dear Mr. Fancy:

Reference is made to your letter of February 23, 1984 regarding our permit for the construction of a dried clay storage silo and related appurtenances.

Please find enclosed a "Proof of Publication" of the required legal notice.

Very truly yours,

MID-FLORIDA MINING COMPANY

James B. Kleekamp

James B. Kleekamp

JBK:co'd
Enc.

cc: Dr. John B. Koogler
Mr. Charles M. Collins

PROOF OF PUBLICATION

THE OCALA STAR-BANNER

Published—Daily

OCALA, MARION COUNTY, FLORIDA

STATE OF FLORIDA,
COUNTY OF MARION.

Before me the undersigned authority personally appeared Harry Griffiths __________, who on oath says that he is Classified Ad Manager of the Ocala Star-Banner, a daily newspaper published at Ocala, in Marion County, Florida; that the attached copy of advertisement, being a notice in the matter of

____

#6280-Notice of Propsed Agency Action

____

__________ in the __________ Court,

was published in said newspaper in the issues of __________

March 3, 1984

____

Affiant further says that the said THE OCALA STAR-BANNER is a daily newspaper published at Ocala, in said Marion County, Florida, and that the said newspaper has heretofore been continuously published in said Marion County, Florida, daily, and has been entered as second class mail matter at the post office in Ocala, in said Marion County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he has neither paid nor promised any person, firm or cooperation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

____

Sworn to and subscribed before me this 12th day

of March, A.D., 1984

____

(Seal) Notary Public, State of Florida at Large Notary Public
My Commission Expires Aug. 4, [illegible]

HERBERT C. SPANGLER NOTARY PUBLIC STATE OF FLORIDA

NOTICE OF PROPOSED AGENCY ACTION

The Department of Environmental Regulations gives notice of its intent to issue a permit to Mid-Florida Mining Company for the construction of a dried clay storage silo and clay dryer at the company's existing facility in Lowell, Marion County, Florida. A determination of best available control technology (BACT) was not required.

A person who is substantially affected by the department's proposed permitting decision may request a hearing in accordance with Section 120.57, Florida Statutes, and Chapters 17-1 and 28-5, Florida Administrative Code. The request for hearing must be filed (received) in the Office of General Counsel of the department at 2600 Blair Stone Road, Twin Towers Office Building, Tallahassee, Florida 32301, within fourteen (14) days of publication of this notice. Failure to file a request for hearing within this time period shall constitute a waiver of any right such person may have to request a hearing under Section 120.57, Florida Statutes.

The application, technical evaluation and department intent are available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at the following locations:

DER Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32301

DER St. Johns River District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803

Comments on this action shall be submitted in writing to Bill Thomas of Tallahassee office within thirty (30) days of this notice.

No. 6280 — March 3, 1984.

PROOF OF PUBLICATION

THE OCALA STAR-BANNER

Published—Daily

OCALA, MARION COUNTY, FLORIDA

STATE OF FLORIDA,
COUNTY OF MARION.

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March 3, 1984

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Harry Griffiths

Sworn to and subscribed before me this 12th day

of March, A.D., 1984

Herbert E Spangler

(Seal) Notary Public, State of Florida at Large. My Commission Expires ... Notary Public

HERBERT C. SPANGLER NOTARY PUBLIC STATE OF FLORIDA

NOTICE OF PROPOSED AGENCY ACTION

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3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803

Comments on this action shall be submitted in writing to Bill Thomas of Tallahassee office within thirty (30) days of this notice.

No. 6280 — March 3, 1984.

PS Form 3811, Jan. 1979

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

● SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
   - [X] Show to whom and date delivered............ ____ ¢
   - [ ] Show to whom, date and address of delivery.... ____ ¢
   - [ ] RESTRICTED DELIVERY
     Show to whom and date delivered............ ____ ¢
   - [ ] RESTRICTED DELIVERY.
     Show to whom, date, and address of delivery.$____

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
Mr. Roy O. Camp
Mid-Fla. Mining Co.
P. O. Box 68
Lowell, FL 32663

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.
	0158259	

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐Addressee ☐Authorized agent

4. C O'Donnell

DATE OF DELIVERY 2/28/84

POSTMARK FL FEB 28 1984

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE:

CLERK'S INITIALS

☆GPO : 1979-300-459

No. 0158259

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL

(See Reverse)

SENT TO Mr. Roy O. Camp	
STREET AND NO. P. O. Box 68	
P.O., STATE AND ZIP CODE Lowell, Fl 32663	
POSTAGE	$
CONSULT POSTMASTER FOR FEES — CERTIFIED FEE	¢
OPTIONAL SERVICES — SPECIAL DELIVERY	¢
OPTIONAL SERVICES — RESTRICTED DELIVERY	¢
RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED	¢
RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	¢
RETURN RECEIPT SERVICE — SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	¢
RETURN RECEIPT SERVICE — SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY	¢
TOTAL POSTAGE AND FEES	$
POSTMARK OR DATE 2/27/84	

PS Form 3800, Apr. 1976

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

February 23, 1984

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. Roy O. Camp
Vice-President, Operations
Mid-Florida Mining Company
Post Office Box 68
Lowell, Florida 32663

Dear Mr. Camp:

Attached is one copy of the Technical Evaluation and Preliminary Determination, and proposed permit for the construction of a dried clay storage silo and clay dryer at your existing facility in Lowell, Marion County, Florida.

Before final action can be taken on your proposed permit, you are required by Florida Administrative Code Rule 17-1.62(3) to publish the attached Notice of Proposed Agency Action in the legal advertising section of a newspaper of general circulation in Marion County no later than fourteen days after receipt of this letter. The department must be provided with proof of publication within seven days of the date the notice is published. Failure to publish the notice may be grounds for denial of the permit.

The Preliminary Determination and proposed permit constitutes a proposed action of the department and is subject to administrative hearing under the provisions of Chapter 120, Florida Statutes, if requested within fourteen days from receipt of this letter. Any petition for hearing must comply with the requirements of Florida Administrative Code Rule 28-5.201 and be filed with the Office of General Counsel, Florida Department of Environmental Regulation, Twin Towers Office Building, 2600 Blair Stone Road, Tallahassee, Florida 32301. Failure to file a request for hearing within fourteen days shall constitute a waiver of your right to a hearing. Filing is deemed complete upon receipt by the Office of General Counsel.

Please submit, in writing, any comments which you wish to have considered concerning the department's proposed action to Mr. Bill Thomas of the Bureau of Air Quality Management.

Sincerely,

C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality
Management

CHF/ES/pa

Attachments

cc: Dr. John B. Koogler, P.E.
Sholtes & Koogler Environmental Consultants

Mr. Charles Collins, P.E.
DER of St. Johns River District

Preliminary Determination
and
Technical Review

Mid-Florida Mining Company
Marion County

Dried Clay Storage Silo and Clay Dryer

Permit Number
AC 42-77048

Florida Department of Environmental Regulation
Bureau of Air Quality Management
Central Air Permitting

February 22, 1984

NOTICE OF PROPOSED AGENCY ACTION

The Department of Environmental Regulation gives notice of its intent to issue a permit to Mid-Florida Mining Company for the construction of a dried clay storage silo and clay dryer at the company's existing facility in Lowell, Marion County, Florida. A determination of best available control technology (BACT) was not required.

A person who is substantially affected by the department's proposed permitting decision may request a hearing in accordance with Section 120.57, Florida Statutes, and Chapters 17-1 and 28-5, Florida Administrative Code. The request for hearing must be filed (received) in the Office of General Counsel of the department at 2600 Blair Stone Road, Twin Towers Office Building, Tallahassee, Florida 32301, within fourteen (14) days of publication of this notice. Failure to file a request for hearing within this time period shall constitute a waiver of any right such person may have to request a hearing under Section 120.57, Florida Statutes.

The application, technical evaluation and department intent are available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at the following locations:

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DER St. Johns River District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803

Comments on this action shall be submitted in writing to Bill Thomas of Tallahassee office within thirty (30) days of this notice.

RULES OF THE ADMINISTRATIVE COMMISSION
MODEL RULES OF PROCEDURE
CHAPTER 28-5
DECISIONS DETERMINING SUBSTANTIAL INTERESTS

28-5.15 Requests for Formal and Informal Proceedings

(1) Requests for proceedings shall be made by petition to the agency involved. Each petition shall be printed typewritten or otherwise duplicated in legible form on white paper of standard legal size. Unless printed, the impression shall be on one side of the paper only and lines shall be double spaced and indented.

(2) All petitions filed under these rules should contain:

(a) The name and address of each agency affected and each agency's file or identification number, if known;

(b) The name and address of the petitioner or petitioners;

(c) All disputed issues of material fact. If there are none, the petition must so indicate;

(d) A concise statement of the ultimate facts alleged, and the rules, regulations and constitutional provisions which entitle the petitioner to relief;

(e) A statement summarizing any informal action taken to resolve the issues, and the results of that action;

(f) A demand for the relief to which the petitioner deems himself entitled; and

(g) Such other information which the petitioner contends is material.

I. Project Description

A. Applicant
Mid-Florida Mining Company
Post Office Box 68
Lowell, Florida 32663

B. Project and Location

The applicant's proposed project consists of construction a 266,395 cubic feet capacity dried clay storage silo. The storage silo will be used for product from the existing clay dryer and will be located at the existing facility of Mid-Florida Mining Company, State Road 329 and the Seaboard Coast Line Railroad, Lowell, Florida in Marion County. The universal transverse mercator (UTM) coordinates of the source are Zone 17, 304.50 km East and 3245.30 km North.

C. Project Description and Controls

The existing fuller's earth clay drying facility at Mid-Florida Mining Company's Lowell, Florida plant will be modified by the addition of a 266,395 cubic feet capacity dried clay storage silo. The facility currently produces cat litter and oil absorbent from dried fuller's earth. By the addition of the proposed silo, Mid-Florida Mining Company will be able to market a product to be used as an impervious liner for ponds.

The fuller's earth is fed into a seven foot diameter rotary kiln, seventy feet in length, at a maximum input rate of 40.8 tons per hour. Heat for the drying process is generated by burning waste oil, #5 fuel oil, Terpene derivative type fuels, non-halogenated spent hydrocarbon solvents mixtures, or used kerosene. The dried fuller's earth is put through a screening process where the fines are separated from the larger dried clay particles which are sold as cat litter and oil absorbent. The remaining dried fuller's earth is put through two particle classifiers and into a surge tank. An air lock feeder deposits the material from the surge tank into an air stream where the dried clay, used as an impervious liner for ponds, is transfered to the proposed dried clay storage silo. All exhaust gases from the rotary kiln and the dried clay storage silo are vented through an existing model 120 WMW-480 Flex-Kleen baghouse collector.

II. Rule Applicability

Mid-Florida Mining Company is a major facility for particulate matter emissions as defined in Florida Administrative Code Rule 17-2.100(95).

The proposed project is located in an area classified as attainment for all criteria pollutants according to Florida Administrative Code Rule 17-2.420.

The proposed project is exempt from the requirements of Florida Administrative Code Rule 17-2.500, Prevention of Significant Deterioration, according to Florida Administrative Code Rule 17-2.500(2)(d)4.a.(ii) because this project does not result in a significant net increase of emissions of any pollutant and is not located within 10 km of any Class I area.

III. Summary of Emissions and Air Quality Analysis

The pollutants emitted by the dried clay storage silo and the fuller's earth rotary kiln are particulate matter, sulfur dioxide, lead, chloride, chromium, copper, tin, aluminum, nickel, antimony, manganese, barium, phosphorus, zinc and molybdenum. The particulate matter emissions are generated by the rotary kiln and the transfer of the dried clay to the storage silo. The remainder of the emissions come from the burning of #5 fuel oil and various waste oils as fuel for the rotary kiln.

The allowable emissions of particulate matter are 31.4 pounds per hour for the combined particulate matter emissions from the storage silo and the rotary kiln. The allowable particulate matter emissions, 31.4 pounds per hour, are derived from the Process Weight Table in Florida Administrative Code Rule 17-2.610 and are based on the maximum input to the rotary kiln dryer of 40.8 tons per hour. Sulfur dioxide emissions will be 1.1 pounds per hour when #5 fuel oil is fired to heat the rotary kiln dryer. Lead emissions will be limited to a maximum lead content in the waste oil burned of 1% or 10,000 parts per million. The upper limit of chloride in non-halogenated spent hydrocarbon solvents will be 1.5% by weight and chromium, lead, copper, tin, aluminum, nickel, antimony, manganese, barium, phosphorus, zinc and molybdenum will have an upper limit of 2,000 parts per million in non-halogenated spent hydrocarbon solvents. Also, used kerosene from the Miami Herald must be sampled for PCB and be below detectable limits before the fuel can be utilized.

B. Air Quality Analysis

Since the increase of emissions is exempted from the requirements of Florida Administrative Code Rule 17-2.500, Prevention of Significant Deterioration, an ambient air quality analysis is not required.

IV. Conclusion

The emission limits that will be imposed have been determined to be in compliance with all applicable requirements of Florida Administrative Code 17-2. The permitted maximum allowable emission limits should not cause any violation of Florida's ambient air quality standards.

The general and specific conditions listed in the proposed contruction permit (attached) will assure compliance with all applicable requirements of Florida Administrative Code Rule 17-2.

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

PERMITTEE:
Mid-Florida Mining Corporation
P. O. Box 68
Lowell, Florida 32663

Permit Number: AC 42-77048
Expiration Date: Sept. 30, 1984
County: Marion
Latitude/Longitude: 29°19'52"N/ 82°11'28"W
Project: Dried Clay Storage Silo and Clay Dryer

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

For the construction of a 266,395 cubic feet capacity dried clay storage silo. The emissions will be controlled by an existing baghouse collector also servicing the clay rotary kiln dryer which is fired with #5 fuel oil and waste oils. The project is located at the existing facility of the Mid-Florida Mining Company, Lowell, Marion County, Florida.

Construction shall be in accordance with the attached permit application and additional information except as otherwise noted in the Specific Conditions.

Attachments are as follows:

1. Application to Construct an Air Pollution Source, DER Form 17-1.202(1).

2. C. H. Fancy's letter dated November 4, 1983.

3. Sholtes & Koogler letter dated December 15, 1983.

4. Permit Number AO 42-68788 for Clay Dryer.

PERMITTEE:
Mid-Florida Mining Company
Lowell, Florida

I. D. Number:
Permit Number: AC 42-77048
Expiration Date:Sept. 30, 1984

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the permittee and enforceable pursuant to the authority of Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is hereby placed on notice that the department will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or approval of any other department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant or aquatic life or property and penalties therefore caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and department rules, unless specifically authorized by an order from tne department.

PERMITTEE:
Mid-Fla. Mining Co.

I. D. Number:
Permit Number:AC 42-77048
Expiration Date: Sept. 30, 1984

GENERAL CONDITIONS:

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

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the department, may be used by the department as evidence in any enforcement case arising under the Florida Statutes or department rules, except where such use is proscribed by Sections 403.73 and 403.111, Florida Statutes.

10. The permittee agrees to comply with changes in department rules and Florida Statutes after a reasonable time for compliance, provided however, the permittee does not waive any other rights granted by Florida Statutes or department rules.

11. This permit is transferable only upon department approval in accordance with Florida Administrative Code Rules 17-4.12 and 17-30.30, as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the department.

12. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

13. This permit also constitutes:

( ) Determination of Best Available Control Technology (BACT)
( ) Determination of Prevention of Significant Deterioration (PSD)
( ) Compliance with New Source Performance Standards.

14. The permittee shall comply with the following monitoring and record keeping requirements:

a. Upon request, the permittee shall furnish all records and plans required under department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the department, during the course of any unresolved enforcement action.

PERMITTEE:
Mid-Fla. Mining Co.

I. D. Number:
Permit Number:AC 42-77058
Expiration Date:Sept. 30, 1984

GENERAL CONDITIONS:

b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by department rule.

c. Records of monitoring information shall include:

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

15. When requested by the department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the department, such facts or information shall be submitted or corrected promptly.

SPECIFIC CONDITIONS:

1. This construction permit replaces the current operating permit number AO 42-68788.
2. No objectionable odors will be allowed, as per Rule 17-2.620(2), FAC.
3. There shall be no discharges of liquid effluents or contaminated runoff from the plant site without approval from the deparatment.
4. This permit does not preclude compliance with all relevant local permitting requirements and regulations.
5. All unconfined emissions of particulate matter generated at this site shall be adequately controlled (Rule 17-2.610(3), FAC). The area must be watered down should unconfined emissions occur.

PERMITTEE:
Mid-Fla. Mining Co.

I. D. Number:
Permit Number:AC 42-77048
Expiration Date:Sept. 30, 1984

GENERAL CONDITIONS:

6. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized department personnel, upon presentation of credentials or other documents as may be required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:

a. Having access to and copying any records that must be kept under the conditions of the permit;

b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the department with the following information:

a. a description of and cause of non-compliance; and

b. the period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

PERMITTEE:
Mid-Fla. Mining Company

I. D. Number:
Permit Number: AC 42-77058
Expiration Date: Sept. 30, 1984

SPECIFIC CONDITIONS:

6. The baghouse shall be properly maintained to operate at approximately its rated efficiency.
7. The baghouse bags will be HAN1530SST composed of Dralon T homopolymer acrylic.
8. This rotary dryer is limited to a maximum input rate of 40.8 tons per hour input.
9. This dried clay storage silo is limited to a maximum input rate of 7.5 tons per hour input and 20 tons per hour output.
10. The emission limitation for this plant is 31.4 pounds per hour particulate matter as set forth in Rule 17-2.610(1), FAC.
11. Visible emissions shall be less than 20 percent opacity as set forth in Rule 17-2.610(2), FAC.
12. This rotary dryer can be fired only with waste oil, #5 fuel oil, terpene derivative type fuels, non-halogenated spent hydrocarbon solvent mixtures such as xylene, acetone, etc., or used kerosene.
13. The maximum amount of lead content in the waste oil is limited to a maximum of 1% or 10,000 ppm. Yearly waste oil fuel analysis must be conducted on the actual waste oil used on the site. This analysis is due at the same time as the stack test.
14. Terpene derivation type fuels are to be mixed 50/50 with waste oil.
15. Used kerosene from the Miami Herald is contaminated with newspaper ink and the fuel shall be sampled for PCB concentrations. If the concentration of PCB is below the detectable limit, the fuel can be utilized in a mixture up to and including 100%.
16. Non-halogenated spent hydrocarbon solvents shall be a permitted fuel at a maximum volume mixture of 20% with waste oils. The upper limit of chloride content will be 1.5% by weight and when blended in a 20/80 mixture will have actual limit of 0.3% chloride to prevent corrosive action on the baghouse filter material. The following will have an upper limit of 2,000 ppm: chromium, lead, copper, tin, aluminum, nickel, antimony, manganese, barium, phosphorus, zinc and molybdenum. Once mixed 20 max/80 the actual limit is 400 ppm.
17. Statements made in the Engineer's September 16, 1983 letter to the department are relied upon and are made a part of the applications.
18. All solvent testing equipment must be calibrated at least once a year.
19. This plant is required to operate within 10 percent of permitted capacity during compliance test.

PERMITTEE:
Mid-Fla. Mining Company

I. D. Number:
Permit Number: AC 42-77058
Expiration Date: Sept. 30, 1984

SPECIFIC CONDITIONS:

20. This source shall be tested for particulate emissions in accordance with EPA Method #5 yearly.
21. All source sampling and monitoring must be in accordance with Rule 17-2.700, FAC, Stationary Point Source Emission Test Procedures.
22. The stack test data submitted must be as required in Rule 17-2.700(7), FAC, Test Reports.
23. Submit for this facility, each calendar year, an annual operations report for the preceding calendar year as per Rule 17-4.14, FAC.
24. Compliance tests will be submitted to DER's St. Johns River District Office-Air Programs within 45 days after completion of the tests.
25. Ten (10) day notification of compliance tests to DER's St. Johns River District Office - Air Programs is required.
26. After satisfactory completion of the initial compliance test and prior to ninety (90) days before the expiration of this permit, a complete application for an operating permit shall be submitted to the St. Johns River District of Office. The permittee may continue to operate in compliance with all terms of this construction permit until its expiration date or the issuance of an operating permit. The department may extend the expiration date of this permit as authorized by Rule 17-2.210(1), FAC.

Issued this ___ day of________, 1984

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

____
VICTORIA J. TSCHINKEL, Secretary

____ pages attached.

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS
1213 N.W. 6th Street Gainesville, Florida 32601 (904) 377-5822

SKEC 290-83-02

February 3, 1984

RECEIVED FEB 1984 Saint Johns River District

Mr. Charles M. Collins
Florida Department of
Environmental Regulation
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803

Subject: Marion County - AP
Mid-Florida Mining Company
Clay Dryer - A042-68788
Modification of Conditions

Dear Mr. Collins:

On behalf of Mid-Florida Mining, I would like to request a modification of permit Condition 21 for the subject air pollution source operating permit as set forth the permit modifications dated October 19, 1983. This condition permits the use of a blended fuel consisting of 20 percent non-halogenated spent hydrocarbon solvents and 80 percent waste oil. The condition further limits the concentration of 12 metals in the spent solvents to 2,000 parts per million and limits the concentration of these metals in the blended fuel to 400 parts per million. We are requesting a modification to the 400 parts per million limit.

The 400 parts per million limit for the metals apparently derives from my letter to you of September 16, 1983. In this letter I state, "mixing the spent hydrocarbon solvents, containing a maximum of 2,000 parts per million of any one heavy metal, with other fuel will result in a maximum heavy metals concentration in the blended fuel of 400 parts per million." This statement is true if one assumes that the "other fuels" contain no heavy metals to begin with. In reality, and I apologize for not taking this into consideration when I prepared my letter of September 16, 1983, the waste oil that Mid-Florida Mining blends with the spent solvents can contain up to 10,000 parts per million of lead (Specific Condition 9 of Permit A042-68788 as issued on August 30, 1983).

In the following paragraphs it will be demonstrated that the ambient exposure limit for lead is more stringent than the exposure limits for other metals addressed in the subject permit and further demonstrated that a blend fuel consisting of 80 percent waste oil with 10,000 parts per million lead and 20 percent spent solvents with 2,000 parts per million lead can be burned without creating a threat to ambient air quality.

If one assumes that the spent solvents containing 2,000 parts per million of lead are blended with a waste oil containing 10,000 parts per million of lead in a ratio of 20 percent to 80 percent, the resulting blended fuel will have a lead concentration of 8,400 parts per million (see attached calculation sheet). The density of the blended fuel will be 7.33 pounds per gallon and the firing rate of the fuel to the clay dryer will be 271 gallons per hour. Based on these conditions, the uncontrolled lead emissions could approach 16.7 pounds per hour.

Referring to my letter of October 6, 1981, it will be noted that a lead emission rate from the subject dryer of 2.03 pounds per hour resulted in a maximum 24-hour lead impact on ambient air of 1.23 micrograms per cubic meter. By proportion, the 16.7 pound per hour lead emission rate will result in a 10.1 microgram per cubic meter lead impact for the 24-hour period; assuming zero lead removal in both the dryer and the baghouse. Realistically, one would expect at least a 90 percent lead removal in the combined system resulting in a maximum 24-hour lead impact of 1.0 micrograms per cubic meter.

Referring to my October 6, 1981 letter again, a relationship between ambient concentrations and averaging times was developed. This relationship is:

$$X = X_0(t_0/t)^{(0.49)}$$

where: X = ambient concentration (micrograms per cubic meter) during averaging time t (hours, and

X_0 = ambient concentration (micrograms per cubic meter) during averaging time t_0 (hours).

Check 271 GPH ?

This equation was based on emissions from the Mid-Florida Mining clay dryer and Orlando meteorological data; making it an appropriate equation to evaluate conditions at Mid-Florida Mining. The equation can be used to relate the EPA developed quarterly (3 month) ambient air quality standard for lead (1.5 micrograms per cubic meter) to an equivalent lead standard for other averaging times. For convenience, the quarterly lead standard was used to calculate an equivalent 8-hour exposure standard and an equivalent 24-hour exposure standard. The 8-hour equivalent standard was calculated so that a direct comparison could be made with the 8-hour Occupational Safety and Health Administration exposure standard. The equivalent 24-hour standard was calculated since the 24-hour impact of lead emissions from Mid-Florida Mining is known (10.1 micrograms per cubic meter with no control or 1.0 micrograms per cubic meter with 90 percent control).

The equivalent 8-hour lead standard was calculated to be 23.5 micrograms per cubic meter and the equivalent 24-hour lead standard was calculated to be 11.7 micrograms per cubic meter (see attached). The Occupational Safety and Health Administration exposure limit for lead (see attached table) is 200 micrograms per cubic meter or approximately 10 times greater than the equivalent EPA lead standard. Based on the factor of 10 difference between the two standards, equivalent 8-hour EPA standards for the metals limited by Condition 21 of your October 19, 1983 letter were calculated and are listed in the attached table. Likewise, equivalent 24-hour standards for all of the metals are also listed.

Again, returning the lead since the exposure limit to this metal is the most stringent standard, one notes that the equivalent 24-hour lead standard is 11.7 micrograms per cubic meter. This standard is greater than the expected impacts of 10.1 micrograms per cubic meter assuming no control and 1.0 micrograms per cubic meter, assuming 90 percent control. The equivalent standards for the other metals are from 2.5 to 75 times greater than the standard for lead; or between 3 to 90 times greater than the ambient concentration of any metal if the metal was present in the waste oil in a concentration of 10,000 parts per million and in the spent solvent in a concentration of 2,000 parts per million. And, this assumes <u>no</u> emission control.

The information provided in the above paragraphs demonstrates that the concentration of any of the metals in the blended fuel consisting of spent solvents and waste oil, can be as high as 8,400 parts per million without causing adverse on environmental impact. Based upon this information, we request that the sentence, "Once mixed

.15 mg /m³
150 μg /m³

20 max/80 the actual limit is 400 ppm." be removed from Condition 21 as stated in the modification of conditions to permit A042-68788 dated October 19, 1983.

If any additional information is required of if you have any questions regarding the information contained herein, please feel free to contact me.

Very truly yours,

SHOLTES & KOOGLER,
ENVIRONMENTAL CONSULTANTS, INC.

John B. Koogler
John B. Koogler, Ph.D., P.E.

JBK:ldh
Enclosure

cc: Mr. Jim Kleekamp

Mid-Florida Mining
Lead Emissions Calculations

Blend Oil

Spent Solvent @ 2000 ppm (max) lead - 20%
Waste Oil @ 10,000 ppm (max) lead - 80%

Lead in blend oil
$= 2000(0.2) + 10{,}000(0.8)$
$= 8400$ ppm (max)

Density = 7.33 lb/gal

Firing Rate = 271 gal/hr

Uncontrolled Lead Emissions
$= 271 \text{ gal/hr} \times 7.33 \text{ lb/gal} \times 1/10^6 \times 8400 \text{ ppm}$
$= 16.68$ lb/hr, uncontrolled

From 10/6/81 SKEC letter:

Lead emissions of 2.03 lb/hr resulted in a 24-hr impact of 1.23 µg/m³

Impact @ 16.68 #/hr
$= \frac{16.68}{2.03} \times 1.23$
$= 10.1$ µg/m³, 24-hr avg, with no control

From 10/6/81 SKEC letter:

$$\chi = \chi_0 (t_0/t)^{0.49}$$

χ = gnd-level conc (µg/m³) for avg time t (hrs)
χ_0 = gnd-level conc (µg/m³) for avg time t_0 (hrs)

Lead std (USEPA, quarterly std)
= 1.5 µg/m³, 3 mo avg (2190 hrs)

Equivalent 8-hr std

$$\chi_8 = 1.5 \,|(2190/8)^{0.49} = 23.5 \text{ µg/m}^3\text{, 8-hr avg}$$

Equivalent 24-hr std

$$\chi_{24} = 1.5 \,|(2190/24)^{0.49} = 13.7 \text{ µg/m}^3\text{, 24-hr avg.}$$

Standard Development

OSHA 8-hr exposure std for lead = 200 μg/m³

Equivalent 8-hr EPA std for lead = 23.5 μg/m³

Ratio EPA/OSHA = 23.5/200 = 0.12

Say 0.1, that is the EPA std for lead is 10 times more stringent than OSHA std.

Assume 10 x factor holds for all metals

Therefore:

Metal	8-hr OSHA std	÷ 10	= Equiv 8-hr EPA std
Chromium	500 μg/m³		50 μg/m³
Lead	200		20 *
Nickel	1000		100
Copper	1000		100
Antimony	500		50
Phosphorus	1000		100
Tin	2000		200
Manganese	5000		500
Barium	500		50
Molybdenum	5000		500
Aluminum	15000		1500
Zinc	5000		500

* Most Stringent Std

24-hour lead standard = $20(8/24)^{0.49}$ = 11.7 μg/m³

3-mo avg lead standard = 1.5 μg/m³, NAAQS

AIR QUALITY STANDARDS FOR
METALS LIMITED BY PERMIT A042-68788

Metal	Exposure Concentration (ug/m3) 8-Hr OSHA Std.	Equivalent(1) 8-Hr EPA Standard	Equivalent(2) 24-Hr EPA Standard	Quarterly(3) (3-Mo) EPA Standard	24-Hr Impact of Mid-Florida Emissions Worst Case(4)
Chromium	500	50	29.1		
Lead	200	20	11.7	1.5	10.1
Nickel	1000	100	58.3		
Copper	1000	100	58.3		
Antimony	500	50	29.1		
Phosphorus	1000	100	58.3		
Tin	2000	200	116.6		
Manganese	5000	500	291.5		
Barium	500	50	29.1		
Molybdenum	5000	500	291.5		
Aluminum	15000	1500	874.5		
Zinc	5000	500	291.5		

(1) EPA standard assumed to be 10 times more stringent based on ratio of EPA lead standard and OSHA lead standard (see attached calculation sheet for lead).

(2) Ratio of equivalent 24-hour EPA standard to equivalent 8-hour EPA standard is 0.58 based on 1974 Orlando meteorology (see attached calculations).

(3) Ratio of quarterly EPA standard to equivalent 24-hour EPA standard is 0.11 based on 1974 Orlando meteorology (see attached calculations).

(4) "Worst case" assumes firing blend oil at 271 gal/hr; the blend consisting of 80% waste oil at 10,000 ppm lead and 20% spent solvents at 2,000 ppm, and zero lead removal in the clay dryer and baghouse.

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS
1213 N.W. 6th Street Gainesville, Florida 32601 (904) 377-5822

SKEC 290-83-02

December 15, 1983

DER
DEC 22 1983
BAQM

Mr. Clair H. Fancy
Deputy Bureau Chief
Bureau of Air Quality Management
Florida Department of
Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 323201

Subject: Mid-Florida Mining Company
Marion County, Florida
Clay Storage Silo - Construction Permit Application

Dear Mr. Fancy:

With regard to your letter of November 4, 1983, we are submitting the following information in response to the seven issues that you raised regarding the subject permit application. The responses use the same system of enumeration that were used in your November 4 letter.

1. Enclosed are four copies of Page 1 of 12 of the permit application signed by Mr. Roy O. Camp, Vice-President of Operations, for Mid-Florida Mining. Also attached is a letter authorizing Mr. Camp to sign the application on behalf of Mid-Florida Mining.

2. We have revised the permit application to reflect that it is an application for a construction permit. Changing the permit application from an operation to a construction permit application has necessitated revisions on Pages 1 and 2 of the application. Four copies of Page 2 of 12 are attached also. Included on Page 2 of the application are the date that construction on the storage silo began and the date upon which construction was completed.

3. Attached are copies of the information required under Sections V - 2, 4 and 5 of the construction permit application.

4. The discharge chute from the silo is inserted in a "trunk" built into the bags the clay is loaded into. As the clay enters the bag, displaced air is filtered through the bag walls. In this respect, the bag functions as a fabric filter collector and eliminates the generation of fugitive dust at the silo load-out.

5. The emission factor for estimating uncontrolled particulate matter emissions from the clay storage silo has been changed from 0.23 pounds per ton of material loaded to 0.24 pounds per ton. The change in the emission factor resulted in a change in uncontrolled emissions of 0.08 pounds per hour or 0.3 tons per year. This change can hardly be considered significant; particularly if one considers the emission factor is for a concrete batching operation, not a clay loading silo, and further considers that the emission factor has a rating of "E" (a rating defined in AP-42 as "poor").

6. According to information that is presently in the FDER permit files for permit AC42-43771 (see attached), the baghouse addressed in the subject permit application was designed with an air to cloth ratio of 4.0:1 at an air flow rate of 36,000 actual cubic feet per minute. In September 1983, Sholtes & Koogler, Environmental Consultants, Inc. conducted particulate matter emission measurements on the subject baghouse and measured an air flow rate of 39,900 actual cubic feet per minute with both the clay dryer and the clay storage silo being vented through the baghouse. From these test data and the information contained in the original permit application, it can be deduced that the air flow from the cement dryer is approximately 3,900 actual cubic feet per minute.

   The air flow rate of 39,900 actual cubic feet per minute will result in an air to cloth ratio of 4.4:1 in the baghouse. Based on the results of the September 1983 emission measurements conducted by SKEC; a copy of which was forwarded to your St. Johns River District Office, it is quite apparent that the baghouse can operate satisfactorily at this increased air to cloth ratio. At the time of testing, the particulate matter emissions from the baghouse averaged 1.4 pounds per hour compared with an allowable particulate matter emission rate of 31.3 pounds per hour.

7. A check in the amount of $100.00 payable to the Florida Department of Environmental Regulation is attached hereto. This check will cover the permit processing fee for the subject permit application.

If you require any additional information regarding this permit application, or have any questions regarding the information contained herein, please feel free to contact me.

Very truly yours,

SHOLTES & KOOGLER,
ENVIRONMENTAL CONSULTANTS, INC.

John B. Koogler, Ph.D., P.E.

JBK:ldh
Enclosures

cc: Mr. Chuck Collins
Mr. Jim Kleekamp

MID-FLORIDA MINING COMPANY
BOX 68 LOWELL, FLORIDA 32663 AC 904-732-7227

THE CITIZENS & SOUTHERN NATIONAL BANK
ATLANTA, GEORGIA

No. 006006

610

PAY The sum of $100 and 00 cts

DATE	AMOUNT
12-19-83	$100.00

TO THE ORDER OF Florida Department of Environmental Regulation

Condyce L Johnson

[redacted]

PLEASE DETACH BEFORE DEPOSITING

MEMO	INVOICE DATE	INVOICE NUMBER	AMOUNT	DISCOUNT	NET AMOUNT
Clean Air Permit $100.00 Vendor No. 006000					

MID-FLORIDA MINING COMPANY
BOX 68
LOWELL, FLORIDA 32663

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

Nº 76009

RECEIPT FOR APPLICATION FEES AND MISCELLANEOUS REVENUE

Received from Mid-Florida Mining Company Date December 22, 1983

Address Box 68 Lowell, Florida 32663 Dollars $ 100.00

Applicant Name & Address Same as above

Source of Revenue

Revenue Code 101 001 Application Number AC 42-77048

By Patricia G. Adams

MID-FLORIDA MINING COMPANY
BOX 68, LOWELL, FLORIDA 32663 AC 904 732-7227

December 19, 1983

DER
DEC 22 1983
BAQM

Mr. Clair H. Fancy
Deputy Bureau Chief
Bureau of Air Quality Management
Florida Department of
Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

Dear Mr. Fancy:

Please be advised that Mr. Roy O. Camp, our Vice President of Production and Engineering has the authority to sign for Mid-Florida Mining Company all documents pertaining to environmental matters.

Very truly yours,

MID-FLORIDA MINING COMPANY

Allen C. Edgar
President

ACE:co'd

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

ST. JOHNS RIVER DISTRICT
3319 MAGUIRE BOULEVARD
SUITE 232
ORLANDO, FLORIDA 32803

DER
DEC 22 1983
BAQM

BOB GRAHAM
GOVERNOR
VICTORIA J. TSCHINKEL
SECRETARY
ALEX SENKEVICH
DISTRICT MANAGER

10/12/83
12/14/83

APPLICATION TO ~~OPERATE/CONSTRUCT~~ CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Storage Silo [X] New[1] [ ] Existing[1]

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

COMPANY NAME: Mid-Florida Mining Company COUNTY: Marion

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) Dried Clay Storage Silo

SOURCE LOCATION: Street SR 329 and SCL RR City Lowell

UTM: East 17; 304.500 North 3245.300

Latitude 29 ° 19 ' 52 "N Longitude 82 ° 11 ' 28 "W

APPLICANT NAME AND TITLE: Roy O. Camp., Vice-President, Operations

APPLICANT ADDRESS: Mid-Florida Mining Company, P. O. Box 68, Lowell, FL 32663

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Mid-Florida Mining Compan

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 contro facilities in such a manner as to comply with the provision of Chapter 403, Florid Statutes, and all the rules and regulations of the department and revisions thereof. also understand that a permit, if granted by the department, will be non-transferabl and I will promptly notify the department upon sale or legal transfer of the permitte establishment.

*Attach letter of authorization

Signed:

Roy O. Camp, Vice-President, Operations
Name and Title (Please Type)

Date: 12/19/83 Telephone No. (904) ~~573~~ 732-7227

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 hav been ~~designed~~/examined by me and found to be in conformity with modern engineerin principles applicable to the treatment and disposal of pollutants characterized in th permit application. There is reasonable assurance, in my professional judgment, tha

[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.

JOHN B. KOOGLER NO. 12925 STATE OF FLORIDA REGISTERED ENGINEER

Signed ______

John B. Koogler, Ph.D., P.E.
Name (Please Type)

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS, INC.
Company Name (Please Type)

1213 NW 6th Street, Gainesville, FL 32601
Mailing Address (Please Type)

Florida Registration No. 12925 Date: 10/12/83 Telephone No. (904) 377-5822

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.

A construction permit application for a dried clay storage silo with a volume of 266,395 cubic feet (5,994 ton capacity). The silo is vented through the baghouse for the clay dryer which is permitted under Permit No. A042-68788. There will be no increase in particulate matter emissions from the dryer baghouse as the result of the silo vent.

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

Start of Construction Construction Completed Completion of Construction Construction Completed

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.)

Model 120 WMW-480 ARR III Flex-Kleen Collector	$77,500
Model 408 PLR, Class IV ARR. INYB Exhaust Fan	12,000
Structural	50,000
TOTAL	$139,500

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

AC42-2381 and AC 42-2382, expired 5/7/77; AC42-43771 and A042-68788 issued 8/30/83 and expires 8/26/88.

Revised 12/14/83

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
Dried Fullers Earth	None (All product)	---	15,000/40,000 (See Sect. IIIB)	1

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

1. Total Process Input Rate (lbs/hr): 15,000; rate at which material is loaded to silo

2. Product Weight (lbs/hr): 40,000; rate at which material is withdrawn from silo

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/~~yr~~ hr.	Potential[4] Emission T/yr	Relate to Flow Diagram
Particulate Matter	0*	0*	17-2.610(1)	12.52	1.81**	7.9	2
*Vent from silo is ducted to dryer baghouse (A042-68788). There will be no increased emissions from the baghouse as a result of the silo vent. The effective control efficiency will be 100% for emissions from the silo and 99.9% for total emissions from the baghouse (See A042-68788).							
**Emission factor of 0.24 lbs/ton for loading cement silos (AP-42, Sup. 14) and loading rate of 7.5 tons/hour.							

[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).

SECTION V - SUPPLEMENTAL REQUIREMENTS

2. Actual Emission Estimates

See summarized results of September 29, 1983 emission test results. Full report is in FDER St. Johns River District Office. Actual measured particulate matter emissions averaged 1.4 pounds per hour with both the clay dryer (at 40.4 tons per hour) and the clay silo vented to the baghouse.

3. Uncontrolled Emission Estimates

Clay Dryer	-	3,800 lbs/hr (See attached application for permit AC42-43771)
Silo	-	1.8 lbs/hr (See Section IIIC of this application)
Total	-	3801.8 lbs/hr

4. See Attached application for Permit No. AC42-43771; a copy of which is also in the FDER St. Johns River District Office.

5. Control Efficiency

Actual Efficiency = (3801.8 - 1.4) x 100/3801.8
= 99.96%

Permitted Efficiency = (3801.8 - 31.3*) x 100/3801.8
= 99.2%

*Based on Process Weight Table for processing rate of 40.8 tons per hour.

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

ST. JOHNS RIVER DISTRICT
3319 MAGUIRE BOULEVARD
SUITE 232
ORLANDO, FLORIDA 32803-3767

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

A. Alexander
DISTRICT MANAGER

October 19, 1983

DER
NOV 03 1983
BAQM

Roy O. Camp
Vice President Operation
Mid-Florida Mining Company
Post Office Box 68
Lowell, Florida 32663

Dear Mr. Camp:

Marion County - AP
Mid-Florida Mining Company - Dryer
Modification of Conditions
Permit No. AO42-68788

We are in receipt of your request for a modification of the permit conditions. The conditions are changed as follows:

Condition	From	To
Page 1	Change 38.2 TPH	40.8 TPH
Condition #7	Change 38.2 TPH	40.8 TPH
Condition #8		"only with waste oil, #5 fuel oil, terpene derivative type fuels, non-hologenated spent hydrocarbon solvents mixture such as xylene, actone, etc. or used kerosene."

ADD:

Condition #19 - Terpene Derivation type fuels are to be mixed 50/50 with waste oil.

Condition #20 - Used kerosene from the Miami Herald is contaminated with newspaper ink and the fuel should be sampled for PCB concentrations. If concentrations are below detectable limits, the fuel can be utilized in mixture up to and including 100%.

Condition #21 - Non-hologenated spent hydrocarbon solvents shall be a permitted fuel at a maximum volume mixture of 20% with waste oils. The upper limit (by weight) of chloride content will be 1.5% and when blended in a 20/80 mixture will be an actual limit of .3% to prevent corrosive action on the baghouse filter material.

CONTINUED . . . . .

Roy O. Camp
Page Two
October 19, 1983

The following will have an upper limit of 2,000 ppm for any chromium, lead, copper, tin, aluminum, nickel, antimony, manganese, barium, phosphorus, zinc and molybolenum. Once mixed 20 max/80 the actual limit is 400 ppm.

Condition #22 - Statements made in the Engineer's September 16, 1983 letter to the department are relied upon and are made a part of the application.

Condition #23 - All solvent testing equipment must be calibrated at least once a year.

This letter must be attached to your permit and becomes a part of that permit.

Sincerely,

A. Alexander, P.E.
District Manager

cmc
AA:cce

cc: John Koogler, Ph.D., P.E.

BEST AVAILABLE COPY

AC42-43771

ATTACHMENT 1

PAID

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

RECEIVED
Saint Johns River
District

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Rotary Kiln Vent [ ] New[1] [x] Existing[1]

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

COMPANY NAME: Mid-Florida Mining Company COUNTY: Marion

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Existing seven foot diameter rotary dryer

SOURCE LOCATION: Street State Road 329 City Lowell

UTM: East 384500M North 3245000M

Latitude 29 ° 19 ' 45 "N Longitude 82 ° 11 ' 15 "W

APPLICANT NAME AND TITLE: Roy O. Camp, Vice President, Operations

APPLICANT ADDRESS: Mid-Florida Mining Co., P. O. Box 68, Lowell, Florida 32663

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Mid-Florida Mining Co.

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: [signature]

Roy O. Camp, Vice President Operations
Name and Title (Please Type)

Date: 6-1-81 Telephone No. 904/737-7227

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 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: [signature]

Larry M. Simmons, P.E.
Name (Please Type)

(Affix Seal)

Tidewater Engineers, Inc.
Company Name (Please Type)

P. O. Box 5948, Tallahassee, Fl. 32301
Mailing Address (Please Type)

Florida Registration No. 17964 Date: 6-1-81 Telephone No. 904/576-7133

[1]See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

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.

SEE ATTACHMENT 1

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

Start of Construction July 1, 1981 Completion of Construction September 1, 1981

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.)

Model 120 WMW-480 ARR. III Flex-Kleen Collector - $77,500

Model 408 PLR, Class IV, ARR. 1 NYB Exhaust Fan - $12,000

Steel, Platforms, Stairways & Structure - $50,000

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

Permit #AC 42-2381 expires May 7, 1977

Permit #AC 42-2382 expires May 7, 1977

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ____ Yes __x__ No

F. Normal equipment operating time: hrs/day 22 ; days/wk 7 ; wks/yr 50 ; if power plant, hrs/yr ____ ;

if seasonal, describe: N/A

G. 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? N/A
   b. If yes, has "Lowest Achievable Emission Rate" been applied? N/A
   c. If yes, list non-attainment pollutants.
      N/A
2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. Yes
3. Does the State "Prevention of Significant Deterioriation" (PSD) requirements 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? No
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? No

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

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		
Fullers Earth	Particulates	1.0	65,000	Raw Clay Input

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

1. Total Process Input Rate (lbs/hr): 65,000

2. Product Weight (lbs/hr): 36,000

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
SO_2	9.1	26.3	BACT	1.1	7.7	28.5	44" O.D. Sta
Particulates	3.0	11.5	BACT	30.2	3000	11,088	44" O.D. Sta
Lead	0.10	.288*	BACT	Unknown	2.03	5.85	44" O.D. Sta

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]
Flex-Kleen				
120 WMWC-600				
XLIII A-81JC-115	Particulates	99.9	100% of minus	Mfgr.
Baghouse			2 Micron	
4:1 air-to-cloth ratio				

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. — 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)

[5]If Applicable

* See calculations in Attachment 2 (Letter from Sholtes & Koogler dated 9-8-81)

BEST AVAILABLE COPY

OPERATING DATA

VOLUME 34000 ACFM | CLOTH AREA 9000 SQ. FT. | RATIO 4/1

DUST FULLERS EARTH

DUST SIZE 100% (-65 MESH)

DUST DENSITY ——— LBS./CU. FT. | DUST LOADING 20 GR./CU. FT.

TEMPERATURE 270°F | DEW POINT ———

(COLLECTOR TEMPERATURE MUST BE KEPT WELL ABOVE DEW POINT)

END USE VENT ROTARY DRYER

WEIGHT 40900 LBS (COLL. DEAD LOAD ONLY) | LOCATION OUTDOORS

DESIGN PRESSURE 20" W.G. | OPERATING PRESSURE 14" W.G. NEGATIVE

COMPRESSED AIR REQRMTS 50.0 SCFM @ 90-100 PSIG CLEAN, DRY & OIL FREE

EQUIPMENT DATA

TIMER(S) T16009/NEMA-4 (M14507) 110 V 50/60 CYC. 1 PHASE 50 W. EA.

DIAPHRAGM VALVES * GOYEN RCA-40T (M128217) | BAG CAGES M.S. (SEE SHOP NOTE-1)

SOLENOID VALVES EEMCO* 01B0386 (E24104) | BAG CLAMPS N/R

VENTURIS ALUM. (M11812) SEE SHOP NOTE-1 | [illegible] M.S. (SEE SHOP NOTE-1)

TRAP-10 FILTER BAGS HUYCK GLASS (REF. B 80JF-127) FELT

CONSTRUCTION DATA

CLEAN AIR PLENUM	ROOF	12 GA. M.S. (ALL WELDED) W/ STIFFENERS
	SIDES	12 GA. M.S. (ALL WELDED) W/ STIFFENERS

DUSTY AIR PLENUM 12 GA. M.S. (ALL WELDED) W/ STIFFENERS

TUBE SHEET 10 GA. M.S. (EXTLY. FLG'D.) W/ 6" HIGH SINGLE BREAK PANELS

HOPPER (60°) 12 GA. M.S. (ALL WELDED) W/ STIFFENERS

BRACING ON ROOF, SHELL, DUTCHMAN, & HOPPER AS SHOWN

GASKET MATERIAL

A) * 582 PRESSTITE @ DUTCHMAN, TUBE SHEET, & BIN-LINE FLG. CONN'S (3/8" × 1/8")

GENERAL NOTES

* GOYEN RCA-40T DOUBLE DIAPHRAGM VALVES ARE TO HAVE A 1/8" F.P.T. PILOT CONN. & TO BE PROVIDED W/ A 3/8" 90° STREET ELBOW ON THE EXHAUST PORT.

SHOP NOTES

1.) CAGE TO BE WELDED TO TRAP-10 COLLAR & VENTURI ATTACHED W/ 304 S.S. BOLTS, NUTS, & WASHERS. (X30041)

2.) SHOP TO USE 3/8" ϕ HIGH STRENGTH BOLTS @ TUBE SHEET FLANGE CONN'S ONLY.

3 USE COPPER TUBING IN LIEU OF PLASTIC @ SOLENOID TO DIAPHRAGM VALVE CONN'S.

THICKNESS OF MINERAL FIBER WALL INSULATION W/A THERMAL CONDUCTIVITY OF .22 @ 75°F & A DENSITY OF 7 LBS./CU. FT. INSULATION TO BE COVERED W/ 16 GA. M.S. SHEETS ATTACHED & STIFFENERS W/ SELF-TAPPING SHEET METAL SCREWS & STITCH WELDED IN PLACE @ OTHER LOCATIONS. ALL CREVICES TO BE CAULKED W/ BENJAMIN-FOSTER # 30-45 SEALANT.

5.) APPLY ONE (1) COAT OF SHERWIN WILLIAMS "E61-A45 GRAY PRIMER TO ALL EXTERIOR M.S. SURFACES ONLY.

6.) SHOP TO BRACE TOP OF D.A.P. PRIOR TO SHIPPING. PROVIDE TWO (2) BRACES PER DETAIL 16 ON A-78F-239.

7.) UNIT TO BE SHIPPED IN FOUR (4) SECTIONS
   a) C.A.P.,
   b) C.A.P. & D.A.P. DUTCHMAN W/ TUBE SHEET;
   c) D.A.P.,
   d) TROUGH HOPPER W/ GIRTH CHANNELS.

8.) USE 1½"⌀ SCH. 40 M.S. PIPE FOR INTERNAL COMPRESSED AIR PIPING W/ 5/16" ⌀ HOLES IN BTM. OF PIPE & W/ MORRIS QUICKON II (40 REQ'D.)

REFERENCE DRAWINGS

A-81JM-076 : INSULATION DETAILS
A-81JM-077 : COLLECTOR DETAILS

ONE (1) UNIT REQ'D
MARK: P.O.# 5940

CERTIFIED
FOR CONSTRUCTION
FLEX-KLEEN CORPORATION

MARK	REVISION	DATE	BY

FLEX-KLEEN CORPORATION
SUBSIDIARY OF RESEARCH - COTTRELL, INC.
222 S. RIVERSIDE PLAZA, CHICAGO, ILLINOIS 60606

SCALE: ¼" = 1'-0"	C/O NO. 5940	DRAWN BY: -DCS-
DATE: 3-24-81	FKO NO. 10-94-16624	APPROVED BY: RAY

MID-FLORIDA MINING CO.

CALCULATIONS

A. The process utilization rate or feed rate to the rotary kiln is about ~~32.5~~ 40.8 tons per hour at roughly 48% moisture. Calculating,

$$\cancel{32.5}\ 40.8^{*}\ \frac{\text{tons}}{\text{hr}} \times \frac{2000\ \text{lb}}{\text{ton}} = \cancel{65,000}\ 81,600\ \text{lb/hr Total}$$

B. The clay is dried to about 15% moisture in the rotary kiln which produces ~~18~~ 22.5 tons per hour of product and ~~1.5~~ 1.9 tons per hour of fines. The remaining mass is in the form of water vapor in exit gases. Calculating,

$$\cancel{18}\ 22.5\ \frac{\text{tons}}{\text{hr}} \times 2000\ \frac{\text{lb}}{\text{ton}} = \cancel{36,000}\ 45,000\ \text{lb/hr Product}$$

$$\cancel{1.5}\ 1.9\ \frac{\text{tons}}{\text{hr}} \times 2000\ \frac{\text{lb}}{\text{ton}} = \cancel{3,000}\ 3,800\ \text{lb/hr Fines}$$ (uncontrolled part. matter)

C. Total input feed rate - ~~65,000~~ 81,600 lb/hr

42,400 ~~33,600~~ lb/hr clay
39,200 ~~31,400~~ lb/hr H_2O

Product discharge rate - ~~36,000~~ 45,000 lb/hr

38250 ~~30,600~~ lb/hr clay
6750 ~~5,400~~ lb/hr H_2O

Fines discharge rate (particulates) = ~~3,000~~ 3,800 lb/hr (uncontrolled part. matter)

Water vapor discharge = ~~26,000~~ 32,450 lb/hr

D. Kiln Heat Requirements

1. Heat required to offset radiation and convection losses:

$q_2 = (hr + hc)\ A\ (Ts-Ta)$

where hr = 8.5 BTU/HR - Sq. Ft. - °F.
hc = 1 BTU/HR - Sq. Ft. - °F.
A = PI DL = (3.14)(7) (70) = 1540 sq. ft.
Ts = 150°F.
Ta = 70°F.

$q_2 = (8.5 + 1)\ (1540)\ (150-70) = 1,170,400$ BTU/HR

2. Heat required for evaporation of moisture:

$q_m = \dot{m}\ hfg\ @\ 70\ °F$

$= (26,000\ \text{lb/hr})\ (1054\ \text{BTU/LB})$

$= 27,404,000$ BTU/HR

* Per change to A042-68788 dated 10/19/83

ATTACHMENT 2

SUMMARY OF PARTICULATE MATTER EMISSION MEASUREMENTS

DRYER BAGHOUSE

MID-FLORIDA MINING COMPANY
LOWELL, FLORIDA

SEPTEMBER 29, 1983

SHOLTES & KOOGLER
ENVIRONMENTAL CONSULTANTS, INC.
1213 N.W. 6TH STREET
GAINESVILLE, FLORIDA 32601
(904) 377-5822

1.0 INTRODUCTION

The Mid-Florida Mining Company owns and operates a mineral processing facility in Lowell, Florida. One portion of this facility is a clay dryer, which is used to dry clay which is used as cat litter or oil solvent.

On September 29, 1983, Sholtes & Koogler, Environmental Consultants, Inc., (SKEC) of Gainesville, Florida, conducted particulate matter emission measurements on the dryer baghouse stack. The purpose of this testing was to satisfy provisos attached to the Air Pollution Operating Permit for this source. These provisos state that the source shall be tested annually for particulate matter emissions. The methods of testing and analysis were EPA Method 5 for particulate matter and EPA Method 9 for visible emissions evaluations as published in 40 CFR 60, Appendix A.

Prior to the test date, the regional office of the Florida Department of Environmental Regulation (FDER) in Orlando, Florida was notified of the test schedule. Mr. John Turner of that office was on-site to witness the testing and the plant operation.

During the period of testing, the dryer was operating at an average process input weight rate of 40.4 tons per hour. The allowable emission rate corresponding to this process weight rate, Chapter 17-2, Florida Administrative Code, is 31.3 pounds per hour. The actual measured mass emission rate was 1.40 pounds per hour. There were no visible emissions detected during the 30-minute observation period.

Utilizing the above data it can be concluded that this source meets the emission requirements set forth by the Florida Department of Environmental Regulation.

TABLE 1

SUMMARY OF PARTICULATE MATTER EMISSIONS

MID FL. MINING LOWELL, FL.
NEW BAGHOUSE
9/29/83

					Particulate Matter Emissions	
Run No.	Process Weight Rate (Tons/Hr)	Stack Gas Flow Rate (SCFMD)	Stack Gas Temperature (Deg F)	Stack Gas Moisture (%)	Concentration (gr/SCF)	Mass Emission Rate (Lbs/Hr)
1	40.4	22748	193.4	29.5	.0068	1.33
2	40.4	22349	203.7	28.5	.0074	1.42
3	40.4	22758	212.7	29.7	.0074	1.44
Avg	40.4	22619 = 39,924 Acfm	203.3	29.2	.0072	1.40

Allowable Particulate Matter Emission Rate = 31.3 Lbs/Hr
(Chap. 17-2, Florida Administrative Code)

* Stack Gas Saturated

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

ST. JOHNS RIVER DISTRICT
3319 MAGUIRE BOULEVARD
SUITE 232
ORLANDO, FLORIDA 32803-3767

Roy O. Camp
Vice President
Mid-Florida Mining Company
Post Office Box 68
Lowell, Florida 32663

Dear Mr. Camp:

Marion County AP
Mid-Florida Mining Company
Fuller's Earth Rotary Dryer

Enclosed is Permit Number A042-68788 dated 8/30/83, to operate the subject pollution source, issued pursuant to Section 403.061(14), Florida Statutes.

Should you object to this permit, including any and all of the conditions contained therein, you may file an appropriate petition for administrative hearing. This petition must be filed within fourteen (14) days of the receipt of this letter. Further, the petition must conform to the requirements of Rule 28-5.201, Florida Administrative Code, (copy enclosed). The petition must be filed with the Office of General Counsel, Department of Environmental Regulation, Twin Towers Office Building, 2600 Blair Stone Road, Tallahassee, Florida 32301.

If no petition is filed within the prescribed time, you will be deemed to have accepted this permit and waived your right to request an administrative hearing on this matter.

Acceptance of the permit constitutes notice and agreement that the department may periodically review this permit for compliance, including site inspections where applicable, and may initiate enforcement action for violation of the conditions and requirements thereof.

Sincerely,

A. Senkevich, P.E.
District Manager

AS:rcd
Enclosures

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

ST. JOHNS RIVER DISTRICT
3319 MAGUIRE BOULEVARD
SUITE 232
ORLANDO, FLORIDA 32803-3767

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

ALEX SENKEVICH
DISTRICT MANAGER

Permittee:
Roy O. Camp
Vice President
Mid-Florida Mining Company
Post Office Box 68
Lowell, Florida 32663

I. D. Number:
Permit/Certification
Number: AO42-68788
Date of Issue:
Expiration Date: 8-26-88
County: Marion
Latitude/Longitude:
29°19'45"N/82°11'15"
UTM: East 384500 M
UTM: North 3245000M
Project: Mid-Florida Mining Company, Fuller's Earth Rotary Dryer

This permit is issued under the provisions of Chapter(s) 403, Florida Statutes, and Florida Administrative Code Rule(s) 17-3. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents attached hereto or on file with the department and made a part hereof and specifically described as follows:

The permittee can operate an existing seven foot diameter fullers earth rotary dryer. Particulate and lead emissions will be controled with a Baghouse (Flex-Kleen, 120 WMWC-600, XL111 A-81JC-115, 4:1 air to cloth ratio, 99.9 percent efficient to control particulate and a minimum 90 percent efficiency to control lead emissions). The maximum input to this dryer is 38.2 TPH. This dryer will be fired only with waste oil or a #5 fuel oil.

This source is located within the plant at State Road 329 and the Seaboard Coastline Railroad in Lowell, Florida.

PERMITTEE:
Roy O. Camp

I. D. Number:
Permit/Certification Number:
A042-68788
Date of Issue:
Expiration Date: 8-26-88

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the permittee and enforceable pursuant to the authority of Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is hereby placed on notice that the department will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or approval of any other department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.

PERMITTEE:
Roy O. Camp

I. D. Number:
Permit/Certification Number:
A042-68788
Date of Issue:
Expiration Date: 8-26-88

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant or aquatic life or property and penalties therefor caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and department rules, unless specifically authorized by an order from the department.

6. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized department personnel, upon presentation of credentials or other documents as may be required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:
   a. Having access to and copying any records that must be kept under the conditions of the permit;

   b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and

   c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or department rules.

   Reasonable time may depend on the nature of the concern being investigated.

PERMITTEE:
Roy O. Camp

I. D. Number:
Permit/Certification Number:
AO42-68788
Date of Issue:
Expiration Date: 8-26-88

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the department with the following information:

   a. a description of and cause of non-compliance; and

   b. the period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

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

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the department, may be used by the department as evidence in any enforcement case arising under the Florida Statutes or department rules, except where such use is proscribed by Sections 403.73 and 403.111, Florida Statutes.

10. The permittee agrees to comply with changes in department rules and Florida Statutes after a reasonable time for compliance, provided however, the permittee does not waive any other rights granted by Florida Statutes or department rules.

11. This permit is transferable only upon department approval in accordance with Florida Administrative Code Rules 17-4.12 and 17-30.30, as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the department.

12. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

PERMITTEE:
Roy O. Camp

I. D. Number:
Permit/Certification Number:
A042-68788
Date of Issue:
Expiration Date: 8-26-88

13. This permit also constitutes:

    ( ) Determination of Best Available Control Technology (BACT)
    ( ) Determination of Prevention of Significant Deterioration (PSD)
    ( ) Certification of Compliance with State Water Quality Standards (Section 401, PL 92-500)
    ( ) Compliance with New Source Performance Standards

14. The permittee shall comply with the following monitoring and record keeping requirements:

    a. Upon request, the permittee shall furnish all records and plans required under department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the department, during the course of any unresolved enforcement action.

    b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by department rule.

    c. Records of monitoring information shall include:

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

15. When requested by the department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the department, such facts or information shall be submitted or corrected promptly.

PERMITTEE:
Roy O. Camp

I. D. Number:
Permit/Certification Number:
AO42-68788
Date of Issue:
Expiration Date: 8-26-88

SPECIFIC CONDITIONS:

1. No objectionable odors will be allowed, as per Rule 17-2.620(2), F.A.C.

2. There shall be no discharges of liquid effluents or contaminated runoff from the plant site without approval from this office.

3. All unconfined emissions of particulate matter generated at this site shall be adequately controlled. (Rule 17-2.610(3), F.A.C.)
Area must be watered down should unconfined emissions occur.

4. This permit does not preclude compliance with all relevant local permitting requirements and regulations.

5. Submit for this facility, each calendar year, on or before March 1, an Annual Operations Report for the preceding calendar year as per Rule 17-4.14, F.A.C.

6. The baghouse should be properly maintained to operate at approximately its efficiency.

7. This rotary dryer is limited to a maximum process weight rate of 38.2 TPH input unless approved by the department.

8. This rotary dryer can be fired only with waste oil or a #5 fuel oil.

9. The maximum amount of lead content in the waste oil is limited to a maximum of 1% of 10,000 PPM. Yearly waste oil fuel analysis sample must be conducted on the actual waste oil used at the site. This is due at the same time as the stack test.

10. The emission limitation for this plant is set forth in Rule 17-2.610(1), F.A.C. (Table 610-1 Process Weight Table).

11. This office (Florida Department of Environmental Regulation, Air Permitting, Orlando) shall be notified at least ten (10) days in advance of the compliance tests so that we can witness them.

12. The baghouse bags will be HAN 1530 SST composed of Dralon T. homopolymer acrylic.

PERMITTEE:
Roy O. Camp

I. D. Number:
Permit/Certification Number:
AO42-68788
Date of Issue:
Expiration Date: 8-26-88

SPECIFIC CONDITIONS:

13. This plant is required to operate within 10 percent of permitted capacity during the compliance tests.

14. This source shall be tested for particulate emissions in accordance with EPA Method #5 yearly from 9-10-82.

15. All source sampling and monitoring must be in accordance with Rule 17-2.700, F.A.C., Stationary Point Source Emission Test Procedures.

16. The stack test data submitted must be as required in Rule 17-2.700(7), F.A.C. Florida Administrative Code, Test Reports.

17. The required test report shall be filed with the Department as soon as practical but no later than 45 days after the last sampling run of each test is completed.

18. You must apply for an operation permit 60 days prior to the expiration date of this permit.

Issued this 30 day of Aug
1983

STATE OF FLORIDA DEPARTMENT OF
ENVIRONMENTAL REGULATION

JP

DISTRICT MANAGER
A. Senkevich, P.E.

7 Pages Attached

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

November 4, 1983

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Roy O. Camp
Vice President, Operations
Mid-Florida Mining Company
P. O. Box 68
Lowell, Florida 32663

Dear Mr. Camp:

The Department has made a preliminary review of your application for a permit to construct a Dried Clay Storage Silo. At this time the application is deemed incomplete. Before your application can be processed, the following questions must be answered.

1. Rec'd The statement by the applicant in Section I of the application was not signed. Please resubmit page one of the application with the appropriate signature. Also provide a letter of authorization for the person signing for the applicant.

2. An application for a operating permit cannot be sought until a construction permit is issued. Please provide the date of the start of construction and the date of Completion of Construction.

3. Because this is an application for a construction permit, please provide the necessary information required under Section V "supplemental requirements" numbers 2, 4, and 5.

4. You unload the silo at a rate of 40,000 pounds per hour. How is the material withdrawn from the silo? Are there any emissions resulting from silo unloading and if there are emissions, how are they controlled?

5. In AP-42, the value for cement unloading to elevated storage silos in Table 8.10-2 is 0.24 pounds per ton. Please recalculate all emission figures in Section III C.

6. We need to know the CFM capacity of the baghouse. The CFM flow from the clay dryer. The CFM flow from the silo.

7. The permit processing fee for sources with potential emissions of less than 25 tons per year is $100.00. Please remit a check for that amount.

When the requested information is received, we will resume processing your application. If you have any questions on its status, please call Edward Svec, Review Engineer, at (904)488-1344.

Sincerely,

for C. H. Fancy, P.E.
Deputy Bureau Chief
Bureau of Air Quality Management

CHF/ES/bjm

cc: Charles M. Collins, St. Johns River District
John B. Koogler, Sholtes & Koogler, Environmental Consultants, Inc.

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

ST. JOHNS RIVER DISTRICT
3319 MAGUIRE BOULEVARD
SUITE 232
ORLANDO, FLORIDA 32803-3767

DEPARTMENT OF ENVIRONMENTAL REGULATION
STATE OF FLORIDA

BOB GRAHAM
GOVERNOR
VICTORIA J. TSCHINKEL
SECRETARY
A. Alexander
DISTRICT MANAGER

October 19,1983

DER
NOV 03 1983
BAQM

Roy O. Camp
Vice President Operation
Mid-Florida Mining Company
Post Office Box 68
Lowell, Florida 32663

Dear Mr. Camp:

Marion County - AP
Mid-Florida Mining Company - Dryer
Modification of Conditions
Permit No. AO42-68788

We are in receipt of your request for a modification of the permit conditions. The conditions are changed as follows:

Condition	From	To
Page 1	Change 38.2 TPH	40.8 TPH
Condition #7	Change 38.2 TPH	40.8 TPH
Condition #8		"only with waste oil, #5 fuel oil, terpene derivative type fuels, non-hologenated spent hydrocarbon solvents mixture such as xylene, actone, etc. or used kerosene."

ADD:
Condition #19 - Terpene Derivation type fuels are to be mixed 50/50 with waste oil.

Condition #20 - Used kerosene from the Miami Herald is contaminated with newspaper ink and the fuel should be sampled for PCB concentrations. If concentrations are below detectable limits, the fuel can be utilized in mixture up to and including 100%.

Condition #21 - Non-hologenated spent hydrocarbon solvents shall be a permitted fuel at a maximum volume mixture of 20% with waste oils. The upper limit (by weight) of chloride content will be 1.5% and when blended in a 20/80 mixture will be an actual limit of .3% to prevent corrosive action on the baghouse filter material.

CONTINUED . . . . .

Roy O. Camp
Page Two
October 19, 1983

The following will have an upper limit of 2,000 ppm for any chromium, lead, copper, tin, aluminum, nickel, antimony, manganese, barium, phosphorus, zinc and molybolenum. Once mixed 20 max/80 the actual limit is 400 ppm.

Condition #22 - Statements made in the Engineer's September 16, 1983 letter to the department are relied upon and are made a part of the application.

Condition #23 - All solvent testing equipment must be calibrated at least once a year.

This letter must be attached to your permit and becomes a part of that permit.

Sincerely,

A. Alexander, P.E.
District Manager

cmc
AA:cce

cc: John Koogler, Ph.D., P.E.

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

For Routing To District Offices
And/Or To Other Than The Addressee

To: ______ Loctn.: ______
To: ______ Loctn.: ______
To: ______ Loctn.: ______
From: ______ Date: ______
Reply Optional [ ] Reply Required [ ] Info. Only [ ]
Date Due: ______ Date Due: ______

ST. JOHNS RIVER DISTRICT

TO: Bill Thomas

OSJ-83-2847

THROUGH: A. Alexander

THROUGH: T. Hunnicutt JH

FROM: C. Collins CMC

DATE: October 18, 1983

DER
OCT 21 1983
BAQM

SUBJECT: Minor Modification to a Major Source
Marion County - AP
Mid-Florida Mining

This is a new minor source at a major facility for particulate. They are presently operating two other emission points in compliance. This large silo is built and in operation today. We noticed it on our last inspection and told them to apply for a construction permit. Please handle as a new construct with fee, public notice, etc.

The silo is the largest we have seen.

CMC:rce

Enclosures

MID-FLORIDA MINING COMPANY
BOX 68, LOWELL, FLORIDA 32663 AC 904 732-7227

CERTIFIED MAIL
RETURN RECEIPT

October 14, 1983

DER
OCT 21 1983
BAQM

RECEIVED
OCT 1983
Saint Johns River
District

Mr. Charles M. Collins
Florida Department of Environmental Regulstion
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803

Re: Marion County - AP
Mid-Florida Mining Co.

Dear Mr. Collins:

Please find enclosed four (4) copies of a permit application for the dried clay storage silo located at our Lowell plant. This silo is used to store bulk dried clay which is primarily used as an impervious liner for ponds.

The silo is loaded at an approximate rate of 7.5 tons per hour and is unloaded at an approximate rate of 20 tons per hour. During the filling and withdrawal from the silo, the particulate matter generated within is vented through a 10 inch duct to the baghouse serving the clay dryer. This baghouse is permitted under Operating Permit A042-68788. There will be no increase in emissions from this baghouse as a result of the silo vent. Because of this, the emission rate from the silo is effectively zero. Since the source has an effective emission rate of zero, we are unsure of the applicable permit fee for the source.

Please review the permit application and advise us as to the permit fee as well as any other questions you might have regarding the application.

Sincerely yours,

MID-FLORIDA MINING COMPANY

Roy O. Camp
Vice President, Operations

ROC:co'd

cc: Sholtes & Koogler

MID-FLORIDA MINING COMPANY
BOX 68, LOWELL, FLORIDA 32663 AC 904 732-7227

December 19, 1983

DER
DEC 22 1983
BAQM

Mr. Clair H. Fancy
Deputy Bureau Chief
Bureau of Air Quality Management
Florida Department of
Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

Dear Mr. Fancy:

Please be advised that Mr. Roy O. Camp, our Vice President of Production and Engineering has the authority to sign for Mid-Florida Mining Company all documents pertaining to environmental matters.

Very truly yours,

MID-FLORIDA MINING COMPANY

Allen C. Edgar

Allen C. Edgar
President

ACE:co'd

Best Available Copy AC 42-77048

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

ST. JOHNS RIVER DISTRICT

3319 MAGUIRE BOULEVARD
SUITE 232
ORLANDO, FLORIDA 32803

DER

OCT 21 1983

BAQM

RECEIVED OCT 1983 St. Johns River District

10/

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

ALEX SENKEVICH
DISTRICT MANAGER

APPLICATION TO OPERATE/~~CONSTRUCT~~ AIR POLLUTION SOURCES

SOURCE TYPE: Storage Silo [X] New[1] [ ] Existing[1]

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

COMPANY NAME: Mid-Florida Mining Company COUNTY: Marion

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) Dried Clay Storage Silo

SOURCE LOCATION: Street SR 329 and SCL RR City Lowell

UTM: East 17; 304.500 North 3245.300

Latitude 29 ° 19 ' 52"N Longitude 82 ° 11 ' 28"W

APPLICANT NAME AND TITLE: Roy O. Camp., Vice-President, Operations

APPLICANT ADDRESS: Mid-Florida Mining Company, P. O. Box 68, Lowell, FL 32663

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Mid-Florida Mining Compan

I certify that the statements made in this application for an Operating 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 contro facilities in such a manner as to comply with the provision of Chapter 403, Florid Statutes, and all the rules and regulations of the department and revisions thereof. also understand that a permit, if granted by the department, will be non-transferabl and I will promptly notify the department upon sale or legal transfer of the permitte establishment.

*Attach letter of authorization Signed:

Roy O. Camp, Vice-President, Operations
Name and Title (Please Type)

Date: Telephone No. (904) 373-7227

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 hav been ~~designed~~/examined by me and found to be in conformity with modern engineerin principles applicable to the treatment and disposal of pollutants characterized in th permit application. There is reasonable assurance, in my professional judgment, tha

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 ______________________

John B. Koogler, Ph.D., P.E.
Name (Please Type)

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS, INC.
Company Name (Please Type)

1213 NW 6th Street, Gainesville, FL 32601
Mailing Address (Please Type)

NO. 12925 STATE OF FLORIDA REGISTERED ENGINEER

Florida Registration No. 12925 Date: 10/12/83 Telephone No. (904) 377-5822

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.

An operating permit application for a dried clay storage silo with a volume of 266,395 cubic feet (5,994 ton capacity). The silo is vented through the baghouse for the clay dryer which is permitted under Permit No. A042-68788. There will be no increase in particulate matter emissions from the dryer baghouse as the result of the silo vent.

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

Start of Construction Not Applicable Completion of Construction Not Applicable

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.)

Model 120 WMW-480 ARR III Flex-Kleen Collector	$77,500
Model 408 PLR, Class IV ARR. INYB Exhaust Fan	12,000
Structural	50,000
TOTAL	$139,500

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

AC42-2381 and AC 42-2382, expired 5/7/77; AC42-43771 and A042-68788 issued 8/30/83 and expires 8/26/88.

E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ;

if power plant, hrs/yr _____ ; if seasonal, describe: ____________________

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

Not Applicable

1. Is this source in a non-attainment area for a particular pollutant? ________

   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. ________

3. Does the State "Prevention of Significant Deterioriation" (PSD) requirement apply to this source? If yes, see Sections VI and VII. ________

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

5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? ________

H. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? ________

   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.

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
Dried Fullers Earth	None (All product)	---	15,000/40,000 (See Sect. IIIB)	1

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

1. Total Process Input Rate (lbs/hr): 15,000; rate at which material is loaded to silo

2. Product Weight (lbs/hr): 40,000; rate at which material is withdrawn from silo

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/~~yr~~ hr.	Potential[4] Emission T/yr	Relate to Flow Diagram
Particulate Matter	0*	0*	17-2.610(1)	12.52	1.73**	7.6	2
*Vent from silo is ducted to dryer baghouse (A042-68788) There will be no increased emissions from the baghouse as a result of the silo vent. The effective control efficiency will be 100% for emissions from the silo and 99.9% for total emissions from the baghouse (See A042-68788).							
**Emission factor of 0.23 lbs/ton for loading cement silos (AP-42, Sup. 9) and loading rate of 7.5 tons/hour.							

[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).

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)
Flex-Kleen 120 WMWC-600 XLIII A-81JC-115 Baghouse with 4:1 air:cloth ratio	Particulate Matter	99.9	>2 um	Manufacturer

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
None			

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

Fuel Analysis:

Percent Sulfur: ______ Percent Ash: ______

Density: ______ lbs/gal Typical Percent Nitrogen: ______

Heat Capacity: ______ BTU/lb ______ BTU/gal

Other Fuel Contaminants (which may cause air pollution): ______

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

Annual Average Not Applicable Maximum ______

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

None

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

Stack Height: 45 ft. Stack Diameter: 3.7 ft.

Gas Flow Rate: 41,000 ACFM 22,600 DSCFM Gas Exit Temperature: 220 °F.

Water Vapor Content: 29 % Velocity: ______ FPS

SECTION IV: INCINERATOR INFORMATION

NOT APPLICABLE

Type of Waste	Type O (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Patholog-ical)	Type V (Liq.& Gas By-prod.)	Type VI (Solid By-prod.)
Actual lb/hr Inciner-ated							
Uncon-trolled (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 Type	Fuel BTU/hr	Temperature (°F)
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: ______

______

______

______

______

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

______

______

______

______

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)]
   See Section IIIA
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. Test results for clay dryer (A042-68788) submitted October, 1983
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
   See Section IIIC
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.)
   See dryer construction permit (AC42-43771) for baghouse details
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).
   Not applicable for this permit. See dryer construction permit (AC42-43771)
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. Attachments 1 and 2
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).
   Attachment 3
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.
   Attachment 4

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

NOT APPLICABLE

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 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:

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

NOT APPLICABLE

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 ____/____/____ (month day year) to ____/____/____ (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

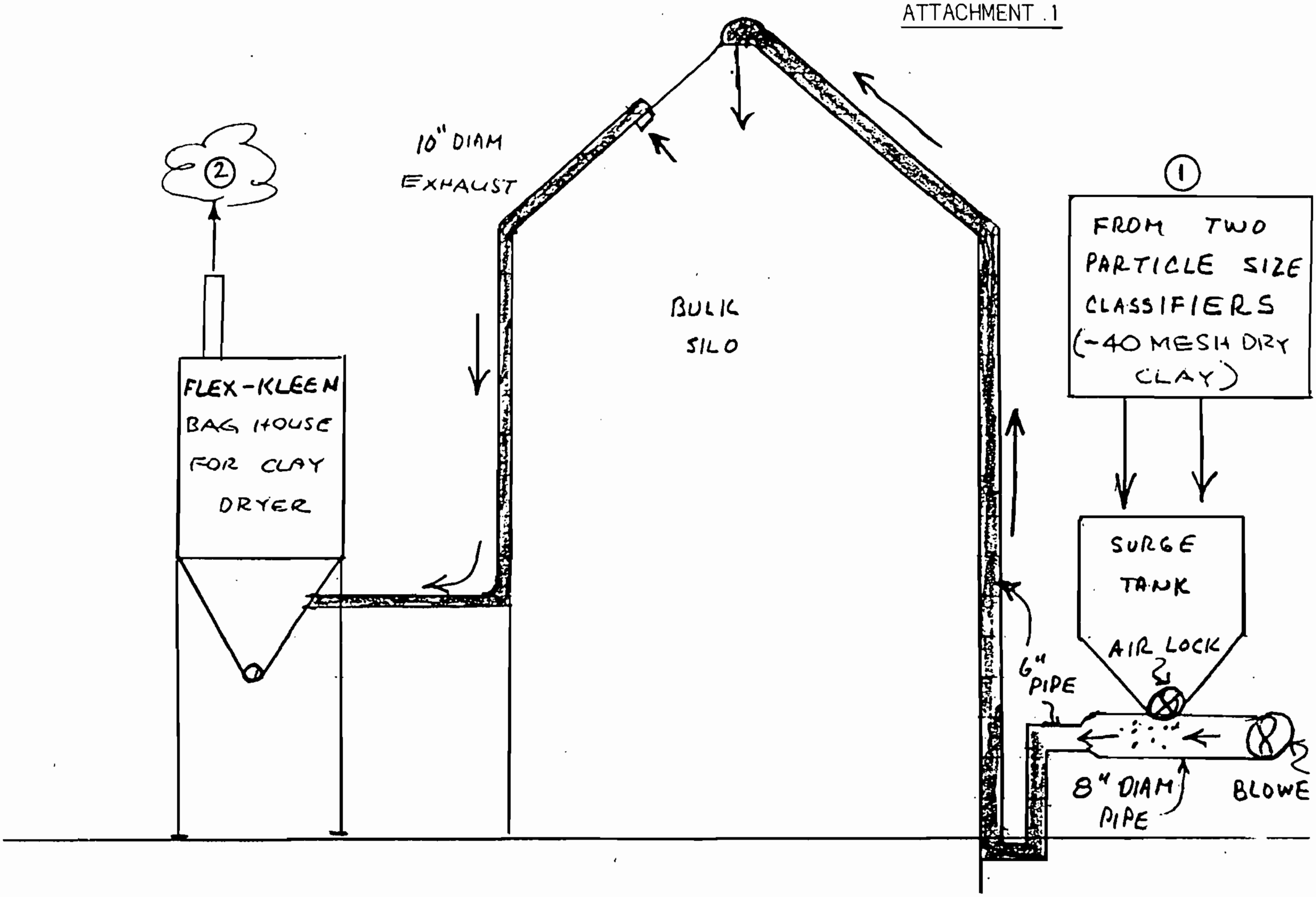
Attach list of emission sources. Emission data required is source name, description of point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

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.

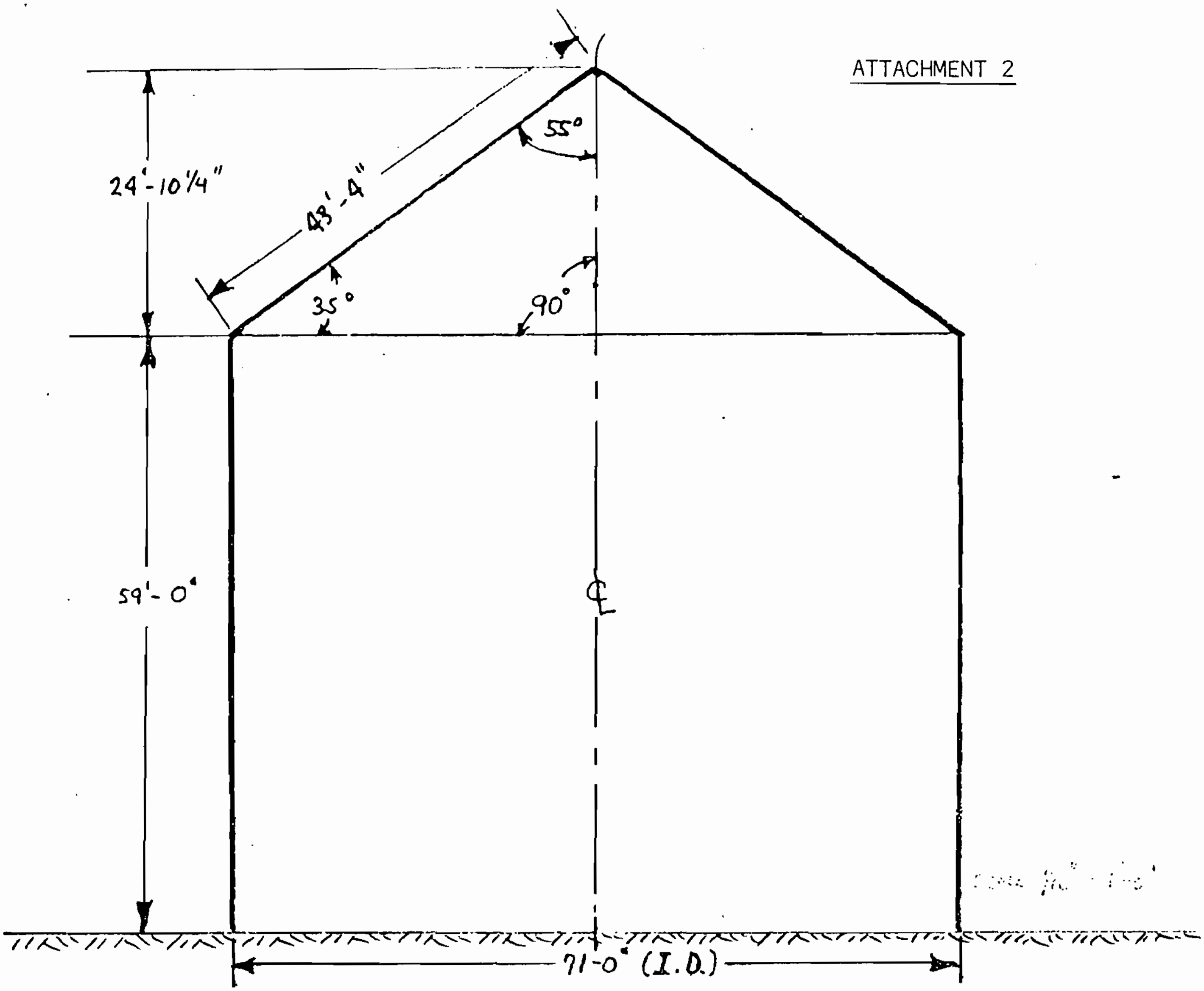
ATTACHMENT 1



TERRA SEAL STORAGE SILO
FILLING AND VENT SYSTEM

MID-FLORIDA MINING COMPANY
LOWELL, FLORIDA

ATTACHMENT 2



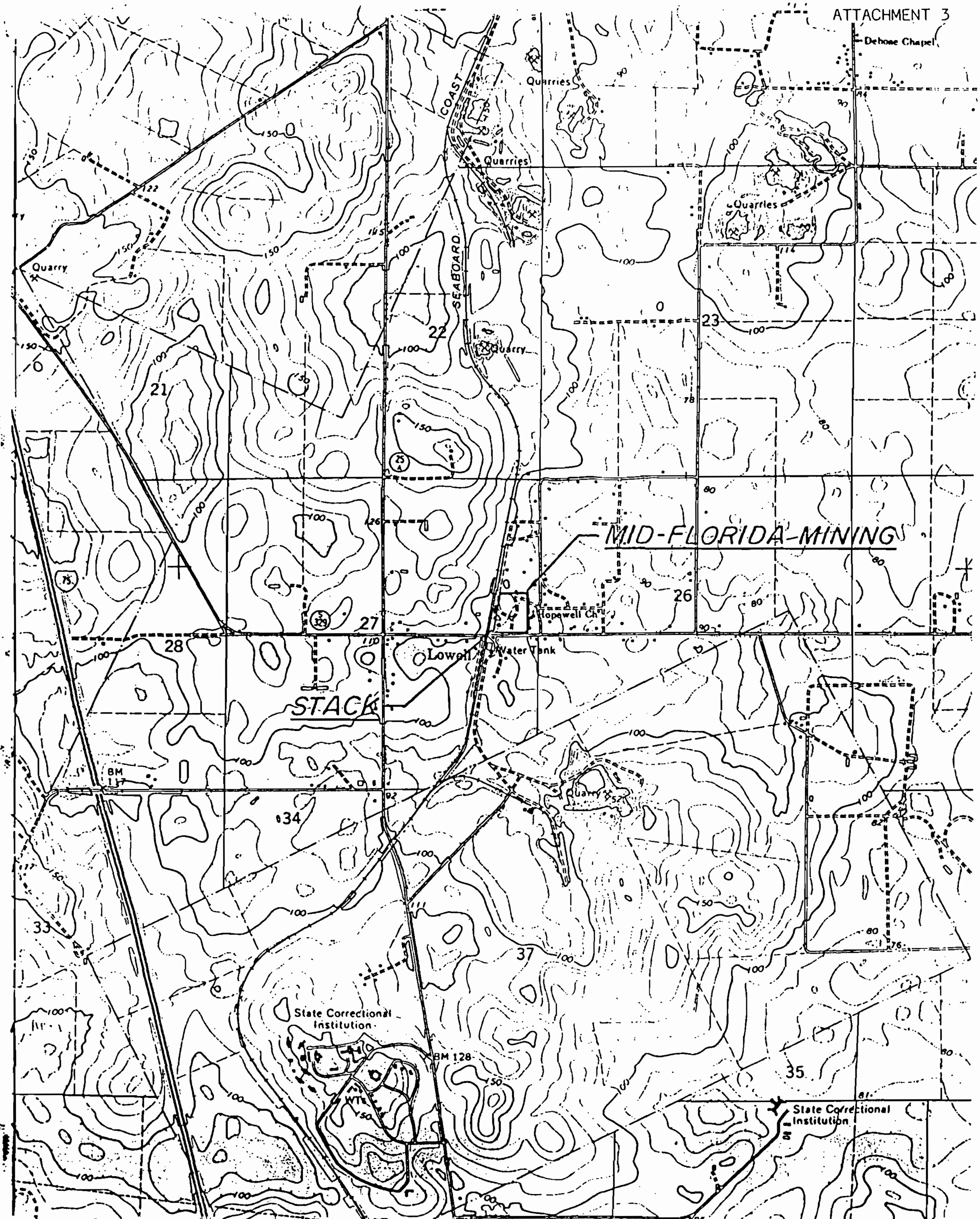
VOLUME TO EAVE	=	233,592 FT^3 @ 45 LBS/FT^3	=	5,256 TONS
VOLUME OF CONE	=	32,803 FT^3 @ 45 LBS/FT^3	=	738 TONS
TOTALS		266,395 FT^3 @ 45 LBS/FT^3	=	5,994 TONS

VOLUME PER FT = 3,959 FT^3 @ 45 LBS/FT^3 = 89.07/TONS/FT

TERRA SEAL STORAGE SILO
DIMENSIONS AND CAPACITY

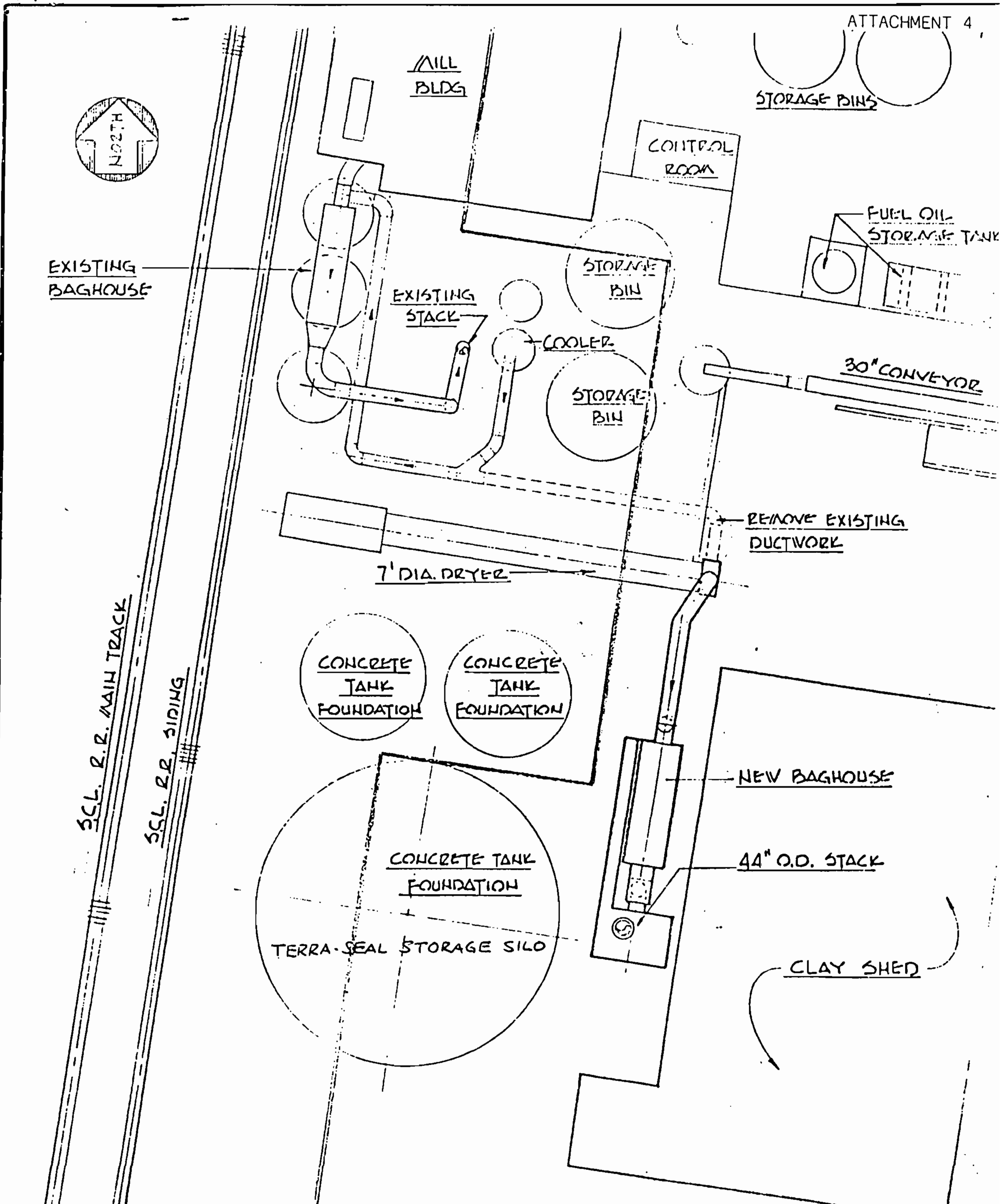
MID-FLORIDA MINING COMPANY
LOWELL, FLORIDA

Best Available Copy



BEST AVAILABLE COPY

ATTACHMENT 4



MID-FLORIDA MINING CO. - LOWELL, FLORIDA			TIDEWATER ENGINEERS, INC. CONSULTING ENGINEERS TALLAHASSEE FLORIDA
JOB NO. 8019	DATE 5-18-80	DRAWN JAH/LMS	

DATE 100582 FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

PARTICULATE STACK TEST VERIFICATION

EPA METHOD 5

cmd

FACILITY NAME: MID FLORIDA MINING COMPANY — APIS & MARION CO.

COMPANY CONDUCTING TEST: S.K.E.C. — TEST DATE 9-10-82

SOURCE DESCRIPTION: FULLERS EARTH DRYER / BAGHOUSE

STACK TEST DATA SUMMATION

			RUN1	RUN2	RUN3
1.	H2O	COLLECTED (IMPINGERS), ML	910.5	888.6	885.3
2.	H2O	COLLECTED (SILICA GEL), GM	0	0	0
3.	M'N	PARTICULATE WEIGHT, GM	.3565	.3126	.2058
4.	V'M	VOLUME METERED, CF	73.4	72.272	74.278
5.	Y	DRY GAS METER CAL FACTOR	1	1	1
6.	RDP	AVG SQR D.P-WHEN SAMPLING	.699	.702	.722
7.	DH	AVG DELTA H, IN H2O	1.87	1.8	1.87
8.	T'M	AVG METER TEMP, DEG F	90.4	104.1	102.4
9.	T'S	AVG STACK TEMP, DEG F	225.4	230	214.4
10.	P'S	STACK PRESS, IN HG (ABS)	29.97	29.97	29.97
11.	P'B	BAROMETRIC PRESS, IN HG	29.94	29.94	29.94
13.	D'N	ACTUAL NOZZLE DIAMETER, IN	.308	.308	.308
14.	T	ACTUAL SAMPLE TIME, MIN	96	96	96
15.	C'P	PITOT TUBE COEFFICIENT	.84	.84	.84
21.	P	PROCESS WT RATE, T/HR	42.45	39.3	32.74
23.	S/T	VALUE (SAMPLE PTS/TOT PTS)	1	1	1

RUN	VOLUME SAMPLED DSCF	MOISTURE CONTENT PERCENT	STACK VEL FPS	FLOW RATE DSCF/H	PERCENT ISO-KINETIC	ACTUAL EMISS LB/HR	ALLOW EMISS LB/HR
1	70.76	37.93	48.18	856,937	102.95	9.517	31.532
2	68.33	37.97	48.55	857,232	99.38	8.645	31.146
3	70.11	37.28	49.29	900,363	97.09	5.826	30.249
MEAN	69.73	37.73	48.67	871,511	99.81	7.996	30.976

DER
JAN 06 1984
BAQM

GENERAL:
REVIEWED BY ROGER T. CALDWELL
ACTUAL A'S = 10.32 SQ FT
SATURATION CHECK OPTION - NOT CHOSEN
LAMINAR FLOW ASSUMED (<10 DEG YAW)
ALL REQUIRED LEAK TESTS ACCEPTABLE
ALLOWABLE EMISS BASED ON PROCESS WT TABLE
ASSUMED M'D=29.0 (AMBIENT AIR)

COMMENT...

RUN 1 :
ACTUAL A'N = .0005474 SQ FT

COMMENT...

RUN 2 :
ACTUAL A'N = .0005474 SQ FT

COMMENT...

RUN 3 :
ACTUAL A'N = .0005474 SQ FT

COMMENT...

SUMMARY OF PARTICULATE MATTER EMISSION MEASUREMENTS

NO. 1 DRYER
BAGHOUSE OUTLET

MID FLORIDA MINING COMPANY
LOWELL, FLORIDA

SEPTEMBER 10, 1982

SHOLTES & KOOGLER
ENVIRONMENTAL CONSULTANTS, INC.
1213 NW 6TH STREET
GAINESVILLE, FLORIDA 32601
(904) 377-5822

BEST AVAILABLE COPY

SUMMARY OF PARTICULATE MATTER EMISSIONS

BAGHOUSE OUTLET

MID FLORIDA MINING COMPANY
LOWELL, FLORIDA

SEPTEMBER 10, 1982

Run No.	Process Weight Rate (tons/hr)	Stack Gas Flow Rate (SCFMD)	Stack Gas Temperature (°F)	Stack Gas Moisture (%)	Particulate Matter Emissions	
					Concentration (gr/SCF)	Mass Emission Rate (lbs/hr)
1	42.5	14282	225	37.9	0.0776	9.52
2	39.3	14283	230	38.0	0.0705	8.64
3	32.7	14995	214	37.3	0.0452	5.82
Average	38.2	14520	223	37.7	0.0644	7.99

*Allowable particulate matter emission rate (Chapter 17-2, Florida Administrative Code) = 30.9 lbs/hr.

SHOLTES AND KOOGLER ENVIRONMENTAL CONSULTANTS

Source Sampling Calculations

Plant: MID FLORIDA MINING LOWELL, FL. Date: 9-10-82
Stack: BAGHOUSE OUTLET Run 1 from 0917-1057
Weather conditions: OVERCAST Pb= 29.94 In.Hg Ps= 29.97 In.Hg
As= 10.32 Sq.Ft. Ts= 225.4 Deg. F Tm= 90.4 Deg. F
H= 0.699 In.H2O Del H= 1.87 In.H2O An= 0.000517 Sq.Ft. Cp= 0.84
Vm= 73.4 cf Vc= 918.5 ml Total time: 96 Minutes

1.	Volume Water Vapor	43.261 SCF
2.	Gas Volume Sampled - STPD	70.783 SCFD
3.	Total Volume	114.045 SCF
4.	Moisture in Stack Gas - Volume Fraction	0.379
5.	Dry Stack Gas - Volume Fraction	0.621
6.	Molecular Weight of Stack Gas - Dry Basis	29
7.	Molecular Weight of Stack Gas - Stack Conditions	24.83
8.	Specific Gravity of Stack Gas Relative to Air	0.86
9.	Excess Air - Percent	
10.	Average Stack Velocity	2889.5 FPM
11.	Average Stack Gas Flow Rate	29820 ACFM
12.	Actual Stack Gas Flow Rate Dry	18508 CFMD
13.	Stack Gas Flow Rate STPD	14282 SCFMD
14.	Percent Isokinetic	102.7 %

Probe Wash	159.80 Mg	0.0348 Gr/SCF	4.27 Lbs/Hr
Filter	196.70 Mg	0.0428 Gr/SCF	5.25 Lbs/Hr
Totals	356.50 Mg	0.0776 Gr/SCF	9.52 Lbs/Hr

SHOLTES AND KOOGLER ENVIRONMENTAL CONSULTANTS

Source Sampling Calculations

Plant: MID FLORIDA MINING LOWELL, FL. Date: 9-10-82
Stack: BAGHOUSE OUTLET Run 2 from 1115-1300
Weather conditions: OVERCAST Pb= 29.94 In.Hg Ps= 29.97 In.Hg
As= 10.32 Sq.Ft. Ts= 230 Deg. F Tm= 101.1 Deg. F
H= 0.702 In.H20 Del H= 1.8 In.H20 An= 0.000517 Sq.Ft. Cp= 0.84
Vm= 72.271 cf Vc= 888.6 ml Total time: 96 Minutes

1.	Volume Water Vapor	41.853 SCF
2.	Gas Volume Sampled - STPD	68.354 SCFD
3.	Total Volume	110.207 SCF
4.	Moisture in Stack Gas - Volume Fraction	0.38
5.	Dry Stack Gas - Volume Fraction	0.62
6.	Molecular Weight of Stack Gas - Dry Basis	29
7.	Molecular Weight of Stack Gas - Stack Conditions	24.82
8.	Specific Gravity of Stack Gas Relative to Air	0.86
9.	Excess Air - Percent	
10.	Average Stack Velocity	2911.3 FPM
11.	Average Stack Gas Flow Rate	30045 ACFM
12.	Actual Stack Gas Flow Rate Dry	18635 CFMD
13.	Stack Gas Flow Rate STPD	14283 SCFMD
14.	Percent Isokinetic	99.2 %

Probe Wash	115.70 Mg	0.0261 Gr/SCF	3.20 Lbs/Hr
Filter	196.90 Mg	0.0444 Gr/SCF	5.44 Lbs/Hr
Totals	312.60 Mg	0.0705 Gr/SCF	8.64 Lbs/Hr

SHOLTES AND KOOGLER ENVIRONMENTAL CONSULTANTS

Source Sampling Calculations

Plant: MID FLORIDA MINING LOWELL, FL. Date: 9-10-82
Stack: BAGHOUSE OUTLET Run 3 from 1325-1510
Weather conditions: OVERCAST Pb= 29.94 In.Hg Ps= 29.97 In.Hg
As= 10.32 Sq.Ft. Ts= 214.4 Deg. F Tm= 102.1 Deg. F
H= 0.722 In.H2O Del H= 1.87 In.H2O An= 0.000517 Sq.Ft. Cp= 0.84
Vm= 74.278 cf Vc= 885.3 ml Total time: 96 Minutes

1.	Volume Water Vapor	41.698	SCF
2.	Gas Volume Sampled - STPD	70.139	SCFD
3.	Total Volume	111.837	SCF
4.	Moisture in Stack Gas - Volume Fraction	0.373	
5.	Dry Stack Gas - Volume Fraction	0.627	
6.	Molecular Weight of Stack Gas - Dry Basis	29	
7.	Molecular Weight of Stack Gas - Stack Conditions	24.9	
8.	Specific Gravity of Stack Gas Relative to Air	0.86	
9.	Excess Air - Percent		
10.	Average Stack Velocity	2954.3	FPM
11.	Average Stack Gas Flow Rate	30488	ACFM
12.	Actual Stack Gas Flow Rate Dry	19121	CFMD
13.	Stack Gas Flow Rate STPD	14995	SCFMD
14.	Percent Isokinetic	97	%

Probe Wash	85.70 Mg	0.0188 Gr/SCF	2.42 Lbs/Hr
Filter	120.10 Mg	0.0264 Gr/SCF	3.40 Lbs/Hr
Totals	205.80 Mg	0.0452 Gr/SCF	5.82 Lbs/Hr

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AC 42-43771

ATTACHMENT 1

PAID

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

RECEIVED
Saint Johns River
District

APPLICATION TO OPERATE/CONSTRUCT
AIR POLLUTION SOURCES

SOURCE TYPE: Rotary Kiln Vent [ ] New[1] [x] Existing[1]

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

COMPANY NAME: Mid-Florida Mining Company COUNTY: Marion

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Existing seven foot diameter rotary dryer

SOURCE LOCATION: Street State Road 329 City Lowell

UTM: East 384500M North 3245000M

Latitude 29 ° 19 ' 45 "N Longitude 82 ° 11 ' 15 "W

APPLICANT NAME AND TITLE: Roy O. Camp, Vice President, Operations

APPLICANT ADDRESS: Mid-Florida Mining Co., P. O. Box 68, Lowell, Florida 32663

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Mid-Florida Mining Co.

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: [signature]

Roy O. Camp, Vice President Operations
Name and Title (Please Type)

Date: 6-1-81 Telephone No. 904/737-7227

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 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: [signature]

Larry M. Simmons, P.E.
Name (Please Type)

(Affix Seal)

Tidewater Engineers, Inc.
Company Name (Please Type)

P. O. Box 5948, Tallahassee, Fl. 32301
Mailing Address (Please Type)

Florida Registration No. 17964 Date: 6-1-81 Telephone No. 904/576-7133

[1]See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

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.

SEE ATTACHMENT 1

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

Start of Construction July 1, 1981 Completion of Construction September 1, 1981

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.)

Model 120 WMW-480 ARR. III Flex-Kleen Collector - $77,500

Model 408 PLR, Class IV, ARR. 1 NYB Exhaust Fan - $12,000

Steel, Platforms, Stairways & Structure - $50,000

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

Permit #AC 42-2381 expires May 7, 1977

Permit #AC 42-2382 expires May 7, 1977

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ____ Yes X No

F. Normal equipment operating time: hrs/day 22 ; days/wk 7 ; wks/yr 50 ; if power plant, hrs/yr ____ ;

If seasonal, describe: N/A

G. 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? N/A
   b. If yes, has "Lowest Achievable Emission Rate" been applied? N/A
   c. If yes, list non-attainment pollutants.
      N/A
2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. Yes
3. Does the State "Prevention of Significant Deterioriation" (PSD) requirements 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? No
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? No

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

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
Fullers Earth	Particulates	1.0	65,000	Raw Clay Input

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

1. Total Process Input Rate (lbs/hr): 65,000

2. Product Weight (lbs/hr): 36,000

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1] Maximum lbs/hr	Emission[1] Actual T/yr	Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4] lbs/hr	Potential Emission[4] T/yr	Relate to Flow Diagram
SO_2	9.1	26.3	BACT	1.1	7.7	28.5	44" O.D. Sta
Particulates	3.0	11.5	BACT	30.2	3000	11,088	44" O.D. Sta
Lead	0.10	.288*	BACT	Unknown	2.03	5.85	44" O.D. Sta

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]
Flex-Kleen				
120 WMWC-600				
XLIII A-81JC-115	Particulates	99.9	100% of minus	Mfgr.
Baghouse			2 Micron	
4:1 air-to-cloth ratio				

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. — 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)

[5]If Applicable

* See calculations in Attachment 2 (Letter from Sholtes & Koogler dated 9-8-81)

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OPERATING DATA

VOLUME 36000 ACFM | CLOTH AREA 9000 SQ. FT | RATIO 4/1

DUST Fullers Earth

DUST SIZE 100% (-65 Mesh)

DUST DENSITY ——— LBS./CU. FT. | DUST LOADING 20 GR./CU. FT.

TEMPERATURE 270°F | DEW POINT ————

(COLLECTOR TEMPERATURE MUST BE KEPT WELL ABOVE DEW POINT)

END USE Vent Rotary Dryer

WEIGHT 40900 Lbs (Coll. Dead Load Only) | LOCATION Outdoors

DESIGN PRESSURE 20" W.G. | OPERATING PRESSURE 14" W.G. Negative

COMPRESSED AIR REQRMTS 50.0 SCFM @ 90-100 PSIG CLEAN, DRY & OIL FREE

EQUIPMENT DATA

TIMER(S) T16009/Nema-4 (M14507) 110 V 50/60 CYC. 1 PHASE 50 W. EA.

DIAPHRAGM VALVES * Goyen RCA-40T (M28217) | BAG CAGES M.S. (See Shop Note-1)

SOLENOID VALVES Eemco* 01B0386 (E24104) | BAG CLAMPS N/R

VENTURIS Alum. (M11812) See Shop Note-1 | Trap-10 [illegible] M.S. (See Shop Note-1)

Trap-10 FILTER BAGS Huyck Glass (Ref. B [illegible] JF-127) Felt

CONSTRUCTION DATA

CLEAN AIR PLENUM	ROOF	12 Ga. M.S. (All Welded) W/ Stiffeners
	SIDES	12 Ga. M.S. (All Welded) W/ Stiffeners

DUSTY AIR PLENUM 12 Ga. M.S. (All Welded) W/ Stiffeners

TUBE SHEET 10 Ga. M.S. (Ext'ly. Fig'd.) W/ 6" High Single Break Panels

HOPPER (60°) 12 Ga. M.S. (All Welded) W/ Stiffeners

BRACING On Roof, Shell, Dutchman, & Hopper As Shown

GASKET MATERIAL

A) * 582 Presstite @ Dutchman, Tube Sheet, & Bin-Line Flg. Conn's (3/8" × 1/8")

GENERAL NOTES

* Goyen RCA-40T Double Diaphragm Valves Are To Have A 1/8" F.P.T. Pilot Conn. & To Be Provided W/ A 3/8" 90° Street Elbow On The Exhaust Port.

SHOP NOTES

1.) Cage To Be Welded To Trap-10 Collar & Venturi Attached W/ 304 S.S. Bolts, Nuts, & Washers. (X30041)

2.) Shop To Use 7/8" ⌀ High Strength Bolts @ Tube Sheet Flange Conn's Only.

3 Use Copper Tubing In Lieu Of Plastic @ Solenoid To Diaphragm Valve Conn's.

Thickness Of [illegible] Wall Insulation W/ A Thermal Conductivity Of [illegible] °F & A Density Of 7 Lbs./Cu. Ft. Insulation To Be Covered W/ 16 Ga. M.S. Sheets Attached & Stiffeners W/ [illegible]-Tapping Sheet Metal Screws & Stitch Welded In Place & Other Locations. All Crevices To Be Caulked W/ Benjamin-Foster #30-45 Sealant.

5.) Apply One (1) Coat Of Sherwin Williams #E61-A45 Gray Primer To All Exterior M.S. Surfaces Only.

6.) Shop To Brace Top Of D.A.P. Prior To Shipping. Provide Two (2) Braces Per Detail 16 On A-78F-239.

7.) Unit To Be Shipped In Four (4) Sections
   a) C.A.P.,
   b) C.A.P. & D.A.P. Dutchman W/ Tube Sheet;
   c) D.A.P.,
   d) Trough Hopper W/ Girth Channels.

8.) Use 1½"Φ Sch. 40 M.S. Pipe For Internal Compressed Air Piping W/ 5/16" Φ Holes In Btm. Of Pipe & W/ Morris Quickon II (40-Req'd.)

Reference Drawings

A-81JM-076 : Insulation Details
A-81JM-077 : Collector Details

One (1) Unit Req'd

Mark: P.O.#5940

CERTIFIED

FOR CONSTRUCTION

FLEX-KLEEN CORPORATION

MARK	REVISION	DATE	BY

FLEX-KLEEN CORPORATION

SUBSIDIARY OF RESEARCH - COTTRELL, INC.

222 S. RIVERSIDE PLAZA, CHICAGO, ILLINOIS 60606

SCALE: ¼" = 1'-0"	C/O NO. 5940	DRAWN BY: - DCS -
DATE: 3-24-81	FKO NO. 10-94-16624	APPROVED BY: RAY

MID-FLORIDA MINING CO.

CALCULATIONS

A. The process utilization rate or feed rate to the rotary kiln is about ~~32.5~~ 40.8 tons per hour at roughly 48% moisture. Calculating,

$$\cancel{32.5}\ 40.8^{*}\ \frac{\text{tons}}{\text{hr}} \times \frac{2000\ \text{lb}}{\text{ton}} = \cancel{65{,}000}\ 81{,}600\ \text{lb/hr Total}$$

B. The clay is dried to about 15% moisture in the rotary kiln which produces ~~18~~ 22.5 tons per hour of product and ~~1.5~~ 1.9 tons per hour of fines. The remaining mass is in the form of water vapor in exit gases. Calculating,

$$\cancel{18}\ 22.5\ \frac{\text{tons}}{\text{hr}} \times 2000\ \frac{\text{lb}}{\text{ton}} = \cancel{36{,}000}\ 45{,}000\ \text{lb/hr Product}$$

$$\cancel{1.5}\ 1.9\ \frac{\text{tons}}{\text{hr}} \times 2000\ \frac{\text{lb}}{\text{ton}} = \cancel{3{,}000}\ 3{,}800\ \text{lb/hr Fines}$$ (uncontrolled part. matter)

C. Total input feed rate - ~~65,000~~ 81,600 lb/hr

42,400 ~~33,600~~ lb/hr clay
39,200 ~~31,400~~ lb/hr H2O

Product discharge rate - ~~36,000~~ 45,000 lb/hr

38250 ~~30,600~~ lb/hr clay
6750 ~~5,400~~ lb/hr H_2O

Fines discharge rate (particulates) = ~~3,000~~ 3,800 lb/hr (uncontrolled part. matter)

Water vapor discharge = ~~26,000~~ 32,450 lb/hr

D. Kiln Heat Requirements

1. Heat required to offset radiation and convection losses:

$q_2 = (hr + hc)\ A\ (Ts-Ta)$

where hr = 8.5 BTU/HR - Sq. Ft. - °F.
hc = 1 BTU/HR - Sq. Ft. - °F.
A = PI DL = (3.14)(7) (70) = 1540 sq. ft.
Ts = 150°F.
Ta = 70°F.

$q_2 = (8.5 + 1)\ (1540)\ (150-70) = 1{,}170{,}400$ BTU/HR

2. Heat required for evaporation of moisture:

$q_m = \dot{m}\ hfg\ @\ 70\ °F$

= (26,000 lb/hr) (1054 BTU/LB)

= 27,404,000 BTU/HR

* Per change to A042-68788 dated 10/19/83

ATTACHMENT 2

SUMMARY OF PARTICULATE MATTER EMISSION MEASUREMENTS

DRYER BAGHOUSE

MID-FLORIDA MINING COMPANY
LOWELL, FLORIDA

SEPTEMBER 29, 1983

SHOLTES & KOOGLER
ENVIRONMENTAL CONSULTANTS, INC.
1213 N.W. 6TH STREET
GAINESVILLE, FLORIDA 32601
(904) 377-5822

1.0 INTRODUCTION

The Mid-Florida Mining Company owns and operates a mineral processing facility in Lowell, Florida. One portion of this facility is a clay dryer, which is used to dry clay which is used as cat litter or oil solvent.

On September 29, 1983, Sholtes & Koogler, Environmental Consultants, Inc., (SKEC) of Gainesville, Florida, conducted particulate matter emission measurements on the dryer baghouse stack. The purpose of this testing was to satisfy provisos attached to the Air Pollution Operating Permit for this source. These provisos state that the source shall be tested annually for particulate matter emissions. The methods of testing and analysis were EPA Method 5 for particulate matter and EPA Method 9 for visible emissions evaluations as published in 40 CFR 60, Appendix A.

Prior to the test date, the regional office of the Florida Department of Environmental Regulation (FDER) in Orlando, Florida was notified of the test schedule. Mr. John Turner of that office was on-site to witness the testing and the plant operation.

During the period of testing, the dryer was operating at an average process input weight rate of 40.4 tons per hour. The allowable emission rate corresponding to this process weight rate, Chapter 17-2, Florida Administrative Code, is 31.3 pounds per hour. The actual measured mass emission rate was 1.40 pounds per hour. There were no visible emissions detected during the 30-minute observation period.

Utilizing the above data it can be concluded that this source meets the emission requirements set forth by the Florida Department of Environmental Regulation.

TABLE 1

SUMMARY OF PARTICULATE MATTER EMISSIONS

MID FL. MINING LOWELL, FL.
NEW BAGHOUSE
9/29/83

$gR/dscfm = \frac{lb}{HR} \div dscfm \times \frac{7000\ gR/lb}{60\ min/hr}$

Run No.	Process Weight Rate (Tons/Hr)	Stack Gas Flow Rate (SCFMD)	Stack Gas Temperature (Deg F)	Stack Gas Moisture (%)	Particulate Matter Emissions: Concentration (gr/SCF)	Particulate Matter Emissions: Mass Emission Rate (Lbs/Hr)
1	40.4	22748	193.4	29.5	.0068	1.33
2	40.4	22349	203.7	28.5	.0074	1.42
3	40.4	22758	212.7	29.7	.0074	1.44
Avg	40.4	22619 = 39,924 Acfm	203.3	29.2	.0072	1.40 = 0.0072 gR/dscfm

Allowable Particulate Matter Emission Rate = 31.3 Lbs/Hr
(Chap. 17-2, Florida Administrative Code)

* Stack Gas Saturated

SHOLTES & KOOGLER

JUN 1983 RECEIVED Saint Johns River District

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

AIR POLLUTION SOURCES
CERTIFICATE OF COMPLETION OF CONSTRUCTION*

PERMIT NO. AC42-43771 DATE: March 15, 1983

Company Name: Mid-Florida Mining Company County: Marion County

Source Identification(s): Seven Foot Diameter Rotary Dryer Vent

Actual costs of serving pollution control purpose: $ 160,375.00

Operating Rates: 75,000 PPH (Average) Design Capacity: 65,000 PPH To 78,000 PPH

Expected Normal 75,000 PPH During Compliance Test 76,400 PPH

Date of Compliance Test: September 10, 1982 (Attach detailed test report)

Test Results:

Pollutant	Actual Discharge	Allowed Discharge
SO_2	12.8 PPH	23.02 PPH
Particulates	7.99 PPH	30.9 PPH
Lead	.304 PPH	2.30 PPH

Date plant placed in operation: 12/1/81

This is to certify that, with the exception of deviations noted**, the construction of the project has been completed in accordance with the application to construct and Construction Permit No. AC42-43771 dated 10/8/81.

A. Applicant:

Roy O. Camp, Vice President
Name of Person Signing (Type)

Signature of Owner or Authorized Representative and Title

Date: March 15, 1983 Telephone: (904) 732-7227

B. Professional Engineer:

Larry Martin Simmons
Name of Person Signing (Type)

Signature of Professional Engineer

Tidewater Engineers, Inc.
Company Name

Florida Registration No. 17964

Date: March 15, 1983

(Seal) REGISTERED ENGINEER

5380 Capital Cir., N.W., Tallahassee, Fl. 32303
Mailing Address

(904) 562-4105
Telephone Number

*This form, satisfactorily completed, submitted in conjunction with an existing application to construct permit and payment of application processing fee will be accepted in lieu of an application to operate.

**As built, if not built as indicated include process flow sketch, plot plan sketch, and updates of applicable pages of application form.

TWX 810 876-9134
THORNT LAB TPA

THORNTON LABORATORIES, INC.
1145 EAST CASS STREET
TAMPA, FLORIDA 33601 - 2880
ANALYTICAL AND CONSULTING CHEMISTS

TELEPHONE (813) 223-9702
P.O. BOX 2880

March 14, 1983

Laboratory Number 584409

Sample of Used Oil

Date Received March 10, 1983

For Mid-Florida Mining Company
P.O. Box 68
Lowell, Florida 32668

Attn: J.B. Kleekamp

Marks: Sample #BF 031083

CERTIFICATE OF ANALYSIS

Sulfur (S) ASTM D-129	0.56%
Lead (Pb) ASTM D-3237	1320 ppm OK

10,000 PPM LIMIT

CC: Mr. Larry Simmons, P.E.
Tidewater Engineers, Inc.
P.O. Box 3086
Tallahassee, Florida 32315

THORNTON LABORATORIES, INC.

R V Pearson

CALCULATIONS (REVISED 3/15/83)

A. The process utilization rate or feed rate to the rotary kiln is about 38.2 tons per hour at roughly 48% moisture. Calculating,

$$38.2\ \frac{\text{tons}}{\text{hr}} \times \frac{2000\ \text{lb}}{\text{ton}} = 76{,}400\ \text{lb/hr Total}$$

B. The clay is dried to about 16% moisture in the rotary kiln which produces 20 tons per hour of product and 2.0 tons per hour of fines. The remaining mass is in the form of water vapor in exit gases. Calculating,

$$20\ \frac{\text{tons}}{\text{hr}} \times 2000\ \frac{\text{lb}}{\text{ton}} = 40{,}000\ \text{lb/hr Product}$$

$$2.0\ \frac{\text{tons}}{\text{hr}} \times 2000\ \frac{\text{lb}}{\text{ton}} = 4{,}000\ \text{lb/hr Fines}$$

C. Total input feed rate - 76,400 lb/hr

39,728 lb/hr clay
36,672 lb/hr H_2O

Product discharge rate - 40,000 lb/hr

33,600 lb/hr clay
6,400 lb/hr H_2O

Fines discharge rate (particulates) = 4,000 lb/hr

Water vapor discharge = 29,600 lb/hr

D. Kiln Heat Requirements

1. Heat required to offset radiation and convection losses:

q2 = (hr + hc) A (Ts-Ta)

where hr = 8.5 BTU/HR - Sq. Ft. - °F.
hc = 1 BTU/HR - Sq. Ft. - °F.
A = PI DL = (3.14) (7) (70) = 1540 sq. ft.
Ts = 150 F.
Ta = 70 F.

q2 = (8.5 + 1) (1540) (150-70) = 1,170,400 BTU/HR

2. Heat required for evaporation of moisture:

q_m = $\dot{m}$ hfg @ 70 °F.

= (29,600 lb/hr) (1054 BTU/LB)

= 31,198,400 BTU/HR

3. Heat required to raise the temperature of the product:

$$q_s = \dot{m}\ Cp\ (T_2 - T_1)$$

= (39,728 lb/hr) (.22 BTU/LB - °F) (250-70)

= 1,573,229 BTU/HR

4. Total heat required in kiln:

$$q_t = q_1 + q_m = q_s$$

= 1,170,400 + 31,198,400 = 1,573,229

= 33,942,029

5. Mass of air required:

$$q_t = \dot{m}\ (h_2 - h_1)$$

$$\dot{m} = \frac{33{,}942{,}029 \text{ BTU/HR}}{(.24)\ (1400-270)}$$

$$\dot{m} = 125{,}155 \text{ LB/HR}$$

6. Heat required to raise the temperature of the air from ambient conditions to kiln temperature:

$$q = \dot{m}\ (h_2 - h_1)$$

= (125,155) (.24) (1400-70°)

= 39,949,467 BTU/HR

7. Maximum fuel oil required per hr.

$$\frac{39{,}949{,}476 \text{ BTU/HR}}{130{,}000 \text{ BTU/GAL}} = 307 \text{ Gal/Hr}$$

$$\frac{307 \text{ Gallons}}{\text{Hr}} \times \frac{\text{barrels}}{42 \text{ gallons}} = 7.3\ \frac{\text{barrels}}{\text{hr}}$$

8. Average fuel consumption:

From plant records fuel consumption is 178,640 gallons/month

$$178{,}640\ \frac{\text{gallons}}{\text{Mo.}} \times \frac{\text{Mo.}}{616 \text{ Hr}} \times 42\ \frac{\text{barrel}}{\text{gallons}} = 6.9\ \frac{\text{barrels}}{\text{Hr}}$$

9. SO_2 Emission:

Actual -

$$307 \frac{\text{gal}}{\text{hr}} \times 7.5 \frac{\text{lbs}}{\text{gal}} \times .0056 = 12.8 \text{ lbs/hr}$$

Allowable -

$$307 \frac{\text{Gal}}{\text{Hr}} \times 7.5 \frac{\text{lbs}}{\text{Gal}} \times .0100 = 23.02 \text{ lbs/Hr.}$$

10. Lead Emission:

Actual -

$$307 \frac{\text{Gal}}{\text{Hr}} \times 7.5 \frac{\text{lbs}}{\text{gal}} \times .00132 = 3.04 \text{ lbs/hr}$$

without control! not allow

Allowable -

$$307 \frac{\text{Gal}}{\text{Hr}} \times 7.5 \frac{\text{lbs}}{\text{Gal}} \times .0100 = 23.02 \text{ lbs/Hr.}$$

10,000
or
1%
.01

101

SUMMARY OF PARTICULATE MATTER
EMISSION MEASUREMENTS

NO. 1 DRYER
BAGHOUSE OUTLET

MID FLORIDA MINING COMPANY
LOWELL, FLORIDA

SEPTEMBER 10, 1982

SHOLTES & KOOGLER
ENVIRONMENTAL CONSULTANTS, INC.
1213 NW 6TH STREET
GAINESVILLE, FLORIDA 32601
(904) 377-5822

SHOLTES & KOOGLER

TABLE OF CONTENTS

To the best of my knowledge, all applicable field and analytical procedures comply with FDER requirements and all test data and plant operating data are true and correct.

Signature

9-17-82

Date

1.0 INTRODUCTION

The Mid Florida Mining Company own and operate a mineral processing facility located in Lowell, Florida. One portion of this facility is the No. 1 dryer which is used to dry clay for the finished product.

On September 10, 1982, Sholtes & Koogler, Environmental Consultants, Inc. (SKEC) of Gainesville, Florida conducted particulate matter emission measurements on the baghouse dryer outlet stack. The purpose of this testing was to satisfy provisos attached to the Air Pollution Operating Permit for this source. These provisos state that the source shall be tested annually for particulate matter emissions. NO AC

Prior to the test date, the regional office of the Florida Department of Environmental Regulation (FDER) in Orlando, Florida was notified of the test schedule. The method of testing and analysis for particulate matter was EPA Method 5 established in Title 40, Chapter 1, Part 60, Code of Federal Regulations, U.S. Environmental Protection Agency.

During the period of testing, the dryer was operating at an average process weight rate of 38.2 tons per hour. The allowable emission rate corresponding to this process weight rate, Chapter 17-2 of the Florida Administrative Code was 30.9 pounds per hour. The actual average measured mass emission rate was 7.99 pounds per hour. 31# ok

Thus, utilizing the above data it can be determined that this source meets requirements set forth by FDER and the Florida Administrative Code.

2.0 PROCESS DESCRIPTION

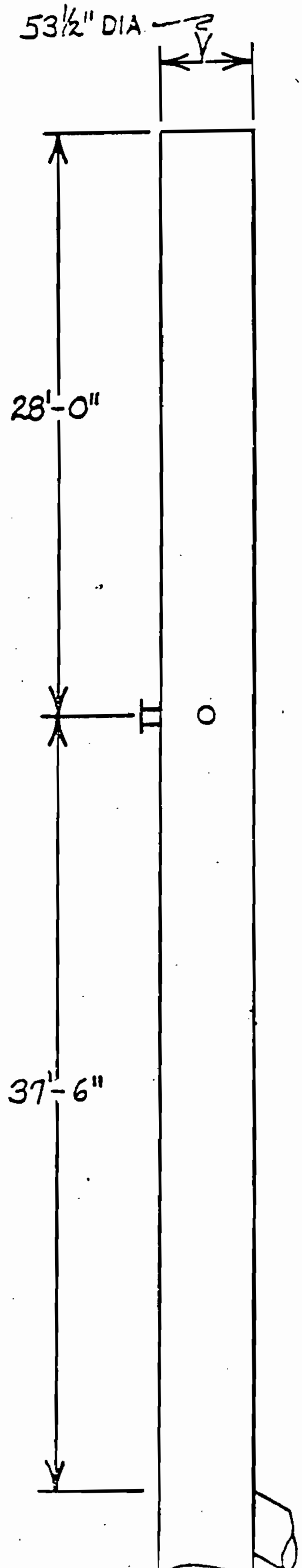
The material dryer operated by Mid Florida Mining Company in Lowell, Florida is used for drying clay into either cat litter or oil absorbent material. The material is loaded and into the rotary dryer mechanically for the removal of moisture.

Particulate matter emissions result from the exhaust gases carrying fines from the dryer through a baghouse dust collector. The baghouse dust collector filters the gases before they are exhausted to the atmosphere.

3.0 SAMPLING POINT LOCATION

Two sampling ports are located in the 53-1/2 inch diameter stack 90 degrees adjacent to one another. The two ports were 37-feet 6-inches above the fan and 28-feet below the outlet of the stack.

Using criteria established by FDER, it can be determined that the minimum number of sampling points being used. Thus, six sampling points were used on each of the two traverses. Figure 1 is a schematic diagram of the sampling point location and a Table of the sampling point distances.



SAMPLING PORT LOCATION

BAGHOUSE OUTLET

MID FLORIDA MINING COMPANY
LOWELL, FLORIDA

$$\frac{53\frac{1}{2}''}{12} = 4.458'$$

$$\frac{28}{4.458} = 6.28 \text{ DIAMETRAL}$$

SAMPLING POINT LOCATION

TRAVERSE PT.	DISTANCE IN.
1	2.4
2	7.9
3	15.8
4	37.7
5	45.6
6	51.1

$$\frac{37.5}{4.458} = 8.4 \text{ DIAMETERS}$$

Minimum 12 POINTS

4.0 FIELD AND ANALYTICAL PROCEDURES

Particulate matter samples were collected by the particulate matter emission measurement method adopted by the FDER in October 1980. A schematic diagram of the sampling train used is shown in Figure 2. All particulate matter captured from the nozzle to and including the filter was included in the calculation of the emission rate of particulate matter.

Preparation of Equipment

1. Filters - Gelman type "A" filters were placed in a drying oven for two hours at 105°C, removed, and placed in a standard glass desiccator containing indicating silica gel and allowed to cool for two hours, and then weighed to the nearest 0.1 mg.

2. Nozzle, Filter Holder and Sampling Probe - The nozzle, filter holder and sampling probe were washed vigorously with soapy water and brushes, then rinsed with acetone and distilled water and dried prior to the test program. All openings on the sampling equipment were sealed while in transit to the test site.

3. Impingers - The Greenburg-Smith impingers were cleaned with a warm soapy water solution and brushes, then were rinsed with distilled water and acetone and dried. The impingers were sealed tightly during transit.

Test Procedure

Prior to performing the actual particulate matter sample runs, certain stack and stack gas parameters had to be determined. These preliminary data included the average temperature, velocity head, and moisture content, plus the stack dimensions at the point where the tests were being performed.

The stack gas temperature was determined by using an electronic thermocouple with instant readout.

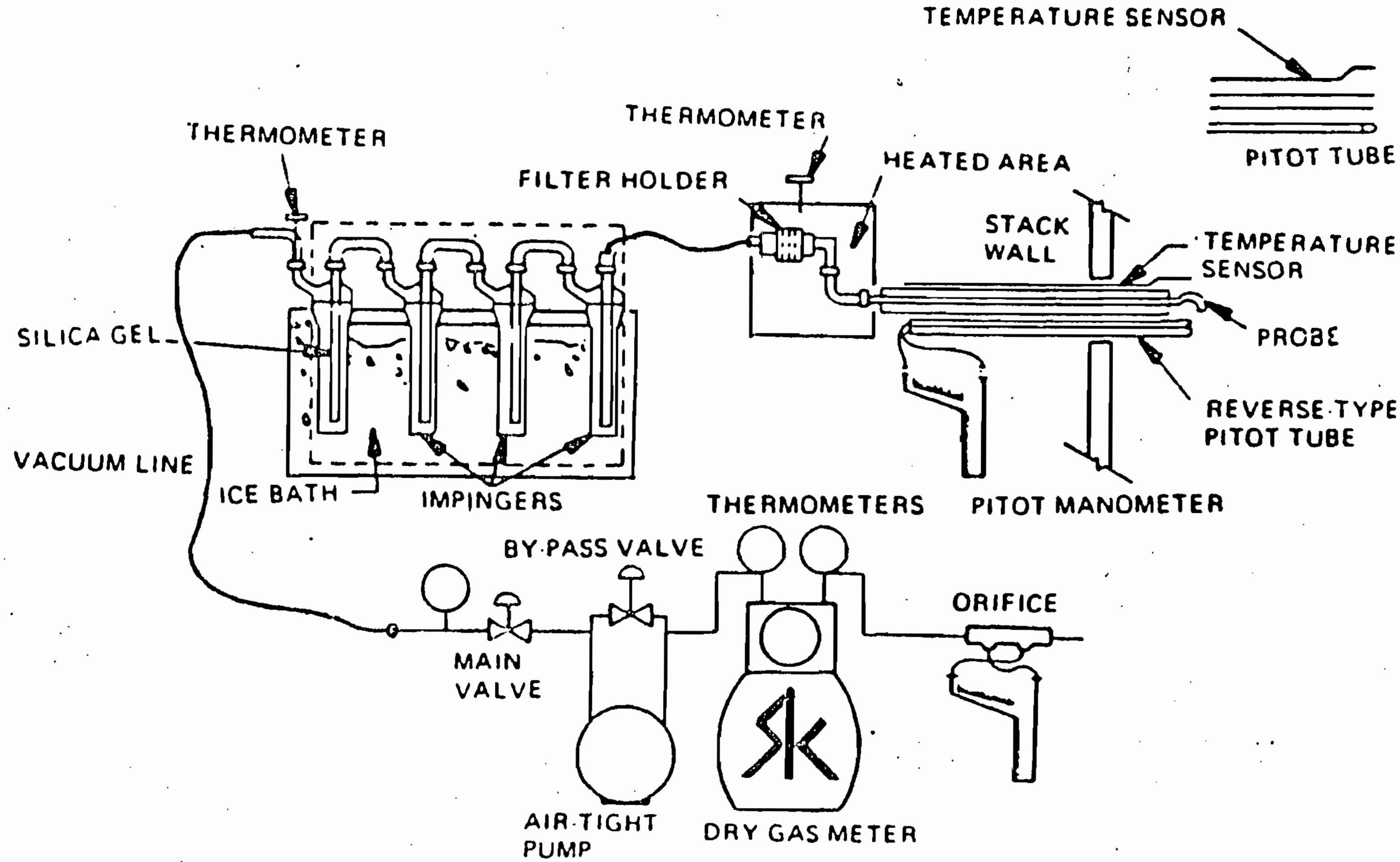


FIGURE 2

FDER PARTICULATE MATTER SAMPLING TRAIN

Velocity head measurements were determined across the stack by using a calibrated type "S" pitot tube with an inclined manometer.

The sampling traverse points were selected so that a representative sample could be extracted from the gas stream. The traverse points were located in the center of equal areas, which were dependent upon equivalent duct diameters downstream from flow disturbances.

One particulate test run consisted of sampling for a specified time at each traverse point. The type "S" pitot tube was connected adjacent to the sample probe so that an instantaneous velocity head measurement could be determined at each traverse point while making the test run. The stack gas temperature was also measured throughout each test. Nomographs were used to calculate the isokinetic sampling rate for each traverse point during each test run.

The gases sampled were collected through the following components: a stainless steel nozzle and probe; a glass fiber filter; two impingers with 100 ml of distilled water; one impinger dry; one impinger with 180 grams of silica gel (the second impinger had a standard tip, while the first, third and fourth impingers had modified tips with 1/2-inch I.D. openings); a flexible sample line; an air-tight pump; a dry test meter; and, finally, a calibrated orifice.

Sample recovery was accomplished by the following procedures:

1. The pretared filter was removed from its holder and placed in Container 1 and sealed.

2. All sample-exposed surfaces prior to the filter were washed with acetone and placed into Container 2.

3. The volume of water from the first three impingers was measured for the purpose of calculating the moisture in the stack gas, then discarded.

4. The used silica gel from the fourth impinger was transferred to the original tared container and sealed.

Laboratory Analysis

The two sample containers from each sample run were analyzed according to the following procedures:

1. The contents of Container 1 were transferred to a tared glass weighing dish, dried, and desiccated to a constant weight.

2. The acetone from Container 2 was transferred to a tared beaker and evaporated to dryness at 212°F. It was then desiccated to a constant weight.

The used silica gel in its tared container was weighed to the nearest gram.

The total sample weight included the weight of material collected on the filter plus the weight of material collected in the nozzle, sampling probe, and front half of the filter holder.

Data

The field data sheets, calculation sheets, and nomenclature definitions are included in the appendix of this report.

5.0 SUMMARY OF RESULTS

Summarized results of the particulate matter mass emission measurements conducted on September 10, 1982 are presented in Table 1. Complete emission data including all gas flow date are included in the Appendix of this report.

During the period of testing, the mass emission rate of particulate matter ranged from 5.8 to 9.5 pounds per hour with an overall average of 7.99 pounds per hour. The corresponding concentration in the stack gas was 0.0644 grains per standard cubic foot. The stack gas flow rate averaged 14,520 SCFMD. The stack gas temperature averaged 223°F and contained an average of 37.7 percent moisture. During the period of testing, the process weight rate to the dryer was 38.2 tons per hour. The allowable particulate matter mass emission rate corresponding to this process weight rate (Chapter 17-2, Florida Administrative Code) is 30.9 pounds per hour.

Thus, utilizing the above data, it can be concluded that this source is well in compliance with the guidelines set forth by FDER and the Florida Administrative Code.

Complete test results along with equations for calculating emissions, nomenclature sheets, field and analytical data sheets and all necessary calibrations and a list of project participants are included in the Appendix of this report.

SUMMARY OF PARTICULATE MATTER EMISSIONS

BAGHOUSE OUTLET

MID FLORIDA MINING COMPANY
LOWELL, FLORIDA

SEPTEMBER 10, 1982

Run No.	Process Weight Rate (tons/hr)	Stack Gas Flow Rate (SCFMD)	Stack Gas Temperature (°F)	Stack Gas Moisture (%)	Particulate Matter Emissions	
					Concentration (gr/SCF)	Mass Emission Rate (lbs/hr)
1	42.5	14282	225	37.9	0.0776	9.52
2	39.3	14283	230	38.0	0.0705	8.64
3	32.7	14995	214	37.3	0.0452	5.82
Average	38.2	14520	223	37.7	0.0644	7.99

*Allowable particulate matter emission rate (Chapter 17-2, Florida Administrative Code) = 30.9 lbs/hr.

APPENDIX

SOURCE SAMPLING NOMENCLATURE SHEET

PB - Barometric pressure, inches Hg
PS - Stack pressure, inches Hg
As - Stack area, sq. ft.
AS' - Effective area of positive stack gas flow, sq. ft.
NPTS - Number of traverse points where the pitot velocity head was greater than zero
TSTD - Standard temperature, °R
TS - Stack temperature, °R
TM - Meter temperature, °R
H - Average square root of velocity head, $\sqrt{\text{inches } H_2O}$
$\bar{H}$ - Average meter orifice pressure differential, inches H_2O
AN - Sampling nozzle area, square feet
CP - S-type pitot tube correction factor
VM - Recorded meter volume sample, cubic feet (meter conditions)
VC - Condensate and silica gel increase in impingers, milliliters
Po - Pressure at the dry test meter orifice, $\left[PB + \frac{\Delta H}{13.6}\right]$ inches Hg
STP - Standard conditions

VWV - Converstion of condensate in milliliters to water vapor in cubic feet (STP)
VSTPD - Volume sampled, cubic feet (STP)
VT - Total water vapor volume and dry gas volume sampled, cubic feet (STP)
W - Moisture fraction of stack gas
FDA - Dry gas fraction
MD - Molecular weight of stack gas, lbs/lb-mole (dry conditions)
MS - Molecular weight of stack gas, lbs/lb-mole (stack conditions)
GS - Specific gravity of stack gas, referred to air
EA - Excess air, %
$\sqrt{HxTS}$ - Average square root of velocity head times stack temperature
$\bar{U}$ - Stack gas velocity, feet per minute
QS - Stack gas flow rate, cubic feet per minute (stack conditions)
QD - Stack gas flow rate, cubic feet per minute (dry conditions)
QSTDP - Stack gas flow rate, cubic feet per minute (STP)
PISO - Percent isokinetic volume sampled (method described in Federal Register)
ESTP - Particulate concentration at standard and dry conditions, grains/scf
E_{12} - ESTP corrected to 12% CO_2, grains/scf
E_{50} - ESTP corrected to 50% excess Air, grains/scf
EM - Mass Emission Rate, lbs/hr

* - Stack Gas Saturated

EQUATIONS FOR CALCULATING PARTICULATE EMISSIONS

$$VWV = 0.0000893(TSTD)(VC)$$

$$VSTPD = (VM)(PB + \frac{\Delta H}{13.6})(\frac{TSTD}{TM})(\frac{1}{29.92})$$

$$VT = (VWV) + (VSTPD)$$

$$W = (VWV) \div (VT)$$

$$FDA = (1.0) - (W)$$

FMOIST = Assumed moisture fraction

$$MD = (0.44 \times \%\ CO_2) + (0.32 \times \%\ O_2) + (0.28 \times \%\ N_2) + (0.28 \times \%\ CO)$$

$$MS = (MD \times FDA) + (18 \times W)$$

$$GS = (MS) \div (28.99)$$

$$EA = \left[(100) \times (\%\ O_2 - \frac{\%\ CO}{2})\right] \div \left[(0.266 \times \%\ N_2) - (\%\ O_2 - \frac{\%\ CO}{2})\right]$$

$$\underline{U} = 4{,}006(CP)\sqrt{H}\sqrt{(\frac{TS}{TSTD})(\frac{29.92}{PS})(\frac{1}{GS})}$$

$$QS = (\underline{U}) \times (AS)$$

$$QD = (QS) \times (FDA)$$

$$QSTPD = TSTD(QD)(PS) \div [TS(29.92)]$$

$$PISO = \left[(0.00267 \times VC \times TS) + (P_o \times TS \times VM \div TM)\right] \div \left[(Time \times \underline{U} \times PS \times AN)\right]$$

$$ESTP = \frac{(\frac{15.43\ grains}{gram})\ (y)}{VSTPD}$$

$$E_{12} = \frac{(ESTP)\ (12)}{(CO_2\ \%)}$$

$$E50 = \frac{(ESTP)\ (100 + EA)}{150}$$

$$EM = (ESTP)\ (QSTPD)\ (60\ \frac{min}{hr})\ (\frac{lb}{7000\ grains})$$

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SHOLTES AND KOOGLER ENVIRONMENTAL CONSULTANTS

Source Sampling Calculations

Plant: MID FLORIDA MINING LOWELL, FL. Date: 9-10-82
Stack: BAGHOUSE OUTLET Run 1 from 0917-1057
Weather conditions: OVERCAST Pb= 29.94 In.Hg Ps= 29.97 In.Hg
As= 10.32 Sq.Ft. Ts= 225.4 Deg. F Tm= 90.4 Deg. F
H= 0.699 In.H2O Del H= 1.87 In.H2O An= 0.000517 Sq.Ft. Cp= 0.84
Vm= 73.4 cf Vc= 918.5 ml Total time: 96 Minutes

1.	Volume Water Vapor	43.261	SCF
2.	Gas Volume Sampled - STPD	70.783	SCFD
3.	Total Volume	114.045	SCF
4.	Moisture in Stack Gas - Volume Fraction	0.379	
5.	Dry Stack Gas - Volume Fraction	0.621	
6.	Molecular Weight of Stack Gas - Dry Basis	29	
7.	Molecular Weight of Stack Gas - Stack Conditions	24.83	
8.	Specific Gravity of Stack Gas Relative to Air	0.86	
9.	Excess Air - Percent		
10.	Average Stack Velocity	2889.5	FPM
11.	Average Stack Gas Flow Rate	29820	ACFM
12.	Actual Stack Gas Flow Rate Dry	18508	CFMD
13.	Stack Gas Flow Rate STPD	14282	SCFMD
14.	Percent Isokinetic	102.7	%

Probe Wash	159.80 Mg	0.0348 Gr/SCF	4.27 Lbs/Hr
Filter	196.70 Mg	0.0428 Gr/SCF	5.25 Lbs/Hr
Totals	356.50 Mg	0.0776 Gr/SCF	9.52 Lbs/Hr

SHOLTES AND KOOGLER ENVIRONMENTAL CONSULTANTS

Source Sampling Calculations

Plant: MID FLORIDA MINING LOWELL, FL. Date: 9-10-82
Stack: BAGHOUSE OUTLET Run 2 from 1115-1300
Weather conditions: OVERCAST Pb= 29.94 In.Hg Ps= 29.97 In.Hg
As= 10.32 Sq.Ft. Ts= 230 Deg. F Tm= 101.1 Deg. F
H= 0.702 In.H2O Del H= 1.8 In.H2O An= 0.000517 Sq.Ft. Cp= 0.84
Vm= 72.271 cf Vc= 888.6 ml Total time: 96 Minutes

1.	Volume Water Vapor	41.853	SCF
2.	Gas Volume Sampled - STPD	68.354	SCFD
3.	Total Volume	110.207	SCF
4.	Moisture in Stack Gas - Volume Fraction	0.38	
5.	Dry Stack Gas - Volume Fraction	0.62	
6.	Molecular Weight of Stack Gas - Dry Basis	29	
7.	Molecular Weight of Stack Gas - Stack Conditions	24.82	
8.	Specific Gravity of Stack Gas Relative to Air	0.86	
9.	Excess Air - Percent		
10.	Average Stack Velocity	2911.3	FPM
11.	Average Stack Gas Flow Rate	30045	ACFM
12.	Actual Stack Gas Flow Rate Dry	18635	CFMD
13.	Stack Gas Flow Rate STPD	14283	SCFMD
14.	Percent Isokinetic	99.2	%

Probe Wash	115.70 Mg	0.0261 Gr/SCF	3.20 Lbs/Hr
Filter	196.90 Mg	0.0444 Gr/SCF	5.44 Lbs/Hr
Totals	312.60 Mg	0.0705 Gr/SCF	8.64 Lbs/Hr

```
q1) Plant name and location: MID FLORIDA MINING  LOWELL, FL.
q2) Specify pollutant sampled:
        1 - Incinerator
        2 - Particulates
        3 - SO2
        4 - H2SO4 Plant
        5 - SO3
        6 - NOX
        7 - Scrubber
    Enter number: 7
q3) Stack designation: BAGHOUSE OUTLET
q4) Is source Combustion or Non-combustion? (c/n) n
q5) Date sampled: 9-10-82
q6) Weather conditions: OVERCAST
q7) Run number: 1
q8) Time begin: 0917
q9)   Time end: 1057
q10) Enter averages for:  Stack Vel, Diff. Actual, Stack Temp, Meter Temp
     .489,1.87,225.4,90.4
0.489 1.87 225.4 90.4
q11) Enter: Total sampling time, Barometric pressure, Stack pressure
     96


,29.94,29.97
96 29.94 29.97
q12) Enter: Stack area, Nozzle dia., Final meter, Init. meter, Cond vol.(ml)
     10.32 .308 939.9 866.5 918.5
10.32 0.308 939.9 866.5 918.5
Has the lab work been completed? (y/n)  y
Enter   Scrubber   weights in milligrams
159.8 196.7
159.8 196.7 0 0 0
```

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```
Enter restart point or RETURN to end: q7
q7) Run number: 2
q8) Time begin: 1115
q9)   Time end: 1300
q10) Enter averages for:  Stack Vel, Diff. Actual, Stack Temp, Meter Temp
     .493 1.8 230 101.1
0.493 1.8 230 101.1
q11) Enter: Total sampling time, Barometric pressure, Stack pressure
     96 29.94 29.97
96 29.94 29.97
q12) Enter: Stack area, Nozzle dia., Final meter, Init. meter, Cond vol.(ml)
     10
.32 .308 1012.571 940.3 888.6
10.32 0.308 1012.571 940.3 888.6
Has the lab work been completed? (y/n)  Y
Enter   Scrubber   weights in milligrams
115.7 196.9
115.7 196.9 0 0 0
```

```
Enter restart point or RETURN to end: q7
q7) Run number: 3
q8) Time begin: 1325
q9)   Time end: 1510
q10) Enter averages for:  Stack Vel, Diff. Actual, Stack Temp, Meter Temp
     .521 1.87 214.4 102.1
0.521 1.87 214.4 102.1
q11) Enter: Total sampling time, Barometric pressure, Stack pressure
     96 29.94 29.97
96 29.94 29.97
q12) Enter: Stack area, Nozzle dia., Final meter, Init. meter, Cond vol.(ml)
     10.32 .308 87.278 13 885.3
10.32 0.308 87.278 13 885.3
Has the lab work been completed? (y/n)  Y
Enter  Scrubber  weights in milligrams
85.7 120.1
85.7 120.1 0 0 0
```

```
Enter restart point or RETURN to end: q7
q7) Run number: 1
q8) Time begin: 0857
q9)   Time end: 1037
q10) Enter averages for:  Stack Vel, Diff. Actual, Stack Temp, Meter Temp
     .5 .887 220.4 89.7
0.5 0.887 220.4 89.7
q11) Enter: Total sampling time, Barometric pressure, Stack pressure
     96 29.9 29.93
96 29.9 29.93
q12) Enter: Stack area, Nozzle dia., Final meter, Init. meter, Cond vol.(ml)
     10.32 .25 830.633 779.8 673.8
10.32 0.25 830.633 779.8 673.8
Has the lab work been completed? (y/n)  Y
Enter   Scrubber   weights in milligrams
2413.3 2214.5
2413.3 2214.5 0 0 0
```

FIELD AND LAB DATA SHEETS

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SHOLTES & KOOGLER ENVIRONMENTAL CONSULTANTS
GAINESVILLE, FLORIDA 32601
904-377-5822

SOURCE SAMPLING FIELD DATA SHEET

Plant Mid Fla Mining
Sampling Location [illegible]
Type of Control Bag House
Type of Samples Part
Date 9-10-82 Run No. 1
Time Start 0917 Time End 1057
Sample Time 2 min/pt 96 Total min
DB ___ °F, WB ___ °F, VP @ DP ___ "Hg
Bar. Press. 29.94 "Hg, Stack Press. 29.97 "Hg
Moisture [illegible] %, FDA ___, Gas Density Factor ___
Weather [illegible]
Temp. 80 °F, W/D [illegible], W/S [illegible]
Sample Box No. [illegible] Meter Box No. [illegible]
Meter ΔH@ 1.75 Pitot Corr. Factor 0.84
Nozzle Dia. 5/16 in., Probe Length [illegible] ft
Probe Heater Setting ___ Nomograph C_f 3.788
Stack Dimensions 43.5 in
Stack Area 10.32 ft^2
Effective Stack Area 10.32 ft^2
Stack Height ___ ft

0.43 Stackp [illegible]

Stack Dimensions

Mat'l Processing Rate ___
Final Gas Meter Reading 939.400 ft^3
Initial Gas Meter Reading [illegible] ft^3
Condensate Increase in Impingers [illegible] ml
Moisture in Silica Gel 13.5 gm
Silica Gel Container No. 38 Filter No. ___
Orsat: $\%CO_2$ ___
$\%O_2$ ___
$\%CO$ ___
$\%N_2$ ___

Test Conducted By: R Paul
[illegible]

Stack Test Observers: ___

Leak Check Meter Box Initial 0.0 cfm@ 15 in Hg
Final 0.0 cfm@ 15 in Hg

Pitot Tubes
Impact 3 in H_2O for 15 sec. Stable, Leak
Static 3 in H_2O for 15 sec. Stable, Leak

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O) Calc.	Meter Orifice Press. Diff. ("H_2O) Actual	Stack Gas Temp. (°F)	Gas Sample Temp. @ Dry Gas Meter (°F) In	Gas Sample Temp. @ Dry Gas Meter (°F) Out	Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
1			66.6	.49	1.67	1.67	226	81		249	59	7
2			67.9	.49	1.67	1.67	225	81		265	50	7
3			69.1	.13	1.64	1.64	225	81		262	48	7
4			70.8	.47	1.78	1.78	228	81		269	46	7
5			72.2	.54	2.05	2.05	229	82		271	46	9
6			73.8	.56	1.89	1.89	230	82		269	48	7
7			75.3	.50	1.89	[illegible]	231	[illegible]		265	[illegible]	
8			76.9	.56	[illegible]	[illegible]	232	[illegible]		269	[illegible]	

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Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O) Calc.	Meter Orifice Press. Diff. ("H_2O) Actual	Stack Gas Temp. (°F)	Gas Sample Temp. @Dry Gas Meter (°F) In	Gas Sample Temp. @Dry Gas Meter (°F) Out	Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
9			754	.48	1.81	1.81	232	83		270	45	7
10			79.7	[illegible]	1.74	1.74	233	84		261	45	7
11			81.2	.46	1.74	1.74	231	85		266	47	8
12			82.7	.46	1.74	1.74	230	85		257	48	8
13			84.2	.46	1.74	1.74	228	86		263	47	8
14			85.6	.45	1.7	1.7	226	86		260	47	8
15			87.3	.45	1.7	1.7	226	87		251	47	8
16			88.6	.46	1.7	1.7	224	87		254	47	8
17			90.1	.45	1.7	1.7	225	88		259	47	8
18			91.6	.45	1.7	1.7	224	88		255	45	[illegible]
19			93.1	.49	1.81	1.81	225	89		248	47	9
20			94.6	.50	1.89	1.89	225	90		249	47	9
21			96.0	.53	2.01	2.01	225	90		252	47	10
[illegible]			97.7	.55	2.08	2.08	225	90		257	48	[illegible]
[illegible]			99.2	.55	2.08	2.08	226	90		269	48	[illegible]
[illegible]			900.5	.58	2.2	2.2	225	90		257	49	[illegible]
[illegible]			2.5	.58	2.2	2.2	222	92		271	51	10
[illegible]			4.2	.63	2.39	2.39	223	92		269	47	11
3			5.8	.65	2.46	2.46	223	92		266	47	11
4			7.6	.68	2.58	2.58	224	93		256	47	12
5			9.1	.72	2.73	2.73	224	93		265	48	13
6			11.2	.72	2.73	2.73	224	93		236	49	[illegible]
7			13.1	.76	2.65	2.65	222	94		233	51	13
8			15.6	.68	2.58	2.58	221	94		264	52	13

SK

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O)		Stack Gas Temp. (°F)	Gas Sample Temp. @Dry Gas Meter (°F)		Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
					Calc.	Actual		In	Out			
9			16.5	.65	2.46	2.46	223	94		247	53	12
10			18.6	.60	2.27	2.27	224	95		244	53	11
11			20.4	.55	2.05	2.08	226	95		237	51	10
12			22.0	.44	1.67	1.67	226	96		245	50	9
13			[illegible]	.44	1.64	1.64	227	96		250	49	9
14			24.9	.41	1.55	1.55	225	96		247	49	9
15			26.3	.41	1.55	1.55	225	96		241	49	9
16			27.8	.39	1.48	1.48	224	97		233	49	9
17			29.2	.36	1.36	1.36	223	97		24[illegible]	49	8
18			30.5	.38	1.44	1.44	222	97		241	49	8
19			31.9	.34	1.29	1.29	223	97		241	49	8
20			33.3	.34	1.29	1.29	223	97		243	49	[illegible]
21			34.5	.36	1.36	1.36	224	98		245	49	[illegible]
22			36.0	.36	1.36	1.36	222	98		251	48	9
23			37.2	.38	1.44	1.44	222	98		250	48	9
24			38.5	.38	1.44	1.44	222	98		248	48	9

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SHOLTES & KOOGLER ENVIRONMENTAL CONSULTANTS
GAINESVILLE, FLORIDA 32601
904-377-5822

SOURCE SAMPLING FIELD DATA SHEET

Plant Mid Fla Mining
Sampling Location [illegible]
Type of Control Baghouse
Type of Samples Part
Date 9-10-82 Run No. 2
Time Start 1115 Time End 1300
Sample Time 2 ... Static Press. [illegible] "Hg
Moisture 38 %, FDA ____, Gas Density Factor ____
Weather Overcast
Temp. 85 °F, W/D Var, W/S [illegible]
Sample Box No. [illegible] Meter Box No. [illegible]
Meter ΔH@ 1.75 Pitot Corr. Factor 0.84
Nozzle Dia. 5/16 in., Probe Length [illegible] ft
Probe Heater Setting ____ Nomograph C_f 3.559
Stack Dimensions 43.5 in
Stack Area 10.32 ft^2
Effective Stack Area 10.32 ft^2
Stack Height ____ ft

Stack Dimensions

Mat'l Processing Rate ____
Final Gas Meter Reading 1012.571 ft^3
Initial Gas Meter Reading 910.300 ft^3
Condensate Increase in Impingers 873 ml
Moisture in Silica Gel 15.6 gm
Silica Gel Container No. [illegible]
%CO ____
%H_2 ____

Test Conducted By: R Paul

Stack Test Observers: ____

Leak Check
Meter Box Initial 0.0 cfm @ 15 in Hg
Final 0.0 cfm @ 10 in Hg

Pitot Tubes
Impact 3 in H_2O For 15 sec. Stable, Leak
Static 3 in H_2O For 15 sec. Stable, Leak

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O) Calc.	Meter Orifice Press. Diff. ("H_2O) Actual	Stack Gas Temp. (°F)	Gas Sample Temp. @ Dry Gas Meter (°F) In	Gas Sample Temp. @ Dry Gas Meter (°F) Out	Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
1			10.3	.70	2.49	2.49	221	98		249	62	9
2			42.0	.70	2.49	2.49	222	98		257	54	9
3			43.8	.73	2.6	2.6	222	98		269	52	10
4			45.6	.73	2.6	2.6	223	[illegible]		262	53	10
5			47.4	.74	2.67	2.67	222	98		252	54	10
6			49.2	.74	2.67	2.67	222	98		260	54	10
7			51.1	.75	2.7	2.7	223	98		260	56	10
8			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]

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Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O)		Stack Gas Temp. (°F)	Gas Sample Temp. @Dry Gas Meter (°F)		Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
					Calc.	Actual		In	Out			
9			54.7	.63	2.24	2.24	221	98		245	59	9
10			56.4	.52	1.85	1.85	223	98		247	59	8
11			58.2	.44	1.57	1.57	224	98		244	59	7
12			59.6	.42	1.49	1.49	224	99		237	59	7
13			61.1	.40	1.42	1.42	226	99		235	60	7
14			62.2	.40	1.42	1.42	227	99		240	61	7
15			64.0	.40	1.41	1.40	229	99		241	61	7
16			65.[illegible]	.40	1.42	1.42	228	99		239	62	7
17			66.[illegible]	.37	1.32	1.32	229	99		234	62	7
18			68.[illegible]	.37	1.32	1.32	230	100		239	62	7
19			69.[illegible]	.35	1.25	1.25	230	100		244	63	7
20			[illegible]	.35	1.25	1.25	230	100		242	63	7
21			72.0	.35	1.26	1.25	229	100		239	63	7
22			73.3	.36	1.28	1.28	228	101		237	63	7
23			74.6	.36	1.29	1.28	229	101		239	64	7
24			75.9	.36	1.29	[illegible]	230	101		245	[illegible]	7
1			77.1	.42	1.50	1.49	228	102		237	64	7
2			78.3	.42	1.50	1.49	231	102		244	66	7
3			79.8	.44	1.61	1.57	234	102		269	65	8
4			81.2	.50	1.78	1.78	236	102		271	66	7
5			82.1	.53	1.89	1.89	235	102		264	67	9
6			84.2	.53	1.89	1.89	237	102		265	[illegible]	7
7			[illegible]	.53	1.59	1.52	232	102		263	63	9
8			87.4	.53	1.59	1.39	237	102		267	62	9

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O)		Stack Gas Temp. (°F)	Gas Sample Temp. @Dry Gas Meter (°F)		Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
					Calc.	Actual		In	Out			
9			88.9	.50	1.75	1.78	232	102		250	60	9
10			90.4	.49	1.71	1.71	236	102		253	59	9
11			91.8	.49	1.71	1.71	234	102		248	58	9
12			93.3	.48	1.71	1.71	233	103		251	57	9
13			94.8	.48	1.71	1.71	232	103		249	57	9
14			96.3	.46	1.64	1.64	232	103		242	56	9
15			97.7	.46	1.64	1.64	230	103		238	57	9
16			99.2	.46	1.64	1.64	230	104		249	56	9
17			0.7	.46	1.64	1.64	230	104		247	56	9
18			2.2	.46	1.64	1.64	230	104		246	57	9
19			3.6	.48	1.71	1.71	234	104		257	56	9
20			5.1	.50	1.78	1.78	234	105		257	56	9
21			6.6	.53	1.89	1.89	237	105		257	57	9
22			8.1	.53	1.89	1.89	240	106		263	58	9
23			9.6	.53	1.89	1.88	241	106		263	58	9
24			11.1	.53	1.89	1.89	241	106		261	59	9

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SHOLTES & KOOGLER ENVIRONMENTAL CONSULTANTS
GAINESVILLE, FLORIDA 32601
904-377-5822

SOURCE SAMPLING FIELD DATA SHEET

Plant Mid Fla Mining
Sampling Location Farrell
Type of Control Baghouse
Type of Samples Part
Date 9-10-82 Run No. 3
Time Start 1325 Time End 1510
Sample Time 2 min/pt 96 Total min
DB ___ °F, WB ___ °F, VP @ DP ___ "Hg
Bar. Press. 29.94 "Hg, Stack Press. 29.97 "Hg
Moisture 37 %, FDA ___, Gas Density Factor ___
Weather Cloudy
Temp. 82 °F, W/D Var, W/S 3-5
Sample Box No. 131 Meter Box No. 131
Meter ΔH@ 1.75 Pitot Corr. Factor 0.84
Nozzle Dia. 3/16 in., Probe Length 5' ft
Probe Heater Setting ___ Nomograph C_f 3.559
Stack Dimensions 43.5 in
Stack Area 10.32 ft^2
Effective Stack Area 10.32 ft^2
Stack Height ___ ft

Stack Dimensions

Mat'l Processing Rate ___
Final Gas Meter Reading 87.278 ft^3
Initial Gas Meter Reading 13.000 ft^3
Condensate Increase in Impingers 871 ml
Moisture in Silica Gel 14.3 gm
Silica Gel Container No. 16 Filter No. ___

Orsat:				
$\%CO_2$				
$\%O_2$				
$\%CO$				
$\%N_2$				

Test Conducted By: R Paul
J [illegible]

Stack Test Observers: ___

Leak Check
Meter Box Initial 0.0 cfm @ 15 in Hg
Final 0.0 cfm @ 15 in Hg

Pitot Tubes
Impact 3 in H_2O for 15 sec. Stable, Leak
Static 3 in H_2O for 15 sec. Stable, Leak

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O) Calc.	Meter Orifice Press. Diff. ("H_2O) Actual	Stack Gas Temp. (°F)	Gas Sample Temp. @ Dry Gas Meter (°F) In	Gas Sample Temp. @ Dry Gas Meter (°F) Out	Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
1			13.0	.50	1.78	1.78	229	105		257	70	6
2			14.5	.44	1.6	1.6	229	104		263	52	6
3			16.0	.48	1.71	1.71	226	104		262	46	6
4			17.5	.48	1.71	1.71	225	104		261	43	6
5			19.0	.54	1.96	1.96	223	103		257	41	7
6			20.6	.54	1.96	1.96	223	103		251	42	7
1			22.1	.54	1.96	1.96	220	103		[illegible]	42	7
2			23.8	.55	1.96	1.96	219	102		259	[illegible]	7

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O)		Stack Gas Temp. (°F)	Gas Sample Temp.@Dry Gas Meter (°F)		Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
					Calc.	Actual		In	Out			
9			25.2	.55	1.96	1.96	222	102		261	41	7
10			26.9	.55	1.96	1.96	222	102		242	41	7
11			28.4	.47	1.67	1.67	222	102		239	41	7
12			29.9	.49	1.74	1.74	223	102		266	41	7
13			31.4	.49	1.74	1.74	223	102		264	42	7
14			32.9	.49	1.74	1.74	223	102		268	42	7
15			34.3	.47	1.67	1.67	224	103		271	42	7
16			35.9	.47	1.67	1.67	223	103		271	42	7
17			37.3	.47	1.67	1.67	224	103		264	44	7
18			38.8	.49	1.74	1.74	224	103		276	44	7
19			40.3	.49	1.74	1.74	223	103		268	44	7
20			41.7	.51	1.82	1.82	221	104		260	44	7
21			43.2	.55	1.96	1.96	218	104		250	44	7
22			44.7	.55	1.96	1.96	218	104		251	44	8
23			46.3	.60	2.13	2.13	218	104		259	44	8
24			47.9	.60	2.13	2.13	217	104		262	43	8
1			49.6	.70	2.49	2.49	217	103		261	47	10
2			51.3	.70	2.49	2.49	216	102		262	47	10
3			53.1	.76	2.7	2.7	215	102		267	47	10
4			55.3	.76	2.7	2.7	213	102		263	47	
5			56.9	.70	2.49	2.49	213	102		269	47	10
6			58.6	.65	2.31	2.31	212	102		262	49	10
7			60.7	.65	2.31	2.31	210	102		261	52	10
8			62.3	.68	2.42	2.42	209	102		262	54	10

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Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O) Calc.	Actual	Stack Gas Temp. (°F)	Gas Sample Temp. @Dry Gas Meter (°F) In	Out	Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
9			64.0	.66	2.14	2.14	207	101		241	56	9
10			65.7	.57	2.03	2.03	206	101		244	56	9
11			67.1	.56	1.96	1.96	203	101		246	51	8
12			68.9	.55	[illegible]	1.96	203	101		235	56	8
13			70.[illegible]	.57	2.03	2.03	201	101		249	50	8
14			72.1	.51	1.78	1.78	201	101		242	51	7
15			73.6	.50	1.78	1.78	202	101		241	51	[illegible]
16			75.1	.46	1.64	1.64	202	101		234	52	7
17			76.6	.46	1.64	1.64	202	101		237	53	7
18			78.0	.37	1.32	1.32	202	101		235	53	7
19			79.4	.37	1.32	1.32	202	101		236	53	7
20			80.8	.35	1.25	1.25	203	100		233	[illegible]	7
21			82.0	.35	1.25	1.25	204	100		231	53	7
22			83.3	.37	1.32	1.32	204	100		233	53	7
23			84.7	.37	1.32	1.32	204	100		236	53	7
24			86.0	.37	1.32	1.32	204	100		[illegible]	[illegible]	7

SK

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SHOLTES & KOOGLER ENVIRONMENTAL CONSULTANTS
GAINESVILLE, FLORIDA 32601
904-377-5822

SOURCE SAMPLING FIELD DATA SHEET

Plant MID FL. MINING
Sampling Location LOWELL
Type of Control BAGHOUSE
Type of Samples PART.
Date 9.9.82 Run No. 1
Time Start 0957 Time End 1037
Sample Time 2 min/pt 76 Total min
DB ___ °F, WB ___ °F, VP @ DP ___ "Hg
Bar. Press. 29.9 "Hg, Stack Press. 29.93 "Hg
Moisture 33 %, FDA ___, Gas Density Factor ___
Weather PARTLY CLOUDY
Temp. 51 °F, W/D E, W/S 3-5
Sample Box No. SK-1 Meter Box No. SK-1
Meter ΔH@ 1.75 Pitot Corr. Factor 0.84
Nozzle Dia. 1/4 in., Probe Length SK-6.1 ft
Probe Heater Setting ___ Nomograph C_p ___
Stack Dimensions 43.5 in
Stack Area 10.32 ft^2
Effective Stack Area 10.32 ft^2
Stack Height ___ ft

.250

.43 STACK PRESSURE

1.7528
Stack Dimensions

Mat'l Processing Rate ___
Final Gas Meter Reading 830.633 ft^3
Initial Gas Meter Reading 779.8 ft^3
Condensate Increase in Impingers 658 ml
Moisture in Silica Gel 15.8 gm
Silica Gel Container No. 32 Filter No. ___

Orsat: $\%CO_2$ ___
$\%O_2$ ___
$\%CO$ ___
$\%N_2$ ___

Test Conducted By: Rico Gabel
Rodney Paul
Stack Test Observers: BC

Leak Check
Meter Box Initial 0.0 cfm@ 15 in Hg
Final 0.0 cfm@ 10 in Hg

Pitot Tubes
Impact 3 in H_2O For 15 sec. Stable, Leak
Static 3 in H_2O For 15 sec. Stable, Leak

.887

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O) .50	Meter Orifice Press. Diff. ("H_2O) Calc.	Actual	Stack Gas Temp. (°F) 220.4	Gas Sampl. Temp. @Dry Gas Meter 89.7 (°F) In	Out	Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
1				.71	1.24	1.24	208	81		252	61	6
2			1.0	.71	1.24	1.24	208	81		251	55	6
3			32.3	.70	1.23	1.23	207	82		249	49	6
4			3.6	.76	1.33	1.33	211	82		262	49	7
5			4.8	.75	1.32	1.32	212	82		259	52	7
6			6.1	.76	1.33	1.33	213.	82		264	55	7
7			7.4	.73	1.28	1.28	213	82		267	59	7
8			8.7	.68	1.19	1.19	210	82		258	55	7

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17523

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O)		Stack Gas Temp. (°F)	Gas Sample Temp.@Dry Gas Meter (°F)		Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
					Calc.	Actual		In	Out			
9			9.9	.65	1.14	1.14	210	83		248	58	7
10			11.1	.65	1.14	1.14	208	84		245	57	7
11			2.3	.51	.89	.89	210	84		243	57	6
12			3.4	.44	.77	.77	214	85		263	57	5
13			4.4	.41	.72	.72	215	85		263	56	5
14			5.2	.40	.70	.70	216	85		260	55	5
15			6.1	.37	.65	.65	217	86		252	55	5
16			7.0	.33	.55	.58	219	87		248	55	5
17			7.9	.33	.58	.58	222	87		261	55	5
18			8.7	.53	.58	.58	223	87		258	54	5
19			9.6	.33	.58	.58	225	88		265	53	5
20			0.4	.36	.63	.63	227	88		273	53	5
21			1.3	.40	.72	.70	228	88		272	53	6
22			2.2	.41	.72	.72	226	89		261	53	6
23			3.2	.41	.72	.72	224	89		268	53	6
24			4.2	.41	.72	.72	226	90		271	53	6
1			5.1	.51	.89	.89	227	90		258	64	7
2			6.1	.51	.89	.89	226	91		248	58	7
3			7.2	.52	.91	.91	225	91		255	56	7
4			8.3	.48	.84	.84	225	92		257	55	7
5			9.4	.51	.89	.89	224	92		250	55	7
6			0.4	.52	.91	.91	223	92		241	56	5
7			1.5	.48	.84	.84	223	92		237	56	5
8			2.6	.49	.86	.86	222	93		254	57	8

SK

1.7578

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O)		Stack Gas Temp. (°F)	Gas Sample Temp. @Dry Gas Meter (°F)		Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
					Calc.	Actual		In	Out			
9			3.7	.52	.91	.91	222	93		249	57	8
10			4.8	.45	.79	.79	223	94		244	58	8
11			5.8	.44	.77	.77	223	94		246	58	8
12			6.8	.46	.81	.81	224	95		248	58	8
13			7.8	.42	.74	.74	224	95		251	58	8
14			8.8	.43	.75	.75	224	95		248	58	8
15			9.8	.45	.79	.79	222	96		246	58	8
16			0.8	.47	.82	.82	223	96		262	58	9
17			1.9	.49	.86	.86	224	96		264	58	9
18			3.0	.52	.91	.91	226	96		253	59	9
19			4.0	.52	.91	.91	225	97		256	58	10
20			5.2	.52	.91	.91	226	97		264	59	10
21			6.3	.52	.91	.91	227	97		258	59	10
22			7.4	.50	.88	.88	227	97		262	60	10
23			8.5	.50	.88	.88	226	97		265	60	10
24			9.6	.52	.91	.91	226	98		254	60	10
				33.916		12.56	479	4305				

SK

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SHOLTES & KOOGLER ENVIRONMENTAL CONSULTANTS
GAINESVILLE, FLORIDA 32601
904-377-5822

SOURCE SAMPLING FIELD DATA SHEET

Plant: Mid Fla Mining Co
Sampling Location: [illegible]
Type of Control: Baghouse
Type of Samples: Part
Date: 9-9-82 Run No. 2
Time Start: 1115 Time End:
Sample Time: 2 min/pt 48 Total min
DB ___ °F, WB ___ °F, VP @ DP ___ "Hg
Bar. Press. 29.9 "Hg, Stack Press. 29.93 "Hg
Moisture 39 %, FDA ___, Gas Density Factor ___
Weather: Partly Cloudy
Temp. 90 °F, W/D [illegible], W/S [illegible]
Sample Box No. [illegible] Meter Box No. 31
Meter ΔH@ 1.7[illegible] Pitot Corr. Factor 0.84
.305 Nozzle Dia. 5/16 in., Probe Length [illegible] ft
Probe Heater Setting ___ Nomograph C_p ___
Stack Dimensions: 43.5 in
Stack Area: 10.32 ft²
Effective Stack Area: 10.32 ft²
Stack Height: ___ ft

Stack Dimensions

Mat'l Processing Rate: ___
Final Gas Meter Reading: 866.375 ft³
Initial Gas Meter Reading: 831.100 ft³
Condensate Increase in Impingers: 460 ml
Moisture in Silica Gel: 9.1 gm
Silica Gel Container No. 37 Filter No. ___

Orsat:					
$\%CO_2$					
$\%O_2$					
%CO					
$\%N_2$					

Test Conducted By: R Paul, [illegible]

Stack Test Observers: ___

Leak Check Meter Box: Initial 0.0 cfm @ 15 in Hg; Final 0.0 cfm @ 20 in Hg

Pitot Tubes: Impact 3 in H_2O for 15 sec: Stable, Leak
Static 3 in H_2O for 15 sec: Stable, Leak

1.757

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft³)	Stack Velocity Head ("H_2O") .502	Meter Orifice Press. Diff. ("H_2O") Calc.	Meter Orifice Press. Diff. ("H_2O") Actual	Stack Gas Temp. (°F) 217.8	Gas Sample Temp. @ Dry Gas Meter (°F) 99.1 In	Gas Sample Temp. Out	Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
1			31.1	.46	1.6	1.6	218	98		247	80	8
2			32.6	.46	1.6	1.6	220	98		250	69	7
3			34.0	.46	1.6	1.6	220	98		253	51	7
4			35.3	.53	1.85	1.85	222	98		259	49	10
5			36.9	.53	1.85	1.85	223	98		261	48	10
6			38.4	.53	1.85	1.85	223	99		260	48	10
7			39.9	.50	1.75	1.75	224	98		263	48	10
8			41.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]

Port and Traverse Point No.	Distance From Inside Stack Wall (in.)	Clock Time	Gas Meter Reading (ft^3)	Stack Velocity Head ("H_2O)	Meter Orifice Press. Diff. ("H_2O)		Stack Gas Temp. (°F)	Gas Sample Temp. @Dry Gas Meter (°F)		Sample Box Temp. (°F)	Last Impinger Temp. (°F)	Vacuum on Sample Train ("Hg)
					Calc.	Actual		In	Out			
9			42.8	.50	1.75	1.75	223	98		256	48	10
10			44.4	.47	1.68	1.68	221	98		266	48	10
11			45.8	.46	1.61	1.61	220	98		265	49	10
12			47.3	.46	1.61	1.61	219	99		257	50	11
13			48.6	.44	1.54	1.54	219	99		246	50	11
14			50.1	.44	1.54	1.54	217	99		253	50	11
15			51.6	.44	1.54	1.54	216	99		253	49	12
16			52.9	.46	1.61	1.61	215	99		247	49	13
17			54.4	.48	1.69	1.69	215	100		249	50	14
18			55.8	.50	1.75	1.75	214	100		246	51	14
19			57.3	.53	1.85	1.85	214	101		245	51	15
20			58.8	.55	1.92	1.92	213	101		245	51	17
21			60.4	.58	2.02	2.02	213	101		244	51	[illegible]
22			61.8	.58	2.02	2.02	212	101		244	51	20
23			63.4	.60	2.09	2.09	212	101		252	52	[illegible]
24			65.0	.60	2.09	2.09	210	101		250	52	20
1												
2												
3												
4												
5												
6				17.0		42.16	426	2379				
7												
8												

SK

SAMPLE CHAIN OF CUSTODY

PLANT NAME: Mid Fla Minning

SOURCE NAME: #1 Dryer

DATE: 9-10-82 TYPE OF SAMPLE: Part.

SAMPLE RECOVERY

CONTAINER NO.	DESCRIPTION
1-MF-P	Probe Wash
2-MF-P	
3-MF-P	
4	Filter Holder
5	
6	
38	Silica Gel
47	
16	

Sample Recovered By: RCP & GG

Particulate Analysis By:

PROCESS WEIGHT RATE

Owner Mid Fl mining

Date 9-10-82 Source No 1 Dryer

Permit No. ______ Permitted Rate ______

10

		Time			Input Rate
Run 1	From	9:17	To	10:57	42.45
Run 2	From	11:15	To	13:00	39.30
Run 3	From	13:25	To	15:10	32.74

To the Best of my knowledge, the above data is true and correct.

Carson Miller
Signature

Prod. mgr.
Title

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS

PARTICULATE LAB DATA SHEET

Date 9-9-82 Project No. Mid-Fla Mining
Lowell, Fl.

	50 Run 1	35 Run 2	BLANK ~~Run 3~~	~~Blank~~
Container No.	SK-45	SK-42	SK-1	
Total Volume (ml)	165	218		
Aliquot Evaporated (ml)				
Final Weight (g)	101.6747	99.8248	92.7800	
Tare Weight (g)	-99.2614	-98.4078	-92.7808	-
Gross Weight Gained (g)	2.4133	1.4170		
Average Blank (g)	-	-	-	-
Net Weight (g)				
Aliquot Factor	x	x	x	x
Total Net Weight (mg)	2413.3	1417.0	-0.8	

Container No.	H-1	H-2	H-3	
Filter No.	4463	4464		
Final Weight (g)	31.9092	31.8340		
Tare Weight (g)	-29.6947	-29.7217	-	-
Gross Weight Gained (g)	2.2145	2.1123		
Average Blank	-	-	-	-
Total Net Weight (mg)	2214.5	2112.3		

Balance Check

0 0 50g 50.0000

10g 10.0000 100g

Analyzed by: J.K. Hellstrom

Rco - 114 LB/HR
Rco - 99 "

SHOLTES & KOOGLER

SHOLTES & KOOGLER, ENVIRONMENTAL CONSULTANTS

PARTICULATE LAB DATA SHEET

Date 9-10-82 Project No. Mid-Fla Mining
Lowell, Fl.

	Run 1	Run 2	Run 3	Blank
Container No.	SK-16	SK-43	SK-9	SK-40
Total Volume (ml)	210ml	300ml	225ml	100ml
Aliquot Evaporated (ml)	210ml	300ml	225ml	100ml
Final Weight (g)	95.0557	99.3113	85.3747	100.2521
Tare Weight (g)	-94.8959	-99.1956	-85.2890	-100.2518
Gross Weight Gained (g)	0.1598	0.1157	0.0857	0.0003
Average Blank (g)	- —	- —	- —	- —
Net Weight (g)	—	—	—	—
Aliquot Factor	x 1.0	x 1.0	x 1.0	x 1.0
Total Net Weight (mg)	159.8	115.7	85.7	0.3

Container No.	1-C	2-C	3-C	
Filter No.	4467	4466	4465	
Final Weight (g)	.6163	.6159	.5365	
Tare Weight (g)	-.4196	-.4190	-.4164	-
Gross Weight Gained (g)	.1967	.1969	.1201	
Average Blank	-	-	-	-
Total Net Weight (mg)	196.7	196.9	120.1	

Balance Check

0 0.0000 50g 5.0000

1Lg 10.0000 100g 100.000

0.5g 0.5000

Analyzed by: J.K. Hellstrom

SHOLTES & KOOGLER

1ST TEST 37.11 TONS OUTPUT

INPUT MATERIAL MOISTURE - 39.8%

OUTPUT MATERIAL MOISTURE - 25.4%

2nd TEST 31.77 TONS OUTPUT

INPUT MATERIAL MOISTURE - 36.7%

OUTPUT MATERIAL MOISTURE - 13.0%

3rd TEST 26.91 TONS OUTPUT

INPUT MATERIAL MOISTURE - 38.6%

OUTPUT MATERIAL MOISTURE - 16.9%

SAMPLING RATE CALCULATIONS

S&K NOMOGRAPH

ΔH = ORIFICE READING (INCHES H_2O)
D_N = NOZZLE DIA. (INCHES)
$\Delta H@$ = METER BOX CONSTANT
B_W = MOISTURE FRACTION
T_M = METER TEMP (°F)
T_S = STACK TEMP (°F)
M_S = WET MOLECULAR WEIGHT OF STACK GAS (FROM TABLE)
ΔP = PITOT READING (INCHES H_2O

$$\left[\frac{T_m + 460}{M_s(T_s + 460)} (1 - B_w)^2 \, \Delta H@ \, (D_n)^4 \, 17741\right] \Delta P = \Delta H$$

MOISTURE FRACTION	Ms
0.0	29.0
0.05	28.5
0.10	27.9
0.15	27.4
0.20	26.8
0.25	26.2
0.30	25.7
0.35	25.2
0.40	24.6

$$\frac{550}{25.2\,(680)\ 17136}$$

$$\frac{563}{24.8\,(685)\ 16988}$$

	RUN 1		RUN 2		RUN 3
$\frac{T_m + 460}{M_s(T_s + 460)}$ =	0.032096	0.033141	____	____	____
× $(1 - B_w)^2$ =	0.4225	0.3844	____	____	____
× $\Delta H@$ =	1.75	1.75	____	____	____
× $(D_n)^4$ =	0.008999	0.008999	____	____	____
× 17741 =	17741	17741	____	____	____
× ΔP =	3.788	3.559			

SAMPLING RATE CALCULATIONS

S&K NOMOGRAPH

33 % moisture

ΔH = ORIFICE READING (INCHES H_2O)
D_N = NOZZLE DIA. (INCHES)
$\Delta H@$ = METER BOX CONSTANT
B_W = MOISTURE FRACTION
T_M = METER TEMP (°F)
T_S = STACK TEMP (°F)
M_S = WET MOLECULAR WEIGHT OF STACK GAS (FROM TABLE)
ΔP = PITOT READING (INCHES H_2O

210°F DB 163 WB

.45 - .70

.43 Stack Pressure

$$\left[\frac{T_m + 460}{M_s(T_s + 460)} (1 - B_w)^2 \, \Delta H@ \, (D_n)^4 \, 17741\right] \Delta P = \Delta H$$

.250
.250
.250

MOISTURE FRACTION	Ms
0.0	29.0
0.05	28.5
0.10	27.9
0.15	27.4
0.20	26.8
0.25	26.2
0.30	25.7
0.35	25.2
0.40	24.6

$\frac{550}{25.4(671)}$

$\frac{565}{24.7\ (680)}$ 16796

.56

	RUN 1		RUN 2	RUN 3
$\frac{T_m + 460}{M_s(T_s + 460)}$ =	.03222	0.033639		
× $(1 - B_w)^2$ =	.4489	0.3721		
× $\Delta H@$ =	1.75	1.75		
× $(D_n)^4$ =	.00391	0.008999		
× 17741 =	1.753	17741		
× ΔP =		~~1.519~~ 3.4967		

.308

CALIBRATIONS AND PROJECT PARTICIPANTS

CALIBRATION FORM

Date 8-30-82

Box No. SK-1

Barometric Pressure 30.14 inches Hg

ΔHT	ΔHD	Teledyne Mass Flow Meter		Gas Volume, Dry Gas Meter			Temp. Teledyne	Temp. of Dry Meter	Time Minutes
		Desired liters/min	Actual liters/min	Initial	Final	Actual ft.3			
0	0.88	15	15	27.2	29.870	2.686	68	80	5
0	1.65	20	20	1.0	4.582	3.582	68	80	5
0	2.45	25	25	6.0	10.468	4.468	68	80	5
0	3.70	30	30	12.0	17.352	5.352	68	80	5
0	4.85	35	34.8	20.0	26.179	6.179	68	80	5

GAS METER THERMOMETER CALIBRATION

N.B.S. °F	METER BOX
32	32
55	54
78	78
101	102
119	120

						--MEAN--
DELTA-H :	1.70	1.80	1.71	1.79	1.75	1.75
Y :	1.01	1.00	1.00	1.00	1.00	1.00
SCFM :	0.52	0.69	0.86	1.03	1.19	

Signature George F. Gabel

- C A L I B R A T I O N -

ATKINS NO. 1 THERMOCOUPLE

Date April 1, 1982

GLASS THEROMETER WITH NBS MERCURY (°F)	THERMOCOUPLE (°F)
32	32
130	131
212	212
320	321

Calibrated By: [illegible]

METER ORIFICE CHECK

Meter Box No. Sb-1 Δ Ha of Box 1.75

Date 9-10-82

Time for 10 ft^3 = 13 min. 25 sec.

10 ÷ 13.42 total minutes = 0.7453 $\Delta\ Ha_2$

$\frac{0.75}{\Delta\ Ha_2}$ = 1.006 x 100 = 100.6

RC Paul

Signature

Procedure: Set flow rate of meter box at ΔHa of meter box--measure the amount of time required to sample 10.00 ft^3.

Note: If answer is within 5 percent meter is o.k. If not, recalibrate meter.

SHOLTES & KOOGLER

Phone (904) 378-5555
CABLE ADDRESS: Atkins — Gainesville

Atkins Technical Incorporated

3401 S. W. 40TH BLVD. ARCHER INTERCHANGE (I-75) INDUSTRIAL AREA
GAINESVILLE, FLORIDA 32608 U.S.A.

Atkins
INSTRUMENTS & EQUIPMENT

CERTIFICATE OF COMPLIANCE, ACCURACY & CALIBRATION STATEMENT

We certify that the Atkins equipment supplied on the order referenced below has been tested and has fully met the Atkins published specifications applicable to the product(s).

We further certify that the instrumentation when specifically calibrated by Atkins Technical Inc. was done so by means of temperature standards traceable to the U.S. National Bureau of Standards, Gaithersburg, MD, and that the calibration was accomplished using generally accepted procedures.

Date: 2/26/82

Reference: 49000-J-[illegible] thermocouple
Verbal Purchase Order of 2/26/82

ATKINS TECHNICAL INC.

by Robert M. Atkins

SK-61

PITOT TUBE CALIBRATION MEASUREMENTS

DATE CALIBRATED 5-11-82

Pitot tube assembly level? X yes ____ no

Pitot tube openings damaged? ____ yes (explain below) X no

α_1 = 3.0 ° (<10°), α_2 = 2.5 ° (<10°), β_1 = 3.0 ° (<5°),

β_2 = 2.5 ° (<5°)

γ = 3.5 °, θ = 2.0 °, A = .966 in. = (Pa + Pb)

z = A sin γ = 0.059 in. ; <0.32 <1/8 in.

w = A sin θ = 0.034 in. ; <0.08 <1/32 in.

P_A .485 in. P_b .481 in.

D_t = .402

Comments:

Calibration required? ____ yes X no

Calibrated by George F. Gabel

NOZZLE CALIBRATION

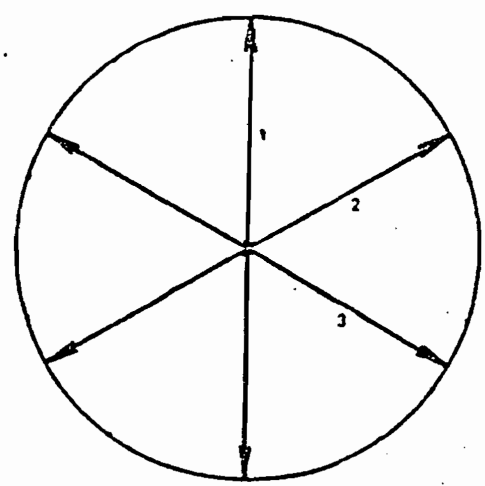
Nozzle____________________ Date________________

Measurement No.	Inside Diameter (inches)
1	0.309
2	0.307
3	0.308

Average 0.30[illegible]

Area of Nozzle ________ Ft^2

Calibrated by:____________________



Nozzle X-section

PROJECT PARTICIPANTS

John B. Koogler, Ph.D., P.E.	Project Advisor
George F. Allen	Project Manager
Rodney C. Paul	Field Test Crew
Joshua K. Hellstrom	Field Test Crew

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Rotary Kiln Vent [ ] New[1] [x] Existing[1]

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

COMPANY NAME: Mid-Florida Mining Company COUNTY: Marion

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Existing seven foot diameter rotary dryer

SOURCE LOCATION: Street State Road 329 City Lowell

UTM: East 384500M North 3245000M

Latitude 29 ° 19 ' 45 "N Longitude 82 ° 11 ' 15 "W

APPLICANT NAME AND TITLE: Roy O. Camp, Vice President, Operations

APPLICANT ADDRESS: Mid-Florida Mining Co., P. O. Box 68, Lowell, Florida 32663

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Mid-Florida Mining Co.

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: [signature]

Roy O. Camp, Vice President Operations
Name and Title (Please Type)

Date: 3/15/83 Telephone No. 904/737-7227

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 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: [signature]

Larry M. Simmons, P.E.
Name (Please Type)

Tidewater Engineers, Inc.
Company Name (Please Type)

P. O. Box 3086, Tallahassee, Fl. 32315
Mailing Address (Please Type)

(Affix Seal)

Florida Registration No. 17964

Date: 3/15/83 Telephone No. 904/562-4105

[1]See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

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.

SEE ATTACHMENT 1

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

Start of Construction July 1, 1981 Completion of Construction September 1, 1981

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.)*

Model 120 WMW-480 ARR. III Flex-Kleen Collector - $77,500

Model 408 PLR, Class IV, ARR. 1 NYB Exhaust Fan - $12,000

Steel, Platforms, Stairways & Structure - $50,000

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

Permit #AC 42-2381 expires May 7, 1977

Permit #AC 42-2382 expires May 7, 1977

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ____ Yes X No

F. Normal equipment operating time: hrs/day 22 ; days/wk 7 ; wks/yr 50 ; if power plant, hrs/yr ____ ;

if seasonal, describe: N/A

G. 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? N/A
   b. If yes, has "Lowest Achievable Emission Rate" been applied? N/A
   c. If yes, list non-attainment pollutants.
   N/A
2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. Yes
3. Does the State "Prevention of Significant Deterioriation" (PSD) requirements 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? No
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? No

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

Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
Waste Oil	5.1	6.5	36

*Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, lbs/hr

Fuel Analysis:

Percent Sulfur: .41-.45 Percent Ash: 1.5

Density: 7.495 @ 60° lbs/gal Typical Percent Nitrogen: Unknown

Heat Capacity: 17,345 BTU/lb 130,000 BTU/gal

Other Fuel Contaminants (which may cause air pollution): None

F. If applicable, indicate the percent of fuel used for space heating. Annual Average None Maximum None

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

NONE

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

Stack Height: 45 ft. Stack Diameter: 3.7 ft.

Gas Flow Rate: 36,000 ACFM Gas Exit Temperature: 270 °F.

Water Vapor Content: Unknown % Velocity: 55.8 FPS

SECTION IV: INCINERATOR INFORMATION

N/A

Type of Waste	Type O (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste

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

Approximate Number of Hours of Operation per day days/week

Manufacturer

Date Constructed Model No.

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		
Fullers Earth	Particulates	1.0	65,000	Raw Clay Input

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

1. Total Process Input Rate (lbs/hr): 65,000
2. Product Weight (lbs/hr): 36,000

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
SO_2	9.1	26.3	BACT	1.1	7.7	28.5	44" O.D. Stack
Particulates	3.0	11.5	BACT	30.2	3000	11,088	44" O.D. Stack
Lead	0.10	.288*	BACT	Unknown	2.03	5.85	44" O.D. Stack

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]
Flex-Kleen				
120 WMWC-600				
XLIII A-81JC-115	Particulates	99.9	100% of minus	Mfgr.
Baghouse			2 Micron	
4:1 air-to-cloth ratio				

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. – 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)

[5]If Applicable

* See calculations in Attachment 2 (Letter from Sholtes & Koogler dated 9-8-81)

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

Stack Height: ____________ ft. Stack Diameter ____________ 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: ____________

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

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight — show derivation.
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, 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 8½" 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 8½" 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 8½" 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. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. 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

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
[ ] Yes [x] No

Contaminant	Rate or Concentration
SO_2	6.75 lbs/hr
Particulates	3.0 lbs/hr
Lead	2.03 lbs/hr

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [X] No

Contaminant	Rate or Concentration
N/A	
N/A	

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

Contaminant	Rate or Concentration
SO_2	10 lbs/hr
Particulates	30 lbs/hr
Lead	2 lbs/hr

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

1. Control Device/System: Baghouse
2. Operating Principles: Fabric Filter, Reverse Set Cleaning
3. Efficiency:* Unknown
4. Capital Costs: Unknown
5. Useful Life: "
6. Operating Costs: "
7. Energy: "
8. Maintenance Cost: "
9. Emissions: "

Contaminant	Rate or Concentration
Particulates	Unknown
SO_2	Unknown
Lead	Unknown

*Explain method of determining D 3 above.

10. Stack Parameters UNKNOWN

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. N/A

a. Control Device:

b. Operating Principles:

c. Efficiency*: d. Capital Cost:

e. Useful Life: f. Operating Cost:

g. Energy*: 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. N/A

a. Control Device:

b. Operating Principles:

c. Efficiency*: d. Capital Cost:

e. Useful Life: f. Operating Cost:

g. Energy**: h. Maintenance Costs:

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:

*Explain method of determining efficiency.

**Energy to be reported in units of electrical power — KWH design rate.

3.

a. Control Device: N/A

b. Operating Principles:

c. Efficiency*: d. Capital Cost:

e. Life: f. Operating Cost:

g. Energy: h. Maintenance Cost:

*Explain method of determining efficiency above.

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. N/A

a. Control Device

b. Operating Principles:

c. Efficiency*:

d. Capital Cost:

e. Life:

f. Operating Cost:

g. Energy:

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: N/A

1. Control Device:
2. Efficiency*:
3. Capital Cost:
4. Life:
5. Operating Cost:
6. Energy:
7. Maintenance Cost:
8. Manufacturer:
9. Other locations where employed on similar processes:

a.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

(5) Environmental Manager:

(6) Telephone No.:

*Explain method of determining efficiency above.

(7) Emissions*: N/A

Contaminant	Rate or Concentration

(8) Process Rate*:

b.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

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

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

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

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.

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 on 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.

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

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.

BEST AVAILABLE COPY

OPERATING DATA

VOLUME 36000 ACFM	CLOTH AREA 9000 SQ. FT.	RATIO 4/1
DUST Fullers Earth		
DUST SIZE 100% (-65 Mesh)		
DUST DENSITY ——— LBS./CU. FT.	DUST LOADING 20 GR./CU. FT.	
TEMPERATURE 270°F	DEW POINT ———	
(COLLECTOR TEMPERATURE MUST BE KEPT WELL ABOVE DEW POINT)		
END USE Vent Rotary Dryer		
WEIGHT 40900 Lbs (Coll. Dead Load Only)	LOCATION Outdoors	
DESIGN PRESSURE 20" W.G.	OPERATING PRESSURE 14" W.G. Negative	
COMPRESSED AIR REQRMTS 50.0 SCFM @90-100 PSIG	CLEAN, DRY & OIL FREE	

EQUIPMENT DATA

TIMER(S) T16009/Nema-4 (M14507) 110 V 50/60 CYC. 1 PHASE 50 W. EA.	
DIAPHRAGM VALVES * Goyen RCA-40T (M28217)	BAG CAGES M.S. (See Shop Note-1)
SOLENOID VALVES EEMCO # 01B0386 (E24104)	BAG CLAMPS N/R
VENTURIS Alum. (M11812) See Shop Note-1	TRAP-10 ADAPTER M.S. (See Shop Note-1)
TRAP-10 FILTER BAGS Huyck Glass (Ref. B-80JF-127) Felt	

CONSTRUCTION DATA

CLEAN AIR PLENUM	ROOF	12 Ga. M.S. (All Welded) W/ Stiffeners
	SIDES	12 Ga. M.S. (All Welded) W/ Stiffeners
DUSTY AIR PLENUM		12 Ga. M.S. (All Welded) W/ Stiffeners
TUBE SHEET		10 Ga. M.S. (Extly. Flg'd.) W/6" High Single Break Panels
HOPPER		(60°) 12 Ga. M.S. (All Welded) W/ Stiffeners
BRACING		On Roof, Shell, Dutchman, & Hopper As Shown

GASKET MATERIAL

A.) # 582 Presstite @ Dutchman, Tube Sheet, & Bin-Line Flg. Conn's (3/8" x 1/8")

GENERAL NOTES

* Goyen RCA-40T Double Diaphragm Valves Are To Have A 1/8" F.P.T. Pilot Conn. & To Be Provided W/ A 3/8" 90° Street Elbow On The Exhaust Port.

SHOP NOTES

1.) Cage To Be Welded To Trap-10 Collar & Venturi Attached W/ 304 S.S. Bolts, Nuts, & Washers. (X30041)

2.) Shop To Use 3/8" ϕ High Strength Bolts @ Tube Sheet Flange Conn's Only.

3 Use Copper Tubing In Lieu Of Plastic @ Solenoid To Diaphragm Valve Conn's.

4.) All Exterior Surfaces To Be Covered W/ A 3" Thickness Of Thermofiber Wall Insulation W/ A Thermal Conductivity Of 0.230 @ 75°F & A Density Of 7 Lbs. /Cu. Ft. Insulation To Be

THICKNESS OF THERMOFIBER WALL INSULATION W/A THERMAL CONDUCTIVITY OF 0.230 @ 75°F & A DENSITY OF 7 LBS./CU. FT. INSULATION TO BE COVERED W/ 16 GA. M.S. SHEETS ATTACHED @ STIFFENERS W/ SELF-TAPPING SHEET METAL SCREWS & STITCH WELDED IN PLACE @ OTHER LOCATIONS. ALL CREVICES TO BE CAULKED W/ BENJAMIN-FOSTER # 30-45 SEALANT.

5) APPLY ONE (1) COAT OF SHERWIN-WILLIAMS #E61-A45 GRAY PRIMER TO ALL EXTERIOR M.S. SURFACES ONLY.

6) SHOP TO BRACE TOP OF D.A.P. PRIOR TO SHIPPING. PROVIDE TWO (2) BRACES PER DETAIL-16 ON A-78F-239.

7.) UNIT TO BE SHIPPED IN FOUR (4) SECTIONS
   a) C.A.P.,
   b) C.A.P. & D.A.P. DUTCHMAN W/ TUBE SHEET,
   c) D.A.P.,
   d) TROUGH HOPPER W/ GIRTH CHANNELS.

8.) USE 1½"φ SCH. 40 M.S. PIPE FOR INTERNAL COMPRESSED AIR PIPING W/ 5/16"φ HOLES IN BTM. OF PIPE & W/ MORRIS QUICKON II (40-REQ'D.)

REFERENCE DRAWINGS

A-81JM-076 : INSULATION DETAILS
A-81JM-077 : COLLECTOR DETAILS

ONE (1) UNIT REQ'D

MARK: P.O.# 5940

CERTIFIED

FOR CONSTRUCTION

FLEX-KLEEN CORPORATION

MARK	REVISION	DATE	BY

FLEX-KLEEN CORPORATION
SUBSIDIARY OF RESEARCH - COTTRELL, INC.
222 S. RIVERSIDE PLAZA, CHICAGO, ILLINOIS 60606

SCALE: ¼" = 1'-0"	C/O NO. 5940	DRAWN BY: -DCS-
DATE: 3-24-81	FKO NO. 10-94-16624	APPROVED BY: RAY

MID-FLORIDA MINING CO.

MODEL	DRAWING NUMBER	REV
120-WMWC-600XL(III)	A-81JC-115	

ATTACHMENT 1 - Section II, A

This is a major modification to an existing facility. The plant operates a seven foot diameter rotary kiln, seventy feet in length, for drying Fuller's earth clay. At this time the kiln is vented to an existing baghouse used for fugitive dust collection within the milling and screening operation.

The project consists of removing the dryer vent from the existing baghouse and installing a new insulated baghouse to serve only the dryer. This will improve the performance of the drying system by allowing the particulates to remain dry (above the gas condensate dew point) as they are removed from the exhaust gases. Additionally, the dryer gas flow rate will be removed from the existing baghouse which will be used only as a fugitive dust collector. The air-to-cloth ratio of the existing collector will be decreased allowing an efficient operation.

CALCULATIONS

A. The process utilization rate or feed rate to the rotary kiln is about 32.5 tons per hour at roughly 48% moisture. Calculating,

$$32.5 \frac{\text{tons}}{\text{hr}} \times \frac{2000 \text{ lb}}{\text{ton}} = 65{,}000 \text{ lb/hr Total}$$

B. The clay is dried to about 15% moisture in the rotary kiln which produces 18 tons per hour of product and 1.5 tons per hour of fines. The remaining mass is in the form of water vapor in exit gases. Calculating,

$$18 \frac{\text{tons}}{\text{hr}} \times 2000 \frac{\text{lb}}{\text{ton}} = 36{,}000 \text{ lb/hr Product}$$

$$1.5 \frac{\text{tons}}{\text{hr}} \times 2000 \frac{\text{lb}}{\text{ton}} = 3{,}000 \text{ lb/hr Fines}$$

C. Total input feed rate - 65,000 lb/hr

33,600 lb/hr clay
31,400 lb/hr H_2O

Product discharge rate - 36,000 lb/hr

30,600 lb/hr clay
5,400 lb/hr H_2O

Fines discharge rate (particulates) = 3,000 lb/hr

Water vapor discharge = 26,000 lb/hr

D. Kiln Heat Requirements

1. Heat required to offset radiation and convection losses:

$$q_2 = (hr + hc)\ A\ (Ts - Ta)$$

where hr = 8.5 BTU/HR - Sq. Ft. - °F.
hc = 1 BTU/HR - Sq. Ft. - °F.
A = PI DL = (3.14)(7) (70) = 1540 sq. ft.
Ts = 150°F.
Ta = 70°F.

$$q_2 = (8.5 + 1)\ (1540)\ (150-70) = 1{,}170{,}400 \text{ BTU/HR}$$

2. Heat required for evaporation of moisture:

$$q_m = \dot{m}\ hfg\ @\ 70\ °F$$

$$= (26{,}000 \text{ lb/hr})\ (1054 \text{ BTU/LB})$$

$$= 27{,}404{,}000 \text{ BTU/HR}$$

3. Heat required to raise the temperature of the product:

$$q_s = \dot{m}\ Cp\ (T_2 - T_1)$$

$$= (33{,}600\ lb/hr)\ (.22\ BTU/LB - {}^\circ F)\ (250-70)$$

$$= 1{,}330{,}560\ BTU/HR$$

4. Total heat required in kiln:

$$q_t = q_1 + q_m + q_s$$
$$= 1{,}170{,}400 + 27{,}404{,}000 + 1{,}330{,}560$$
$$= 29{,}904{,}960$$

5. Mass of air required:

$$q_t = \dot{m}\ (h_2 - h_1)$$

$$\dot{m} = \frac{29{,}904{,}960\ BTU/HR}{(.24)(1400-270)}$$

$$\dot{m} = 110{,}269\ LB/HR$$

6. Heat required to raise the temperature of the air from ambient conditions to kiln temperature:

$$q = \dot{m}\ (h_2 - h_1)$$

$$= (110{,}269)(.24)(1400-70^\circ)$$

$$= 35{,}197{,}865\ BTU/HR$$

7. Maximum fuel oil required per hr.

$$\frac{35{,}197{,}856\ BTU/HR}{130{,}000\ BTU/GAL} = 271\ Gal/Hr$$

$$\frac{271\ Gallons}{Hr} \times \frac{barrels}{42\ gallons} = 6.5\ \frac{barrels}{hr}$$

8. Average fuel consumption:

From plant records fuel consumption is 130,000 gallons/month

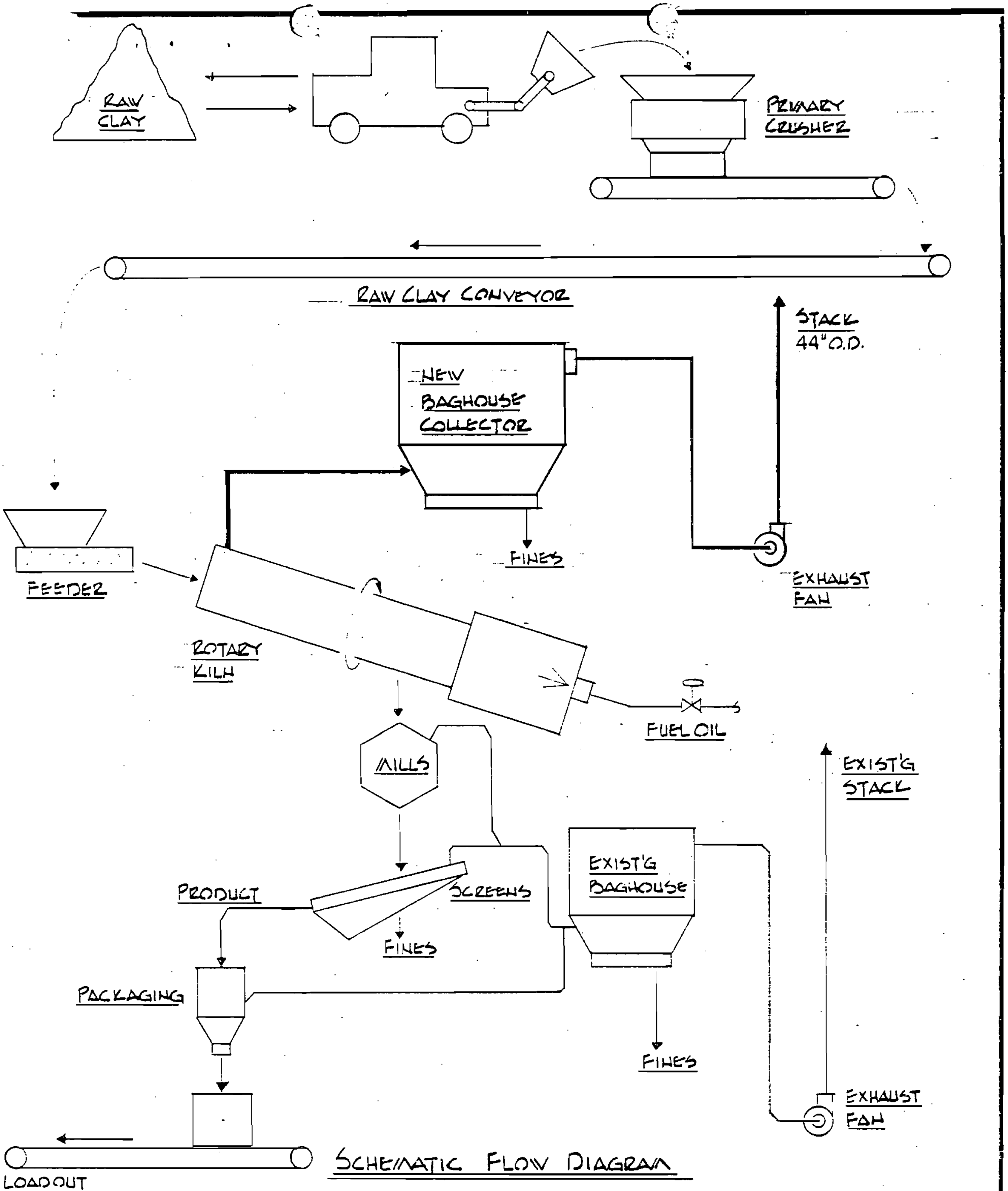
$$130{,}000\ \frac{gallons}{Mo.} \times \frac{Mo}{616\ Hr} \times 42\ \frac{barrel}{gallons} = 5.1\ \frac{barrels}{Hr}$$

9. SO_2 Emission:

$$271 \frac{\text{gal}}{\text{hr}} \times 7.5 \frac{\text{lbs}}{\text{gal}} \times .0045 = 9.1 \text{ lbs/hr}$$

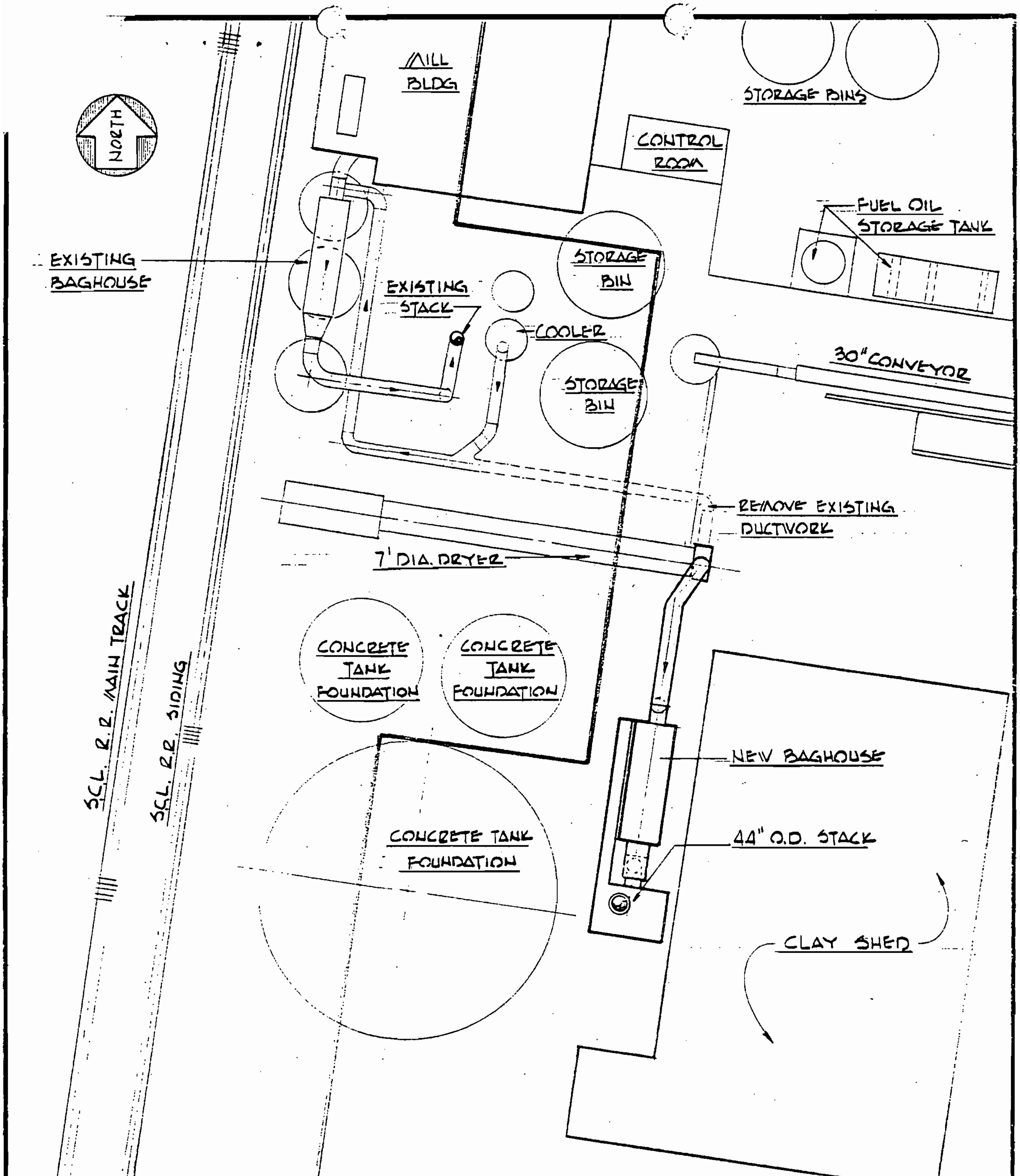
$$130{,}000 \frac{\text{gal}}{\text{Mo.}} \times 12 \frac{\text{Mo.}}{\text{Yr.}} \times \frac{7.5 \text{ lb.}}{\text{Gal.}} \times \frac{\text{ton}}{2000 \text{ lb}} \times .0045$$

$$= 26.3 \text{ tons/yr}$$



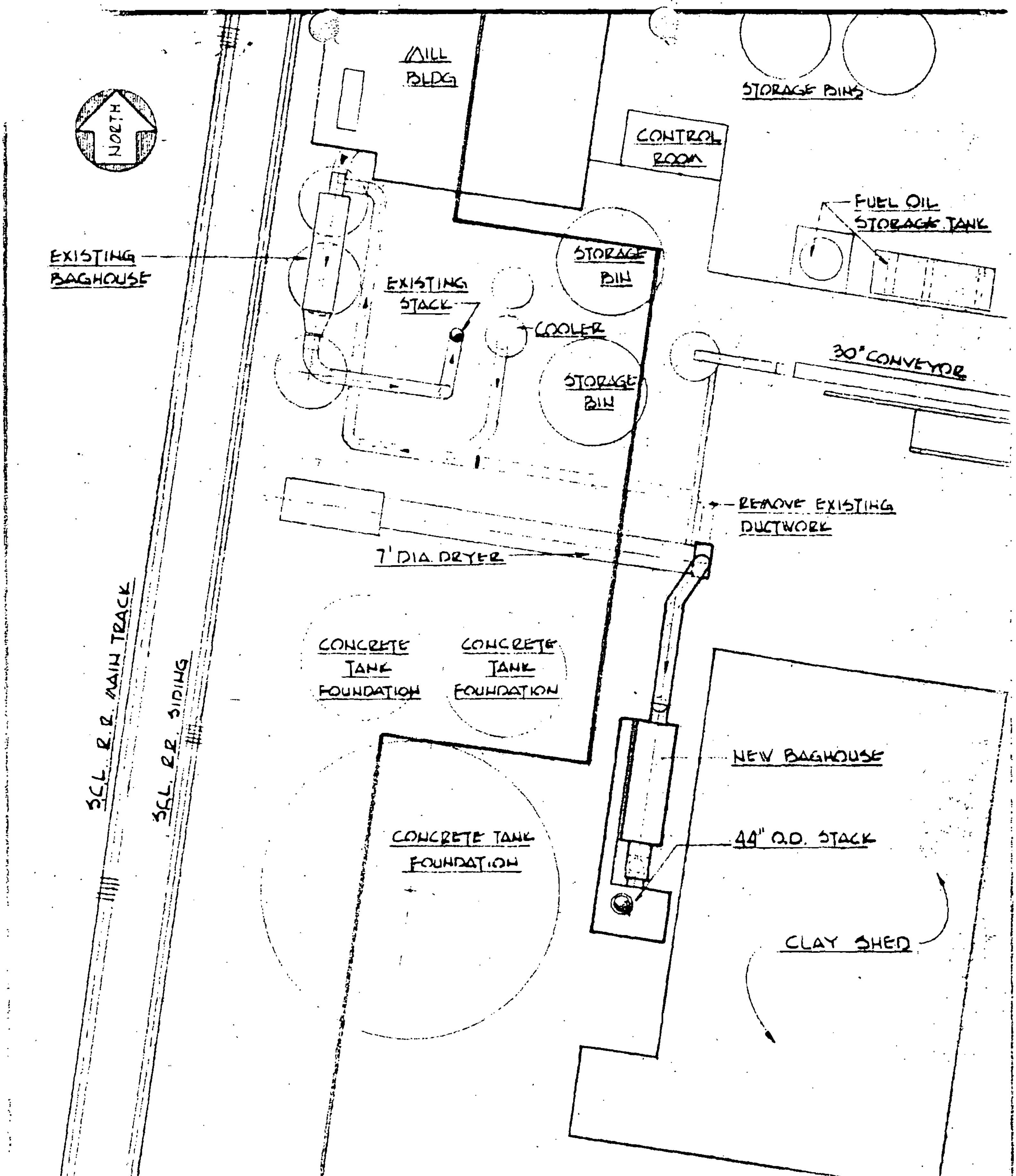
SCHEMATIC FLOW DIAGRAM

MID-FLORIDA MINING CO. LOWELL, FLORIDA			TIDEWATER ENGINEERS, INC. CONSULTING ENGINEERS TALLAHASSEE FLORIDA
JOB NO. 8019	DATE MAY 15, 1981	DRAWN JAH	



MID-FLORIDA MINING CO. - LOWELL, FLORIDA			TIDEWATER ENGINEERS, INC. CONSULTING ENGINEERS TALLAHASSEE FLORIDA
JOB NO. 8019	DATE 5-18-80	DRAWN JAH/LMS	

Best Available Copy



MID-FLORIDA MINING CO. - LOWELL, FLORIDA			TIDEWATER ENGINEERS, INC. CONSULTING ENGINEERS TALLAHASSEE FLORIDA
JOB NO. 8019	DATE 5-18-80	DRAWN JAH/LAS	

In the folder labeled as follows there are documents, listed below, which were not reproduced in this electronic file. That folder can be found in one of the file drawers labeled Supplementary Documents Drawer. Folders in that drawer are arranged alphabetically, then by permit number.

Folder Name: Mid-Florida Mining Industiries, Inc.

Permit(s) Numbered:

General File

Period during which document was received:		Detailed Description
	1.	PHOTOS OF SITE AND SURROUNDING AREAS

RECEIVED
OCT 15 1996
BUREAU OF
AIR REGULATION

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DELCIE J. SUTO,

Petitioner,

vs.

OGC CASE NO.: 96-1839
DOAH CASE NO.: 96-3871

MID-FLORIDA MINING COMPANY, and
STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION,

Respondents.
_______________________________/

ORDER CLOSING FILE

On July 16, 1996, the Florida Department of Environmental Protection (Department) received a petition for an administrative hearing that challenged the Department's decision to issue Permit No. 0830017-001-AC to Mid-Florida Mining Company, to construct a clay dryer and a dried clay storage silo serviced by a common baghouse, in Marion County.

On September 26, 1996, after receiving a Notice of Voluntary Dismissal, the assigned hearing officer issued an order closing the file of the Division of Administrative Hearings and relinquishing jurisdiction back to the Department. See Exhibit 1. There being no further matters to consider,

IT IS ORDERED:

The petition having been withdrawn, the Department's Central District Office is directed to issue Permit No. 0830017-001-AC, to Mid-Florida Mining Company as soon as possible.

DONE AND ORDERED this 10th day of October 1996 in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

F. PERRY ODOM
General Counsel

Douglas Building
3900 Commonwealth Boulevard
Mail Station #35
Tallahassee, FL 32399-3000
Telephone: (904) 488-9314

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to S120.52 Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Rebecca B. 10/14/96
Clerk **Date**

CERTIFICATE OF SERVICE

I CERTIFY that a true copy of the foregoing was mailed to:

Ann Cole, Clerk
Don W. Davis, Hearing Officer
Division of Administrative Hearing
The DeSoto Bldg.
1230 Apalachee Parkway
Tallahassee, FL 32399-1550

Geoffrey D. Smith, Esquire
Blank, Rigsby and Meenan, P.A.
204 South Monroe Street
Tallahassee, FL 32301

Delcie J. Suto
2400 Northwest 165 Street
Citra, FL 32113

on this 14th day of October 1996.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

W. DOUGLAS BEASON
Assistant General Counsel
Florida Bar No. 379239

Douglas Building
3900 Commonwealth Boulevard
Mail Station #35
Tallahassee, FL 32399-3000
Telephone: (904) 488-9730

STATE OF FLORIDA
DIVISION OF ADMINISTRATIVE HEARINGS

DELCIE J. SUTO, Petitioner, vs. MID-FLORIDA MINING COMPANY and STATE OF FLORIDA, DEPARTMENT OF ENVIRONMENTAL PROTECTION, Respondents.	CASE NO. 96-3871

ORDER CLOSING FILE

In accordance with the voluntary dismissal of the request for formal proceedings as documented in Petitioner's letter dated September 25, 1996, further proceedings in this forum are dismissed and the file of the Division of Administrative Hearings in this case is closed.

DONE and ORDERED this 26th day of September, 1996, in Tallahassee, Florida.

Don W. Davis

DON W. DAVIS, Hearing Officer
Division of Administrative Hearings
The DeSoto Building
1230 Apalachee Parkway
Tallahassee, Florida 32399-1550
(904) 488-9675 SunCom 278-9675

Filed with the Clerk of the
Division of Administrative Hearings
this 26th day of September, 1996.

COPIES FURNISHED:

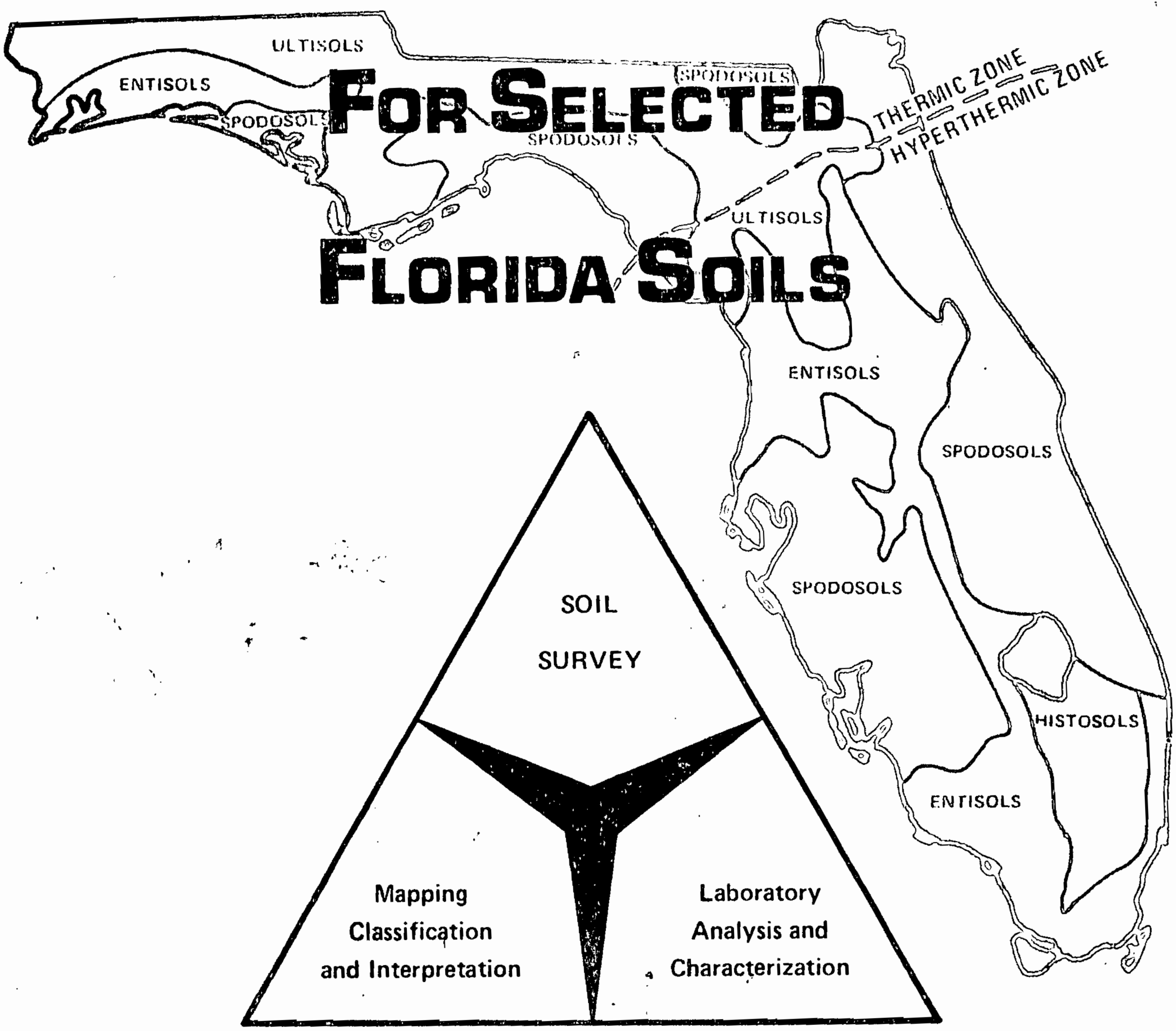
Geoffrey D. Smith, Esquire
Blank, Rigsby and Meenan, P.A.
204 South Monroe Street
Tallahassee, Florida 32301

W. Douglas Beason, Esquire
Department of Environmental
Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-3000

EXHIBIT 1

SOIL SCIENCE RESEARCH REPORT NUMBER 78-1

CHARACTERIZATION DATA FOR SELECTED FLORIDA SOILS



compiled by
UNIVERSITY OF FLORIDA - INSTITUTE OF FOOD AND AGRICULTURAL SCIENCES
SOIL SCIENCE DEPARTMENT - SOIL CHARACTERIZATION LABORATORY
in cooperation with
U. S. DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

KENDRICK FINE SAND

LOCATION: Hernando County, Florida; 1.1 mile south of Fl-572, 50 yards east of Handcock Lake Road; SE 1/4, SW 1/4, Sec. 31, T23S, R20E.

VEGETATION AND USE: Pineland threeawn, longleaf pine, live and laurel oak.

SLOPE AND LANDFORM:

DRAINAGE AND PERMEABILITY: Well drained; medium runoff; moderate permeability.

PARENT MATERIAL: Loamy marine sediments.

SAMPLES COLLECTED AND PROFILE DESCRIBED BY: V. W. Carlisle, M. L. Patrick, FAES, and A. G. Hyde, L. L. Law, SCS. 6 January 1975.

HORIZON	DEPTH	DESCRIPTION
A1	0-10cm (0-4")	Dark grayish-brown (10YR 4/2) loamy fine sand; weak medium granular; very friable; many fine and medium roots; strongly acid; clear wavy boundary. 1615.
A21	10-28cm (4-11")	Yellowish-brown (10YR 5/4) loamy fine sand; few, fine, faint, dark gray mottles; weak medium granular; very friable; many fine and medium roots; strongly acid; clear wavy boundary. 1616.
A22	28-58cm (11-23")	Brownish-yellow (10YR 6/8) loamy fine sand; weak medium granular; very friable; few streaks of white clean sand grains; few charcoal fragments; many fine and medium roots; very strongly acid; clear wavy boundary. 1617.
A23	58-71cm (23-28")	Brownish-yellow (10YR 6/6) loamy fine sand; weak medium granular; very friable; many clean sand grains; few charcoal fragments; many fine and medium roots; very strongly acid; clear wavy boundary. 1618.
B21t	71-86cm (28-34")	Yellowish-brown (10YR 5/6) sandy loam; weak medium subangular blocky; very friable; clay bridging between sand grains; common fine and medium roots; strongly acid; clear wavy boundary. 1619.
B22t	86-114cm (34-45")	Yellowish-brown (10YR 5/6) sandy clay loam; common, medium, prominent, dark red and common, medium, distinct, strong brown mottles; weak medium subangular blocky; friable; sand grains bridged and coated with clay; common fine and medium roots; very strongly acid; clear wavy boundary. 1620.
B23t	114-160cm (45-63")	Mottled strong brown (7.5YR 5/6, 5/8), dark red (2.5YR 3/6, 10YR 3/6), and light gray (10YR 7/1, 6/1) sandy clay loam; moderate medium subangular blocky; firm; sand grains bridged and coated with clay; few fine roots; very strongly acid; gradual wavy boundary. 1621.
B24t	160-203cm (63-80")	Mottled strong brown (7.5YR 5/6, 5/8), dark red (2.5YR 3/6, 10R 3/6), and linht gray (10YR 7/1, 6/1) sandy clay loam with few dark gray (10YR 4/1) sandy clay pockets; moderate medium subangular blocky; firm; few clay films on ped breaks; few fine roots; very strongly acid. 1622.

Room 1158 McCarty Hall
SOIL CHARACTERIZATION LABORATORY -- UNIVERSITY OF FLORIDA
IFAS

Soil KENDRICK FINE SAND Soil Survey Sample No. S27-13-(1-8)
Location Hernando County Classification Arenic Paleudults, loamy, siliceous, hyperthermic

Depth (cm)	Horizon	Lab no.	Sand VC (2-1)	Sand C (1-.5)	Sand M (.5-.25)	Sand F (.25-.1)	Sand VF (.1-.05)	Sand Total (2-.05)	Silt Total (.05-.002)	Clay Total (<.002)	Text class	6N2e Ca	6O2d Mg	6P2a Na	6Q2a K	Sum	6H1a Extr acidity	5A3a Sum cations	5C3 Base sat Pct
0-10 10-28	A1 A21	1615 1616	0.1 0.0	0.7 0.9	9.5 11.1	66.7 66.0	13.6 13.1	90.6 91.1	4.5 3.5	4.9 5.4	fs fs	0.9 0.5	0.2 0.1	0.1 tr	tr tr	1.2 0.6	6.8 4.2	8.0 4.8	15 12
28-58 58-71	A22 A23	1617 1618	0.0 0.0	0.9 0.8	9.8 9.7	66.4 66.7	13.9 13.4	91.0 90.6	3.2 2.1	5.8 7.3	fs fs	0.3 0.3	0.1 0.2	tr tr	tr tr	0.4 0.5	2.5 2.1	2.9 2.6	14 19
71-86 86-114	B21t B22t	1619 1620	0.0 0.0	0.7 0.7	7.7 6.8	59.4 42.8	11.8 7.4	79.6 57.7	1.9 3.0	18.5 39.3	fsl sc	0.6 0.4	0.6 1.2	tr tr	tr tr	1.2 1.6	3.6 7.0	4.8 8.6	25 19
114-160 160-203	B23t B24t	1621 1622	0.0 0.0	0.7 0.5	8.1 8.6	46.3 49.7	5.8 7.8	60.9 66.6	1.0 1.5	38.1 31.9	sc scl	0.1 0.1	0.3 0.1	tr tr	tr tr	0.4 0.2	5.6 4.6	6.0 4.8	7 4

Depth (cm)	Organic carbon Pct	8A1a Elect. cond mmho/cm	pH 8C1a H_2O (1:1)	pH 8C1e $CaCl_2$ 0.01M (1:2)	pH 8C1e KCl 1N (1:1)	Pyrophosphate ext. C	Pyrophosphate ext. Fe	Pyrophosphate ext. Al	C+Al/clay	Extr Al Pct	Extr Fe Pct	Total P ppm	Carbonate as $CaCO_3$ Pct	Tot acidity meq/100g				
0-10 10-28	1.10 0.55	0.05 0.07	4.8 5.4	4.2 4.6	3.9 4.2							0.01 --						
28-58 58-71	0.26 0.13	0.06 0.05	5.5 5.1	4.7 4.9	4.3 4.3							0.01 --						
71-86 86-114	0.16 0.24	0.07 0.06	5.0 4.8	4.7 4.4	4.2 4.0							0.03 0.04						
114-160 160-203	0.09 0.06	0.05 0.05	4.8 4.7	4.4 3.9	4.0 3.7							0.08 0.07						

Depth (cm)	Hydr. cond. (sat.) cm/hr	Bulk density 4A3a Field moist. g/cc	Moist. equiv. Pct.	Water content by wt. 4B1d 1/10 bar Pct	4B1d 1/3 bar Pct	4B2 15 bar Pct	Water content by vol. 0 bar	0.02 bar	0.03 bar	0.045 bar	0.06 bar	0.08 bar	0.10 bar	0.15 bar	0.20 bar	0.33 bar	15.0 bar	
0-10 10-28	36.3 27.3	1.26 1.38		10.52 7.70	7.10 5.01	3.71 2.85	44.4 37.8	39.3 36.5	34.3 33.7	24.9 23.1	18.8 16.5	15.2 12.5	13.3 10.6	11.1 8.5	10.2 7.8	9.0 6.9	4.7 3.9	
28-58 58-71	34.8 36.1	1.43 1.46		7.57 9.65	4.52 4.39	2.55 2.96	40.5 41.4	39.0 39.6	34.9 35.5	23.6 29.1	16.8 22.8	12.7 17.3	10.8 14.1	8.0 8.0	7.0 7.4	6.5 6.4	3.7 4.3	
71-86 86-114	6.4 1.5	1.51 1.50		14.65 22.57	11.26 19.83	6.88 15.40	40.6 41.8	39.7 39.6	38.2 38.8	36.2 37.5	34.0 36.1	23.5 34.7	22.1 33.8	19.4 32.1	18.3 31.1	17.0 29.7	10.4 23.1	
114-160 160-203	0.4 0.2	1.68 1.71		19.97 18.48	16.16 16.33	13.58 13.36	37.1 34.9	36.2 34.4	35.7 34.3	35.5 34.3	35.1 33.5	34.2 32.3	33.7 31.6	32.0 30.1	31.1 29.2	27.2 27.9	22.9 22.8	

Depth (cm)	Clay fraction analysis 7A1bd Mt	Chl	Vm	Mi	14A Int	Kl	Gibb	Qtz	Feld		Amor Pct	Optical analysis 7B1 (.02-2.0 mm) Qtz	Feld	Mi	H & O
0-10 10-28					29	45		26							
28-58 58-71															
71-86 86-114					14	83		3							
114-160 160-203					8	90		2							

Mt - Montmorillonite
Chl - Chlorite
Vm - Vermiculite
Mi - Mica
14A Int - Interlayered
Kl - Kaolinite
Gibb - Gibbsite
Qtz - Quartz
Feld - Feldspar
Amor - Amorphous
H & O - Heavy & Opaque

Depth (cm)	Engineering test data by Florida Department of Transportation: Max density dry lbs/ft³	Opt moist Pct	Mechanical analysis < 2.0 mm	< .42	< .074	< .05	< .02	< .005	< .002	Bearing ratio	Liquid limit	Plastic limit	Plastic index	AASHO class	Vol shrink	Linear shrink	Shrink swell pot
28-58 114-203	113.0 110.7	12.6 16.5	100 100	98 93	12 55	9 51	5 30	4 26	2 23		N.P. 29		N.P. 16	A-2-4 A-2-6			

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Room 1158 McCarty Hall
SOIL CHARACTERIZATION LABORATORY — UNIVERSITY OF FLORIDA
IFAS

Soil: ARREDONDO FINE SAND

Location: Hernando County

Soil Survey Sample No. S27-11-(1-8)

Classification: Grossarenic Paleudults, loamy, siliceous, hyperthermic

Depth (cm)	Horizon	Lab no.	Sand VC (2-1)	Sand C (1-.5)	Sand M (.5-.25)	Sand F (.25-.1)	Sand VF (.1-.05)	Sand Total (2-.05)	Silt Total (.05-.002)	Clay Total (<.002)	Text class	Extractable bases 5B1 6N2e Ca	6O2d Mg	6P2a Na	6Q2a K	Sum	6H1a Extr acidity	CEC 5A3a Sum cations	5C3 Base sat Pct
			Pct of <2mm									meq/100g							
0-20	Ap	1411	0.0	0.6	12.6	65.0	12.0	90.7	5.6	3.7	fs	2.8	1.0	tr	tr	3.8	5.8	9.6	40
20-36	A21	1412	0.0	0.6	14.0	68.7	11.0	94.3	2.3	3.4	fs	1.5	0.1	0.0	tr	1.6	2.7	4.3	37
36-104	A22	1413	0.0	0.6	14.4	69.8	11.0	95.8	1.7	2.5	fs	0.4	tr	0.0	0.0	0.4	1.2	1.6	25
104-137	A23	1414	0.0	0.7	13.5	71.4	11.8	97.4	0.8	1.8	fs	0.1	tr	0.0	tr	0.1	0.1	0.3	33
137-157	A3	1415	0.0	0.6	12.9	68.0	11.3	92.8	1.0	6.2	fs	0.4	tr	tr	tr	0.4	1.2	1.6	25
157-175	B1t	1416	0.0	0.6	11.9	62.8	10.4	86.7	0.0	13.3	lfs	0.9	0.2	tr	tr	1.1	2.1	3.2	34
175-203	B21t	1417	0.0	0.6	9.7	45.2	6.9	62.4	0.9	36.7	sc	0.3	1.1	tr	tr	1.4	8.9	10.3	14
203-254	B22t	1418	0.0	0.6	12.4	56.8	7.2	77.0	0.0	23.0	scl	0.1	0.3	tr	tr	0.4	6.1	6.5	6

Depth (cm)	Organic carbon Pct.	8A1a Elect cond mmho/cm	pH 8C1a H_2O (1:1)	pH 8C1e $CaCl_2$ 0.01M (1:2)	pH 8C1e KCl 1N (1:1)	Pyrophosphate ext C	Pyrophosphate ext Fe	Pyrophosphate ext Al	(C+Al)/clay	Extr Al Pct	Extr Fe Pct	Total P ppm	Carbonate as $CaCO_3$ Pct	Ext acidity meq/100g					
0-20	1.43	0.06	5.4	5.0	4.8							0.05							
20-36	0.43	0.03	5.9	5.3	5.1					0.081	0.158	0.03							
36-104	0.11	0.03	6.1	5.6	5.2					0.056	0.136	0.02							
104-137	0.20	0.02	6.1	5.7	5.5					0.031	0.098	0.01							
137-157	0.03	0.03	5.9	5.7	4.9					0.082	0.266	0.03							
157-175	0.07	0.04	5.8	5.6	4.8					0.162	0.619	0.07							
175-203	0.14	0.04	5.0	4.2	3.8					0.450	2.275	0.22							
203-254	0.05	0.03	5.0	4.0	3.6					0.300	1.262	0.14							

Depth (cm)	Hydr. cond. (sat.) cm/hr	Bulk density 4A3a Field moist. g/cc	Moist. equiv. Pct.	Water content by wt. 4B1d 1/10 bar	4B1d 1/3 bar	4B2 15 bar	Water content by vol 0 bar	0.02 bar	0.03 bar	0.045 bar	0.06 bar	0.08 bar	0.10 bar	0.15 bar	0.20 bar	0.33 bar	15.0 bar	
				Pct			Pct.											
0-20	14.9	1.49		10.03	6.45	2.50	40.1	38.4	36.4	32.5	23.4	18.0	14.9	12.3	10.9	9.6	3.7	
20-36	23.0	1.57		5.35	3.31	1.36	31.2	28.6	23.2	17.3	12.9	9.9	8.4	6.8	5.9	5.2	2.1	
36-104	25.9	1.55		4.18	2.42	1.07	34.1	33.0	32.8	18.5	11.6	7.9	6.5	5.0	4.0	3.7	1.7	
104-137	26.1	1.54		3.72	1.80	0.67	35.8	34.8	33.6	27.0	14.3	7.3	5.7	5.0	3.3	2.8	1.0	
137-157	11.7	1.63		9.39	5.16	2.72	33.1	32.3	31.4	27.7	23.2	18.8	15.3	11.7	9.7	8.4	4.4	
157-175	1.0	1.67		16.48	12.69	6.38	34.1	33.5	33.3	33.1	33.2	29.0	27.5	25.2	23.7	21.2	10.6	
175-203	0.1	1.58		24.48	22.07	12.22	41.2	41.3	41.2	41.0	41.2	40.1	38.6	37.4	36.6	34.8	19.2	
203-254	--	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	

Depth (cm)	Clay fraction analysis 7A1b-d Mt.	Chl.	Vm.	Mi.	14A Int.	Kl.	Gibb.	Qtz.	Feld		Amor Pct	Optical analysis 7B1 (.02-2.0 mm) Qtz.	Feld.	Mi.	H. & O.
	7A2d (x-ray) Pct											Pct			
0-20															
20-36	tr				36	37		27							
36-104															
104-137	tr				41	41		18							
137-157															
157-175	6				29	60		5							
175-203	17				18	54		11							
203-254	9				18	58		15							

Mt. - Montmorillonite
Chl. - Chlorite
Vm. - Vermiculite
Mi. - Mica
14A Int. - Interlayered
Kl. - Kaolinite
Gibb. - Gibbsite
Qtz. - Quartz
Feld. - Feldspar
Amor. - Amorphous
H. & O. - Heavy & Opaque

Engineering test data by Florida Department of Transportation

Depth (cm)	Max density dry lb/ft³	Opt moist Pct	Mechanical analysis < 2.00	< .42	< .074	< .05	< .02	< .005	< .001	Bearing value	Liquid limit	Plastic limit	Plastic index	AASHTO class	Vol shrink	Linear shrink	Shrink swell pot
20-104	107.5	11.3	100	98	8	6	3	[illegible]	1		N.P		N P	A-3			
104-137	105.4	11.0	100	98	6	4	2	1	1		N P		N P	A-3			

ARREDONDO FINE SAND

LOCATION: Hernando County, Florida; 1/4 mile west of Highway 581 and 1/4 mile south of small blacktop road on Chinsegut Beef Cattle Research Center; NE 1/4, SW 1/4, Sec. 36, T21S, R.19E.

VEGETATION AND USE: Improved pasture.

SLOPE AND LAND FORM: Gently sloping coastal plain with less than 5% gradient.

DRAINAGE AND PERMEABILITY: Well drained; slow runoff; rapid permeability in A horizon and moderately rapid in the argillic horizon.

PARENT MATERIAL: Sandy and loamy marine deposits.

SAMPLES COLLECTED AND PROFILE DESCRIBED BY: F. G. Calhoun, V. W. Carlisle, FAES, and A. G. Hyde, L. L. Law, Jr., SCS. 16 July 1974.

HORIZON	DEPTH	DESCRIPTION
Ap	0-20cm (0-8")	Very dark gray (10YR 3/1) fine sand; weak medium granular; very friable; many fine and few medium roots; strongly acid; clear smoo boundary. 1411.
A21	20-36cm (8-14")	Light yellowish-brown (10YR 6/4) fine sand; common, medium, distinct, dark grayish-brown (10YR 4/2) mottles; single grain; loose common clean sand grains; few charcoal fragments; fine and few medium roots; medium acid; clear wavy boundary. 1412.
A22	36-104cm (14-41")	Brownish-yellow (10YR 6/6) fine sand; few, fine, faint, very pale brown (10YR 7/3) mottles; sand grains, single grain; loose; clean few charcoal fragments; many fine roots; medium acid; clear wavy boundary. 1413.
A23	104-137cm (41-54")	Very pale brown (10YR 7/3) fine sand; common, medium, distinct, strong brown coated sand mottles; single grain; loose; many clean sand grains; few loamy sand lamellae; common fine roots; medium ac clear wavy boundary. 1414.
A3	137-157cm (54-62")	Reddish-yellow (7.5YR 6/8) fine sand; weak fine granular; very fri able; sand grains well coated; common fine roots; medium acid; gradual smooth boundary. 1415.
B1t	157-175cm (62-69")	Strong brown (7.5YR 5/8) loamy sand; weak medium granular; very fr able; sand grains coated and bridged with clay; few fine roots; strongly acid; clear wavy boundary. 1416.
B21t	175-203cm (69-80")	Yellowish-brown (10YR 5/4) sandy loam; common, medium, distinct, strong brown (7.5YR 5/6) and many, medium, prominent, slightly brittle, dark red (2.5YR 3/6) mottles; moderate medium subangular blocky; friable; sand grains coated and bridged with clay; few roots; strongly acid; gradual wavy boundary. 1417.
B22t	203-254cm (80-100")	Mixed yellowish-red (5YR 5/6) and strong brown (7.5YR 5/6) sandy loam; common, medium, distinct, slightly brittle, red (2.5YR 4/6) and few, fine, faint, very pale brown (10YR 7/3) mottles; moderate medium subangular blocky; friable; sand grains coated and bridged with clay; strongly acid. 1418.

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SOIL CHARACTERIZATION LABORATORY — UNIVERSITY OF FLORIDA
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Soil: SPARR VARIANT FINE SAND
Location: Alachua County
Soil Survey Sample No.: S1-59-(1-11)
Classification: Grossarenic Paleudults, loamy, siliceous, hyperthermic

Depth (cm)	Horizon	Lab no.	Sand VC (2-1)	Sand C (1-.5)	Sand M (.5-.25)	Sand F (.25-.1)	Sand VF (.1-.05)	Sand Total (2-.05)	Silt Total (.05-.002)	Clay Total (<.002)	Text. cla.	Ca	Mg	Na	K	Sum	Extr. acidity	CEC Sum cations	Base sat. Pct
0-10	A11	2084	0.0	1.3	18.7	49.6	21.5	91.1	7.3	1.6	fs	0.87	0.21	0.03	0.05	1.16	5.2	6.36	18
10-15	A12	2085	0.0	1.3	18.4	51.3	22.3	93.3	5.0	1.7	fs	0.17	0.05	0.01	0.01	0.24	2.5	2.74	9
15-20	A21	2086	0.0	1.2	17.4	50.5	23.9	93.0	5.2	1.8	fs	0.07	0.03	0.01	0.00	0.11	1.9	2.01	5
20-30	A22&Bh	2087	0.0	1.4	18.7	50.2	21.3	91.6	5.2	3.2	fs	0.08	0.01	0.02	0.01	0.12	5.2	5.32	2
30-48	A23	2088	0.0	1.3	17.7	51.1	22.1	92.2	5.1	2.7	fs	0.02	0.01	0.01	0.00	0.04	4.6	4.64	1
48-84	A24	2089	0.0	1.2	13.8	51.2	24.7	90.9	6.0	3.1	fs	0.01	0.01	0.01	0.00	0.03	4.8	4.83	1
84-112	A25	2090	0.0	1.4	14.6	52.5	23.8	92.3	4.0	2.8	fs	0.01	0.01	0.01	0.00	0.03	3.2	3.23	1
112-127	B21tg	2091	0.0	1.2	14.5	43.5	16.9	76.1	5.3	18.6	fsl	0.01	0.04	0.03	0.01	0.09	7.4	7.49	1
127-142	B22tg	2192	0.0	0.9	14.0	38.9	15.7	69.5	2.3	28.2	scl	0.06	0.18	0.04	0.03	0.31	7.5	7.81	4
142-173	B23tg	2193	0.0	0.9	16.1	40.4	11.6	69.0	2.5	28.5	scl	0.11	0.25	0.05	0.02	0.43	6.5	6.93	6
173-203	[illegible]g	21[illegible]4	0.0	1.0	15.8	47.1	12.4	76.3	1.6	22.1	scl	0.25	0.40	0.04	0.02	0.71	4.6	5.31	13

Depth (cm)	Organic carbon Pct	8A1a Elect. cond. mmho/cm	pH H_2O (1:1)	pH $CaCl_2$ 0.01M (1:2)	pH KCl 1N (1:1)	Pyrophosphate ext. C	Fe	Al	C+Al/Clay	Al Extr.	Fe Extr.	Total P ppm
0-10	1.34	0.08	4.7	3.8	3.5					0.02	0.03	
10-15	0.51	0.04	4.9	3.8	3.5					0.02	0.03	
15-20	0.29	0.03	5.1	4.0	3.9					0.02	0.03	
20-30	0.77	0.04	5.2	4.4	4.1	0.58	0.01	0.08		0.12	0.03	
30-48	0.61	0.05	5.6	4.9	4.6					0.17	0.04	
48-84	0.50	0.04	5.8	5.1	4.7					0.21	0.04	
84-112	0.23	0.03	5.8	5.1	4.6					0.11	0.03	
112-127	0.22	0.03	5.0	4.4	4.2					0.17	0.14	
127-142	0.15	0.06	4.9	4.0	3.9					0.13	0.16	
142-173	0.06	0.06	4.8	4.0	3.6					0.10	0.26	
173-203	0.[illegible]2	0.05	5.1	4.1	3.9					0.06	0.09	

Depth (cm)	Hydr. cond. (sat.) cm/hr	Bulk density 4A3a Field moist g/cc	Moist equiv. Pct	Water content by wt. 4B1d 1/10 bar	4B1d 1/3 bar	4B2 15 bar	Water content by vol. 0 bar	0.02 bar	0.04 bar	0.045 bar	0.06 bar	0.08 bar	0.10 bar	0.15 bar	0.20 bar	0.33 bar	15.0 bar
0-10	14.7	1.46		8.32	4.82	1.77	40.4	34.3	31.4	24.3	18.7	14.3	12.1	9.4	8.3	7.0	2.6
10-15	15.8	1.39		9.97	6.31	2.43	40.9	33.9	30.2	25.4	19.9	16.2	13.6	11.3	9.9	8.6	3.3
[illegible]	15.3	1.54		6.33	3.37	1.25	38.8	34.2	32.3	24.2	16.9	12.3	9.8	7.2	6.2	5.2	1.9
[illegible]	7.7	1.56		9.49	6.13	1.87	36.0	33.7	30.9	25.6	21.3	17.2	14.8	12.1	10.9	9.6	2.9
[illegible]	[illegible]	1.42		10.95	7.01	2.30	44.4	39.0	34.3	28.5	22.0	17.9	15.6	13.0	11.9	10.0	3.3
48-[illegible]	11.1	1.50		11.08	7.19	2.13	38.8	36.2	33.7	29.2	23.6	19.1	16.7	14.0	12.7	10.8	3.2
84-112	10.8	1.62		8.29	4.84	0.95	36.0	34.4	32.7	27.9	22.3	16.3	12.5	10.6	9.4	7.9	1.5
112-127	0.3	1.77		15.37	12.30	4.85	34.0	32.4	32.1	31.9	29.9	28.3	27.2	25.5	24.3	21.8	8.6
127-142	[illegible]	1.72		15.58	16.70	9.63	36.9	34.9	34.7	33.8	33.1	32.6	32.0	31.0	30.4	28.8	16.6
142-173	0.0	1.75		20.42	18.23	11.01	37.4	36.4	36.1	36.4	35.9	36.0	35.8	34.7	33.6	32.1	19.3
173-203	0.[illegible]	1.7[illegible]		17.93	15.59	9.09	37.2	35.4	35.2	34.2	32.7	32.1	31.5	30.1	29.2	27.3	15.9

Clay fraction analysis — Optical analysis

Mt Montmorillonite
Chl Chlorite
Vm Vermiculite
Mi Mica
14A Int Interlayered
Kl Kaolinite
Gibb Gibbsite
Qtz Quartz
Feld Feldspar
Amor Amorphous
H & O Heavy & Opaque

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SPARR VARIANT FINE SAND

LOCATION: Alachua County, Florida; approximately 0.9 miles west of Orange Heights on south side of Road 26; NW 1/4, SW 1/4, NW 1/4, Sec. 18, T9S, R22E.

VEGETATION AND USE: Slash pine planted approximately 20 years ago with minimal site preparation; un story of saw palmetto, wiregrass, runner oak, and gallberry.

SLOPE AND LAND FORM: Nearly level flatwoods with less than 2% gradient.

DRAINAGE AND PERMEABILITY: Somewhat poorly drained; rapid permeability in sandy horizons and moder spodic and argillic horizons.

PARENT MATERIAL: Sandy materials underlain with loamy sediments.

SAMPLES COLLECTED AND PROFILE DESCRIBED BY: V. W. Carlisle, R. C. Garman, and L. W. Zelazny, FAES, & B. P. Thomas, SCS. May 1975.

HORIZON	DEPTH	DESCRIPTION
A11	0-10cm (0-4")	Very dark gray (10YR 3/1) fine sand; weak fine granular; very friable; many and common medium roots; clear smooth boundary. 2084.
A12	10-15cm (4-6")	Dark gray (10YR 4/1) fine sand; weak fine and medium granular; very friable, fine and common medium roots; clear smooth boundary. 2085.
A21	15-20cm (6-8")	Grayish-brown (10YR 5/2) fine sand; weak fine and medium granular; very fria many fine and common medium roots; clear smooth boundary. 2086.
A22&Bh	20-30cm (8-12")	Dark brown (7.5YR 3/2) fine sand; common, fine and medium, distinct, light g (10YR 7/2) and common, fine and medium, distinct, white (10YR 8/2) mottles; fine and medium granular; very friable; many fine and common medium roots; c smooth boundary. 2087.
A23	30-48cm (12-19")	Dark grayish-brown (10YR 4/2) fine sand; few, fine, distinct, brownish-yello (10YR 6/8) and common, medium, distinct, light gray (10YR 7/2) mottles; weak fine and medium granular structure; very friable; common fine and medium root clear smooth boundary. 2088.
A24	48-84cm (19-33")	Very pale brown (10YR 7/3) fine sand; common, fine distinct, white (10YR 8/1) few, fine and medium, faint, yellowish-brown (10YR 5/4), and few, fine, disti brownish-yellow (10YR 6/8) mottles; weak fine and medium granular; very friab common fine and medium roots; clear smooth boundary. 2089.
A25	84-112cm (33-44")	Very pale brown (10YR 7/3) fine sand; common, fine and medium, distinct, ligh yellowish-brown (10YR 6/4), common, fine and medium, faint, light gray (10YR and few, fine, distinct, brownish-yellow (10YR 6/8) mottles; weak fine and me granular; very friable; few fine and medium roots; clear irregular boundary.
B21tg	112-127cm (44-50")	Gray (5Y 6/1) sandy clay loam; common, fine and medium, distinct, yellowish-br (10YR 5/8) and common, fine and medium, distinct, white (10YR 8/1) mottles; we medium subangular blocky; friable; clear wavy boundary. 2091.
B22tg	127-142cm (50-56")	Gray (5Y 6/1) sandy clay loam; common, fine, distinct, yellowish-brown (10YR mottles; moderate medium subangular blocky; friable; gradual irregular bound 2092.
B23tg	142-173cm (56-68")	Gray (4Y 6/1) sandy clay loam; few, fine and medium, distinct, brownish-yello (10YR 6/6), few, fine, distinct, very pale brown (10YR 7/4), and few to common medium, prominent, red (10R 4/8) mottles; weak fine subangular blocky; friable gradual irregular boundary. 2093.
Cg	173-203cm (68-80")	Gray (10YR 6/1) sandy loam; few to common, fine and medium, prominent, red (10 4/8), few to common, fine, prominent, yellowish red (5YR 4/8), and few to commo fine, distinct, strong brown (7.5YR 5/8) mottles; massive, crushes to angular blocky; slightly compacted; friable. 2094.

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Room 1158 McCarty Hall

SOIL CHARACTERIZATION LABORATORY UNIVERSITY OF FLORIDA

IFAS

Soil SPARR SAND

Location Alachua County

Soil Survey Sample No. S1-63-(1-8)

Classification Grossarenic Paleudults, loamy, siliceous, hyperthermic

Depth (cm)	Horizon	Lab no.	Sand VC (2-1)	Sand C (1-.5)	Sand M (.5-.25)	Sand F (.25-.1)	Sand VF (.1-.05)	Sand Total (2-.05)	Silt Total (.05-.002)	Clay Total (<.002)	Text. class	Extractable bases 6N2 Ca	6O2d Mg	6P2a Na	6Q2a K	Sum	6H1a Extr. acidity	CEC 5A3a Sum cations	5C3 Base sat. Pct
			Pct of <2mm									meq/100g							
0-23	Ap	2172	0.1	3.9	35.4	47.0	5.8	92.2	3.7	4.1	s	0.86	0.14	0.01	0.03	1.04	4.4	5.44	19
23-53	A21	2173	0.1	3.8	34.8	48.3	5.7	92.7	2.6	4.7	s	0.30	0.05	0.00	0.01	0.36	2.4	2.76	13
53-66	A22	2174	0.1	5.1	38.7	45.7	4.7	94.3	2.4	3.3	s	0.23	0.06	0.01	0.01	0.31	1.6	1.91	16
66-122	A23	2175	0.1	3.5	34.0	50.1	7.2	94.9	2.4	2.7	fs	0.14	0.06	0.00	0.01	0.21	1.2	1.41	15
122-147	A24	2176	0.1	4.7	35.9	48.3	6.0	95.0	2.3	2.7	s	0.11	0.05	0.00	0.02	0.18	0.9	1.08	17
147-162	B1	2177	0.4	6.5	33.1	38.4	6.2	84.6	2.2	13.2	ls	0.59	0.22	0.00	0.02	0.83	3.7	4.53	18
162-218	B2tg	2178	0.3	6.9	38.3	25.6	5.5	76.6	1.2	22.2	scl	0.36	0.28	0.00	0.02	0.66	4.8	5.46	12
218-224	B3g	2179	0.4	8.6	49.5	21.9	1.1	81.5	0.9	17.6	sl	0.06	0.13	0.00	0.02	0.21	3.6	3.81	6

Depth (cm)	Org. carbon Pct	8A1a Elect. cond. mmho/cm	pH 8C1a H_2O (1:1)	pH 8C1e $CaCl_2$ 0.01M (1:2)	pH 8C1i KCl 1N (1:1)	Pyrophosphate ext. C Pct	Fe Pct	Al Pct	C+Fe/Clay	Extr Al Pct	Extr Fe Pct	Total P ppm	Carbon as $CaCO_3$ Pct	Gyp. meq/100g					
0-23	0.73	0.04	5.9	5.2	4.8					0.120	0.070								
23-53	0.18	0.02	6.2	5.3	4.8					0.100	0.076								
53-66	0.15	0.02	6.2	5.5	4.7					0.080	0.067								
66-122	0.10	0.02	6.1	5.0	4.7					0.060	0.060								
122-147	0.06	0.02	6.0	4.8	4.5					0.040	0.074								
147-162	0.08	0.03	5.6	4.6	4.3					0.120	0.170								
162-218	0.03	0.02	5.2	4.1	3.9					0.100	0.136								
218-224	0.03	0.03	5.1	4.1	3.9					0.080	0.062								

Depth (cm)	Hydr cond (sat.) cm/hr	Bulk density 4A3a Field moist. g/cc	Moist equiv Pct	Water content by wt 4B1c 1/10 bar	4B1c 1/3 bar	4B2 15 bar	Water content by vol 0 bar	0.02 bar	0.01 bar	0.015 bar	0.06 bar	0.08 bar	0.10 bar	0.15 bar	0.20 bar	0.33 bar	15 bar		
0-23	36.1	1.50		32.7	6.0	2.5	41.8	33.4	29.2	20.6	16.3	13.7	48.9	10.7	10.1	9.0	3.7		
23-53	35.5	1.58		6.0	4.4	1.9	38.7	33.5	29.8	18.2	13.8	10.9	9.6	8.2	7.7	7.0	3.0		
53-66	61.7	1.57		4.7	3.2	1.2	40.5	36.0	30.0	16.0	11.2	8.5	7.4	5.9	5.6	5.0	2.0		
66-122	43.4	1.54		4.6	2.9	0.7	39.9	29.2	29.2	17.4	11.7	8.5	7.0	5.5	5.0	4.5	1.1		
122-147	21.7	1.67		6.5	4.3	1.3	35.6	32.9	26.9	20.1	16.0	12.6	10.9	8.9	8.2	7.3	2.2		
147-162	11.5	1.80		11.0	9.3	5.2	29.4	25.5	24.1	22.7	21.6	21.6	20.6	18.6	18.5	16.7	9.4		
162-218	0.1	1.81		15.8	14.1	9.8	36.4	32.8	32.7	32.4	32.1	29.2	28.6	27.4	26.7	25.6	17.7		
218-224	0.2	1.90		14.4	12.5	9.2	32.6	28.7	28.7	28.5	28.2	27.8	27.5	27.0	25.1	23.8	17.5		

Depth	Clay mineralogy Mt	Chl	Vm		HIV Int.	Kl	Gibb	Qz		Amor. Pct	Optical analyses Qtz	Feld	Mi	H & O
0-23					33	40		37						
23-53														
53-66														
66-122														
122-147														
147-162														
162-218					tr	95		tr						
218-224														

Mt Montmorillonite
Chl Chlorite
Vm Vermiculite
Mi Mica
HIV Int. Interlayered
Kl Kaolinite
Gibb Gibbsite
Qtz Quartz
Feld Feldspar
Amor Amorphous
H & O Heavies & Opaque

Engineering data — State of Florida Department of Transportation

Depth (cm)	Max. density dry lbs/ft³	Opt. moist Pct	Mechanical analysis < 2 mm	<	<	<	<	<	<	Bulk	Liquid limit	Plastic limit	Plasticity index	AASHO	Unified	Linear shrink.	Shrink swell pot.
66-122	111.7	10.7	100	91	9	5	1	0	0		N.P.		N.P.	A-3			
162-218	117.7	13.2	100	85	26	24	20	18	17		26		13	A-2-6			

SPARR SAND

LOCATION: Alachua County, Florida; 200 feet north of graded road, 0.8 mile west of Sta Road 121, about 1 mile east of Devil's Millhopper; NE 1/4, NE 1/4, Sec. 23, T9S, R

VEGETATION AND USE: Longleaf, slash, and loblolly pine, hickory, magnolia, dogwood, li oak, and water oak; most areas are cleared and used for improved pastures or culti crops.

SLOPE AND LANDFORM: Nearly level area with 2 gradient.

DRAINAGE AND PERMEABILITY: Moderately well drained; moderate permeability.

PARENT MATERIAL: Thick beds of sandy and loamy marine sediments.

SAMPLES COLLECTED AND PROFILE DESCRIBED BY: V. W. Carlisle, F. Sodek, FAES, and E. P. Thomas, W. H. Wittstruck, SCS. 30 July 1975.

HORIZON	DEPTH	DESCRIPTION
Ap	0-23cm (0-9")	Dark grayish-brown (10YR 4/2) sand; weak medium granular; very able; few fine roots; strongly acid; clear wavy boundary. 2172
A21	23-53cm (9-21")	Yellowish-brown (10YR 5/6) sand; weak fine granular; very friabl few fine roots; strongly acid; clear wavy boundary. 2173.
A22	53-66cm (21-26")	Yellowish-brown (10YR 5/4) sand; fine, faint, brownish-yellow mottles; single grain; loose; few fine roots; strongly acid; cle wavy boundary. 2174.
A23	66-122cm (26-48")	Light yellowish-brown (10YR 6/4) sand; few, fine, distinct, pale brown mottles; single grain; loose; few fine roots; strongly aci clear wavy boundary. 2175.
A24	122-147cm (48-58")	Very pale brown (10YR 7/3) sand; few, fine and medium, distinct, strong brown (7.5YR 5/6) and few, fine, distinct, yellowish-brown (10YR 5/8) mottles; single grain; loose; few fine roots; moisture content much greater than in horizon above; very strong acid; clear wavy boundary. 2176.
B1	147-162cm (58-64")	Yellowish-brown (10YR 5/6) sandy loam; common, medium, distinct, light gray (10YR 7/1) and few, fine, distinct, strong brown mottles; weak fine subangular blocky; sand grains coated and bridged with clay; very strongly acid; clear wavy boundary. 2177.
B2tg	162-218cm (64-86")	Light gray (10YR 7/1) sandy clay loam; common, medium, faint (10 7/3) and few, fine, distinct, strong brown mottles; weak medium subangular blocky; friable; thin discontinuous clay films on face of peds; very strongly acid; clear wavy boundary. 2178.
B3g	218-224cm (86-99")	Light gray (N 7/0) sandy loam; few, medium, faint, light brownish gray (10YR 6/2) and few, fine, distinct, very pale brown mottles; weak fine subangular blocky; friable; sand grains well coated with clay; strongly acid. 2179.

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IFAS

Soil SPARR FINE SAND

Location Hernando County

Soil Survey Sample No. S27-29-(1-7)

Classification Grossarenic Paleudults, loamy, siliceous, hyperthermic

Depth (cm)	Horizon	Lab no	Sand VC (2-1)	Sand C (1-.5)	Sand M (.5-.25)	Sand F (.25-.1)	Sand VF (.1-.05)	Sand Total (2-.05)	Silt Total (.05-.002)	Clay Total < .002	Text class	Extractable bases 6N2e Ca	6O2d Mg	6P2a Na	6Q2a K	Sum	6H1a Extr acidity	CEC 5A3a Sum cations	5C3 Base sat Pct
			Pct. of < 2mm									meq/100g							
0-13 13-23	A1 A21	2155 2156	0.0 0.0	0.9 0.8	13.3 12.7	66.1 68.6	11.0 11.8	91.3 93.9	4.7 3.8	4.0 2.3	fs fs	1.48 1.32	0.24 0.02	0.03 0.01	0.06 0.01	1.81 1.36	7.2 4.9	9.01 6.26	20 22
23-76 76-112	A22 A23	2157 2158	0.0 0.0	0.8 0.9	12.4 13.3	70.5 69.8	11.7 11.9	85.4 95.9	2.4 2.4	2.2 1.7	fs fs	0.10 0.06	0.01 0.02	0.00 0.00	0.00 0.00	0.11 0.08	2.5 1.2	2.61 1.28	4 6
112-155 155-162	A3 B21t	2159 2160	0.0 0.0	0.9 0.8	11.8 8.8	70.9 58.0	13.1 11.0	96.7 78.0	2.6 3.0	0.7 18.4	fs fsl	0.06 0.75	0.02 1.00	0.00 0.02	0.00 0.02	0.08 1.79	0.5 5.0	0.58 6.79	14 26
162-203	B22t	2161	0.0	0.8	10.0	53.0	9.5	73.3	2.4	24.3	scl	0.29	0.48	0.03	0.03	0.83	7.6	8.43	10

Depth (cm)	Organic carbon Pct	8A1a Elect. cond. mmho/cm	pH 8C1a H_2O (1:1)	pH 8C1f $CaCl_2$ .01M (1:2)	pH 8C1g KCl 1N (1:1)	Pyrophosphate extr [illegible]	[illegible] Fe	[illegible] Al	C + Al / Clay	[illegible] Extr Al Pct	[illegible] Extr Fe Pct	Total P ppm	[illegible]	[illegible] meq/100g					
0-13 13-23	1.60 0.66	0.06 0.04	5.1 5.2	4.3 4.4	3.9 4.3					0.040 0.080	0.069 0.085						1		
23-76 76-112	0.28 0.10	0.02 0.02	5.8 6.0	5.0 5.2	4.6 4.7					0.070 0.050	0.082 0.064								
112-155 155-162	0.04 0.10	0.02 0.04	6.3 5.5	5.3 4.6	4.9 4.1					0.030 0.140	0.053 0.424								
162-203	0.08	0.02	5.2	4.2	3.9					0.185	0.079								

Depth (cm)	Hydr. cond (sat.) cm/hr	Bulk density 4A3a Field moist. g/cc	Moist equiv Pct	Water content by wt. 4B1a 1/10 bar Pct	4B1a 1/3 bar Pct	4B2 15 bar Pct	Water content by vol. 0 bar	0.02 bar	0.04 bar	0.045 bar	0.06 bar	0.08 bar	0.10 bar	0.15 bar	0.20 bar	0.33 bar	15.0 bar
0-13 13-23	35.5 35.5	1.21 1.39		12.5 8.9	7.9 6.1	2.4 2.9	41.7 47.2	33.0 39.1	30.3 34.0	25.6 25.1	20.9 18.6	16.9 14.4	14.8 12.4	12.2 10.2	11.0 9.4	9.4 8.4	2.9 4.0
23-76 76-112	33.5 32.8	1.47 1.43		7.2 16.0	4.8 13.6	1.7 8.7	43.4 52.9	40.5 50.0	37.9 49.6	32.8 37.4	19.7 28.9	12.7 23.9	10.4 21.8	8.3 19.6	7.6 18.9	6.9 18.3	24 11.6
112-155 155-162	30.9 1.1	1.53 1.69		5.2 13.7	3.4 12.6	0.5 6.9	42.3 35.8	38.4 32.2	37.7 31.8	27.2 28.7	17.2 27.3	10.6 25.8	7.9 24.8	6.1 23.4	5.4 22.8	5.1 21.2	0.8 11.7
162-203	0.6	[illegible]		[illegible]	16.7	9.4	40.3	37.3	37.2	36.9	34.2	32.9	32.3	31.1	30.3	28.7	16.2

Depth (cm)	Clay mineralogy Mt	Chl	Vm	Mi	14A Int	Kl	Gibb	Qtz	Feld	[illegible]	Amor Pct	Optical analysis Qtz	Feld	Mi	H & O
0-13 13-23					39	19		42							
23-76 76-112					58 64	12 21	20	10 15							
112-155 155-162					50	30		20							
162-203															

Mt - Montmorillonite
Chl - Chlorite
Vm - Vermiculite
Mi - Mica
14A Int - Interlayered
Kl - Kaolinite
Gibb - Gibbsite
Qtz - Quartz
Feld - Feldspar
Amor - Amorphous
H & O - Heavy & Opaque

Depth (cm)	Max density dry	Opt moist Pct	< [illegible]	< [illegible]	< [illegible]	< [illegible]	< [illegible]	< [illegible]	< [illegible]	[illegible]	Liquid limit	[illegible]	Plastic index	AASHTO class	[illegible]	Linear shrink	Shrink-swell pot
23-76 162-203	109.3 111.5	12.0 15.2	100 100	98 98	[illegible] 28	[illegible] 26	3 24	0 21	0 21		N.P. 25		N.P. 11	A-3 A-2-6			

S27-29-(1-7)

SPARR FINE SAND

LOCATION: Hernando County, Florida; 200 feet south of State Road 476, 30 feet east of trail road; NE 1/4, SE 1/4, Sec. 23, T21S, R20E.

VEGETATION AND USE: Longleaf and slash pine, dogwood, laurel and live oak, hickory, and magnolia.

SLOPE AND LANDFORM:

DRAINAGE AND PERMEABILITY: Somewhat poorly drained; slow runoff; moderate permeability.

PARENT MATERIAL: Sandy and loamy marine sediments.

SAMPLES COLLECTED AND PROFILE DESCRIBED BY: M. A. Granger, W. G. Pothier, FAES, and A. G. Hyde, L. L. Law, Jr., SCS. 24 July 1975.

HORIZON	DEPTH	DESCRIPTION
A1	0-13cm (0-5")	Dark gray (10YR 4/1) fine sand; weak medium granular; very friable; many fine and medium and few large roots; strongly acid; clear wavy boundary. 2155.
A21	13-23cm (5-9")	Brown (10YR 5/3) fine sand; few, fine, faint, dark gray streaks; weak medium granular; very friable; few charcoal fragments; many fine and medium and few large roots; strongly acid; clear wavy boundary. 2156.
A22	23-76cm (9-30")	Light yellowish-brown (10YR 6/4) fine sand; single grain; loose; many uncoated sand grains; common fine and medium and few large roots; strongly acid; clear wavy boundary. 2157.
A23	76-112cm (30-44")	Very pale brown (10YR 8/4) fine sand; common, distinct, faint, white mottles; single grain; loose; many uncoated sand grains; common fine roots; strongly acid; clear wavy boundary. 2158.
A3	112-155cm (44-61")	Very pale brown (10YR 8/3) fine sand; many, common, faint, white and few, fine, faint, yellowish-red mottles; single grain; loose; many clean sand grains; few fine roots; medium acid; clear wavy boundary. 2159.
B21t	155-162cm (61-64")	Light yellowish-brown (10YR 6/4) sandy loam; common, medium, distinct, strong, brown (7.5YR 5/6) mottles; weak medium subangular blocky; friable; few fine roots; clay bridging between sand grains; few fine roots; medium acid; clear wavy boundary. 2160.
B22t	162-203cm (64-80")	Light brownish-gray (10YR 6/2) fine sandy loam; common, distinct, faint gray, common, distinct, prominent, reddish-yellow (5YR 6/6), and many, distinct, prominent, strong, brown (7.5YR 5/6) mottles; weak medium subangular blocky; friable; reddish-yellow areas slightly brittle; very few phosphatic pebbles; very few fine roots; medium acid. 2161.

REMARKS:

The elevation is 50'.

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SOIL CHARACTERIZATION LABORATORY — UNIVERSITY OF FLORIDA
IFAS

Soil: BLICHTON FINE SAND
Location: Hernando County

Soil Survey Sample No.: S27-9-(1-7)
Classification: Arenic Plinthic Paleaquults, loamy, siliceous, hyperthermic

Depth (cm)	Horizon	Lab no.	Sand VC (2-1)	Sand C (1-.5)	Sand M (.5-.25)	Sand F (.25-.1)	Sand VF (.1-.05)	Sand Total (2-.05)	Silt Total (.05-.002)	Clay Total (<.002)	Text. class	Extractable bases 5B1: 6N2e Ca	6O2d Mg	6P2a Na	6Q2a K	Sum	6H1a Extr acidity	CEC 5A3a Sum cations	5C3 Base sat Pct
			Pct. of <2mm									meq/100g							
0-23	Ap	1397	0.1	1.2	15.6	54.7	16.7	88.3	6.0	5.7	fs	2.9	0.5	0.1	tr	3.5	7.8	11.3	31
23-58	A21	1398	0.2	1.3	14.9	54.5	17.2	88.1	5.7	6.2	fs	1.8	0.3	0.1	tr	2.2	6.7	8.9	25
58-71	A22	1399	0.1	1.3	14.7	54.5	17.2	87.8	5.1	7.1	lfs	1.4	0.4	0.1	tr	1.9	4.8	6.7	28
71-86	B1tg	1400	0.1	1.0	11.5	44.1	.5.0	71.7	4.1	24.2	scl	2.2	1.7	tr	0.1	4.0	12.9	16.9	24
86-124	B2tg	1401	0.3	1.1	11.0	38.1	12.3	62.8	5.0	32.2	scl	2.1	1.6	0.1	0.1	3.9	16.9	20.8	19
124-160	B2tg	1402	0.2	1.1	12.4	35.6	9.1	58.4	2.7	38.9	sc	1.6	0.8	0.1	0.1	2.6	17.9	20.5	13
160-190	B3tg	1403	0.7	1.1	3.9	17.3	9.4	32.4	6.7	60.9	c	10.0	2.2	0.3	0.4	12.9	43.6	56.5	23

Depth (cm)	Organic carbon Pct	8A1a Elect. cond mmho/cm	pH 8C1a H_2O (1:1)	pH 8C1e $CaCl_2$ .01M (1:2)	pH 8C1e KCl 1N (1:1)	Pyrophosphate extr C	6C5c Fe	6G7c Al	C+Al/Clay	6G Extr Al	6C2b Extr Fe	Total P % ppm	6E1 Carbonate as $CaCO_3$ Pct	Ext acidity meq/100g					
0-23	1.61	0.05	5.5	4.8	4.3					--	--	0.04							
23-58	0.64	0.06	5.7	5.0	4.4					0.100	0.116	0.05							
58-71	0.22	0.08	5.5	4.8	4.1					0.081	0.213	0.08							
71-86	0.28	0.06	5.1	4.1	3.3					0.150	0.544	0.24							
86-124	0.22	0.05	4.8	3.9	3.3					0.212	1.039	0.35							
124-160	0.15	0.04	4.7	3.7	3.1					0.169	0.140	0.53							
160-190	0.08	0.06	4.5	3.5	2.8					0.338	1.062	0.62							

Depth (cm)	Hydr. cond. (sat.) cm/hr	Bulk density 4A3a Field moist. g/cc	Moist. equiv. Pct.	Water content by wt. 4B1d 1/10 bar	4B1d 1/3 bar	4B2 15 bar	Water content by vol. 0 bar	0.02 bar	0.03 bar	0.045 bar	0.06 bar	0.08 bar	0.10 bar	0.15 bar	0.20 bar	0.33 bar	15.0 bar		
				Pct			Pct.												
0-23	7.0	1.41		13.5	9.2	3.0	41.4	39.1	37.1	28.1	24.1	20.4	19.0	16.7	15.5	12.9	4.3		
23-58	4.1	1.62		13.5	8.0	2.5	32.8	32.7	32.1	30.0	27.7	24.1	22.0	18.7	16.4	12.9	4.1		
58-71	1.2	1.51		32.3	26.0	3.2	53.5	52.9	52.9	52.9	53.0	47.1	44.7	40.9	38.8	35.5	4.8		
71-86	0.0	1.65		22.2	19.7	10.5	38.1	38.2	38.4	37.9	37.9	37.0	36.7	35.3	34.4	32.6	17.4		
86-124	0.1	1.67		23.1	20.9	12.0	39.8	39.7	39.6	39.1	38.9	38.8	38.7	38.2	36.7	35.0	20.1		
124-160	0.0	1.60		26.6	25.2	16.2	42.8	42.7	49.8	42.3	42.3	42.4	42.4	41.8	41.6	40.3	25.9		
160-190	0.0	1.26		44.2	43.1	36.3	56.3	56.3	55.7	56.2	56.3	56.3	55.8	55.2	55.1	54.5	45.8		

Depth (cm)	Clay fraction analysis 7A1b-d: Mt.	Chl.	Vm	Mi	14A Int	Kl	Gibb	Qtz	Feld		Amor. Pct	Optical analysis 7B1 (.02-2.0 mm.): Qtz.	Feld.	Mi.	H & O
	7A2d (x-ray) Pct											Pct.			
0-23					36	19		45							
23-58					40	22		38							
58-71					34	29		37							
71-86					42	38		20							
86-124					30	26		11							
124-160					21	43		4							
160-190					4	1		3							

Mt. - Montmorillonite
Chl. - Chlorite
Vm. - Vermiculite
Mi. - Mica
14A Int. - Interlayered
Kl. - Kaolinite
Gibb. - Gibbsite
Qtz. - Quartz
Feld. - Feldspar
Amor. - Amorphous
H & O - Heavy & Opaque

Engineering test data by Florida Department of Transportation

Depth (cm)	Max. density dry lbs/ft³	Opt moist Pct	Mechanical analysis < 2.00	< .42	< .074	< .05	< .02	< .005	< .001	Bearing ratio	Liquid limit	Plastic limit	Plastic index	AASHO class	Vol. shrink.	Linear shrink.	Shrink swell pot.
			Pct														
23-71	114.5	11.4	100	97	18	12	5	4			N.P.		N.P.	A-2-4			

BLICHTON FINE SAND

LOCATION: Hernando County, Florida; about 25 yards south of Highway 476, 50 yards west of US 41; NW 1/4, NE 1/4, Sec. 30, T21S, R20E.

VEGETATION AND USE: Slash pine, sweetgum, persimmon, dogwood, ferns, and briers.

SLOPE AND LAND FORM: Nearly level coastal plain with less than 2% gradient.

DRAINAGE AND PERMEABILITY: Poorly drained; slow runoff; moderate permeability.

PARENT MATERIAL: Loamy marine sediments.

SAMPLES COLLECTED AND PROFILE DESCRIBED BY: F. G. Calhoun, V. W. Carlisle, FAES, and A. G. Hyde, R. L. Weatherspoon, SCS. July 1974.

HORIZON	DEPTH	DESCRIPTION
Ap	0-23cm (0-9")	Very dark gray (10YR 3/1) loamy fine sand; moderate medium granular; very friable; many fine and few large roots; medium acid; gradual smooth boundary. 1397.
A21	23-58cm (9-23")	Dark grayish-brown (10YR 4/2) loamy fine sand; common, medium, distinct, very dark gray (10YR 3/1) stains; weak medium granular; very friable; common fine and medium roots; medium acid; clear smooth boundary. 1398.
A22′	58-71cm (23-28")	Gray (10YR 5/1) loamy fine sand; common, medium distinct, brown (7.5YR 4/4) mottles; weak medium granular; very friable; many, small, dark reddish-brown (5YR 3/3) and reddish-brown (5YR 4/3) iron concretions; few, fine and medium roots; medium acid; clear wavy boundary. 1399
B1tg	71-86cm (28-34")	Gray (10YR 5/1) sandy loam; common, medium, distinct, brown (7.5YR 4/4) mottles; moderate medium granular; friable; common hard iron concretions and few white weathered phosphatic pebbles; clay bridging between sand grains; few fine and medium roots; strongly acid; clear wavy boundary. 1400.
B2tg	86-160cm (34-63")	Gray (10YR 5/1) sandy clay loam; many, medium, prominent, reddish-brown (5YR 4/3) and common, medium, distinct, reddish-brown (5YR 4/4) mottles; moderate medium subangular blocky; friable; 6 percent plinthite with centers of dark reddish-brown (5YR 5/6); faint discontinuous clay films; few fine roots; strongly acid; clear wavy boundary. 1401 1402.
B3tg	160-190cm (63-75")	Light gray (2.5YR 7/2) clay; common, medium, distinct, light yellowish-brown (10YR 6/4) and common, medium, prominent, yellowish-red (5YR 5/6) mottles; coarse medium subangular blocky; firm; many very small white phosphatic pebbles; clay skins on outside of ped faces; very few fine roots; very strongly acid. 1403.

REMARKS:

The B2tg horizon was subdivided at 86-124cm and 124-160cm for laboratory anal

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

August 10, 1990

Mr. Jim Ergle, Chairman
Marion County School Board
512 S.E. Third Street
Ocala, Florida 32678-0670

Dear Mr. Ergle:

On July 10, 1990, Mid-Florida Mining withdrew the application for a permit to construct the proposed afterburner. They also notified us of their intent to cease all soil decontamination activities at the Lowell site.

The information in the Department's Mid-Florida Mining and Ocala Asphalt files can be made available to the Marion County School Board. You may wish to contact Charles Collins in our Orlando office at (407) 894-7555 in order to make arrangements to copy the files.

We recognize that a potentially affected party may miss a notice of intent that is published only once. But, this practice is consistent with other legal notice requirements in both state and federal law. Since the Department makes over 15,000 permitting decisions each year it is difficult to decide which of those activities warrants a broader notification. Toward that end we are considering legislation to expand our authority to require additional noticing requirements by permit applicants for certain department permitting actions.

The Department lacks legislative authority to consider local zoning and building permit requirements and are not included in the air permit review process. Permits issued by the Department include a general condition that requires applicants to comply with all other federal, state, and local requirements. This requirement enables local government to prevent construction of an air pollution source through the refusal of a building permit or the denial of appropriate zoning, even if the owner has a valid air construction permit.

Each air construction permit issued by the Department includes limitations on the quantity of air pollutants that may be emitted from a source. These limitations are established at the lowest practical level to protect public health and welfare. In no case are air emission rates allowed that would result in an exceedance of ground level ambient air standards. The permit conditions also specify the minimum frequency and method of determining compliance with the emission limits.

If you have any additional questions, write to me again or call Mr. Steve Smallwood at (904) 488-1344. Mr. Smallwood is the Director of the Division of Air Resources Management.

Sincerely,

John Shearer
Assistant Secretary

DT/ab

cc: School Board Members
Board of County Commissioners
David Townsend, Environmental Health Director

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

August 7, 1990

Mr. E. Dwight Adams, Chair
Committee on Solid Waste
Sierra Club
The Florida Chapter
2905 N.W. 12th Place
Gainesville, FL 32605

Dear Mr. Adams:

Secretary Twachtmann asked me to respond to your May 9 letter regarding Mid-Florida Mining's (MFM) proposal to treat contaminated soil.

On July 10, 1990, Mid-Florida Mining withdrew the application for a permit to construct the proposed afterburner. MFM also notified us of their intent to cease all soil decontamination activities at the Lowell site.

I understand your concern about the burning of used oil as a fuel. It is true that the allowable concentrations of heavy metals and halogens in "on-spec" used oil (40 CFR 266.40) exceed the federal EP toxicity criteria (40 CFR 261.24). But, a comparison of the allowable concentrations of heavy metals and halogens in "on-spec" used oil to the federal EP toxcitiy criteria is not valid. The EP toxicity criteria is a measure of the leachable concentrations of specified compounds. The extractable procedure (EP) toxicity methodology involves weak acid extraction and 20 fold dilution of the sample. The used oil criteria represent the <u>total</u> undiluted concentrations of heavy metals and halogens allowed in "on-spec" used oil. The maximum allowable concentrations of heavy metals and halogens in "on-spec" used oil are representative of those found in some virgin petroleum products.

Thank you for sharing your concerns about the MFM facility. If you have any questions, please write to me or call Mr. Clair Fancy at (904) 488-1344.

Sincerely,

Steve Smallwood

STEVE SMALLWOOD, P.E.
Director
Division of Air Resources
Management

SS/MH/plm

Important Notes
Dates & Times

8/4

1. ~~Steve~~
2.
3. ~~Another go at it.~~
4.
5. CHF ~~Clair~~
6.
7. Very Good. Thank you. District
8.
9.
10. copy, I will not.
11.
12. 8-7-90
13.
14.
15.

DIVISION OF AIR RESOURCE MANAGEMENT

(For Internal Use Only)

ROUTING AND TRANSMITTAL SLIP

ACTION NO DARM 605

ACTION DUE DATE 8-10-90

1. TO: (NAME, OFFICE, LOCATION) Clair Fancy
2.
3.
4.

REMARKS:

See SSmi's notes

8-8

Mike -
We got one thru!
please mail out & give me a copy for my MPM file. thanks
Clair

make sure it is checked off AI log. Clair

CLAIR,
~~HERE IS THE REWRITTEN D. ADAMS LETTER.~~
Mike

Steve 7/30
OK to sign
Clair

JAR -
Re assign as an action item. Due 8-10-90
Ems
Steve

~~get our action~~ for ~~Jr staff~~ if we needed.

FROM: Judy

DATE 8-3-90

PHONE

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

July 30, 1990

Mr. E. Dwight Adams, Chair
Committee on Solid Waste
Sierra Club
The Florida Chapter
2905 N.W. 12th Place
Gainesville, FL 32605

Dear Mr. Adams:

Secretary Twachtmann asked me to respond to your May 9 letter regarding Mid-Florida Mining's (MFM) proposal to treat contaminated soil.

On July 10, 1990, Mid-Florida Mining withdrew the application for a permit to construct the proposed afterburner. MFM also notified us of their intent to cease all soil decontamination activities at the Lowell site.

Thank you for sharing your concerns about the MFM facility. If you have any questions, please write to me or call Mr. Clair Fancy at (904) 488-1344.

Sincerely,

STEVE SMALLWOOD, P.E.
Director
Division of Air Resources
Management

Redo — This does not address his question about the burning of used oil which may continue. — Sts

SS/MH/plm

Best Available Copy

S. Smallwood - handle
JAR- Assign to CHF - STm
fns, my review
5-14-90

SIERRA CLUB

The Florida Chapter

2905 N.W. 12th Pl.
Gainesville, FL 32605
378-5129 (H) 392-0485 (W)
May 9, 1990

RECEIVED
MAY 11 1990
Office of the Secretary

Mr. Dale Twachtmann, Secretary
Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Mr. Twachtmann:

Your office is probably aware of the controversy regarding the incinerator operated by Mid-Florida Mining (MFM) and the application for a permit to treat contaminated soil. I have pursued this situation for several months following a request for assistance by We the People for a Safe Environment. Enclosed are comments on the MFM incinerator, based on a presentation that I made to that group.

As I pointed out in these comments, the primary source of emissions at MFM is the used oil burned as fuel. This oil contains large amounts of heavy metals, notably lead, and chlorine. As a result of the high level of contaminants in the used oil and minimal controls at MFM, significant quantities of lead, mercury, chromium and acid gases are being emitted.

Furthermore, it appears that some estimates of emissions in the Technical Evaluation such as for lead (1 lb/hr instead of 0.4) and for mercury (.18 lbs/hr instead of .02) may be in error.

?
?

Recently, high levels of lead have been found in horses in the area. Miscarriages and birth defects have occurred. It seems quite likely that the main source of this lead is the used-oil fuel burned at MFM.

It is difficult to see how the conclusion of DER, stated in the Technical Evaluation, that the emissions will not result in violation of air quality standards can be correct. The Florida Chapter Sierra Club urges that much more stringent emission limits be imposed, as indicated in my written comments. If these are beyond current rules, then revision of the rules is indicated.

recycled paper

This situation, emphasizes the inappropriateness of used oil as a fuel, because of the high level of contaminates. Prohibition of burning used oil is needed, through rules if possible, or if necessary through legislative action.

Thank you for your consideration.

Sincerely,

E. Dwight Adams

E. Dwight Adams, Chair
Committee on Solid Waste

EDA/ja

Enclosure

MID-FLORIDA MINING INCINERATOR

Dwight Adams

Florida Chapter Sierra Club

Concern has been expressed regarding possible toxic emissions from the Mid-Florida Mining (MFM) incinerator, especially with the proposed addition of an afterburner for thermal treatment of contaminated soils, sludges, and still bottoms.

The primary source of possible toxic emissions is the used oil burned as a fuel rather than contaminants in the materials being processed. This so-called "on-specification" used oil has high levels of various heavy metals such as cadmium, lead, and mercury as well as halogens (chlorine, fluorine etc.) Typically levels of the contaminants in on-spec used oil exceed the toxicity levels used to classify other materials as hazardous wastes.

For comparison, listed below are several contaminants and the limits for on-spec used oil and for classification of wastes as EP toxic (i.e. hazardous), (concentration are in parts per million, ppm).

Many such are toxic

	On-spec used oil	EP toxic
Arsenic	5	5
Cadmium	2	1
Chromium	~~100~~ 10	5
Lead	100	5
Halogens (chlorine, fluorine)	4,000	1,000
Mercury	--	0.2

presumed haz @ 1,000

Furthermore, the fuel burned in the rotary kiln may have up to 500 ppm lead. As these numbers indicate, the fuel burned at MFM has contaminants equal to or higher than those in hazardous wastes. Technically MFM is not burning a hazardous waste; however, it is simply because the used oil burned as fuel has not been classified by the Environmental Protection Agency as a hazardous waste.

While the high temperature to be achieved in the afterburner may be adequate to "destroy 99.99%" of compounds in the materials being treated, metals in the used-oil fuel are not destroyed, but are released into the environment unless controlled (discussed below). Also elements such as chlorine (4,000 ppm in used oil) and sulfur are made available by the incineration process to form acid gases.

Based on the above contaminant levels and the amount of used oil to be burned, 10,000 pounds per year of lead and 1500 pounds of mercury, as well as large amounts of other heavy metals, are estimated to be released by the MFM incinerator (note error regarding lead and mercury in DER evaluation of permit application). The quantities of lead and mercury (probably chromium also) are quite alarming since they all are priority toxic pollutants with well documented highly detrimental effects on animals and humans.

Since used oil has been the fuel for kitty litter processing at MFM for years (with minimal control of particulates, see below), large quantities of heavy metals may have been released into the environment already. Tests of plants, animals, and fish in surface waters would indicate if there are problems.

Since the heavy metals, except mercury, become adsorbed on fine ash particles as the combustion products cool while exiting the incinerator, considerable capture of metals can be achieved with good particulate control. However, this is not occurring at MFM because the particulate control baghouse has a limit of only 0.08 grains/dry standard cubic foot. By contrast, 0.02 (or even 0.01) is a typical limit set for a municipal waste incinerator. The situation is much worse than the difference between 0.08 and 0.02 might suggest. At the 0.08 limit only the larger particles are captured. Metals are preferentially adsorbed on the fine particles which have a much larger surface area (in relation to volume). However, these fine particles escape the coarse fabric filter, carrying the toxic metals with them into the air.

Highly volatile mercury is a special case because it is not adsorbed on ash particles at the temperatures in a bag house. Even with good particulate control, other devices such as wet scrubbers are necessary to control mercury.

In addition to metals in the used oil, it contains large amounts of chlorine, most of which will appear as hydrochloric acid (HCl) in the emission products. Estimated emission of HCl at MFM is 28 pounds per hour. By contrast, the limit of HCl emission for biohazardous or hazardous waste incinerators is four pounds per hour. Also, large quantities of other acid gas such as sulfur dioxide (SO_2, 112 lbs/hr), nitrogen oxides (NO_x, 37 lbs/hr) are estimated at MFM. The quantity of SO_2 is over four times the emission from a 250 ton per day municipal waste incinerator with scrubbers. Yet, the MFM incinerator has no scrubbers for these acid gases and none is proposed in the permit to modify the incinerator to treat contaminated soil.

Ironically, with the addition of the afterburner, designed to achieve 2000°F for the destruction of toxic compounds in materials being treated, emissions will increase. Again, the reason is not the materials being treated, but contaminants in the additional used oil for firing the afterburner. Furthermore, there is no emission control device at all following the afterburner. The existing particulate filter is before the afterburner.

Potential emission of dioxins is another concern. There appears to be no justification for the statement, "The applicant is of the opinion that the design of the afterburner is such that emissions of dioxins should not be a problem." Conditions in the MFM incinerator are similar to those in medical waste incinerators, which produce significant levels of dioxins. These are 2000°F in an afterburner, large amounts of chlorine, dioxin precursors present in volatile organic compounds not completely destroyed in the incinerator (at the level of 1 found per hour in the MFM incinerator), and a cool region where the dioxins form on exiting the incinerator. (Note: dioxins contain only chlorine, carbon, hydrogen, and oxygen.) If dioxins are being formed, this would be of grave concern since they are among the most toxic substances known.

Rather than permitting this facility with only 0.08 gr/dscf particulate control and no scrubbers, the Florida Chapter Sierra Club recommends the following permit conditions, along with the exclusion of used oil as a fuel:

particulates	0.01 gr/dscf
HCl	98% reduction
SO_2	90% reduction
lead	99% reduction
mercury	95% reduction

These levels of control are not unreasonable since they have been readily achieved in currently-available emission control devices. Furthermore, the added costs involved would be moderate and likely much smaller than the economic loss that could result for the surrounding area if emissions are not adequately controlled.

Dr. Dwight Adams chairs the Florida Chapter Sierra Club committee on solid waste and is a professor of physics at the University of Florida.

~~June 22, 1990~~

July 18, 1990

CHF - rewrite and update by Friday COB

370

Let FW review your draft

L: PLM

BA

I'll sign over weekend

Steh

Mr. E. Dwight Adams, Chair
Committee on Solid Waste
Sierra Club
The Florida Chapter
2905 N.W. 12th Place
Gainesville, FL 32605

Dear Mr. Adams:

Secretary Twachtmann asked me to respond to your May 9 letter regarding air emissions resulting from Mid-Florida Mining's (MFM) proposal to treat contaminated soil.

The Department understands your concern about the proposal to allow MFM to burn used oil as a fuel when processing contaminated materials (i.e., decontaminating soil). This is an aspect of the proposal that ? has also been troublesome with us. In recent negotiations with the Department, MFM has agreed to burn virgin oil in both the rotary kiln and the afterburner whenever contaminated materials are processed. This agreement to burn virgin oil will be reflected in the final permit as a specific condition.

The proposed rotary kiln/afterburner system would function as a classic two-chamber incinerator when used to process contaminated materials. The applicable particulate emission standard in F.A.C. Rule 17-2.600(1)(c) is 0.08 grains/dry standard cubic foot. This standard is the same as the federal particulate

Steve

Here is a response to an action item that required your signature

Barry

standard for hazardous waste incinerators. If the proposed rotary kiln/afterburner system had been subject to the federal PSD new source review requirements, a more restrictive particulate emission standard might have been applied.

The applicant has stated that dioxin emissions should not be a problem. The basis for this statement were reasonably consistent with the results of an EPA study reported in the No. 2-89 edition of the ENSR Newsletter which identified the factors primarily responsible for the formation of dioxin. These factors include the presence of organics in association with one or more of the following combustion conditions: (1) Low combustion temperature (900°F - 1500°F); (2) Low retention time (1-2 seconds); (3) Inadequate oxygen/incomplete combustion; (4) Inadequate processing of fuels; and, (5) Lack of supplemental fuel. MFMs proposed 50 million Btu/hr afterburner is designed to operate at a temperature of 2000°F and a retention time of 2 seconds. This exceeds the temperature and retention time requirements for biohazardous waste incinerators of 1800°F and 1 second, respectively.

Thank you for sharing your concerns regarding the MFM facility. Your comments will be evaluated before a final permit is issued. If you have any questions, please write to me or call Mr. Clair Fancy at (904)488-1344.

Sincerely,

STEVE SMALLWOOD, P.E.

Director

Division of Air Resources

Management

SS/MH/plm

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

July 31, 1990

Mr. Don Greene, Chairman
Marion County Board of County Commissioners
601 Southeast 25th Avenue
Ocala, Florida 32671

Dear Mr. Greene:

On July 10, 1990, Mid-Florida Mining withdrew the application for a permit to construct the proposed afterburner. It also notified us of its intent to cease all soil decontamination activities at the Lowell site.

The information in the Department's Mid-Florida Mining and Ocala Asphalt files is available to the Marion County School Board. Your attorney may wish to contact David Schwartz at (904) 488-9730 in order to make arrangements to copy the MFM file and Charles Collins at (407) 894-7555 in order to make arrangements to copy the Ocala Asphalt file.

We recognize that a potentially affected party may miss a notice of intent that is published only once. But, this practice is consistent with other legal notice requirements in both state and federal law.

The fact that local zoning and building permit requirements are not included in the air permit review process is correct. Permits issued by the Department include a general condition that requires applicants to comply with all other federal, state, and local requirements. This requirement enables local government to prevent construction of an air pollution source through the refusal of a building permit or the denial of appropriate zoning, even though the owner has a valid air construction permit.

Each air construction permit issued by the Department includes limitations on the quantity of air pollutants that may be emitted from a source. These limitations are established at the lowest practical level to protect public health and welfare. In no case, are air emission rates allowed that would result in an exceedance of ground level ambient air standards. The permit conditions also specify the minimum frequency and method of determining compliance with the emission limits.

If you have any additional questions, write to me again or call Mr. Steve Smallwood at (904) 488-1344. Mr. Smallwood is the Director of the Division of Air Resources Management.

Sincerely,

Dale Twachtmann
Secretary

DT/mdh
cc: Board of County Commissioners
David Townsend, Environmental Health Director
Representative Stanley Bainter
Representative Allen F. Boyd, Jr.
Representative Dick Locke
Representative George Albright
Senator George Kirkpatrick
Senator Richard H. Langley
Senator Karen Thurman
Steve Smallwood, DER

RECEIVED

JUN 19 1990

DER - BAQM

Department of Environmental Regulation

Mail Response — Action Slip

DATE: 061890

Action Item No. 06-060

Date Due 070290

TO:

- [ ] Randy Armstrong
- [ ] Howard Rhodes
- [ ] Dan Thompson
- [ ] Mike Peyton
- [x] Steve Smallwood
- [ ] Rick Wilkins

[ ] Handle	[ ] Action Taken	Date ______
[x] Draft Response, D.T.	[ ] Action Taken	Date ______
[ ] Respond, Your Signature	[ ] Action Taken	Date ______
[ ] Other ______	[ ] Action Taken	Date ______

Return to Paula Griffin No Later Than 070290

DIVISION OF AIR RESOURCE MANAGEMENT

(For Internal Use Only)

ROUTING AND TRANSMITTAL SLIP

ACTION NO. DARM 571

ACTION DUE DATE 6-28-90

TO: (NAME, OFFICE, LOCATION)	Initial	Date
1. Clair		
2.		
3.		
4.		

INFORMATION: Review & Return; Review & File; Initial & Forward

DISPOSITION: Review & Respond; Prepare Response; For My Signature; For Your Signature; Let's Discuss; Set Up Meeting; Investigate & Report; Initial & Forward; Distribute; Concurrence; For Processing; Initial & Return

REMARKS:

Response needed for Dale's sign

OK

[illegible]

FROM: Steve

DATE 6-19

PHONE

S. Smallwood
draft resp DT

Marion County Commission

601 S.E. 25th Avenue • Ocala, Florida 32671

COMMISSIONERS
GAIL CROSS DIST. 1
DON GREENE DIST. 2
PARNELL TOWNLEY DIST. 3
T.W. "TOMMY" NEEDHAM DIST. 4
GLEN CHARLES FIORELLO DIST. 5
AREA CODE 904 622-0305
FAX 904 368-2322

RECEIVED
JUN 19 1990
DER - BAQM

JUN 14 1990
Office of the Secretary

June 12, 1990

Mr. Dale H. Twachtmann, Secretary
Departnent of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

RE: Air Quality Permit

Dear Secretary Twachtmann:

I need to address the concern of the Board of County Commissioners and the people of Marion County concerning pending applications for air quality permits for incineration of non-hazardous materials in Marion County.

Currently, the Department has issued an intent to issue a permit to Mid-Florida Mining, which is scheduled for an administrative hearing in August, and which the County has intervened as a party. A second application has been filed by Ocala Asphalt for incineration and is currently pending.

Marion County and the School Board are currently investigating the environmental impact of waste incineration and its effect on the surrounding agricultural land uses, horse farms and school children. In addition, Marion County is conducting public hearings in an ordinance to require a special use permit for incinerators and furnaces, as well as other special and usual uses.

I am concerned that the only notice requirement required by law is one published notice of the Department's intent to issue in a newspaper of general circulation. I am also concerned that the Department's criteria does not include zoning considerations, or require monitoring of effects on surrounding property by the Department or the property owner.

I appreciate that your Department is limited by requirements of law as to the amount of time required, but I would like to request that your department share with the County Commission all information received in this process. Hopefully, we can all work toward clean air and a clean environment.

Sincerely,

Don Greene

Don Greene, Chairman
Marion County Board of County Commissioners

/jm

xc: Board of County Commissioners
David Townsend, Environmental Health Director
Representative Stanley Bainter
Representative Allen F. Boyd, Jr.
Representative Dick Locke
Representative George Albright
Senator George Kirkpatrick
Senator Richard H. Langley
Senator Karen Thurman

MFM
INDUSTRIES

RECEIVED

AUG 1 1990

DER - BAQM

July 30, 1990

Mr. Clair H. Fancy, P.E., Deputy Chief
Bureau of Air Quality Management
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Clair:

I am sending you the enclosed article because it accurately reports the results of a study of lead levels in North Marion County soil and grass. This lead study, commissioned by the Florida Thoroughbred Breeder's Association, was conducted by Dr. Ott, an equine nutritionist, and Dr. Sundloff, a veterinarian toxicologist, of the University of Florida. It, like studies I have sent you and studies I will send you, shows that there is no health problem caused by either MFM or any other industry in North Marion County. This information is important because much has been written suggesting that there is some reason for concern in regard to the operation of industry in North Marion County. This study confirms that these stories are invalid and erroneous.

Sincerely,

David

David B. Kibler, IV
President

DBK:lfw

Enclosures (2)

3300 Southwest 34th Ave., Suite 152 • Ocala, FL 32674 • 904/854-0070 • 1-800-877-0897

MFM

INDUSTRIES

DATE: 7/30/90

TO: Mr. Steve Smallwood

FROM: David B. Kibler, IV

MFM INDUSTRIES, INC.
3300 S. W. 34th Ave., Suite 152
Ocala, Florida 32674

RE:

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THANK YOU.

BIG SUN

Ocala Star-Banner ★ Sunday, July 29, 1990

UF professors find low lead levels on farms

Study sampled farms near MFM

By Eric Mitchell
Staff Writer

OCALA — North Marion County horse farms are not contaminated with high levels of lead, concluded a long awaited report released by two university professors Saturday morning.

A study of lead levels in soil and grass was commissioned in April by the Florida Thoroughbred Breeders' Association in response to a local controversy surrounding a Mid-Florida Mining Industries plant near Lowell.

MFM manufactures a variety of commercial and industrial clay products including cat litter, but until recently used a 70-foot industrial kiln to clean soils polluted with petroleum products, like gasoline.

When the company attempted last fall to expand its decontamination business by accepting more complex pollutants like creosote and coal tar, many farm owners rose in opposition.

These horsemen blamed plant emissions, from the pollutants burned in MFM's industrial kiln and from used-motor oil fueling the kiln, for poisoning their livestock.

Lead is a toxic metal that can cause a wide variety of health problems in horses when ingested and is a common indicators of industrial pollution, according to the study.

MFM withdrew from the soil decontamination business on July 11, but horse industry leaders and property owners are still eager to alleviate fears of a perceived contamination problem in Marion County — the heart of Florida's $7 billion Thoroughbred industry.

The report by Dr. Edgar Ott, an equine nutritionist, and Dr. Stephen Sundlof, a toxicologist, both with the University of Florida, provided some relief and raised some questions.

Soil and grass were sampled from 72 pastures on 36 horse farms ranging from 0.6 to five or more miles from the Lowell plant. Included in this group were three farms located along County Road 329 and three farms bordering I-75.

Lead levels in soil found ranged from 5.8 to 24.1 parts per million (ppm), while levels in the forage ranged from 0.51 to 5.91 ppm. A part per million is a level of concentration that can be envisioned as one black marble among a million white ones.

Please see Professors on 4B

Professors find low levels of lead on north Marion farms

Continued from Big Sun

Natural lead levels in soil range from 2-200 ppm and horses grazing on grass containing 30 ppm lead have been shown to develop illness, according to Sundlof.

Ott and Sundlof concluded that:

- Lead levels found in soil and grass were low and would not cause toxicity in horses.
- Samples collected within 4.8 miles of MFM's Lowell plant were slightly higher than samples collected 5 miles away, but the difference was not significant. The report noted there was considerable variation between samples taken on the same farm.
- Of 11 farms that had one or more pastures with soil lead levels higher than 15 ppm, 10 of the farms were within 4.8 miles of the Lowell plant.

Whether the lead levels found were naturally occurring or the result of pollution could not be determined without comparing soil lead concentrations, soil types and prevailing wind direction, the report also indicated.

"We are thankful there is no danger and people can sell their land and raise their horses safely," said Dr. Cornelius "Sonny" Link, president of the citizen-action group We the People for a Safe Environment which was formed to block MFM's expansion. He also owns a Thoroughbred farm a mile north of Lowell.

Link is still concerned about possibly elevated lead samples near the plant and said he would like for MFM to stop burning used motor oil in their kiln.

Richard Hancock, FTBA executive vice-president, said he could not comment on the report until the association's board of directors reviewed it.

MFM president David Kibler could not be reached for comment.

OCALA STAR-BANNER, MONDAY, JULY 30, 1990

BEG YOUR PARDON

Horses in the Lowell area that grazed on soil having natural lead levels of 30 parts per million did not develop illness, according to a report by two university professors. An article in Sunday's paper stated otherwise.

Ocala Star Banner
Saturday - 7/28/90

No damage caused by diesel spill

More than 325 gallons contained

By Eric Mitchell
Staff Writer

OCALA — Quick action and good engineering prevented more than 325 gallons of spilled diesel fuel from polluting ground water sources along County Road 326 Friday morning.

A broken joint on a fuel pump at Starvin' Marvin's truck stop was blamed for the sudden discharge of diesel around 9:20 a.m. The fuel poured across a section of the parking lot and into two storm water drains.

Within eight minutes, the pump was shut off and North Marion County Volunteer firemen were on the scene containing the spill.

"Management did just what they were supposed to do," said Wayne Futch, public information officer for Marion County Public Safety Department. "When people don't call is when we get into real environmental problems."

Business was uninterrupted at the truck stop and the pump was repaired and operating within an hour.

"This is the first time a spill was caused by us," said Ed St. John, truck manager. "Usually a hose breaks on a truck."

Absorbent clay, supplied by Mid-Florida Mining Industries plant in Lowell, was poured over the spilled diesel and into the drains because safety officials suspected they emptied into a nearby pond, according to Capt. John Lake, hazardous material coordinator and county fire marshall.

However, no diesel fuel reached the soil here because the drains lead to underground storage tanks designed to contain these types of spills.

"Everything was contained," said Jerry Duff, owner of Duff's Environmental of DeLand which removed the fuel-soaked clay.

He will ship the contaminated clay to a soil treatment plant in Mulberry where it will be cleaned by incineration.

Duff had harsh words for Marion County residents who opposed Mid-Florida's soil decontamination business here.

"There are only two facilities in the state that burn to clean soil standards," he said. "The rest of the plant's burn to asphalt standards and use the soil on roads. MFM was probably the most efficient in the state."

Local law enforcement agencies are required to report all gasoline spills of 10 gallons or more, according to Lake.

"There is no more washing gas or oil off the sidewalk," Lake said.

Clair

MFM

INDUSTRIES

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DER-BAQM

July 2Ø, 199Ø

Mr. Steve Smallwood, Director
Division of Air Resources Management
Florida Department of Environmental Regulation
26ØØ Blair Stone Road
Tallahassee, Florida 32399-24ØØ

Dear Steve:

Attached you will find a Tampa Tribune article representative of coverage throughout the state of the Marion County Medical Society's epidemiology study giving MFM a clean bill of health.

Sincerely,

David B. Kibler, IV
President

DBK:lfw

Enclosure

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We're celebrating our 25th year!

MFM

INDUSTRIES

RECE...

JUL 23 1990

DER BAQM

July 20, 1990

Mr. Clair H. Fancy, P.E., Deputy Chief
Bureau of Air Quality Management
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Clair:

Attached you will find a Tampa Tribune article representative of coverage throughout the state of the Marion County Medical Society's epidemiology study giving MFM a clean bill of health.

Sincerely,

David B. Kibler, IV
President

DBK:lfw

Enclosure

3300 Southwest 34th Ave., Suite 152 • Ocala, FL 32674 • 904/854-0070 • 1-800-877-0897

We're celebrating our 25th year!

Tampa Tribune
7/20/90

Health probe clears Ocala mining plant

By LYNN PORTER
Tribune Staff Writer

OCALA — There are no human health problems associated with the Mid-Florida Mining (MFM) plant in Lowell, the chairman of a physicians' committee that studied the issue said Thursday.

Henry M. Parrish, an Ocala epidemiologist, said the study by a committee of the Marion County Medical Society showed that there were no statistically significant differences in death rates for Marion County compared to state figures. If there was environmental pollution from toxic substances — such as lead in high concentrations — increases in deaths because of respiratory diseases, cancer, congenital malformations and stillborn births would be expected, he said.

Environmentalists have expressed fears of high levels of lead in the area of the plant, which until recently burned petroleum-laced soil.

The study also showed that the area around MFM's Lowell plant is not producing increased sickness in pupils at three nearby schools: Reddick-Collier Elementary, North Marion Middle School and North Marion High School.

The committee performed the study between May 15 and July 15 on a volunteer basis. Members were not paid by the Medical Society or anyone else, Parrish said.

People in the area are concerned about lead poisoning in thoroughbred horses and humans, the study said. Bags of cat litter produced by the MFM plant showed traces of arsenic, lead and mercury, but neither of the two general hospitals in the county reported hospital patients treated for arsenic, cadmium, lead or mercury poisoning from 1985 to 1989, the study said.

A separate study was performed by Douglas R. Murphy Jr., an Ocala obstetrician, and gynecologist Leslie Hagan, an Ocala physician, on 42 members of the Hopewell Baptist Church, which is a half-mile from the plant. The study showed that levels of lead in the subjects' blood were not high enough to be deemed unacceptable by the U.S. Environmental Protection Agency, Parrish said. The study was done in April.

Of the 42 church members, 41 lived within a mile of the MFM plant, and one lived two miles from the plant.

MFM President David Kibler said, "The study demonstrates beyond a shadow of a doubt that there is no health problem caused by Mid-Florida Mining or any other industry in North Marion County."

Cornelius Link, president of We the People for a Safe Environment Inc., a group that has been critical of the soil decontamination operation at MFM, said he has not seen the doctors' study but has heard about it. He said he never felt the plant was harming humans, but he is concerned there have been dangerous emissions in the area, as evidenced by toxic lead levels in some horses in the Lowell area.

S. Smallwood
Clair

MCSS

Marion County School System

— Giving Students A Better Chance —

512 S.E. Third Street • P. O. Box 670
Ocala, Florida 32678-0670
(904) 732-8041
Fax (904) 732-3220

July 18, 1990

Marion County
Board of County Commissioners
601 S.E. 25th Avenue
Ocala, FL 32671

Dear Commissioner:

As you know, the Marion County School Board and the County Commission both agreed to have the State Health Department conduct a study of the health and some environmental issues regarding the area surrounding the Mid-Florida Mining plant in Lowell. As of this date the State Department in unable to go forward with the studies because no data has been released by We The People of their study of the soil and no data has been released from the Florida Thoroughbred Breeder's Association regarding the study done by the University of Florida.

However, the Marion County Medical Association, through its Committee on the Environment, has conducted six studies in that area which appear to me to answer the questions that both of our governmental bodies have addressed. Included are the findings regarding the health of the people and the students in the northwest area of the county. It would appear to me that this is sufficient pending the results of the studies by We The People and the Florida Thoroughbred Breeders' Association. Until those results are released, the HRS epidemiology section will probably not go further with any more investigation.

On Tuesday, July 24, the Committee on the Environment from the Marion County Medical Association will be making this report directly to the County Commission. If you have any questions regarding the report, they will be answered at that time. The Committee will also present the report to the Marion County School Board at its meeting on July 24.

Our Board appreciates the opportunity to work with the County Commission as it relates to the health issue of the people in Marion County which is a paramount issue for both boards.

Sincerely,

Carole

Carole A. Parrish, Ed.D.
Marion County School Board

CAP/ab
900718.cap

cc: Marion County School Board
Marion County Legislative Delegation
Mr. David Kibler
Mr. Whit Palmer
Dr. Cornelius Link
Mr. Richard Hancock
Mrs. Kay Hutto
Dr. Nathan Grossman
Mr. David Townsend
Dr. Tom Atkeson
Dr. Roger Inman
Mr. Dale Twachtmann
Mr. C. H. Fancy
Ocala Star-Banner
Tampa Tribune

FILE

MFM
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DER - BAQM

July 18, 1990

Mr. Clair H. Fancy, P.E., Deputy Chief
Bureau of Air Quality Management
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Clair:

I am sending you the enclosed study because it is informative and demonstrates, beyond a shadow of a doubt, that there is no health problem caused by either MFM or any other industry in North Marion County. This information is important because much has been written suggesting that there is some reason for concern in regard to the operation of industry in North Marion County. This study confirms that these stories are invalid and erroneous.

This study was prepared by the Committee on the Environment, Marion County Medical Society. Dr. Henry M. Parrish, M.D., Dr.P.H., was Chairman of the committee. A copy of Dr. Parrish's qualifications are attached to the study. Please call Dr. Parrish if you have any questions concerning this report.

Sincerely,

David

David B. Kibler, IV
President

DBK:lfw

Enclosure

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Mr. Clair H. Fancy, P.E., Deputy Chief
Bureau of Air Quality Management
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

S. Smallwood
clair

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MFM
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JUL 23 1990
Office of the Secretary

July 18, 1990

Mr. Dale Twachtmann, Secretary
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Secretary Twachtmann:

I am sending you the enclosed study because it is informative and demonstrates, beyond a shadow of a doubt, that there is no health problem caused by either MFM or any other industry in North Marion County. This information is important because much has been written suggesting that there is some reason for concern in regard to the operation of industry in North Marion County. This study confirms that these stories are invalid and erroneous.

This study was prepared by the Committee on the Environment, Marion County Medical Society. Dr. Henry M. Parrish, M.D., Dr.P.H., was Chairman of the committee. A copy of Dr. Parrish's qualifications are attached to the study. Please call Dr. Parrish if you have any questions concerning this report.

Sincerely,

David Kibler

David B. Kibler, IV
President

DBK:lfw

Enclosure

MFM
INDUSTRIES

July 18, 1990

Mr. Steve Smallwood, Director
Division of Air Resources Management
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Steve:

I am sending you information as promised. Please call Dr. Henry Parrish if you have any questions.

I am looking forward to hearing from you.

Sincerely,

David

David B. Kibler, IV
President

DBK:lfw

Enclosure

3300 Southwest 34th Ave., Suite 152 • Ocala, FL 32674 • 904/854-0070 • 1-800-877-0897

SUMMARY OF STUDIES RELATED TO HUMAN HEALTH IN THE LOWELL-MID FLORIDA MINE PLANT AREA

by
Committee on the Environment
Marion County Medical Society
Ocala, Florida *

*Committee Members: Henry M. Parrish, M.D., Dr.P.H., Chairman; James T. Casey, M.D.; Steve H. Gilman, M.D.; Leslie Hagan, M.D.; Fred Miley, M.D., M.S.; Douglas R. Murphy, Jr., M.D.; Margaret Palmer, M.D.; and John R.Sharpe, M.D.

July 17, 1990

SUMMARY OF STUDIES RELATED TO HUMAN HEALTH IN THE LOWELL-MFM PLANT AREA.

1. Comparison of Resident Deaths and Death Rates for Marion County versus the State of Florida, 1987.
If there was environmental pollution with toxic substances in Marion County one would expect an increase in deaths due to respiratory diseases, cancer of various sites, congenital malformations and stillborns. There were no statistically significant differences in the resident death rates for Marion County when compared to the State of Florida.

2. Comparison of Resident Deaths and Death Rates for Marion County 1985 Versus 1987.
If environmental contamination from toxic substances was increasing or accumulating in Marion County one might expect the death rates from respiratory diseases, cancer, congenital malformations and stillborns to increase. There were no statistically significant differences in the resident death rates for Marion County from 1985 to 1987.

3. Comparison of Public School Student Attendance and Absence Rates for Schools Near the Lowell-MFM Plant and Those Far Distant From This Area.
Absence rates reflect the general sickness or morbidity rates in the public school student population. Three schools within a 3 mile radius of the Lowell area (Reddick-Collier Elementary, North Marion Middle, and North Marion High) were selected to compare with corresponding elementary, middle and high schools in the Dunnellon and Lake Weir areas. There were no statistically significant differences in the absence rates for these schools. Therefore the Lowell-MFM plant area is not producing increased sickness in the students of the 3 nearby schools.

4. A Study of Blood Lead Levels in Members of the Hopewell Baptist Church, Lowell, Florida.
The Hopewell Baptist Church is ½ mile from the MFM Plant. Forty two church members received a blood lead test. The church members represented all age groups. The results were: 30 people had blood lead levels of <5 micrograms per deciliter (ug/dl), 11 had levels of 5 to 9 ug/dl and 1 had a level of 10 ug/dl. All of these values are less than the currently maximum allowable limit for the general population (25 ug/dl). The EPA currently is considering lowering the maximum allowable concentration for the general population to 15 ug/dl.

Of the 42 church members, 41 lived within one mile of the MFM plant and 1 lived two miles from the plant.

5. A Study of Hospital Cases of Arsenic, Cadmium, Lead and Mercury Poisoning in Marion County, 1985 - 1989. People in the Lowell-MFM plant area are concerned about lead poisoning in thoroughbred horses and human beings. Bags of kitty litter produced by the MFM plant showed traces of arsenic, lead and mercury. Therefore, hospitals in Marion County were asked to report all hospital in-patients treated for arsenic, cadmium, lead and mercury poisoning from 1985 - 1989. The results are:

Marion Community Hospital - no cases treated.
Munroe Regional Medical Center - no cases treated.

6. A Study of Deaths Among Marion County Residents From Arsenic, Cadmium, Lead and Mercury Poisoning From 1985 - 1989. The Office of Vital Statistics, P. O. Box 210, Jacksonville, Florida has agreed to provide this information by a computer search of Marion County resident death certificates.

Henry M. Parrish MD

Henry Mack Parrish, M. D., Dr. P.H.

Chairman
Committee On the Environment,
Marion County Medical Society
Ocala, Florida

Dr. Henry Mack Parrish holds two doctors degrees: M.D., University of Pennsylvania; and Dr. P.H., Yale University. He spent 15 years as a medical school professor and Director of Graduate Studies in Public Health at the University of Missouri. He was Associate Dean and Vice President of Medical Affairs at the University of South Dakota.

Dr. Parrish is the author of 205 papers published in various medical and scientific journals, 8 chapters in medical textbooks, and a book, "Poisonous Snakebites in the United States."

He has served as a consultant to the National Communicable Disease Center, USPHS, the National Research Council and the State health departments of Florida, Missouri and Vermont.

KOOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES
4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
904/377-5822 ▪ FAX 377-7158

KA 290-88-01

July 19, 1990

RECEIVED
JUL 20 1990
DER - BAQM

Mr. Charles M. Collins
Florida Department of
Environmental Regulation
Central Florida District
Suite 323
3319 Maguire Blvd.
Orlando, FL 32803-3767

Subject: Mid-Florida Mining Company
Marion County, Florida
Certificate of Completion of Construction
to Permit AC42-113787

Dear Mr. Collins:

On May 18, 1990, I hand delivered to your office a Certificate of Completion of Construction for the clay dryer and clay storage silo operated by the Mid-Florida Mining Company (MFM) at Lowell, Florida. This document also serves as an application for an operating permit for the clay dryer and storage silo. On June 13, 1990, your office sent a letter to Mr. David Kibler, President of MFM, tentatively assigning operating permit AO42-180896 to the dryer and storage silo and requesting information related to the Certificate of Completion of Construction. In the following paragraphs, I have provided the information requested in your June 13, 1990, letter.

A. **Test results showing compliance with emission limitations and conditions of permit. Clarify the September 12, 1984, test date specified.**

The most recent compliance test conducted on the clay dryer, while the dryer was being used to process the contaminated soil, was conducted on April 17, 1990. Copies of this report were mailed from the offices of Koogler & Associates on May 24, 1990, and should have been received by your office. If you have not yet received a copy of this report, please contact this office immediately.

The test date of September 12, 1984, referenced in the Certificate of Completion of Construction, was an erroneous reference. The test date that should have been referenced, and the date referenced in the attached, revised Certificate of Completion of Construction, is April 17, 1990.

In reviewing the results of the compliance test conducted on April 17, 1990, it will be noted that the particulate matter, visible emissions, nitrogen oxides and sulfur dioxide emission rates are all within compliance. The carbon monoxide emission rate, however, is above the permitted emission limit of 0.8 pounds per hour.

In reviewing the permit application submitted to the Department in December 1985, it was found that the carbon monoxide emission limit of 0.8 pounds per hour was derived from an AP-42 emission factor for coal firing, a fuel that will not be used. The emission factor used was 0.6 pounds per ton of coal fired and, at that time, the proposed coal firing rate was 1.4 tons per hour. Converting the mass emission rate of carbon monoxide of 0.8 pounds per hour to a concentration results in a stack gas carbon monoxide concentration of only 7.3 ppm. As a point of comparison, the carbon monoxide emission limit proposed for industrial furnaces burning hazardous waste-derived fuel is in the range of 100 ppm (volume basis).

MFM has reviewed the dryer operations subsequent to the April 17, 1990 test and has made adjustments in the combustion process. As a result, MFM is confident that it can operate the dryer with a stack gas carbon monoxide concentration not to exceed 100 ppm. By this letter, therefore, MFM is requesting that the carbon monoxide emission limit be revised to a stack gas concentration of 100 ppm (volume basis), or to a mass emission rate of 11.0 pounds per hour. The mass emission rate of 11.0 pounds per hour is based on the stack gas flow characteristics addressed in Response B2. A copy of this letter is being forwarded to the Central Air Permitting section of FDER in Tallahassee for review and consideration of this request.

B. <u>OTHER</u>

1. **In accordance with Subpart E-Used Oil Burned for Energy Recovery, 266.41(b)2 and Part 260.10, the industrial furnace cannot utilize off-specification used oil for the purpose of decontaminating soil. Therefore, clarify whether the applicant will agree to eliminate the off-specification used oil when decontaminating soil and, if so, revise the application accordingly.**

By letter dated July 10, 1990, to Mr. Dale Twachtmann, Secretary of the Department, MFM provided notification that it will no longer be in the business of thermally processing contaminated soils at its Lowell, Florida, facility. A copy of this letter is attached hereto.

As a result of the July 10, 1990, decision by MFM, several of the amendments to Permit AC42-113787 are void and should not be carried forwarded into Permit A042-180896. The amended specific conditions that should not be carried forward include:

1. Specific Condition 21 which was added June 12, 1987, allowing the use of the clay dryer to decontaminate soils.

2. Specific Condition 22 which was added June 12, 1987, and is related to the processing of contaminated soils.

3. Specific Condition 26 which was added on June 12, 1987, and is related to the control of fugitive emissions resulting from the processing of contaminated soil.

4. Specific Condition 27 which was added on June 12, 1987, and is related to the processing of contaminated soil.

5. Specific Condition 23 which was originally added on June 12, 1987, and was amended March 24, 1988. This condition applies to the fuel firing rate and the throughput rate during the processing of contamination soil and to record keeping required while contaminated soils are being processed.

6. Specific Condition 24 which was added on June 12, 1987, and modified on March 24, 1988. This condition relates to testing requirements for contaminated and processed soil.

7. Specific Condition 25 which was added on June 12, 1987, and amended on March 24, 1988. This condition relates to emission measurements during the processing of contaminated soil.

In addition to the decision to no longer process contaminated soil, I am reiterating, on behalf of MFM, the decisions related to fuel use stated in my letter to you of May 18, 1990. The fuel use decisions made by MFM are:

1. MFM no longer intends to burn spent solvents as a fuel.

2. MFM no longer intends to burn used kerosene as a fuel.

3. MFM no longer intends to burn terpene derived fuels.

4. MFM no longer intends to burn coal as a fuel.

These fuel use decisions all relate to the clay dryer and will affect the following specific conditions that were included in Permit AC42-113787 as issued on April 19, 1986.

1. Specific Condition 3 should be revised to state that the rotary dryer be fired only with on-specification and off-specification used oil fuel and No. 5 fuel oil. Additionally, MFM requests approval to burn virgin No. 2 fuel oil, a No. 6 fuel oil that is equivalent to the permitted No. 5 fuel oil and natural gas should natural gas be supplied to the Lowell area.

2. Specific Condition 4 related to the sulfur content of coal should be eliminated as coal will no longer be considered as a fuel.

3. Specific Condition 5 should be modified to be consistent with my letter to you of July 14, 1990, in which I state the maximum concentration of lead in the off-specification used oil fuel will be 500 ppm. The permitted lead limit presently in Specific Condition 5 is 10,000 ppm.

4. Specific Condition 6 related to terpene derived fuel should be eliminated.

5. Specific Condition 7 related to the use of used kerosene as a fuel should be eliminated.

6. Specific Condition 8 related to the use of non-halogenated spent hydrocarbon solvents as a fuel should be eliminated.

7. Specific Condition 10 related to the use of spent hydrocarbon solvent testing should be eliminated.

2. **Submit the current emission points height above grade, velocity, temperature and flow rate when decontaminating petroleum contaminated soil.**

As stated in response to No. 1, above, MFM will not longer process contaminated soil at the Lowell facility. The information requested when the dryer is used to process clay is as follows:

Stack Height	73 feet above grade
Stack Diameter	43.5 inches
Stack Gas Flow Rate	45,940 ACFM
Stack Gas Velocity	74.2 fps
Stack Gas Temperature	230°F
Stack Gas Moisture	28.5%.

KOOGLER & ASSOCIATES

All of these stack gas parameters listed may vary by approximately 10 percent during normal plant operations.

3. **Submit technical data which addresses whether the Nomex replacement bag material is adequate to maintain the stated baghouse particulate removal efficiency under the current conditions of operation. It is the Department's understanding that the bags were changed without notifying the Central Air Permitting Section (CAPS). The construction permit for this project will need to be changed by CAPS to reflect this modification.**

The information comparing the Nomex bag material with the Dralon acrylic bag material formerly used by MFM was submitted to your office under cover of our letter dated June 4, 1990. To facilitate your review of this matter, a copy of this letter is attached hereto. The information provided demonstrates that Nomex and Dralon bag materials will have comparable particulate matter removal efficiencies. The main difference in the materials is that Nomex will withstand higher temperatures than Dralon. A copy of this letter, accompanied by a copy of our June 4, 1990, letter and your letter of June 13, 1990, is being transmitted to the Central Air Permitting Section of FDER in Tallahassee for their consideration.

4. **Submit design details such as air-to-cloth ratio, temperature, particulate removal efficiency, etc., for the baghouse as it is currently operated. Also, clarify whether the baghouse is equipped with temperature sensors and a by-pass mechanism.**

The design details of the baghouse used to control emissions from the clay dryer and clay storage silo are the same as they have been since the baghouse was installed. In our letter to your office of June 4, 1990, I addressed all maintenance that has been performed on the baghouse since July 1987. The only change to the baghouse is a change in the clean-air plenum; a change that will not affect the particulate matter removal efficiency. Following are the design details of the baghouse:

Air flow rate - 45940 ACFM,
Stack gas temperature - 230^{o}F,
Number of bags - 600,
Bag dimension - 6 inch diameter by 10 feet long,
Cloth area - 9425 square feet,
Air-to-cloth ratio - 4.87/1, and
Particulate matter removal efficiency -
Necessary to meet emission limit of 31.2 pounds per hour - 98.9 percent,
Expected efficiency based on compliance tests - 99.8 percent.

The control efficiencies are based on an uncontrolled emission rate of 70 pounds per ton; an emission factor for clay drying from AP-42, Section 8.7.

The baghouse is equipped with a temperature sensor immediately upstream of the baghouse and a temperature sensor between the baghouse exit and the I.D. fan. The temperature sensors produce a signal which is read in the dryer control room.

There is no bypass mechanism on the baghouse. Our letter of June 4, 1990 describes the Halon fire control system that has been installed on the baghouse.

5. **Submit a list of the petroleum products which will contaminate the soil if you propose to decontaminate. Clarify whether soils containing greater than 1000 ppm total halogens or 0 ppm PCBs are to be decontaminated.**

   As addressed in response No. 1, MFM will no longer process contaminated soils at the Lowell facility.

6. **Clarify the parameters, test methods and test frequencies you will conduct on soils before and after processing through the dryer. Clarify the test records to be maintained on site.**

   As addressed in response No. 1, MFM will no longer process contaminated soils at the Lowell facility.

7. **Clarify the status of the facility regarding the exemption under 40CFR60.670, Subpart OOO. Describe the facility and provide justification for not having to meet the requirements of Subpart OOO.**

   Correspondence which was previously directed to Mr. Alan Zahm of your office provides documentation that Subpart OOO does not apply to the boxing machine which is covered under the permit for the MFM fugitive dust collection system.

   Regarding the clay dryer, there have been no modifications to the clay dryer since August 31, 1983, that would cause the facility to be subject to Subpart OOO. As addressed in my letter to you of July 14, 1990, the replacement of the Dralon acrylic bags with an equivalent Nomex bag material cannot be considered "construction, reconstruction, or modification." The bag replacement falls under the category of routine maintenance with one bag material being replaced with another bag material that will withstand higher temperatures and yet, provide the same particulate matter removal efficiency.

8. **It is Department policy to require afterburners on the soil decontamination unit. Provide drawings and information which will show compliance with Department policy of 95% removal of VOCs.**

   As addressed in response No. 1, MFM will no longer process contaminated soils at the Lowell facility.

I trust that the information provided herein will adequately respond to the questions raised in your June 13, 1990, letter. If there are any questions regarding the information provided herein or if additional information is required, please do not hesitate to contact me.

As a professional engineer registered in the State of Florida, I hereby certify that the information that I have provided herein is, in my professional judgement, true and correct. Furthermore, I request that the information provided herein be included as part of the revised Certification of Completion of Construction for the attached hereto.

Very truly yours,

KOOGLER & ASSOCIATES

John B. Koogler, Ph.D., P.E.
Florida Registration No. 12925

JBK:wa
Enc.

cc: Steve Smallwood, FDER, Tallahassee
David Kibler, MFM Environmental, Inc.

Revised 7/18/90

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

AIR POLLUTION SOURCES
CERTIFICATE OF COMPLETION OF CONSTRUCTION*

PERMIT NO. AC42-113787 DATE: May 17, 1990

Company Name: Mid-Florida Mining Company County: Marion

Source Identification(s): Rotary clay dryer and dried clay (-40 mesh) storage silo with emissions controlled with a baghouse.

Actual costs of serving pollution control purpose: $ NA - existing control system.

Operating Rates: ______ Design Capacity: 40.8 tph

Expected Normal 40 tph clay During Compliance Test 38.0 tph (clay & soil)

Date of Compliance Test: April 17, 1990 (Attach detailed test report)

Test Results:

Pollutant	Actual Discharge	Allowed Discharge
P.M./V.E.	11.4/4.0	15.0 lb/hr /20%
NOx	4.8	24.9 lb/hr
SO2	7.4	52.5 lb/hr

Date plant placed in operation: NA - existing plant.

This is to certify that, with the exception of deviations noted**, the construction of the project has been completed in accordance with the application to construct and Construction Permit No. AC42-113787 dated April 19, 1986.

A. Applicant:

David B. Kibler, President
Name of Person Signing (Type)

[Original Signed and Dated by Mr. Kibler]
Signature of Owner or Authorized Representative and Title

Date: [Original date 5/18/90] Telephone: (904) 854-0070

B. Professional Engineer:

John B. Koogler, Ph.D., P.E.
Name of Person Signing (Type)

Signature of Professional Engineer

Koogler & Associates, Environmental Services
Company Name

Florida Registration No. 12925

Date: 7/19/90

(Seal)

4014 N.W. 13th Street, Gainesville, Fl 32609
Mailing Address

(904) 377-5822
Telephone Number

*This form, satisfactorily completed, submitted in conjunction with an existing application to construct permit and payment of application processing fee will be accepted in lieu of an application to operate.

**As built, if not built as indicated include process flow sketch, plot plan sketch, and updates of applicable pages of application form.

Specific Conditions are to be changed in accordance with the attached letter dated 7/18/90. All changes will result in a reduction in emissions, with the exception to the requested change in the carbon monoxide emission limit discussed in Response B1 in the attached letter.

Florida Department of Environmental Regulation

Central District • 3319 Maguire Boulevard, Suite 232 • Orlando, Florida 32803-3767 • 407-894-7555

Bob Martinez, Governor | Dale Twachtmann, Secretary | John Shearer, Assistant Secretary
Alex Alexander, Deputy Assistant Secretary

June 13, 1990

COMPLETENESS SUMMARY AIR POLLUTION SOURCES

SOURCE NAME: Thermal Soil Decontamination Dryer (AC42-113787) DATE RECEIVED: 5/21/90

NAME: David B. Kibler, President
Mid Florida Mining Co. DATE REVIEWED: 6/5/90

ADDRESS: 3300 Southwest 34th Avenue, Suite 152
Ocala, Florida 32674 REVIEWED BY: John Turner

(AO42-180896)

Your application for a permit to operate this referenced project has been received, and reviewed for completeness. The following checked item is needed to complete your application.

(X) Test results showing compliance with emission limitations and conditions of the permit. Clarify the September 12, 1984 test date specified.

(X) Other: (Any section of the application which is incomplete or lacks sufficient information to be evaluated).

1. In accordance with Subpart E-Used Oil Burned for Energy Recovery, 266.41(b)(2) and Part 260.10, the industrial furnace can not utilize off-specification used oil for the purpose of decontaminating soil. Therefore, clarify whether the applicant will agree to eliminate the use of off-specification used oil when decontaminating soil and if so, revise the application accordingly.

2. Submit the current emission points height above grade, velocity, temperature, and flow rate when decontaminating petroleum contaminated soil.

3. Submit technical data which addresses whether the Nomex replacement bag material is adequate to maintain the stated baghouse particulate removal efficiency under the current conditions of operation. It is the Department's understanding that the bags were changed without notifying the Central Air Permitting Section (CAPS). The construction permit for this project will need to be changed by CAPS to reflect this modification.

4. Submit design details, such as air to cloth ratio, temperature, particulate removal efficiency, etc., for the baghouse as it is currently operated. Also clarify whether the baghouse is equipped with temperature sensors and a bypass mechanism.

5. Submit a list of petroleum products which will contaminate the soils you propose to decontaminate. Clarify whether soils containing greater than 1000 ppm total halogens or 0 ppm PCB are to be decontaminated.

6. Clarify the parameters, test methods, and test frequencies you will conduct on the soils both before and after processing through the dryer. Clarify the test records to be maintained on site.

7. Clarify the status of the facility regarding the exemption under 40 CFR 60.670, Subpart 000. Describe the facility and provide justification for not having to meet the requirements of Subpart 000.

8. It is department policy to require afterburners on soil decontamination units. Provide design drawings and information which will show compliance with department policy of 95% removal of VOCs.

Pursuant to Section 120.60(2) Florida Statutes, the department may deny an application if the applicant, after receiving timely notice fails to correct errors, omissions or supply additional information within a reasonable period of time.

If there are any questions, please call John Turner at 407/894-7555 or write to me at the above address.

Sincerely,

Alan D Zahm

Alan D. Zahm, P.E.
Supervisor, Permitting
Air Resources Management

ADZ/jtj

cc: Barry Andrews, Tallahassee

KOOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES
4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
904/377-5822 ▪ FAX 377-7158

KA 290-90-01

June 4, 1990

Mr. Charles Collins
Florida Department of
Environmental Regulation
Central Florida District
Suite 323
3319 Maguire Blvd.
Orlando, FL 32803

Subject: Mid-Florida Mining Company
Marion County-AP
Status of Baghouse Controlling Emissions from Clay Dryer/Silo
Permits A042-96009 and AC42-113787

Dear Mr. Collins:

During our meeting in your office on May 18, 1990, we discussed a fabric filter collector (baghouse) used to control particulate matter emissions from the clay dryer operated by the Mid-Florida Mining Company at Lowell, Florida. You requested that we document, for the record, "changes" to the baghouse that have occurred over the past several years. In the following paragraphs, I have described everything that has been done to the baghouse, with the exception of routine maintenance, since July 1987. The changes described herein do not significantly change any of the baghouse characteristics or performance that existed when the baghouse was originally permitted.

CLEAN-AIR PLENUM

The original baghouse had a clean-air plenum that was large enough for a person to walk into. In July 1987, the walk-in clean-air plenum was replaced with a plenum with a smaller headspace. The reason for changing the clean-air plenum was that the walk-in plenum, because of its large size and, hence, large surface area, resulted in a significant heat loss. This heat loss caused in the clean air leaving the baghouse to be cooled to the point that excess condensation occurred. The condensation exacerbated corrosion problems within the clean-air plenum and significantly increased maintenance on the baghouse. Additionally, the seals on the access doors in the walk-in clean air plenum, because of their large size, were difficult to maintain.

The low headspace clean-air plenum that was placed on the baghouse in July 1987 considerably reduced the heat loss from the clean air stream and, hence, greatly reduced the condensation and corrosion problems that existed with the walk-in plenum. Also, the access doors in the low headspace clean-air plenum are smaller, the seals are much easier to maintain.

During our meeting, you expressed a concern that maintenance and bag inspection might be a problem as an individual could no longer walk into the clean-air plenum to inspect the bags. With the access doors that exist in the low headspace clean-air plenum and the use of a fluorescent dye and a long-wave length ultraviolet light (a black light), the present maintenance is as good as or better than that which existed with the walk-in plenum.

With your knowledge of baghouses, I am sure you recognize that the size of the clean-air plenum in no way affects the performance of the baghouse and, hence, in no way would affect particulate matter emissions from the MFM clay dryer and clay fines storage silo. A review of emission data prior to and subsequent to 1987 will also demonstrate this.

BAGHOUSE FIRE

On April 3, 1989, MFM experienced a fire in the clay dryer/storage silo baghouse. The fire occurred while soil contaminated with a hydrocarbon product (oil) was being processed. The fire was controlled and extinguished by MFM personnel. The fire resulted in a shutdown of the plant for 168 hours (seven days) while repairs were being made to the baghouse. The repairs to the baghouse included:

A. The interior lining of the baghouse was replaced to eliminate warpage caused by the fire and to correct corrosion problems that had developed over time. The original interior lining of the baghouse was 14 gauge (0.078 inch thick) steel plate. The interior lining was renewed by welding 10 gauge (0.140 inch thick) steel plate over the interior surfaces of the original lining. The interior lining of the baghouse now consists of the original 14 gauge steel covered (on the baghouse interior) by the 10 gauge steel. The relining of the baghouse did not significantly change the interior dimensions of the baghouse nor the performance of the baghouse.

B. The cell plate was straightened as necessary and the seals replaced. The cell plate, as you know, is the plate dividing the clean-air plenum from the dirty air plenum and is the plate to which all of the bags attach. It is imperative that the seals on the cell plate be completely intact to prevent the leakage of dirty air into the clean-air plenum.

C. All bags and bag cages were replaced and the seals between the bag collars and the cell plates were inspected and resealed as necessary. The bags were replaced with the Dralon acrylic bags at that time.

D. The seals on all access doors were replaced to assure that there was no air in-leakage to the baghouse.

TIME FOR REPAIRS

As stated in the preceding section, the clay dryer and clay storage silo were shutdown for 168 hours (seven days) following the April 1989 fire for repair. When repairs were completed, normal plant operations resumed.

FIRE CONTROL SYSTEM

In May and June 1989, a fire control system was installed in the baghouse controlling emissions from the clay dryer and clay fines storage silo. The system consists of temperature monitors, interconnected and electronically activated slam-shut dampers at the inlet and outlet of the baghouse, an interconnect to shut-off the burner fuel and the ID fan and a halon injection system for the baghouse.

A quick response temperature sensor is located in the gas stream near the exit of the dryer drum. If there is a 50°F temperature rise in the gas stream at this sensor in a 10-second period, the fire control system is activated. The two slam-shut dampers are electronically closed to isolate the baghouse, the burner fuel to the dryer is shut-off, and the fan that draws air through the dryer in the baghouse is shut-off. The dryer drum continues to rotate to prevent warpage and to allow the tumbling action of material in the drum to smother any fire that may develop in the drum.

After this system has been activated, the dryer operators visually monitor the baghouse temperature. If there is a rapid rise in the baghouse temperature (indicating a fire), the halon fire extinguisher system is activated and 1500 pounds of halon is injected into the baghouse. This fire control system in no way affects the normal operation of the clay dryer, the clay fines storage silo or the baghouse.

TYPE OF BAGS

The specific conditions of dryer permits issued subsequent to mid-1983 specified that Dralon T homopolymer acrylic bags with the Cros-ible, Inc., stock number HAN1530SST, be used in the clay dryer/storage silo baghouse. This condition was the result of a solution that MFM found for bag failure problems that plagued the company through mid-1983. The information on the Dralon T bags was transmitted to you under cover of my letter dated August 22, 1983. Included as attachments to that letter was correspondence between MFM and Cros-ible, Inc. and information on Dralon T homopolymer acrylic fiber. Included in the correspondence was the requirement that MFM maintain the temperature to which the Dralon T bags were exposed to 284°F or less.

As a result of this correspondence, your office included as a dryer permit condition in all permits issued subsequent to August 22, 1983, the condition that the bags in the baghouse be of the Dralon T acrylic fiber.

MFM has recently replaced the bags in the clay dryer baghouse with Nomex bags having the same general properties as the Dralon acrylic bags. The major difference in the bag materials is that Nomex can withstand temperatures in the 350-370°F range whereas the temperature of the Dralon bags must be maintained below 284°F. Both the Dralon and Nomex bags used by MFM are needle felted bags. The needle felted fabric is manufactured by beginning with a lightweight woven material (approximately 1.4 ounces per square yard) of either Dralon or Nomex. To this lightweight material, referred to as a scrim, the Dralon or Nomex felting is applied. The felt fibers are "poked " through the woven scrim fabric with needles; hence, the term needled felt. In the case of Dralon, the final fabric weight is 15 ounces per square yard and the porosity of the fabric is 25-35 cubic feet per minute of air at 0.5 inches of water pressure drop. The outer surface of the fabric (the surface upon which the dirty air impinges in the baghouse) is singed prior to shipping.

With the Nomex fabric, the manufacturer begins with a 1.4 ounce per square yard Nomex scrim. To this woven scrim, Nomex felt fibers are applied by needling to produce the material with a weight of 14.5 ounces per square yard and a porosity of 25-35 cubic feet per minute at 0.5 inches of water pressure drop. The outer surface of the Nomex material is also singed prior to shipment.

Both the Dralon and Nomex are synthetic fibers with similar properties. The manufacturing process of the felted materials is identical and the porosities of the two materials (a measure of air passage and particle control efficiency) are identical. The only significant difference between the two fabrics is that Nomex will withstand higher temperatures. I have attached a recent FAX of a specification sheet that I have received from Cros-ible, Inc. showing the similarities in the characteristics of the Dralon and Nomex materials from which MFM bags are fabricated. I would also point out that we recently conducted a compliance test on the MFM dryer with the baghouse equipped with Nomex bags. The results of this compliance test showed that the dryer operated well within compliance, as it has done with Dralon bags.

Because the characteristics of the Nomex and Dralon bags are identical from the standpoint of particle control and because of the fact we have submitted test data demonstrating compliance with Nomex bags in the baghouse, I am requesting that any permits issued subsequent to this date include the term "or equivalent" along with any bag material specified.

To the best of my knowledge and the knowledge of MFM personnel, the "changes" described above are the only changes that have been made to the dryer baghouse. In my professional opinion, and based on the results of compliance testing, none of the "changes" have resulted in any significant change in baghouse performance. If there are any questions regarding the information provided herein, please do not hesitate to contact me.

Very truly yours,

KOOGLER & ASSOCIATES

John B. Koogler, Ph.D., P.E.

JBK:wa
Enc.

cc: Mr. David Kibler, MFM
Mr. John Chieffalo, MFM

CROS-IBLE, INC.
FILTRATION

Fax # 1-315-497-0324

Date: 5/31/90

To: Mr. John Koogler

of: Koogler and Associates

FAX# 904-377-7158

From: Patrick J. Quigley

Page 1 of 1 Pages

Message:

Dear Mr. Koogler,

Confirming our telephone conversation we are pleased to submit the following specifications:

Style:	#HAN 1530 SST	#NXN 1430 SST
Fiber:	Dralon Acrylic	Nomex
Construction:	Needled Felt	Needled Felt
Weight:	15 oz./yd.^{2}	14.5 oz./yd.^{2}
Porosity:	25-35 CFM @ ½" H_2O	25-35 CFM @ ½" H_2O
Finish:	Singed	Singed
	Scrim Supported	Scrim Supported.

Please call if we can help further.

Regards -

Patrick J. Quigley

Manufacturing: West Cayuga Street / Moravia, New York 13118 / (315) 497-2960-1

MFM

INDUSTRIES

July 10, 1990

Mr. Dale Twachtmann, Secretary
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Mr. Secretary:

We today notify you of Mid-Florida Mining's decision to withdraw from the afterburner non-hazardous hydrocarbon permit proceedings.

Mid-Florida Mining applied for this permit on March 8, 1989, and on September 28, 1989, the Department of Environmental Regulation issued its intent to issue such a permit. An administrative proceeding concerning the proposed afterburner permitting decision scheduled for August 28 and 29 is no longer necessary.

We also would like you to know that Mid-Florida Mining will no longer be in the business of thermally processing soils at its Lowell, Florida, location.

We inform you of these business decisions so that you may take appropriate action. We appreciate your efforts.

Sincerely,

W. M. Palmer, Jr.
Chairman

David B. Kibler, IV
President

cc: Clair Fancy, FDER
Alex Alexander, FDER

MFM
INDUSTRIES

RECEIVED
SEP 11 1990
DER - BAQM

July 10, 1990

RECEIVED
JUL 13 1990
Office of the Secretary

Mr. Dale Twachtmann, Secretary
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

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Sincerely,

W. M. Palmer, Jr.
Chairman

David B. Kibler, IV
President

cc: Clair Fancy, FDER
Alex Alexander, FDER
B. Andrews
M. Harley

3300 Southwest 34th Ave., Suite 152 • Ocala, FL 32674 • 904/854-0070 • 1-800-877-0897

MFM

SUITE 152

3300 Southwest 34th Ave., Suite 152
Ocala, Florida 32674

OCALA
JUL 10'93
FL

U.S. POSTAGE
.25
T-N METER

Mr. Clair Fancy
Deputy Chief, Bureau of Air Quality Management
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Be careful of gardening misinformation

Misinformation, a leading cause of lawn and garden problems, can be avoided before it ruins carefully planned yards.

Misinformation comes from various sources; overzealous or misinformed salespeople are possibilities, but just as often problems are caused by third- or fourth-hand information that originated from a reliable source but was distorted or misapplied as it passed from person to person, neighborhood gossip or self-appointed experts.

Overzealous salespeople are fairly easy to spot. "If in doubt, check it out" is a good motto to follow, whether buying a car, a horse or flowers.

Often a valid recommendation for a specific problem is distorted.

Example: Sprays of liquid Sevin will kill grasshoppers and caterpillars, but they have absolutely no effect on powdery mildew. Know what the problem is before applying a remedy; don't rely on rumor.

Although some folklore is valid, some is ineffective and some borders on the occult.

One stand-out example is the homeowner who was told that used kitty litter killed nematodes. Used cat litter doesn't kill nematodes, but it can make a garden unpleasant for people!

Although other sources of valid information exist, a good authority is your extension service, which is free and available.

Remember, "when in doubt, check it out." Your extension service is there for that purpose.

— **Tim Johnston**
Adjunct extension agent
Citrus County

HOMESTYLE

Palms make nice landscape

When thinking of Florida, many people picture white, sandy beaches and palm trees swaying the breeze.

Well, Floridians know that although not all of the state is covered with sandy beaches, palm trees are widespread and give the state its semitropical look. Palms are well adapted to the soils in Florida and should play an important part in a home landscape.

Planting a palm tree is not difficult, but the initial care you give that tree at planting often determines the success of the plant in the landscape.

Before choosing the type of palm that fits your landscape, consider the following factors carefully.

How tall will the palm tree grow when it reaches maturity?

Are there overhead utility lines that would interfere with the growth of the plant? A palm cannot be pruned back as an oak tree can.

Is the palm cold-hardy? Does it need shade?

Considering these important factors will prevent costly mistakes.

As a general landscape rule, small lots with one-story homes look best with small- to medium-sized palms. Tall varieties such as Washingtonias and queen palms are better suited for large areas or near tall buildings.

Clusters of palms look better if planted in odd numbers, such as three, five or seven.

After deciding what type of palm tree to purchase, the most important task begins: planting.

For years it was thought, and even advised, that the the soil around the root ball be amended with organic matter. New research has shown that unless the whole area is amended with peat moss, compost or similar organic matter, it is better to plant the tree directly into the soil without amending the backfill.

A much more important aspect of planting and maintaining the palm is the use of a heavy mulch layer around the trunk. You can use wood chips, cypress bark, lawn clippings or other similar materials. As this decomposes, it enriches the soil while also reducing weed growth and water loss. Be sure to replenish the mulch as it decomposes.

Set the palm into the planting hole at the same depth as it was grown in the container. Use plenty of water as you backfill the hole to eliminate air pockets. A small dam of about 2-3 inches circling the planting area will direct water to the root ball.

It is very important to keep the soil around the root of the newly planted palm tree moist to aid in its establishment. Don't let the soil dry out for the first several months.

On the other hand, over-watering can cause root-rot and slow down the establishment of your palm tree.

To get your palm off to a fast start, a good fertilizer program is necessary.

For the first year, a foliar spray, applied every three to four months, and a granular fertilizer with a 2-1-1 ratio of nitrogen, phosphorous and potassium applied every four months will provide optimum results. After the first year, a granular fertilizer only is required.

To avoid certain minor element deficiencies, make sure your fertilizer contains such important micro nutrients as magnesium, manganese, iron and boron. Epsom salt (magnesium sulfate) is not a substitute for a complete fertilizer and should be used only to correct an existing magnesium deficiency.

Palms are an asset to home and commercial landscapes. Thoughtful selection, proper planting and maintenance will ensure the survival and future enjoyment of the plant.

The most important parts of a good maintenance program are watering, mulching and providing the palm with a complete, balanced fertilizer that provides all the elements necessary for growth.

— **Klaus J. Geyer**
Urban horticulture agent
Hernando County Extension office

For questions or more information, write or call your county office of the IFAS/Florida Cooperative Extension Service. In Citrus, 726-2141; Marion, 629-8065; Sumter, 793-2728; Levy, 486-2165; and Hernando, 796-9421.

THE TAMPA TRIBUNE
Friday, July 13, 1990

Mid-Florida Mining accused of repeated permit violations

By LYNN PORTER
Tribune Staff Writer

LOWELL — A report by a state Department of Environmental Regulation (DER) inspector notes 73 alleged violations or deviations from a permit that allowed Mid-Florida Mining Co. to burn petroleum-laced soil at its plant here.

A company spokesman denied the allegations, saying they show a lack of understanding of the process used to treat the soil.

Some findings in the early June report are: The company incinerated soils containing PCBs, processed more contaminated soils than the DER permit allowed and stored some soils in a manner that would allow contaminants to leach into groundwater, said Steve Smallwood, director of the agency's division of air resources management.

Caroline Shine, the air inspector who filed the report, declined comment.

Smallwood said Shine calculated penalties that would be owed by the company to be close to $700,000, if all the allegations are found to be true.

Smallwood said the DER is reviewing the report to make sure the allegations can be substantiated and the company has filed responses to some of the findings. If the DER decides to file formal charges, the company will be given a chance to respond, he said. At that time, the company can enter into a consent order if it acknowledged the violations are true and payspenalties, Smallwood said.

Company President David Kibler said the allegations are untrue, noting they were listed in an internal memo and were not formal charges and said they demonstrate "a shocking lack of understanding of the soil decontamination business or of our operation in particular."

The company recently decided not to continue decontaminating petroleum-laced soil at the plant, he said. Despite 20-30 DER inspections, Shine's report is the first to mention those issues, he said.

The report was given to the media Thursday at a news conference by We the People for a Safe Environment, Inc., a group of mostly Marion county people opposed to the DER granting the company a new permit. That permit would have allowed the company to build an afterburner to treat soil tainted by additional contaminants, including creosote and coal tar. The company recently withdrew its application for the afterburner permit.

Environmentalists have blamed the company's plant for high levels of lead detected in the area, although We the People President Cornelius Link said Thursday two preliminary air and water studies have not shown any toxic levels of contaminants. The group has expressed fear that the new process could have further endangered the environment.

Kibler has said the soil treatment technology is safe.

Florida Department of Environmental Regulation

Central District ● 3319 Maguire Boulevard, Suite 232 ● Orlando, Florida 32803-3767 ● 407-894-7555

Bob Martinez, Governor | Dale Twachtmann, Secretary | John Shearer, Assistant Secretary
Alex Alexander, Deputy Assistant Secretary

July 9, 1990

OCD-AP-90-052

Mr. John W. Devine
Steel Hector & Davis
4000 Southeast Financial Center
Miami, Florida 33131-2398

RE: Mid-Florida Mining Requested Information

Dear Mr. Devine:

This is in response to your letter of July 5, 1990 to Mr. Alex Alexander, requesting copies of information submitted to DER by Mid-Florida Mining pursuant to permits issued. Due to a lack of adequate manpower and resources, we are unable to furnish you with the information you requested.

District files are available for review and copying, by appointment during the hours of 8 a.m. to 5 p.m., Monday through Friday, (excluding holidays). A coin operated copier is provided for the public at 10¢ a copy so we suggest that your representative bring sufficient change and/or dollar bills.

The attached list will assist you in contacting the appropriate program personnel when you call for an appointment to review files. The district's telephone number and address are noted on the letterhead.

Sincerely,

Charles M Collins

Charles M. Collins, P.E.
Program Administrator
Air Resources Management

CMC:j

cc: Clair Fancy

Attachment

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

ACTION NO

ACTION DUE DATE

1. TO: (NAME, OFFICE, LOCATION)

~~Clair Fancy, Dep Chief~~
2. ~~BAQM AIR~~
3. ~~F. Tall~~
4. Mike 7/16

Initial	
Date	
Initial	
Date	
Initial	
Date	
Initial	
Date	

REMARKS:

RECEIVED
JUL 10 1990
DER-BAQM

check & see if we still need to answer all those questions. Please let me know soon —

Clm

INFORMATION

	Review & Return
	Review & File
	Initial & Forward

DISPOSITION

	Review & Respond
	Prepare Response
	For My Signature
	For Your Signature
	Let's Discuss
	Set Up Meeting
	Investigate & Report
	Initial & Forward
	Distribute
	Concurrence
	For Processing
	Initial & Return

FROM: C. M. Collins, P.A.
Air Resources Mgmt
Central District

DATE 7-9-90

PHONE

<u>KEY STAFF</u>

W. M. Bostwick, P.E.
Program Administrator
Waste Management

Carlos Rivero deAguilar, P.E.
Program Administrator
Water Programs

C. M. Collins, P.E.
Program Administrator
Air Quality

Barbara Bess
Section Manager
Dredge & Fill Program

A. T. Sawicki, P.E.
Section Manager
Solid Waste Program

Jim Jarmolowski, P.G.
Section Manager
Tanks Program

Jim Hulbert
Section Manager
Technical Assistance

Robert Snyder, P.E.
Section Manager
Hazardous Waste Program

Alan Zahm, P.E.
Supervisor
Air Permitting

Joe McNamara, P.E.
Section Manager
Drinking Water Program.

Lee Miller
Section Supervisor
Domestic Waste Permitting

Frank Huttner
Section Supervisor
Drinking Water Permitting

W. E. Darling
Section Supervisor
Domestic Waste
Compliance/Enforcement

Ed Fitzgerald
Section Supervisor
Chemistry

Paul Morrison
Section Supervisor
Drinking Water
Compliance Enforcement

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1 From (Your Name) Please Print: David E. Kibler, IV	Your Phone Number (Very Important): 904-854-0070
Company: MID-FLORIDA MINING CO.	Department/Floor No.
Street Address: 3700 SW 34TH AVE STE 152	
City: OCALA	State: FL	ZIP Required: 3267?

2 To (Recipient's Name) Please Print: Clair H. Fancy, P.E.	Recipient's Phone Number (Very Important): 904 488 1344
Company: Dept. of Environmental Reg.	Department/Floor No.
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip® Codes.): 2600 Blair Stone Road	
City: Tallahassee	State: FL	ZIP Required: 32399

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7 [ ] OTHER SPECIAL SERVICE
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Steel Hector & Davis
Miami, Florida

John W. Devine
(305) 577-2930

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DER-BAQM

July 5, 1990

VIA FEDERAL EXPRESS

Mr. Clair Fancy
Bureau of Air Quality Management
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

Mr. Satish Kastury
Hazardous Waste Section
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32301

Mr. Alex Alexander
Department of Environmental Regulation
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

Re: Cornelius A. Link v. Mid-Florida Mining Company and State of Florida, Department of Environmental Regulation; DOAH Case No. 89-6053; OGC File No. 89-1093

Gentlemen:

We are counsel to Dr. Cornelius A. Link and We The People For A Safe Environment, Inc. in the above-referenced matter. In connection therewith, we request that the DER provide us with copies of information submitted to it by Mid-Florida Mining Company ("MFM") pursuant to permits issued to that company. A portion of the information we request, organized by permit and permit condition, is as follows:

1. Permit H042-123860 (Hazardous Waste Storage).

   (a) General Condition 15(a)(1). Manifest discrepancy reports, with copies of relevant manifests.

(b) General Condition 16(a)(2). Unmanifested waste reports.

(c) General Condition 16(a)(3). Annual operating reports.

(d) General Condition (16)(b). Reports of occurrence of any fire or explosion which could threaten the environment or human health outside the facility, and notifications of any non-compliance which may endanger health or the environment, including the release of any hazardous waste that may endanger public drinking water supplies.

(e) Specific Condition 1. Notifications of receipt of hazardous waste from a foreign source.

(f) Specific Condition 3. Waste analyses submitted to DER prior to permitee's acceptance of new hazardous wastes, and DER approval thereof.

(g) Specific Condition 4. Changes, additions, or deletions to general inspection schedule, and DER approval thereof.

(h) Specific Condition 6. DER approvals of amendments to permitee's contingency plan.

(i) Specific Condition 7. Permittee's notification, and related written reports, of emergency situations.

(j) Specific Condition 8. Annual certifications of waste minimization.

(k) Specific Condition 19. Assessments of design, structural strength, and compatibility of tank by January 12, 1988, and by January 12, 1990, certified by a qualified, registered professional engineer and submitted to DER.

(l) Specific Condition 23. Closure cost estimates, evidence of financial assurance for closure and evidence of financial responsibility for bodily injury and property damage to third parties caused by sudden accidental and non-sudden accidental occurrences arising from operations of permitted facility.

2. Permit HT42-68443 (Hazardous Waste Storage).

(a) General Condition 16(a)(1). Manifest discrepancy reports, with copies of relevant manifests.

(b) General Condition 16(a)(2). Unmanifested waste reports.

(c) General Condition 16(a)(3). Annual operating reports.

(d) General Condition 16(b). Reports of occurrence of any fire or explosion which could threaten the environment or human health outside the facility, and modification of any non-compliance which may endanger health or the environment, including the release of any hazardous waste that may endanger public drinking water supplies.

(e) Specific Condition 3. Annual operating reports submitted on March 1, 1985, and on each March 1 thereafter.

(f) Specific Condition 4. Closure cost estimates dated August 15, 1983, and each August 15 thereafter; all evidence of liability insurance coverage maintained by MFM; and the trust agreement and all changes thereto.

(g) Specific Condition 5. Notification of MFM's receipt of hazardous wastes from a foreign source.

(h) Specific Condition 6. Waste analysis of each proposed new waste stream to be stored.

(i) Specific Condition 7. Changes, additions, or deletions to the facility operating, emergency, and safety equipment inspection schedule.

(j) Specific Condition 9. Amendments to MFM's contingency plan.

(k) Specific Condition 10. Notification of all emergency situations.

(l) Specific Condition 12. Annual verification of tank shell thickness by a registered engineer.

(m) Specific Condition 13. Inspections of tank and associated equipment pursuant to permit schedule.

(n) Specific Condition 16. Documentation of drinking water wells listed in public records or otherwise known to MFM within 1/4 mile of MFM facility.

(o) Specific Condition 17. Engineering details of soils below the foundation of the hazardous waste storage tank.

(p) Specific Condition 18. Design standard information on design and construction of the hazardous waste storage tank.

(q) Specific Condition 19. Determination and certification of hazardous waste storage tank shell thickness at locations other than shell overlap.

(r) Specific Condition 20. Description of all instrumentation and procedures used to prevent overflow during the filling of the hazardous waste storage tank.

(s) Specific Condition 21. Demonstration that the facility is secure from unknowing entry at all times.

(t) Specific Condition 22. Schedule for, and results of, internal inspection of the hazardous waste storage tank.

(u) Specific Conditions 23, 29. Identification of all decontamination equipment and its location at the MFM facility.

(v) Specific Condition 24. Identification of designated emergency coordinators and their authority to commit MFM funds.

(w) Specific Condition 25. Description of emergency shutdown procedures for the MFM facility and continued monitoring procedures.

3. Permit A042-96009 (Operation of Clay Dryer and Clay Storage Silo).

(a) Specific Condition 5. Annual Operations Reports submitted annually on or before March 1 for the preceding calendar year.

(b) Specific Condition 10. Yearly waste oil analysis conducted on the actual waste oil used at the MFM facility.

(c) Specific Condition 17. Annual notice of compliance tests.

(d) Specific Condition 19. Reports of annual testing of dryer baghouse in accordance with EPA Method #5.

(e) Specific Condition 21. Annual stack tests submitted in accordance with Fla. Admin. Code Rule 17-2.700(7).

4. Permit AC42-113787 (Air Construction Permit).

(a) Specific Conditions 13-17. Demonstration of compliance with permit emissions limitations and notice to DER of compliance tests.

(b) Specific Condition 25. Demonstration of compliance with permit emissions limitations is made when decontaminating soils meeting specifications of Specific Condition 21 and worst case liquid fuel allowed by the permit.

(c) One-time Only Amendment To AC42-113787, dated September 14, 1988, Condition 7. All test reports of air emissions, contaminated soil, and decontaminated soil pursuant to appropriate EPA and DER methods.

(d) One-Time Amendment To AC42-113787, dated February 15, 1989, Condition 11. All test reports of air emissions, contaminated soil, and decontaminated soil pursuant to appropriate EPA and DER methods to provide the information needed to ensure that the public health and welfare are not jeopardized. The required sampling was to produce data that directly compared to data that MFM collected during previous attempts to decontaminate soil contaminated with creosote and coal tar during 1988. Pollutants sampled were to include polynuclear aromatic hydrocarbons, dioxane, heavy metals, and arsenic in addition to the other regulated air pollutants listed in Table 500-2 of F.A.C. Rule 17-2.

(e) Change To The "February 15, 1989 Amendment" To AC42-113787, dated March 28, 1989, Condition 4. Prior to any soil being accepted from an alternative site, representative samples of the soil shall be collected and analyzed. The results of the analyses shall be presented to DER to demonstrate that the level of contamination is comparable to the level of contamination in Southern Wood Piedmont's Baldwin site.

Please mark each document you send to us in response to our request with the permit number and permit condition number that the document corresponds to. In the event that all information required under any of the above permit conditions has not been provided to DER please advise us so.

In addition, we request that you provide us with (i) a list of all permit and other violations committed or allegedly committed by MFM that DER is aware of, including violations of applicable law and regulations, whether related to the permits identified above, other permits issued to MFM by DER, or any other matter, and (ii) copies of all correspondence related to those violations.

The administrative hearing is scheduled for August 28-30, 1990. In light of this rapidly approaching date, we would appreciate your attention to our requests.

Should you have any questions about our request please call me. Thank you for your assistance.

Very truly yours,

John W. Devine

John W. Devine

JTB/JWD/605

cc: Dr. C. A. Link
David Schwartz, Esq.
John T. Butler, Esq.
C. Alan Lawson, Esq.
M. Harley

S. Smallwood
Clair

Marion County School System

— Giving Students A Better Chance —

512 S.E. Third Street • P. O. Box 670
Ocala, Florida 32678-0670
(904) 732-8041
Fax (904) 732-3220

RECEIVED
JUL 5 1990
DER - BAQM

June 19, 1990

JUN 28 1990
Office of the Secretary

Mr. Dale H. Twachtmann, Secretary
Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

RE: Air Quality Permits/Incineration

Dear Secretary Twachtmann:

This letter is to address the concern of the School Board of Marion County concerning pending permit applications for incineration of non-hazardous materials in Marion County. Our concern is for students enrolled in our schools which may be in areas potentially impacted by degraded air quality. Since we operate schools in every area of the county that concern is generalized to the county as a whole.

Currently, the Department has issued an intent to issue a permit to Mid-Florida Mining, which is scheduled for an administrative hearing in August. A second application has been filed by Ocala Asphalt for incineration and may be currently pending.

The School Board and Marion County Commission are currently investigating the environmental impact of waste incineration and its effect on the surrounding agricultural land uses, horse farms and school children. In addition, the Marion County Commission is conducting public hearings relating to an ordinance to require a special use permit for incinerators and furnaces, as well as other special and usual uses.

We are concerned that the only notice requirement required by law is one published notice of the Department's intent to issue a permit in a newspaper of general circulation. We are also concerned that the Department's criteria does not include zoning considerations or require monitoring of effects on surrounding property by the Department or the person requesting a permit.

We appreciate that your Department is limited by requirements of law but we would like to request that your department share with the School Board all information received in this process. As a Board, we urge great care be taken in issuance of such permits, so that the long-term health, safety, and welfare of our children is protected.

Sincerely,

Jim Ergle, Chairman
Marion County School Board

JE:bh

cc: School Board Members
Board of County Commissioners
David Townsend, Environmental Health Director

Cornelius A. Link, D.D.S.
1140 S.E. 18TH PLACE, SUITE A • OCALA, FL 32671 • (904) 629-0700
TEMPOROMANDIBULAR DISORDERS and OCCLUSAL THERAPY

RECEIVED
JUL 2 1990

6-27-90

Mr.Mike Harley
DER
Room 309
2600 Blairstone Rd.
Tallahassee,Florida 32399-2400

Dear Mr.Harley:

Thank you for your interest in our findings. Kerry Dressler advised me to forward or address several points to you.

1.) The air samples were collected by Dr.Rod Lundoch during the night of 5 January 1990. The equipment was furnished by the National Toxic Campaign laboratory of Boston,Mass. It consisted of a small enclosed metered vacuum pump with several filters and directions how to use. Each sample was of 4 hour duration. (2 hours for organics, 2 hours for inorganics). The higher one was downwind approximately 100 feet from stack (South) the lesser one was 90 degrees to the west and 300 feet further away.
2.) The sample of 61 ppm Hg was obtained immediately after a rain shower. It was obtained between the east gate of the plant and a north-south road which borders the plant. It was an obvious sediment "delta" which had run down from the plant yard under the gate.
3.) Run off from this plant has been a driving hazard (at least) for years. Milky White water approximately 6 to 12 inches deep used to lay across the entire intersection of the above road and CR 329. Neighbors have made numerous complaints to county with little avail. After our petition was filed last fall, MFM shaped a swale in the south right-of-way and placed a culvert under their main driveway to direct the South run-off into their retention pond- (which admittedly is un-lined). This has significantly reduced the flood conditions, however there is still considerable runoff which proceeds across 329 and travels easterly on the south side of 329 to a ditch between 2 houses which carries it southerly to a wooded area. (See Photos)
4.) Also enclosed are 2 reports made by one of our members. The cattle incident may be significant if the deaths could be linked to pollution around the mine. The emergency response report points out some obvious violations. The person who conducted this study is a retired New York City Fire Chief.
5.) Enclosed is a sketch of the plant by memory--not to scale of course.

Please be sure David Schwartz sees these remarks and enclosures. Thank you for your attention in this regard.

Respectfully yours,
Cornelius A. Link/
Cornelius A.Link,D.D.S.

Laboratory Test Results

Client: R. Lundock

Two air filters were submitted by R. Lundock for metals analysis. The air filters were digested in concentrated nitric acid, which was then diluted by demineralized water. Spectrophotometric methods were then used to analyze the sample.

Client ID	Lab ID
Sample A (100 feet south of stack-down wind)	011190-8
Sample B (150 yards west of stack)	011190-9

Discussion

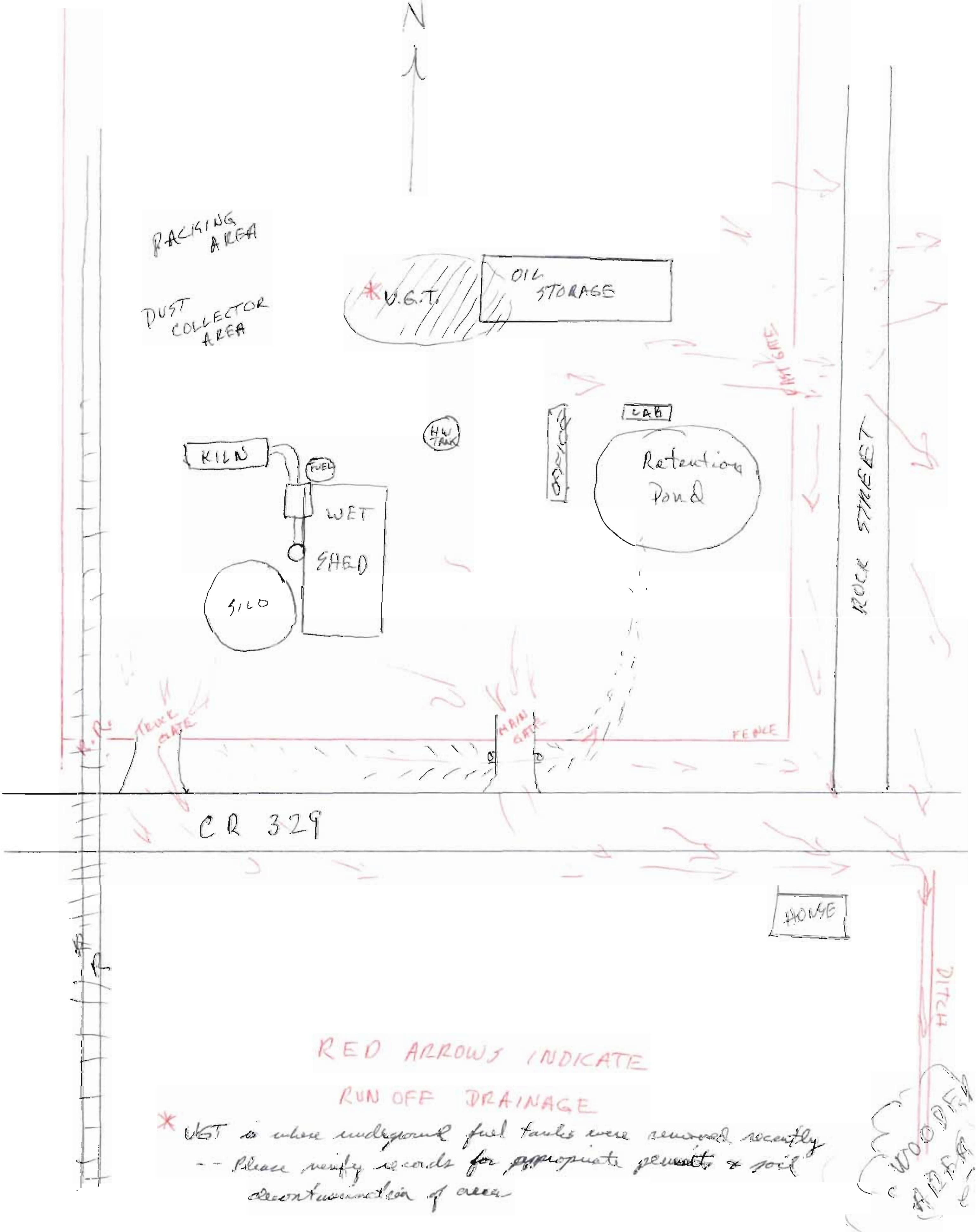
mg/cub meter

Lead was detected in both sample A and sample B at concentrations of 0.60 parts per million and 0.37 parts per million respectively. These levels are significantly higher than Massachusetts threshold effects exposure limits (see table below). Lead causes brain damage, hyperactivity and impairs hearing. Copper was detected at a concentration of 0.12 parts per million, a concentration that is above the typical range expected in uncontaminated air. Total chromium, cobalt, nickel and zinc were detected at levels within the range typically found in air. There was no hexavalent chromium or cadmium detected in the sample.

No toxic organic compounds were detected in the air filter samples. The analysis found no PCBs, pesticides, halogenated aromatics, or petrochemicals.

Massachusetts Department of Environmental Protection
Threshold Effects Exposure Limits

Chemical	CAS Number	Threshold Effects Exposure Limit (TEL) (24 hour ceiling)
Lead	7439721	0.00014 mg/cubic meter



RED ARROWS INDICATE RUN OFF DRAINAGE

* UGT is where underground fuel tanks were removed recently -- Please verify records for appropriate permits & soil decontamination of area

Aqua Pure Water and Sewage Service, Inc.
P.O. Box 621
Silver Springs, FL 32688

Mr. Warren Otto
"We The People Committee"
7380 N.W. 110th Street
Reddick, Florida 32686

Sample Name: Fairfield Mine Spring
Sample Location : Surface Spring
Date Sampled: 5-14-90 Time Sampled: 1100
Sample Number: 900515651

PARAMETER	RESULT	MCL(*)
Arsenic [As]	0.008 mg/1	0.050 mg/1
Barium [Ba]	0.066 mg/1	1.00 mg/1
Cadmium [Cd]	0.033 mg/1	0.010 mg/1
Chromium [Cr]	0.013 mg/1	0.050 mg/1
Lead [Pb]	0.018 mg/1	0.050 mg/1
Mercury [Hg]	<0.0002 mg/1	0.002 mg/1
Silver [Ag]	0.003 mg/1	0.050 mg/1
Selenium [Se]	<0.002 mg/1	0.010 mg/1

(*) MCL = Maximum Contaminent Level for State of Florida

Respectfully submitted by: Lisa K. Saupp
for: W. M. "Wally" Leslie Chemist

Date: 5-30-90

MEMBERS OF THE MARION COUNTY COMMISSION, LADIES AND GENTLEMEN.

MY NAME IS WARREN OTTO, I LIVE IN REDDICK, FLORIDA AND HAVE BEEN A MARION COUNTY RESIDENT FOR ALMOST 15 YEARS. I SPEAK AS A RESIDENT WHO RAISED HIS CHILDREN IN MARION COUNTY AND LIVE WITHIN THREE MILES OF THIS PLANT. MY QUALIFICATIONS TO SPEAK OF MY CONCERNS ARE, A FORMER ENGINEER AND HAVING RETIRED AFTER 20 YEARS EXPERIENCE IN FIRE SCIENCE AS CAPTAIN AND FIRE CHIEF IN NEW YORK CITY.

MY CONCERNS AND YOURS ALSO SHOULD BE THE 350,000 GALLONS OF INFLAMMABLE LIQUID USED AS A FUEL IN THE KILN AND STORED NEARBY. THIS FUEL WAS REFERRED TO AS HAZARDOUS WASTE, BEING OF SPENT OILS, THINNERS, ACETONE, GASOLINE AND VARIOUS CONTAMINATED AND HIGHLY INFLAMMABLE SOLVENTS AND LIQUIDS. HOWEVER WHILE CALLED "CONSUMERS HAZARDOUS WASTE" AND "COMMUNITIES HAZARDOUS WASTE" AFTER COLLECTION AND STORAGE THE D.E.R. OF FLORIDA NOW REFERS TO THE WASTE AS "HAZARDOUS MATERIALS" AND APPARENTLY THEN MORE LENIENT RESTRICTIONS APPLY. BUT THE E.P.A. DID NOT AND REQUIRED A (QUOTE) "HAZARDOUS EMERGENCY CONTINGENCY PLAN BY OWNER, MID FLORIDA MINING COMPANY" REQUIRED BY SECTION 4 CFR PART 264, THIS PLAN SUBMITTED JUNE 15th, 1988 BY MID FLORIDA MINING COMPANY REFERRED TO ITS OPERATION AS 24 HOURS A DAY 365 DAYS A YEAR OPERATION. <u>IT WAS TO BE UPDATED IN JUNE 1989 BUT WAS NOT AND HAS NOT</u> THE PLAN BEGINS WITH FRONT END LOADERS, FILLED WITH CLAY TO CONTAIN SPILLS AS <u>THE PRIMARY DEFENCE</u>. OUTSIDE SPEAKERS OF THE TELEPHONE PAGING SYSTEM WILL ANNOUNCE THREE TIMES (QUOTE) "HAZARDOUS EMERGENCY". THEN A TELEPHONE CALL TO THE NORTH MARION FIRE DEPARTMENT (QUOTE) " TELL THEM TO BRING FOAM" THE (QUOTE) "HAZARDOUS WASTES" ARE DESCRIBED AS (QUOTE) "NON HALOGENATED HYDROCARBONS" WITH THE HAZARD OF (QUOTE) " IGNITABILITY", I REPEAT "IGNITABILITY". THE TOXICITY IS DESCRIBED AS <u>NOT "ACUTELY</u> HAZARDOUS BY E.P.A. STANDARDS" I DRAW YOUR ATTENTION TO THE WORDS "ACUTELY" AND "NON HALOGENATED" FOUR EMERGENCY CO ORDINATORS ARE LISTED, THE PRINCIPAL AND THREE ALTERNATES. THE FIRST THREE LIVED IN OCALA

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8 TO 9 MILES AWAY AND THE FOURTH IN LOWELL, BUT THREE OF THE FOUR ARE NO LONGER EMPLOYED BY MID FLORIDA MINING COMPANY INCLUDING THE ONE WHO LIVED IN LOWELL. THE PLAN CITES THE WARNING (QUOTE)"DO NOT ALLOW PERSONNEL TO GO TO THEIR CARS""(THE PARKING AREA MAYBE VERY DANGEROUS" HOWEVER, NO EXPLANATION WHY. THE PLAN FURTHER STATES QUOTE" FOAM FIRE FIGHTING UNIT OF THE NORTH MARION FIRE DEPARTMENT TO STANDBY TO FOAM IN CASE OF FIRE" THERE IS NONE. ANOTHER(QUOTE)" UNDER NO CIRCUMSTANCES USE WATER". NO WORRY THE SOLE TANKER TRUCK IS INOPERATIVE AT THIS TIME. ALSO"BEGINNING OCTOBER 1986 ONE OR MORE DRILLS TO BE HELD EACH YEAR WITH THE NORTH MARION FIRE DEPARTMENT TO PARTICIPATE" NONE HAS EVER OCCURED. THE ONLY FIRE PROTECTION ON PREMISES ARE A LIST OF PORTABLE FIRE EXTINGUISHERS, BUT PERSONNEL ARE UNTRAINED IN THEIR USE. MARION COUNTY SERVICES BELIEVE 300 GALLONS OF 3% FOAM SOLUTION IS ON HAND AT THE NORTH MARION FIRE DEPT. THEY HAVE TEN GALLONS. THAT WILL REQUIRE 320 GALLONS OF WATER TO PRODUCE 330 GALLONS OF MIX WITH OPTIMUM EXPANSION OF 10 TO 1 WOULD RESULT IN 3,300 GALLONS OF FOAM NOT THE 100,000 GALLONS BELIEVED AVAILABLE TO EXTINGUISH 350,000 GALLONS OF HAZARDOUS INFLAMMABLE MATERIAL. THE STORAGE TANKS ARE NOT BURIED, INSULATED OR BERMED. THEY ARE ABOVE GROUND AND NOT PROTECTED FROM EACH OTHER. THEY ARE VERTICAL, VERY CLOSE TO EACH OTHER 2 or 3 STORIES HIGH, MOST CONTAINING 15,000 GALLONS OF HAZARDOUS INFLAMMABLE LIQUID. ANY ATTEMPT TO INSULATE THE VERTICAL TANKS FROM HEAT WITH FOAM WOULD BE IMPRACTICAL. WHILE THE TANK FARM AREA HAS A LOW DIKE, A CLOSE APPROACH WITH THE SHORT REACH OF FOAM STREAMS WOULD BE FOOL HARDY. THE CONCLUSION IS THAT ONLY VERY SMALL EMERGENCIES COULD BE HANDLED AND A POTENTIAL FOR DISASTER EXISTS. A SPILL NO DOUBT WILL EVENTUALLY BE CONTAINED AS THE LIQUID WILL FLOW TO THE LOWEST LEVEL. BUT IN THE EVENT OF A FIRE IT PROBABLY WOULD HAVE TO BE ALLOWED TO BURN OUT, 350,000 GALLONS, DUE TO THE DANGER OF EXPLOSION IF RE IGNITION OCCURED. SHOULD EXPLOSION OCCUR INITIALLY, SIZE AND IMPACT COULD NOT BE ESTIMATED. EMERGENCY FORCES MUST BE UTILIZED FOR EVACUATION OF HOMES, SCHOOLS AND PRISONS DEPENDING UPON AN ESTIMATE OF THE

RADIUS THAT MIGHT BE AFFECTED. IN CLOSING I MIGHT ADD THAT MID FLORIDA MINING COMPANY IS NOT LISTED IN THE QUOTE"HAZARDOUS MATERIALS EMERGENCY PLAN FOR THE WITHLACOOCHEE REGION" APPROVED ON APRIL 13,1990 THAT 2 INCH THICK PROCEDURE TO BE USED BY POLICE, FIRE AND LOCAL GOVERNMENT AGENCIES WHEN ACCIDENTS OCCUR INVOLVING HAZARDOUS MATERIALS. THAT PLAN WAS REQUIRED BY THE FEDERAL EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW ACT OF 1986, UPDATED AND REVIEWED ANNUALLY LISTS COMPANIES USING HAZARDOUS CHEMICALS IN DAILY OPERATION AND A RISK ANALYSIS FOR EACH,LOCATION OF EMERGENCY RESPONSE TEAMS AND EQUIPMENT, AND PROCEDURES FOR NOTIFYING THE PUBLIC FOR CASES OF HEALTH WARNINGS OR EVACUATION.

I WOULD RECOMMEND THAT THE COUNTY COMMISSION REQUEST THE D.E.R. TO WITHHOLD ANY APPROVAL OR EXPANSION PLANS AND IN FACT SUSPEND OR REVOKE ALL CURRENT PERMITS OF THE MID FLORIDA MINING COMPANY UNTIL SUCH TIME AS THE PUBLIC COULD BE PROTECTED FROM EXPLOSION HAZARD AND A FIRES EFFECTS SHOULD AN EMERGENCY OCCUR.

" Do not allow personnel to go to their cars, the parking area may be very dangerous" (no explanation why or how)

"Toxicity, none are acutely hazardous by EPA standards" (No mention of chronic hazard which is described by EPA as long time hazard.)

Hazardous emergency is described as "a spill of 250 gallons or more " (less than 250 gallons there is no procedure)

"Foam fire unit of North Marion Fire Department to be called for standby in case of fire" (There is no Foam Fire unit nor has ever been one)

"Under no circumstances to use water" (this would imply hazardous waste reactive with water such as calcium carbide. Should water be used to cool storage tanks in the event of fire, or to divert hazardous waste if flowing toward a serous exposure)

"Principal Co-ordinators are Mr. Nettles Jr,1st assist. Mr Kleekamp, 2nd assist. Mr. Chiefalo, 3rd assist. Mr. McAdams"(Of the four 3 are no longer employed by Mid Florida Mining Co. and of the one remaining Mr. Chiefalo he is believed to live in Ocala, Fl over 10 miles away. If any one of the named co-ordinators leaves or is replaced this plan must be amended as soon as possible acording to 40 CFR part 264)

"Starting 10-1-86 one or more drills a year with the North Marion Fire Department to participate" (There have been no drills, nor any drills with any fire depa rtment participating.)

Operation is described as " 24 hours a day 365 days a year" (presumably phone operators and co ordinators as well as front end loader drivers are always available)

Marion County fire officials believed that the North Marion fire Dept. had in storage 300 gallons of 3% foam solution which when mixed with 9,700 gallons of water would produce 100,000 gallons of foam. However North Marion Fire Dept has 10 gallons of 3% foam when with about 320 gallons of water will produce 3,300 gallons of foam. Obviously not enough as storage facilities are for 350,000 gallons of hazardous waste liquid whose primary hazard is ignitability.

The plan contains pages listing the location of portable fire extinguishe (employees or personnel have had no training in their use or in the extinguishing of flammable liquid fires, which can be extremely dangero

Two tanker drivers are listed for the recovery of spilled oil,Preston Driscoll and Ed Rae.

A roofed shed 114' x 80' and 30' high is described"as a containment area capable of holding 2,400 tons and would be ideal for temporary storage of spent clay"(probable meant to store the clay after absorbing the hazardou waste liquid spilled) (does the ignitability not remain)

INCIDENT,Cattle dying at Mid Florida Mining Company mine near Fairfield, Florida 2nd week of May 1990. At a weekly information gathering held at Bo Bett Farm, Reddick Florida an incident was related of cattle dying in the mine area at Mid Florida Mining Company's mine in Fairfield.

A Mr. Lonnie Edwards on May 10, 1990 related that he had been asked if "he owned the cows that were dead or dying near the mine" He said he did not and did not know who owned those cows. Mr. Edwards said that there were about 5 dead cows who died from no apparent reason, and that he was of the impression that Mid Florida Mining Company had leased the pastures and grassland around the mine for grazing purposes. He speculated that the cows would be claimed by someone if they were of any value.

On the afternoon of Friday May 11,1990 a flight was arranged to fly over and observe if in fact there were any cows or dead cows in the mine area. Flying from the Williston Airport, and from an elevation of 1,600 feet both live and apparently dead cows were observed in the mine vicinity. Photos were taken in an effort to locate the cattle when on the ground.

During the weekend attempts were made to gain legal access to the property and also to locate the owners of the cattle or more information concerning any lease of the property, but to no avail.

On May 14, 1990,in the company of aMrs Tincher who had authorization to trespass and with the permission of Meadowbrook farm at the Jockey ?Club acess was gained thru the Meadowbrook farm to the North side of the land on which the dead cows were observed. No signs of ownership or posted signs were seen. Ten dead animals were discovered, and there was presumed to be others. Most were decaying from the hot sun and only one calf that was in a cool shaded area appeared in condition for testing. There did appear to be ample grass, hay and food supplement. There was evidence of one source of water from which cattle had been drinking. It was noted that there were no barriers to the mining area and from the aerial photos there are other sources of water within the mine area. Photos were taken of the dead animals and a sample of the water from the spring from which cattle have apparently drank.

During the afternoon of May 14,1990 efforts were made to contact any authority who would be concerned if a herd of cattle were to die of no apparent reason near the Mid florida Mining Company mine and storage area of previously treated contaminated soil. Federal,State and County Agriculture, livestock and Veterinarian Services were contacted as well as HRS and Environmental Health. All sources contacted stated that no action could be taken without knowing ownership of the dead cows and permission of the property owners. Believed to have exhausted all persons who might be concerned, a call was received from the Humane Society.

The Humane Society when informed of the above circumstances was interested and their concern was if the cattle had suffered from neglect or ill treatment. They armed with Deputy Sheriff status could trespass if reason to believe possible cruelty to animals. This contact on the evening of May 14th resulted in arrangements to meet at 7:00 AM May 15, 1990 at the entrance of the Meadowbrook Jockey Club to investigate.

The investigation was made by the Deputy Sherrif Marion County Humane Society officer and a Marion County Veterinarian. A liver sample was taken from the dead calf, other dead cattle were observed. Again no evidence was revealed of neglect or lack of food and the cause of death remains undetermined at this time.

In all fairness to County officials Agricultural and Health, they stated on May 16th they were still interested in who owned the cows.

File Copy

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

JUN 12 1990

RECEIVED

JUN 15 1990

DER - BAQM

4APT-AEB

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

RE: Applicability of PSD Requirements to Mid-Florida Mining Company's (MFM) Application for a Permit to Construct an Afterburner

Dear Mr. Fancy:

Per your May 29, 1990, request, we have reviewed the information related to MFM's past and present permitting history and are providing the following comments.

The permit to construct a coal handling system and to modify the existing rotary kiln clay drier to burn coal issued by Florida in 1986 appears to have no bearing on the current permit request by MFM. The modifications allowed by the 1986 permit to construct were never performed and the permit expired in early 1990. Based on the time that has elapsed since the issuance of the 1986 permit, we would not recommend any additional extensions of the construction permit. The 1987 amendment to the 1986 construction permit, authorizing the decontamination of soils, was made a part of the 1986 construction permit. Although it is questionable whether or not this amendment was ever federally enforceable, the authorization to decontaminate soils appears to have expired along with the 1986 construction permit.

Since the permit issued in 1986 has expired, MFM must obtain a valid permit in order to continue to decontaminate soils. As your letter states, MFM has also applied for a permit to process materials contaminated with non-RCRA waste. It would be inappropriate to use the 1986 permitted allowable emission rates imposed for the coal conversion project in the assessment of potential PSD applicability. The calculation of PSD applicability is based on the difference between current actual emissions (the average rate in tons per year that the unit actually emitted the pollutant during the previous two year period) and the new potential to emit (generally this is the new allowable emission rate). Although your May 29 letter only lists actual emission rates for MFM's pre-1986 status, it is probable that if the current actual emission rates were used, i.e., rates measured while MFM processed contaminated soils, PSD would still apply for SO_2 at the allowable emission rates listed in the 1989 application. Therefore, we would leave it to your discretion in determining whether to use the pre-1986 actual emission rate or the current actual emission rate in assessing PSD applicability for the proposed 1989 project, and also whether to include the decontamination of petroleum soils in the current request to process non-RCRA wastes.

Regarding the PSD public participation requirements, we are not at liberty to "waive" any particular requirement contained in Florida's PSD State Implementation Plan (SIP). As stated in Chapter 17-2.220 of the Florida rules, your Agency is required to provide a 30-day period for submittal of public comment, a notice on whether BACT or LAER has been determined, the degree of increment consumption, etc. We would therefore recommend that the PSD public participation procedures be followed when a preliminary determination is issued.

Regarding the selection of an afterburner as BACT, we agree with Florida that this may in fact be the "top" control option. Without a complete BACT analysis, however, we have no way of assessing control efficiencies, emission limits, etc.

If you have any questions concerning these comments, please contact Mark Armentrout of my staff at (404) 347-2904.

Sincerely yours,

Jewell A. Harper, Chief
Air Enforcement Branch
Air, Pesticides and Toxics
Management Division

Mike Harley
Clair Fancy 6-15-90
D. Schwartz
D. MacLaughlin

RECEIVED
JUN 12 1990
DER - BAQM

Route 2 Box 565 C
Micanopy, Fl. 32667

Mr. Mike Harley
FDER - Air Division
2600 Blair Stone Road
Twin Towers Office Building
Tallahassee, Fl. 32399-2400

8 June 1990

Dear Mr. Harley,

Enclosed are a few more tests from the area of Mid-Florida Mining company. These are for addition to your record.

The ABC Research report is of "Bag House Dust" and "Soil Residue" from the decontamination process and were collected in the mine site. The third collection was of wet sand where wash water was running under the fence at the processing site in Lowell, and into the street. The Mercury level was very high in that sample. (61ppm).

The Analysis Report from the Equine Nutrition Lab is from two farms at varying distances from MFM, Green Key farm and Indian Hill farm.

There are two reports on necropsies done on parakeets raised by Dr. Rod Lundock. All three of the birds had toxic levels of lead in their systems. Dr. Lundock's farm is within 1/2 mile of MFM and his wife raises parakeets. They have had quite a few die this year.

Another report I haven't received yet was called to the person who collected it. It was a water collection where a number of dead cattle were found in various degrees of decay. A necropsy was done on a recently dead calf at the water source at the same time. That report is not available yet, also. The lab called to say the Cadmium level in the water was 0.033 mg/l. They said the level of concern was 0.010.

The last report is of an air sample collected at the processing site. There was an error in the printing of the Discussion in calling the concentrations parts per million rather than mg/cu meter and the lab is sending a corrected report.

I hope these will be of interest to you. I sent a copy of these to Mr. Collins at the Central District office also. Two other groups are now conducting tests in this area. Council Tox from Illinois and Dr. Inman's group from HRS. I'd appreciate knowing what action the DER decides to take on this issue. If I can be of any more assistance, please call.

Sincerely,

Kay Dressler (904) 466-4215

ABC Research

BEST AVAILABLE COPY

p. o. box 1557 • gainesville, florida 32602 • phone 904-372-0436 • FAX (904) 378-6483

eport No. 12280
ubject: WE THE PEOPLE (SOIL/DUST)
eceived: APR 09 1990

Date APR 27 1990

DHRS/DER #82135, E82031

RECEIVED
JUN 12 1990

CONNIE BONBREST
WE THE PEOPLE FOR A SAFE ENVIRONMENT
6005 N.W. COUNTY HWY 316
REDDICK, FL 32686

RESULTS OF ANALYSIS	RESULT	ANALYST	ANALYSIS DATE/TIME
ample 1 BAG HOUSE DUST			
RSENIC IN SOLIDS	.40 MG/KG DRY WT	DM	04/11/90 05:30PM
EAD IN SOLIDS	1.7 MG/KG DRY WT	DM	04/11/90 04:00PM
HROMIUM IN SOLIDS	14 MG/KG DRY WT	DM	04/11/90 12:00PM
ERCURY IN SOLIDS	5.8 MG/KG DRY WT	DM	04/26/90 09:00AM
ERYLLIUM IN SOLIDS	1.8 MG/KG DRY WT	DM	04/16/90 09:00AM
ample 2 SOIL RESIDUE			
RSENIC IN SOLIDS	1.0 MG/KG DRY WT	DM	04/11/90 05:30PM
EAD IN SOLIDS	1.5 MG/KG DRY WT	DM	04/11/90 04:00PM
HROMIUM IN SOLIDS	3.8 MG/KG DRY WT	DM	04/11/90 12:00PM
ERCURY IN SOLIDS	7.2 MG/KG DRY WT	DM	04/26/90 09:00AM
ERYLLIUM IN SOLIDS	.40 MG/KG DRY WT	DM	04/16/90 09:00AM
ample 3 MID FLORIDA EAST TANK WASH RUN OFF			
RSENIC IN SOLIDS	.68 MG/KG DRY WT	DM	04/11/90 05:30PM
EAD IN SOLIDS	.66 MG/KG DRY WT	DM	04/11/90 04:00PM
HROMIUM IN SOLIDS	1.3 MG/KG DRY WT	DM	04/11/90 12:00PM
ERCURY IN SOLIDS	.61 MG/KG DRY WT	DM	04/26/90 09:00AM
ERYLLIUM IN SOLIDS	.23 MG/KG DRY WT	DM	04/18/90 10:00AM

Respectfully Submitted for ABC Research

Karen Hatfield

Karen Hatfield
Manager Environmental Chemistry

ANALYSIS REPORT

Date of Report 4/10/90
Samples Collected 3/29/90

	Lead Contact -- ppm
Green Key Farm:	
Soil -- mare pasture[1]	9.7
Bahiagrass -- mare pasture[2]	3.4
C. Bermuda hay[2]	0.9
Alfalfa hay (stored in Indian Hill barn)[2]	0.7
Indian Hill Farm:	
Soil -- mare pasture no. 5[1]	14.5
Bahiagrass -- mare pasture no. 5[2]	2.6

[1] air dry

[2] dry matter basis

Mel Jacobs
Biologist
Equine Nutrition Lab

FLORIDA DEPARTMENT OF AGRICULTURE & CONSUMER SERVICES 05/04/90
DIVISION OF ANIMAL INDUSTRY / KISSIMMEE DIAGNOSTIC LABORATORY
P. O. BOX 460, KISSIMMEE FL 32741

PHONE (407)847-3185

ACCESSION # 90-009656
DATE REC'D 05/02/90

VETERINARIAN

DR. R. G. LUNDOCK
P. O. BOX 218
LOWELL FL 32663

OWNER

LUNDOCK, MARGARET
P. O. BOX 218
LOWELL FL 32663

SPECIES/TYPE AVIAN / PSITTACINE* AGE UNKNOWN SEX FEMALE
NUMBER OF ANIMALS 1

SPECIMENS - DEAD BIRD.

TESTS REQUESTED AND HISTORY ON FILE. COPY AVAILABLE UPON REQUEST.

REPORTS- PRELIMINARY 05/04 TELEPHONE FINAL

CASE COORDINATOR DR. T. J. KEEFE

RESULTS OF EXAMINATION:

PRELIMINARY REPORT

05/02/90

*PARAKEET

NECROPSY

THE CADAVER WAS OBESE. PLAQUES OF YELLOW FAT WERE PRESENT SUBCUTANEOUSLY. THE ABDOMEN CONTAINED LARGE MASSES OF YELLOW FAT WHICH COMPRESSED ABDOMINAL ORGANS. A FULLY FORMED BROKEN EGG WAS PRESENT IN THE CLOACA. ADDITIONAL YOLKS WERE PRESENT IN THE OVIDUCT. THERE WAS NO EVIDENCE OF PERITONITIS. TISSUES WERE MODERATELY AUTOLYZED. IT IS LIKELY THE BIRD DIED OF STRESS AS A CONSEQUENCE OF BEING UNABLE TO LAY AN EGG. THERE WERE NO OTHER GROSS ABNORMALITIES.

T. J. KEEFE

05/04/90 BACTERIOLOGY

AEROBIC CULTURE - INTESTINE - NO PATHOGENS ISOLATED..

CHEMISTRY

LEAD (PPM) - MISC. TISSUES - 12
(TOXIC LEVEL - COMBINED HEART, LIVER AND KIDNEY)

COLORADO VETERINARY DIAGNOSTIC LABORATORY
College of Veterinary Medicine and Biomedical Sciences
Colorado State University, Fort Collins, CO 80523
303-491-1281

D.L. No: 890-18187
Date:

Vet/Clinic: R.G. Lundock/
Owner: Same
Animal ID: Parakeets **Date Specimen Taken:**
Species: Avian **Breed:** Parakeets **Age:** 2 wk/5 wk **Sex:**

History: The two-week-old bird was found dead in a nestbox. The five-week-old bird never gained strength after leaving the nestbox.

NECROPSY: The two-week-old bird is a tiny featherless creature with a distended crop. The older bird is quite thin. It has no gross lesions.

HISTOPATHOLOGY: The tissues have artefact due to freezing and autolysis. No lesions were found, but subtle changes would have been missed.

BACTERIOLOGY: There was no significant bacterial growth from liver.

VIROLOGY: No chlamydia were found in spleen.

TOXICOLOGY: The lead level is 3.5ppm. This is higher than expected, but the sample of tissue is so small, the results may not be accurate.

DIAGNOSIS: Crop distention and emaciation, suspicion of lead intoxication.

P. Schultheiss, DVM/PhD

Called: 5/25/90 ps
Typed: 5/25/90 msl

Laboratory Test Results

Client: R. Lundock

Two air filters were submitted by R. Lundock for metals analysis. The air filters were digested in concentrated nitric acid, which was then diluted by demineralized water. Spectrophotometric methods were then used to analyze the sample.

Client ID	Lab ID
Sample A (100 feet south of stack-down wind)	011190-8
Sample B (150 yards west of stack)	011190-9

Discussion

Lead was detected in both sample A and sample B at concentrations of 0.60 ~~parts per million~~ mg/cubic meter and 0.37 ~~parts per million~~ mg/cubic meter respectively. These levels are significantly higher than Massachusetts threshold effects exposure limits (see table below). Lead causes brain damage, hyperactivity and impairs hearing. Copper was detected at a concentration of 0.12 parts per million, a concentration that is above the typical range expected in uncontaminated air. Total chromium, cobalt, nickel and zinc were detected at levels within the range typically found in air. There was no hexavalent chromium or cadmium detected in the sample.

No toxic organic compounds were detected in the air filter samples. The analysis found no PCBs, pesticides, halogenated aromatics, or petrochemicals.

Massachusetts Department of Environmental Protection
Threshold Effects Exposure Limits

Chemical	CAS Number	Threshold Effects Exposure Limit (TEL) (24 hour ceiling)
Lead	7439721	0.00014 mg/cubic meter

The Citizens' Environmental Laboratory

"Testing for toxics in communities at risk"

Laboratory data report for:

R. Lundock

Reported by: Marco Kaltofen
Laboratory Director

National Toxics Campaign Fund
37 Temple Place 4th floor
Boston, MA 02111 tel. (617) 482-1477

Date of Supplementary Report: February 13, 1990

Printed on 100 % recycled paper

Laboratory Test Results

Client: Ron Lundock
Client sample ID: Sample A (100 feet south of stack-down wind)
Lab sample ID: 011190-8
Sample type: Air filter

All concentrations are in mg/cubic meter. ~~This is equivalent to parts per million or ppm.~~

Analyte	Result	Note	Method code
Cadmium	<.004	0	2
Total Chromium	0.022	1	2
Hexavalent Chromium	<.002	0	2
Cobalt	0.013	1	2
Copper	0.12	2	2
Lead	0.60	3	2
Mercury	**<.0009**	**0**	**2**
Nickel	0.013	1	2
Zinc	0.041	1	2
Total Toxic Organics	<.010	0	5

Please note: Part of the sample has been sent to an outside laboratory for mercury analysis.

Notes:
0 - not detected
1 - within normal range
2 - above normal range
3 - much above normal range

Methods:
1 - Colorimetric
2 - Spectrophotometric
3 - Electrometric
4 - Titration
5 - GC/MS
6 - Hydride generation

Laboratory Test Results

Client: Ron Lundock
Client sample ID: Sample B (150 yards west of stack)
Lab sample ID: 011190-9
Sample type: Air filter

All concentrations are in mg/cubic meter. ~~This is equivalent to parts per million or ppm~~.

Analyte	Result	Note	Method code
Cadmium	<.004	0	2
Total Chromium	0.005	1	2
Hexavalent Chromium	<.002	0	2
Cobalt	0.007	1	2
Copper	0.083	2	2
Lead	0.37	3	2
Mercury	**<.0009**	**0**	**2**
Nickel	<.003	0	2
Zinc	0.091	1	2
Total toxic organics	<.010	0	5

Please note: An outside laboratory for mercury analysis. No report has been generated by the subcontract laboratory. A supplemental report on mercury levels will be sent A.S.A.P.

Notes:
0 - not detected
1 - within normal range
2 - above normal range
3 - much above normal range

Methods:
1 - Colorimetric
2 - Spectrophotometric
3 - Electrometric
4 - Titration
5 - GC/MS
6 - Hydride generation

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

May 29, 1990

Ms. Jewell A. Harper, Chief
Air Enforcement Branch
Air, Pesticides, and Toxics
Management Division
Region IV
U. S. Environmental Protection Agency
345 Courtland Street
Atlanta, Georgia 30365

RE: Applicability Of Federal PSD Review Requirements To Mid-Florida Mining Company's (MFM) Application For A Permit To Construct An Afterburner

Dear Ms. Harper:

On September 29, 1989, the Department issued an intent to Mid-Florida Mining Company (MFM) for a permit to equip an existing rotary kiln clay dryer with an afterburner. An administrative hearing was requested by a third party during the 14-day public notice period. New information has come to our attention since the hearing request was filed.

SITUATION

In 1985, MFM applied for construction permits to install a coal handling system and to modify the existing rotary kiln clay dryer to burn coal. At the time of application MFM claimed actual emissions (TPY) of 20.6-particulate, 19.4-SO_2, 30.9-NO_x, 1-CO, and 0.7-VOC.

In 1986, the Department issued the requested construction permits following a 14-day public notice. The construction permit for the rotary kiln clay dryer authorized emissions (TPY) of 65.7-particulate, 230.6-SO_2, 129.2-NO_x, and 3.7-CO.

In 1987, MFM asked the Department to amend the rotary kiln clay dryer construction permit to authorize the decontamination of soils contaminated with "on-spec" petroleum products. The Department amended the rotary kiln clay dryer construction permit without public notice with the condition that there would be no increase in the permitted emissions.

In 1988, MFM requested a two-year extension of the expiration dates on the coal handling system and rotary kiln clay dryer construction permits. The expiration dates were extended until February 1990, based on MFMs written assurance that installation of the coal handling and burning systems was still planned.

In 1989, MFM applied for a permit to equip the existing 35 MBtu/hour counter-flow rotary kiln type clay dryer with a 50 MBtu/hour afterburner. MFM proposed to use the rotary kiln to process materials contaminated with non-RCRA waste and the afterburner to destroy the volatile and semi-volatile organic compounds liberated from the contaminated materials. The Department proposed to issue the requested construction permit. The proposed emissions (TPY) were 75.7-particulate, 479.0-SO_2, 162.0-NO_x, 11.8-CO, 4.3-VOC, 1.7-Lead, 119.5-HCl, and 0.09-mercury. The Department decided to exempt the proposed afterburner project from PSD on the basis of MFMs written commitment to install the previously permitted coal handling and burning systems. In October of 1989, an administrative hearing was requested.

In 1990, MFM asked for an extension of the expiration date of the four-year old permit authorizing modification of the existing rotary kiln clay dryer to burn coal and amended to allow decontamination of soil contaminated with "on-spec" petroleum products. MFM asked that the permit be extended until issues related to the administrative hearing on the proposed clay dryer/afterburner permit are resolved. MFM did not ask for an extension of the permit authorizing installation of the coal handling system. The company has not installed the coal handling and burning systems authorized by the permit for the coal handling system and the permit to modify the rotary kiln clay dryer to burn coal.

OBSERVATIONS

1. Since MFM did not perform the activity for which construction permit AC 42-113787 [Clay Dryer/Coal Burning] was publicly noticed, should the project proposed by permit AC 42-162296 [Clay Dryer/Afterburner System] be subject to the full PSD new source review requirements? It is my opinion that the draft permit and rule applicability were correct at the time of issuance. If we were reviewing the project now, PSD would have applied.

2. If the proposed project were subject to the full PSD new source review requirements, then a 30-day public notice would be required. Please note that a third party requested an administrative hearing on October 27, 1989 and that the hearing is scheduled for August 28-30, 1990. On May 7, 1990, the Marion County Commissioners held a special public information meeting about the proposed project. The meeting was attended by about 800 people. In my opinion, the public participation requirements of the PSD rules may have been met.

3. Even though a BACT was not done, as it was not required, the company proposes to install the afterburner following the existing baghouse.

We would appreciate a response to the above three comments by June 15. If you have any questions or desire to meet with us, please call me or Mike Harley at (904) 488-1344.

Sincerely,

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

cc: D. Schwartz

5/24/90 COPY TO MIKE HARLEY - TALL
" " DOUG MACLAUGHLIN
Chuck

For Routing To Other Than The Addressee	
To:	Location:
To:	Location:
To:	Location:
From:	Date:

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

Interoffice Memorandum

TELEPHONE CONVERSATION

MEMO TO THE FILE

FROM Mrs. Link DATE 5/22/90 TIME ~ 10:00

FILE Mid-Fla Mining PHONE NUMBER

Mrs Link informed C. Shene ~~informed~~ that MFM had a fire on June 22, 1990 from ≃ 2:26 - 5:40 which starts with creosote burning in the baghouse. There was a Xylene leak on June 10, 1990

RECEIVED
MAY 25 1990
DER - BAQM

SIGNED C Shene

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

ACTION NO

ACTION DUE DATE

1. TO: (NAME, OFFICE/LOCATION) Mike Harley, Permitting	Initial
	Date
2. AIR BAQM	Initial
	Date
3. TT	Initial
	Date
4. Tall	Initial
	Date

REMARKS:

RECEIVED
MAY 25 1990
DER - BAQM

INFORMATION

- Review & Return
- Review & File
- Initial & Forward

DISPOSITION

- Review & Respond
- Prepare Response
- For My Signature
- For Your Signature
- Let's Discuss
- Set Up Meeting
- Investigate & Report
- Initial & Forward
- Distribute
- Concurrence
- For Processing
- Initial & Return

FROM: C. M. Collins
Air Program Adm
Central District

DATE 5-24-90

PHONE

5/24/90 1 COPY TO MIKE HALLEY - file
1 " " DOUG MACLAUGHLIN
Chuck
Bill Boswick

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee	
To:	Location:
To:	Location:
To:	Location:
From:	Date:

Interoffice Memorandum

TELEPHONE CONVERSATION

MEMO TO THE FILE

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Mrs Link informed C. Shein ~~informed~~ that MFM had a fire on June 22, ~~1990~~ 1989 from ~2:26 - 5:40 which starts with cresote burning in the baghouse. There was a Xylene leak on June 10, ~~1990~~ 1989 cs

Corrects by
C Shein 5/25/90

SIGNED C Shein

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP	ACTION NO
	ACTION DUE DATE

1. TO: (NAME, OFFICE, LOCATION) Mike Harley	Initial
	Date
2. Air Permitting	Initial
	Date
3. BAQM	Initial
	Date
4.	Initial
	Date

RECEIVED
MAY 29 1990
DER - BAQM

REMARKS:

Corrected copy attached

INFORMATION
Review & Return
Review & File
Initial & Forward

DISPOSITION
Review & Respond
Prepare Response
For My Signature
For Your Signature
Let's Discuss
Set Up Meeting
Investigate & Report
Initial & Forward
Distribute
Concurrence
For Processing
Initial & Return

FROM: C. Shine
Air Program
Central District

DATE 5/25/90

PHONE

Sent 5/24/90

1 copy to Mike Harley
1 copy Doug MacLaughlin
BB FYI
Chuck

Route 2 Box 565 C
Micanopy. Fl. 32667

Mr. Charles M. Collins
FDER Central District
3319 McGuire Blvd. Suite 232
Orlando. Fl. 32803-3767

18 May 1990

Dear Sir.

Enclosed with this letter are the test results from the area of Mid-Florida Mining in Lowell. Florida. These were requested by the group. "We the People". All were done by State certified laboratories. Also enclosed are the cover sheets I told you about from Koogler and Associates for the test burn of Creosote and Pentachloraphenol dated 15 July. 1988. I also enclosed an article on Hysteresis which may have some bearing on our problems here in Marion County.

ABC Research in Gainesville tests dated 27 April 1990 include : Sample 1 Bag House Dust. This was collected in the mining area by Doris Link and Carol Riley. The "dust" was in piles in the mined over areas. It is greyish - white in color. and very fine. Sample # 2 was collected at the same time in the same area of the mine operation. The 3rd sample was collected outside the gate of the MFM Industry. The wet sandy soil was washed under the gate from the east tank. This was also collected by Doris Link and Connie Bonbrest.

The Kissimmee Diagnostic Laboratory report dated 3/28/90 with accession number 90-006997 is from the autopsy of a dead foal performed by Dr. Rod Lundock. He is a local veterinarian. The second sheet from the same laboratory is of four mares who have aborted this season. The one named Princess is the mother of the aborted foal in the previous test. Both tests for mother and foal showed toxic levels of lead in the kidney and blood.

The ABC Research report dated 19 March 1990 has various tests from the neighborhood of the MFM factory. The bag of Kitty White. one of the products of MFM Industry. was sent unopened to the laboratory. It had been purchased locally. MFM markets the kitty litter under a number of names. It is also marketed under the house brand for Publix. and Winn Dixie to name only two. We have a number of people who have come forward to tell of cats that have used this litter over periods of time and had skin problems and cancers.

The air sample was collected by Dr. Rod Lundock after receiving instructions and a collecting kit from the National Toxics Campaign Environmental Laboratory in Boston. Massachusetts. This is also a certified laboratory.

The test from CH2M Hill dated 1/22/90 was collected by Connie Bonbrest in her yard.

We realize that these tests will be contested by MFM's lawyers. We didn't know if we HAD a problem. and the only way of finding out was to do some limited testing on our own. Without these we wouldn't have been able to approach HRS and yourselves to petition for a proper study. We didn't test for all the metals or any other things because of the cost. I didn't include only tests I wanted you to see, but all that we have at this time. We have verbal reports of more tests, and I will send those reports to you when they are available. Mr. Hilmer Schmidt has informed me that the tests on his grass at the Indian Hill Horse Farm are as high as 12 and 14 Mg/Kg of dry weight for Lead. His water tests correspondingly high, also.

We know we have a problem. We've done as much as we can on our own, and hope that the proper authorities will take it from this point. Our intuition is that the problem stems from the MFM plant, but we are trying to keep open minds to other suggestions. This is not an industrialized area, and it is not acceptable to us that a small industry could put so successful a horse breeding area in jeopardy. We believe our own health will be next. Our children have tested for lead from 2 to 10 in a child living closest to MFM (I believe this is in ug/l but I don't have the tests yet) according to Dr. Miley. He will provide me with copies of the test results and I will forward them to you. These levels are not toxic, we are told, but are what would be expected in an industrialized area such as Detroit. We don't live in Detroit. Even very small continual doses of lead can be harmful to the development of small children.

The time to find the solution to this problem is now, before this becomes a serious health problem.

Sincerely,

Kerry Ann Dressler

Kerry Ann Dressler.

Mr Bill Bostwick has also expressed an interest to see these tests and I told him I was sending them to your office

ABC Research

p. o. box 1557 • gainesville, florida 32602 • phone 904-372-0436 • FAX (904) 378-6483

BEST AVAILABLE COPY

Report No. 12280
Subject: WE THE PEOPLE (SOIL/DUST)
Received: APR 09 1990

Date APR 27 1990

DHRS/DER #82135, E82031

MAY 1990 RECEIVED CENTRAL FLORIDA DISTRICT

CONNIE BONBREST
WE THE PEOPLE FOR A SAFE ENVIRONMENT
6005 N.W. COUNTY HWY 316
REDDICK, FL 32686

RESULTS OF ANALYSIS

	RESULT	ANALYST	ANALYSIS DATE/TIME
Sample 1 BAG HOUSE DUST			
ARSENIC IN SOLIDS	.40 MG/KG DRY WT	DM	04/11/90 05:30PM
LEAD IN SOLIDS	1.7 MG/KG DRY WT	DM	04/11/90 04:00PM
CHROMIUM IN SOLIDS	14 MG/KG DRY WT	DM	04/11/90 12:00PM
MERCURY IN SOLIDS	5.8 MG/KG DRY WT	DM	04/26/90 09:00AM
BERYLLIUM IN SOLIDS	1.8 MG/KG DRY WT	DM	04/16/90 09:00AM
Sample 2 SOIL RESIDUE			
ARSENIC IN SOLIDS	1.0 MG/KG DRY WT	DM	04/11/90 05:30PM
LEAD IN SOLIDS	1.5 MG/KG DRY WT	DM	04/11/90 04:00PM
CHROMIUM IN SOLIDS	3.8 MG/KG DRY WT	DM	04/11/90 12:00PM
MERCURY IN SOLIDS	7.2 MG/KG DRY WT	DM	04/26/90 09:00AM
BERYLLIUM IN SOLIDS	.40 MG/KG DRY WT	DM	04/16/90 09:00AM
Sample 3 MID FLORIDA EAST TANK WASH RUN OFF			
ARSENIC IN SOLIDS	.68 MG/KG DRY WT	DM	04/11/90 05:30PM
LEAD IN SOLIDS	.66 MG/KG DRY WT	DM	04/11/90 04:00PM
CHROMIUM IN SOLIDS	1.3 MG/KG DRY WT	DM	04/11/90 12:00PM
MERCURY IN SOLIDS	61 MG/KG DRY WT	DM	04/26/90 09:00AM
BERYLLIUM IN SOLIDS	.23 MG/KG DRY WT	DM	04/18/90 10:00AM

Respectfully Submitted for ABC Research

Karen Hatfield

Karen Hatfield
Manager Environmental Chemistry

FLORIDA DEPARTMENT OF AGRICULTURE & CONSUMER SERVICES 03/28/90
DIVISION OF ANIMAL INDUSTRY / KISSIMMEE DIAGNOSTIC LABORATORY
P. O. BOX 460, KISSIMMEE FL 32741

PHONE (407)847-3185

ACCESSION # 90-006997
DATE REC'D 03/28/90

VETERINARIAN	OWNER
DR. R. G. LUNDOCK	SCHMIDT, HILMER
P. O. BOX 218	12191 N. MAGNOLIA AVE.
LOWELL FL 32663	OCALA FL 32670

SPECIES/TYPE EQUINE AGE SEX
NUMBER OF ANIMALS 1

SPECIMENS - FRESH TISSUE.

TESTS REQUESTED AND HISTORY ON FILE. COPY AVAILABLE UPON REQUEST.

REPORTS- PRELIMINARY TELEPHONE FINAL 03/28/90

CASE COORDINATOR DR. T. J. KEEFE

RESULTS OF EXAMINATION:

03/28/90

TB, PREMATURE FOAL

CHEMISTRY

LEAD (PPM) - KIDNEY - 8.8
(TOXIC LEVEL)

ARSENIC [PPM] - KIDNEY - NEGATIVE

MAY 1990 CENTRAL FLORIDA

Foal

BLOOD LEAD (Pb) ANALYSIS (ppm)

Sample Type: BLOOD
Test Number: SARA NETA
The Concentration of Pb by HNO_3 (Internal) in the sample is 0.15 (ug/ml)

Sample Type: BLOOD
Test Number: JM'S DANCER
The Concentration of Pb by HNO_3 (Internal) in the sample is 0.28 (ug/ml)

→ Sample Type: BLOOD
Test Number: PRINCESS   Mother of Aborted Foal – LAST
The Concentration of Pb by HNO_3 (Internal) in the sample is 0.54 (ug/ml) (TOXIC)

Sample Type: BLOOD
Test Number: ALTIWIRL
The Concentration of Pb by HNO_3 (Internal) in the sample is 0.20 (ug/ml)

HAIR LEAD (Pb) ANALYSIS (ppm)

	MANE	TAIL	FETLOCK
SARA NETA	1.00	2.60	3.20
DANCER	0.80	1.70	1.50
→ PRINCESS	1.70	1.20	0.80
ALTIWIRL	0.80	1.60	0.80

All mares aborted this year

LAB: FLORIDA DEPT. OF AGRICULTURE + CONSUMER SERVICES
DIVISION OF ANIMAL INDUSTRY/
KISSIMMEE DIAGNOSTIC LAB.
P.O. BOX 466. KISSIMMEE FL. 32741

phone # (407) 847-3185

ACCESSION # 90-006997

VET: DR. R.B. LUNDOCK
P.O. BOX 218
LOWELL, FL. 32663

p. o. box 1557 • gainesville, florida 32602 • phone 904-372-0436 • FAX (904) 378-6483

Report No. 11705 BEST AVAILABLE COPY Date MAR 19 1990
Subject: WE THE PEOPLE FOR A SAFE ENVIRONMENT 2/14/90
Received: FEB 14 1990 DHRS/DER #82135, E8203

CAROL BONBREST
WE THE PEOPLE FOR A SAFE ENVIRONMENT
6005 N.W. COUNTY HWY 316
REDDICK, FL 32686

RESULTS OF ANALYSIS

	RESULT	ANALYST	ANALYSIS DATE/
Sample 1 LEAVES CONNIE BONBREST FRONT YARD 02/14/90			
PH, IN PH UNITS	6.2 PH UNITS	PH	02/16/90 08:
Sample 2 LEAVES STEVE ROGERS P.O. BOX 9 REDDICK 02/13/90			
PH, IN PH UNITS	6.3 PH UNITS	PH	02/16/90 08:
Sample 3 UNOPENED BAG KITTY WHITE PREMIUM CAT LITTER 5# BAG			
ARSENIC IN SOLIDS	67 MG/KG DRY WT	DM	02/23/90 03:
LEAD IN SOLIDS	6.5 MG/KG DRY WT	DM	03/01/90 08:
CHROMIUM IN SOLIDS	24 MG/KG DRY WT	DM	02/21/90 10:
MERCURY IN SOLIDS	2.4 MG/KG DRY WT	DM	02/22/90 02:
BERYLLIUM IN SOLIDS	2.2 MG/KG DRY WT	DM	03/05/90 10:
ASHING FOR METALS	DONE	KA	02/14/90 05:
Sample 4 BOBETT FARM FRONT PASTURE GRASS 02/13/90			
LEAD IN SOLIDS	1.0 MG/KG DRY WT	DM	03/05/90 02:
ASHING FOR METALS	DONE	KA	02/14/90 05:
Sample 5 CONNIE BONBREST FRONT YARD GRASS 02/14/90			
LEAD IN SOLIDS	.49 MG/KG DRY WT	DM	03/05/90 02:
ASHING FOR METALS	DONE	KA	02/14/90 05:
Sample 6 FLAMINGO FARM 1988 PASTURE HAY			
LEAD IN SOLIDS	.25 MG/KG DRY WT	DM	03/05/90 02:
ASHING FOR METALS	DONE	KA	02/14/90 05:
Sample 7 FLAMINGO FARM 1989 PASTURE HAY			
LEAD IN SOLIDS	1.2 MG/KG DRY WT	DM	03/05/90 02:

Laboratory Test Results

Client: R. Lundock

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Two air filters were submitted by R. Lundock for metals analysis. The air filters were digested in concentrated nitric acid, which was then diluted by demineralized water. Spectrophotometric methods were then used to analyze the sample.

Client ID	Lab ID
Sample A (100 feet south of stack-down wind)	011190-8
Sample B (150 yards west of stack)	011190-9

MAY 1990 RECEIVED CENTRAL FILE ROOM

Discussion

Lead was detected in both sample A and sample B at concentrations of 0.60 parts per million and 0.37 parts per million respectively. These levels are significantly higher than Massachusetts threshold effects exposure limits (see table below). Lead causes brain damage, hyperactivity and impairs hearing. Copper was detected at a concentration of 0.12 parts per million, a concentration that is above the typical range expected in uncontaminated air. Total chromium, cobalt, nickel and zinc were detected at levels within the range typically found in air. There was no hexavalent chromium or cadmium detected in the sample.

No toxic organic compounds were detected in the air filter samples. The analysis found no PCBs, pesticides, halogenated aromatics, or petrochemicals.

As ~~you can see~~ ~~this is 4285 times~~ ~~higher~~ than ~~MDEPA~~ ~~considers~~ ~~safe~~

Massachusetts Department of Environmental Protection
Threshold Effects Exposure Limits

Chemical	CAS Number	Threshold Effects Exposure Limit (TEL) (24 hour ceiling)
Lead	7439721	0.00014 mg/cubic meter

NATIONAL TOXICS CAMPAIGN
ENVIRONMENTAL LABORATORY
37 TEMPLE PLACE
BOSTON, MA 02111

TEL: 617-482-1477

Engineers
Planners
Economists
Scientists

REPORT OF ANALYSIS

Florida Certification: 82112; E82124

BEST AVAILABLE COPY

AAC380
02/09/90

Sample Nos: 75954 - 75956

Connie Bonbrest	CH2M Hill
Attention: Connie Bonbrest	Project No: LGN00000.XX Received: 01/22/90 Reported: 02/09/90

Collected: 01/21/90 by Connie Bonbrest
Type: water & soil, grab

SAMPLE NUMBER	75954	75955	75956
SAMPLE DESCRIPTIONS	Well Water 01/21/90 2:00pm	Soil 01/21/90 2:00pm	Laboratory Method Blank
Percent Solids (%)	n/r n/r	87.5 01/22/90	Not Applicable 01/22/90
METALS			
Lead - FL	0.004 02/07/90	23.6 mg/kg dry 02/07/90	<1.0 02/07/90

RECEIVED MAY 1990 CENTRAL FLORIDA DISTRICT

NOTE: Values are mg/l as substance unless otherwise stated.

Respectfully submitted,

Thomas C. Emenhiser, Laboratory Manager

n/r = not requested
NOTE: This report contains test data and no interpretation is intended or implied.

From ORLANDO
DER Records
MFM

EMISSION MEASUREMENTS FOR METALS AND SEMI-VOLATILE ORGANIC COMPOUNDS DURING THE THERMOPROCESSING OF SOIL CONTAMINATED WITH CREOSOTE AND PENTACHLOROPHENOL

K001

MFM INDUSTRIES, INC.
LOWELL, FLORIDA

Permit No. AC42-113787

July 15, 1988

KOOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES
4014 N.W. 13TH STREET
GAINESVILLE, FLORIDA 32609
(904) 377-5822

<u>TABLE 1</u>

SUMMARY OF DRYER OPERATING CONDITIONS

MFM INDUSTRIES, INC.
LOWELL, FLORIDA

7/15/88

Run No.	Time (1)	Process Weight Rate (Tons/Hr)	Soil Discharge Temp. (^{o}F)	Fuel Use (gph)	Stack Gas Flow Rate (SCFMD)	Stack Gas Temp. (^{o}F)	Stack Gas Moisture (%)
1	1042-1203	20-30	730	205	21622	204	17.8
2	1447-1742 (2)	20-30	805	185	21042	230	15.5
AVG:		20-30	768	195	21332	217	16.6

(1) Test time - 72 minutes.

(2) Delay of 93 minutes due to severe rain.

TABLE 2

METALS EMISSION RATES DURING SOIL DECONTAMINATION

MFM INDUSTRIES, INC. LOWELL, FLORIDA

7/15/88

Metal	Emission Rate (lb/hr)		
	Run 1	Run 2	Avg
Arsenic	0.00328	0.00019	0.00174
Chromium (1) (Trivalent)	0.00772	0.00854	0.00813
Copper	0.00374	0.00216	0.00295
Lead	0.00239	0.00117	0.00178
Mercury	0.00004	0.00006	0.00005
Zinc	0,05918	0.00531	0.03220

(1) Total chromium emission rate was 0.00813 lb/hr; all was assumed to be trivalent chromium based on the analysis of similar samples.

TABLE 2

AMBIENT IMPACT OF PNA'S DURING
THERMAL SOIL PROCESSING (1)

MFM ENVIRONMENTAL - LOWELL, FLORIDA

Run No. 1 - 7/15/88

COMPOUND	EMISSION RATE (LB/HR)	MAX ANNUAL IMPACT (UG/M3)	ACCEPTABLE AMBIENT LEVEL (UG/M3)
Phenol	<0.006	<0.0004	10
Naphthalene	1.511	0.0952	167
2-methylnaphthalene	0.427	0.0269	-
Acenaphthylene	0.042	0.0026	-
Acenaphthene	0.019	0.0012	-
Dibenzofuran	0.509	0.0321	-
Fluorene	0.623	0.0392	-
Pentachlorophenol	<0.006	<0.0004	25
Phenanthrene	0.904	0.0569	-
Anthracene	0.186	0.0117	-
Fluoranthene	0.312	0.0197	-
Pyrene	0.131	0.0083	-
Benzo(a)anthracene	<0.006	<0.0004	0.01
Chry sene	<0.006	<0.0004	-
bis(2-Ethylhexyl)phthalate	<0.006	<0.0004	17
Benzo(b)fluoranthene	<0.006	<0.0004	-
Benzo(k)fluoranthene	<0.006	<0.0004	-
Benzo(a)pyrene	<0.006	<0.0004	0.003
Benzo(g,h,i)perylene	<0.006	<0.0004	-
Total PNA (2)	4.718	0.2973 (1) 1.1945 (3)	200

(1) Annual average impact assuming 24 hour/day, 7 day/week and 52 weeks/year operation.
(2) Compounds phenol through benzo (g, h, i) perylene.
(3) 90th percentile 24-hour average impact.

from Tallahassee
DER Records
MFM

MAY 1990
RECEIVED
CENTRAL FLORIDA

EMISSION MEASUREMENTS FOR METALS AND SEMI-VOLATILE ORGANIC COMPOUNDS DURING THE THERMOPROCESSING OF SOIL CONTAMINATED WITH CREOSOTE

MFM INDUSTRIES, INC.
LOWELL, FLORIDA

Permit No. AC42-113787

July 15, 1988

KOOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES
4014 N.W. 13TH STREET
GAINESVILLE, FLORIDA 32609
(904) 377-5822

KOOGLER & ASSOCIATES

The study predicts revenues will double between 1988 and 1993 to $20.3 billion. The driving force behind this rapid growth is attributed almost exclusively to stringent government regulations, particularly the RCRA and Superfund programs.

- Toxic chemical waste management is the largest market sector by far, representing over 80% of the total. Along with this market segment, the nuclear and infectious medical waste market segments are expected to grow fairly rapidly over the next decade due to tighter governmental controls. In contrast, the EPA ban on asbestos will eventually eliminate the asbestos abatement market.

- Although revenues for hazardous waste management services represented 64% of the total in 1988, the study predicts that revenues will be split more evenly in the future. Much of this growth in hazardous waste product revenues is expected to come from treatment chemicals. Other major hazardous waste product gains are predicted for incineration equipment and processing equipment. On the services side, the major gains are predicted for incineration services, followed by landfill disposal services, consulting/engineering services, and remediation/cleanup services.

- The study claims that the hazardous waste management services segment is comprised of approximately 350 companies and that the top 30 firms account for 70% of the total revenues for this segment. According to the study, the leading participants are:

  - Chemical Waste Management,
  - CECOS International,
  - Westinghouse Electric,
  - International Technology,
  - Ogden Environmental Services,
  - Rollins Environmental Services,
  - Clean Harbors,
  - Roy F. Weston, and
  - Metcalf & Eddy.

- The following insights are offered on the future of the hazardous waste management industry:

  "Over the past few years, the industry has seen the initiation of numerous mergers and acquisitions, several initial public stock offerings and a myriad of other business ventures. In the 1990s, moderate consolidation is expected in the service sectors as the top firms seek to strengthen their market positions through aggressive internal growth strategies and outside acquisitions.

  "The hazardous waste product segment is highly fragmented and consists of several large diversified corporations, including Hewlett-Packard and Varian Associates, as well as many small specialty firms, e.g., Syme and Bio-Trol. Many participants in this sector sell to markets other than toxic waste, and hence the industry structure is less defined and still evolving. This will change in the next decade as the demand for products like pretreatment chemicals and incinerators rises and the leading producers attempt to build market share and reputation."

Comment: The complete study gives projections through the year 2000 and discusses key marketing factors, competitive strategies, and industry profitability and cost structure.

Ψ

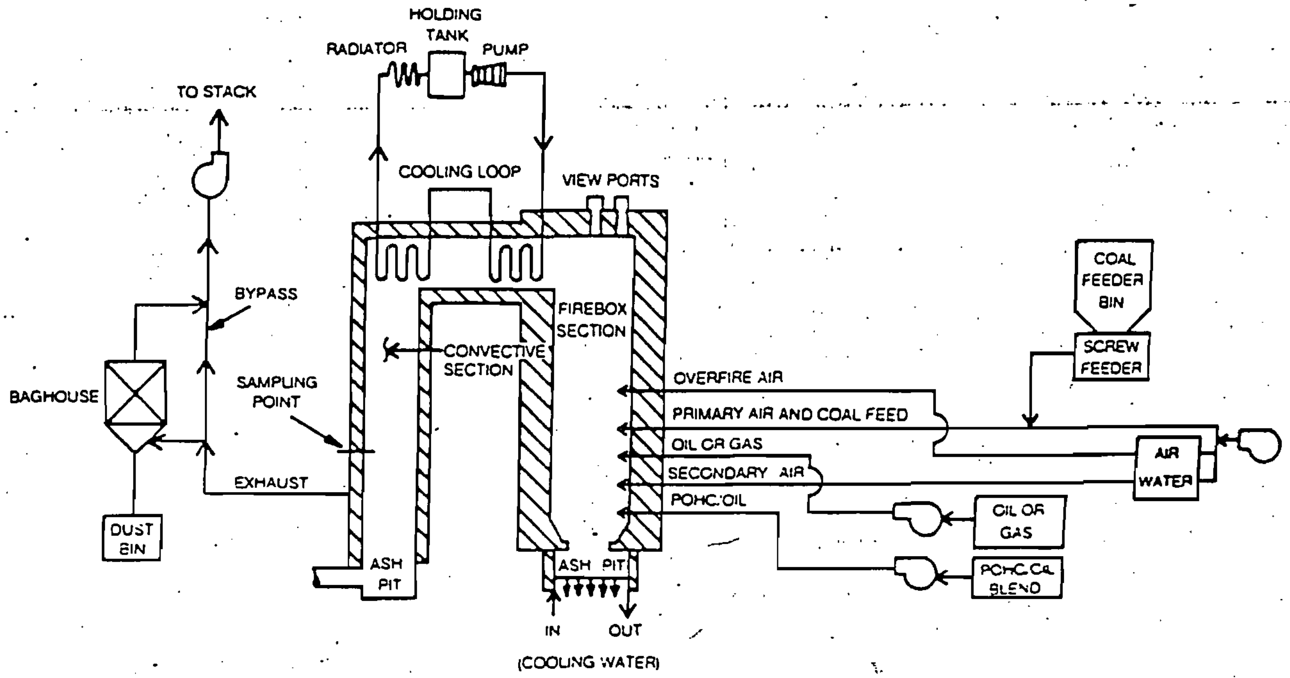
HYSTERESIS EFFECTS IN BOILERS COFIRING HAZARDOUS WASTES

EPA has been investigating the performance of boilers and industrial furnaces that cofire hazardous wastes along with conventional fuels such as oil, natural gas, and coal. Full-scale and pilot-scale tests have been conducted to determine hazardous waste destruction and removal efficiencies (DREs) and other associated boiler performance parameters at various operating conditions.

In general, EPA found that acceptable DREs (greater than 99.99%) can be achieved for a broad range of waste characteristics, boiler designs, and operating conditions. However, during the testing program, a number of unexplained phenomena were observed. For instance, elevated concentrations of chlorinated organics were detected in the boiler flue gas a day after cofiring of hazardous wastes had ceased. Higher than expected levels of organics were also measured in the flue gas during soot blowing cycles, a routine boiler cleaning operation. These hysteresis effects were subsequently investigated in a pilot-scale testing program, the results of which are presented in a paper entitled "Boilers Cofiring Hazardous Waste: Effects of Hysteresis on Performance Measurements." The paper was written by I. J. Licis of EPA's Risk Reduction Engineering Research Laboratory (Cincinnati, Ohio) and H. B. Mason of Acurex Corporation (Mountain View, California) and appeared in Volume 9 of *Waste Management* (pp. 101-108, Pergamon Press, 1989).

BACKGROUND

The organic substances present in boiler or incinerator flue gas can be divided into two groups. Principal organic hazardous constituents (POHCs), which are used to determine DREs, and other organics. During a full-scale test of a boiler normally used to burn nonchlorinated



Source: Adapted from I.J. Licis, et al.

FIGURE 1

SCHEMATIC DIAGRAM OF PILOT-SCALE BOILER USED FOR HYSTERESIS TESTING

hazardous waste, DREs and hazardous organic emissions were evaluated by injecting chlorinated organics along with the primary fuel (natural gas). After the test, the boiler was operated overnight using only natural gas for fuel with no chlorinated substances present in the feed. The following morning, prior to the introduction of additional chlorinated organics into the boiler, a baseline analysis of the flue gas indicated that chlorinated species were present at levels comparable to those observed at the conclusion of the previous day's test. In an effort to explain this and other similar observations, a pilot-scale testing program was initiated. The program was designed to investigate hysteresis effects in boilers and determine their impact on DRE measurements and organic emissions.

EXPERIMENTAL PROCEDURE

A schematic diagram of the pilot-scale boiler used to investigate the hysteresis effects is shown in Figure 1. The boiler has a heat input rating of 2.5 million BTU/hr and an operating temperature range of 1800° to 2200°F, measured at the top of the convective section. The boiler was configured so that simulated hazardous waste could be cofired with oil, natural gas, or coal as the primary fuel. During the hysteresis experiments, only oil and natural gas were used. Most of the emission samples were taken at the sampling point located toward the bottom of the convective section.

The simulated hazardous waste was composed of five weight percent each of chlorobenzene, trichlorobenzene, trichloroethylene, and carbon tetrachloride mixed with Number 2 fuel oil. The mixture contained approximately ten weight percent chlorine.

Baseline tests were performed to determine the background levels of POHCs and other volatile chlorinated organics in the flue gas when oil or gas alone was being burned. Volatile chlorinated organics were measured via VOST and mini-VOST sampling. A second series of baseline tests was conducted while cofiring the simulated waste mixture with gas or oil. Waste feed rates during the test ranged from five to twenty percent of the total heat input into the boiler.

The hysteresis effects were investigated in the following manner. The boiler was cofired with simulated waste during the day. A sample of flue gas was taken within two hours after cofiring ceased. The boiler was then left burning only natural gas overnight. Another sample of flue gas was obtained the following morning, prior to the resumption of hazardous waste cofiring. Extended duration hysteresis effects were measured by leaving the boiler running on natural gas over a weekend and then sampling the flue gas on Monday morning.

The hysteresis effects observed during soot blowing operations were investigated by measuring the concentrations of organics in the flue gas before, during, and after two simulated soot blowing cycles. Soot blowing was accomplished using a compressed air lance.

RESULTS

The results of the short-term hysteresis tests are shown in Tables 1 and 2. The numbers in Table 1 are ratios obtained by dividing the the average concentrations of the POHCs and other volatile chlorinated organics measured in the flue gas less than two hours after cofiring ceased by the average concentrations measured during the oil and gas cofiring baseline runs. (Remember that the cofiring baseline concentrations were obtained early in the testing program before any organics had accumulated in the boiler.)

The ratios in Table 2 were calculated in a similar manner. The average concentrations of chlorinated organics in the flue gas, measured less than two hours after cofiring ceased (the same values used to prepare Table 1), were divided by the overall average concentrations measured while cofiring waste. The difference in the two sets of data is that the average cofiring concentrations used to calculate the ratios in Table 2 included some data obtained after organic residues had accumulated in the boiler.

Variations in the fuel/waste mixture and in air flow rates were accounted for by normalizing the values presented in Tables 1 and 2. In both tables, ratios greater than one indicate the presence of significant quantities of POHCs and other organics in the flue gas after the cessation of cofiring.

TABLE 1

AVERAGE HYSTERESIS RATIOS

MEASURED WITH "CLEAN" BOILER[1]

Compound[2]	Hysteresis conc. ratio based on oil cofiring[3]	Hysteresis conc. ratio based on gas cofiring[3]
CCl_4	2.0	12.11
TCE	0.7	17.5
MCB	149.0	No baseline
Other volatile chlorinated organics	0.1	10.38

[1]Measurements were made at beginning of test program and before contaminants had accumulated in boiler.

[2]CCl_4 = carbon tetrachloride; TCE = trichloroethylene; MCB = monochlorobenzene.

[3]Hysteresis concentration ratio measures average concentration of compound in flue gas < 2 hours after waste cofiring stopped divided by concentration of compound during waste cofiring in clean boiler.

Source: Adapted from I.J. Licis et al.

TABLE 2

AVERAGE HYSTERESIS RATIOS

MEASURED WITH "AGED" BOILER[1]

Compound[2]	Hysteresis conc. ratio based on oil cofiring[3]	Hysteresis conc. ratio based on gas cofiring[3]
CCl_4	2.0	1.79
TCE	0.93	7.19
MCB	7.0	44.0
Other volatile chlorinated organics	0.45	9.78

[1]Measurements averaged over entire test program and reflect buildup of contaminants in boiler.

[2]CCl_4 = carbon tetrachloride; TCE = trichloroethylene; MCB = monochlorobenzene.

[3]Hysteresis concentration ratio measures average concentration of compound in flue gas < 2 hours after waste cofiring stopped divided by average concentration of compound during waste cofiring for all tests.

Source: Adapted from I.J. Licis et al.

The concentrations of chlorinated organics found in the flue gas during the natural-gas-firing portions of the test are presented in Table 3 (page 1-6). Numbers in the bottom row, the "average hysteresis concentrations for all points," include values obtained at three time intervals: 1) less than two hours, 2) between 14 and 24 hours (overnight), and 3) after a weekend of burning natural gas only. The data in this table confirm that significant levels of chlorinated organics are present in the flue gas for extended periods of time after cofiring has ceased. Note that the concentrations of POHCs (CCl_4, TCE, and MCB) in the flue gas two hours after cofiring ceased were actually greater than the concentrations measured during cofiring.

TABLE 3

AVERAGE CONCENTRATIONS OF CHLORINATED COMPOUNDS FOR GAS/WASTE COFIRING AND HYSTERESIS EFFECTS (ng/L)

	Total chlorinated species	CCl_4	TCE	MCB
Gas/waste cofiring	4.25	0.47	0.04	0.24
Hysteresis concentrations (less than two hours after cofiring)	3.93	0.57	0.25	0.93
Average hysteresis concentrations for all points*	3.16	0.28	0.21	0.10

*Indicates values obtained < 2 hours after cofiring, 14-24 hours after cofiring, and after a weekend of burning natural gas only.

Source: I.J. Licis et al.

Cumulative hysteresis effects were evaluated by comparing the flue gas chlorinated organic concentrations recorded early in the testing program with subsequent measurements obtained as the program progressed. According to the authors, hysteresis effects for the total chlorinated species (POHCs and other organics combined) appeared to increase with increasing fuel/waste cofiring. However, the same trend was not observed for individual POHCs; their hysteresis concentrations stayed about the same throughout the testing program.

The concentrations of POHCs and other organics in the gas phase were also measured before, during, and after two soot blowing cycles. The highest concentrations were measured during soot blowing and the lowest concentrations were measured after soot blowing. Values obtained just before the soot blowing cycle fell between the two extremes.

CONCLUSIONS

The authors report that, on an average, approximately 50 percent of the original concentrations of chlorinated organics contained in the boiler flue gas during cofiring were still being emitted 43 hours after cofiring ended. This phenomenon may significantly affect the accuracy of DRE measurements for boilers. Furthermore, it appears that organic compounds build up in boilers over time and that neither soot blowing nor continued burning with pure fuel removes these compounds completely. The authors refer to this phenomenon as "boiler aging." Further studies are planned to determine the maximum impact that hysteresis effects may have in full-scale boilers.

Ψ

THERMOCATALYTIC PROCESS PRODUCES FUEL GAS FROM AQUEOUS ORGANIC WASTE STREAMS

Medieval alchemists used to dream about transmutation—turning worthless metals into gold. Although science and technology has advanced a great deal since then, some similarities still remain. In particular, the search is on for processes that convert hazardous waste into usable products. Fortunately, 20th century scientists and engineers are having a bit more success than their medieval counterparts.

One notable success along these lines is a catalytic, thermochemical process that converts aqueous organic wastes into a gas consisting mainly of methane and carbon dioxide. The process was developed by Battelle Memorial Institute at the U.S. Department of Energy's Pacific Northwest Laboratory (PNL) in Richland, Washington. The process will be marketed by Onsite*Ofsite Inc. (Pasadena, California), which has obtained an exclusive license for hazardous waste and biomass applications, under the name Thermochemical Environmental Energy Systems (TEES).

THE TECHNOLOGY

A conceptual flow diagram of the TEES process is shown in Figure 1. Aqueous organic waste is pumped through a heat exchanger and auxiliary heater into the catalytic reactor vessel. The waste can be slurried if necessary. Reactor temperature is maintained between 660° and 840°F, depending on the type of feedstock. In order to prevent water evaporation, reactor pressure is kept between 2,000 and 4,000 psig. The reactor contains a catalyst that promotes the conversion of the aqueous organics to primarily methane and carbon dioxide. During process development reduced nickel catalysts were used successfully, but Onsite*Ofsite now uses a proprietary metal catalyst. Residence time in the reactor is two to ten minutes.

The effluent exits the reactor and is passed through the preheat heat exchanger to warm the incoming feed. The cooled effluent is then sent to a separator. According to PNL, the gas exiting the separator will have sufficient Btu content to fire the auxiliary heater if the organic content of the waste feed is greater than one percent. Membrane separation can be used to separate the methane from the carbon dioxide in the product gas if a higher Btu effluent is desired. When acid gases are produced (e.g., when reacting chlorinated hydrocarbons), scrubbers can be used to remove them from the gas effluent. Liquid exiting the separator is primarily water.

Gerry Baxter
246 Hermitage Dr
Hopkinsville KY 42240

STATE of FLORIDA
DEPARTMENT of ENVIRONMENTAL REG
2600 BLAIR STONE ROAD
TWIN TOWERS OFFICE BUILDING
TALLAHASSEE, FLORIDA 32399-2400

BOWLING GREEN KY 421 PM 7 JUL 1990

C.O. { C.H. FANCY P.E.
CHIEF
BUREAU OF AIR REGULATION

Dear Sir

On May 9 1990

Someone at this address use my name to write to you Mr. I'm not very happy about it. This is my niece's home in Fla & I live in Ky further more I moved out of Fla May 5 1990 and I was living in Ky since that date.

I just wanted you to know I didn't write any letters further more my name is a female name. The real one is Geraldine Baxter. Gerry is me nickname.

I know nothing of this letter I would suggest your ck in to this because My niece's last name is Whitt
Connie & Blaine Whitt
Rt 1. Box 443-I Micanopy Fla
32667

further more I don't appreciate any one signing my name to it.

I have their phone number

1-904-466-3918 Home
1-904-591-5018 Business
Blaine Whitts Plastering service

Sincerely yours
Geraldine Baxter

7-10

Mike -
Keep this in file. I certainly hope a select few are not using others names to add to the list of people who do not want project.

BEST AVAILABLE COPY

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

May 9, 1990

Gerry Baxter
Rt. 1, Box 443-I
Micanopy, FL 32667

I DID NOT WRITE THIS LETTER?

Dear Mr. Baxter:

The Department has received your letter regarding your opposition to the proposed permit for the addition of an afterburner for Mid Florida Mining Company. This letter is to update you on the next step generated by their request for permission to add an afterburner to their rotary kiln.

The company has proposed to use the rotary kiln for the decontamination of soil contaminated with hydrocarbon products that are not classified as hazardous wastes. A rotary kiln is simply a tilted rotating drum with a burner at the lower end. Contaminated soil enters at the upper end of the kiln and progresses to the lower end. As the soil progresses to the lower end of the kiln, the increasing temperatures evaporate the volatile organic compounds. Presently, the volatile organic compounds and combustion gases from the burner pass through a fabric filter before being released to the atmosphere. The fabric filter removes particulates such as soil, unburned carbon, and lead. The fabric filter does not remove volatile organic compounds. The company has proposed to install an afterburner to destroy the volatile organic compounds. The proposed afterburner is designed to burn organic compounds at a very high temperature. The proposed afterburner is expected to destroy most of the volatile organic compounds that are evaporated from the soil in the kiln. The intent of the afterburner is to prevent emissions that may have an adverse impact on public health from occurring.

Dr. Cornelius Link, who lives near the operation, has requested an administrative hearing on the recently proposed air construction permit and a hearing has been scheduled for August, 1990.

If you have any further questions on the air construction permit status of Mid Florida Mining, please contact Mr. Mike Harley at (904) 488-1344.

Sincerely,

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

CHF/JP/plm

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JUL 10 1990
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Marion County delinquent tax rolls INSIDE

Nurse-midwives gain new prominence 1D

OCALA STAR★BANNER

VOLUME 44, NO. 249, 123RD YEAR Ocala, Florida, Tuesday, May 8, 1990 25¢

800 jam hearing to protest permit

By Eric Mitchell
Staff Writer

OCALA — More than 800 people, largely opposed to expansion of a contaminated soil treatment plant, crowded into a high school auditorium to voice concern to County Commissioners.

The public hearing called by the Marion County Commission was held to offer public input on a state permit requested by Mid-Florida Mining.

Signs in the crowd saying "Don't let MFM use our lungs as dumps" far outnumbered those boasting "MFM for a better tomorrow."

Presentations by the Florida Department of Environmental Regulation, MFM, and the citizen action group We the People for a Safe Environment lobbied before commissioners for several hours.

At press time, local residents opposed to the permit were just getting up to speak.

The proposed state permit will allow MFM to build an afterburner at its Lowell plant that would clean up emissions released during soil decontamination.

While the main function of the plant is to dry porous clays for eventual use as cat litter, it also allows treatment of petroleum contaminated soils. With the new permit, MFM will be allowed to process more complex chemicals such as creosote and coal tar.

Questions asked by commissioners focused on whether creosote, a wood preservative, is considered a hazardous waste.

According to federal law, if creosote is spilled on the ground, the soil becomes a hazardous waste. If creosote drips onto soil during any treatment process, then it is not.

Please see Hundreds on 7A

Hundreds protest treatment plant

Continued from 1A

Confusion over this statement perpetuated debate between state and local officials.

"I'm not sure we exactly have the answer to that," said Doug McLaughlin, a DER attorney. "That is why when we issue this permit, we need to have assurances."

David Kilber, president of MFM, told commissioners that used creosote has a lower toxicity so it is handled differently. He assured the board that two tests were required on creosote contaminated soils before they can be accepted for processing.

Dr. Cornelius "Sonny" Link argued early in his presentation that MFM could not be trusted. He based his charge on a 1987 permit violation which resulted after MFM burned soils they claimed were tested but contained excessive levels of arsenic and chromium.

The company was subsequently fined.

"These are the things that disturb us," Link said. "It's like playing Russian roulette, but the operator has the trigger and the bullet goes through our head."

Commissioners promised by the end of the meeting to have made one of three decisions on the permit:

- Accepting it.
- Filing a written objection with the state.
- Authorizing the county attorney to intervene in a pending state administrative hearing.

By press time, the hearing had not been completed and commissioners had made no decision on their course of action.

The state administrative hearing has been requested by Link. It will determine whether the permit is approved. It is held like a non-jury trial and is scheduled for Aug. 28, 29, and 30.

FIRST COAST ENVIRONMENTAL LABORATORY, INC.
WATER AIR LAND

8818 ARLINGTON EXPRESSWAY
JACKSONVILLE, FLORIDA 32211
FAX (904) 725-2215
(904) 725-4847
(904) 725-5708

FACSIMILE TRANSMITAL

DATE: May 7, 1990

TO: John Chieffalo (867-0402)

FROM: Barry C. Byrd, Jr.

NUMBER OF PAGES TO BE FAXED (INCLUDING THIS PAGE): 2

COMMENTS:

"QUALITY ENVIRONMENTAL ANALYSES AND SERVICES"

CLIENT: MFM Environmental

LAB SAMPLE I.D. 9004-107

SAMPLE DESCRIPTION: Purge Oil 90R089

DATE RECEIVED: 4-19-90

SAMPLE MATRIX: Oil

DATE COMPLETED: 5-2-90

FDER LAB #E82102
FHRS LAB #82110
EPA #FL062

ANALYTICAL REPORT
TOTAL METALS

PARAMETER		RESULTS mg/Kg
Arsenic	(As)	* 0.08
Cadmium	(Cd)	* 0.10
Chromium	(Cr)	1.08
Lead	(Pb)	56.32

* denotes less than

MFM

INDUSTRIES

THE TRUTH ABOUT MID-FLORIDA MINING

MFM offers safe and efficient solutions to Florida's environmental problems. MFM protects Florida's threatened groundwater.

MFM does not process soil contaminated with hazardous waste – it never has, it never will.

MFM does not have a hazardous waste incinerator – it never has, it never will.

MFM's proposed afterburner will protect the environment – it has nothing to do with hazardous waste – it never had, it never will.

MFM's proposed afterburner will not result in increased truck traffic.

MFM has been reviewed not only by state and federal authorities but also by independent experts and found to be an environmentally safe and efficient company.

MFM asked "We The People" to hire, at MFM's expense, independent, objective experts to evaluate MFM's operation. "We The People" refused this offer.

MFM refused to purchase, when offered, the horse farm of the President of "We The People." MFM was asked to purchase this farm both before and after the creation of "We The People."

MFM has been in its present location for the past twenty-six years. MFM solves environmental problems.

MFM is a fully licensed and permitted company. Anyone may take a supervised tour of our plant and mine and view MFM in operation. MFM has conducted over 100 plant and mine tours since September.

Do not allow out-of-state zealots, anti-business coalitions, and those with hidden agendas to form your opinion.

MFM is proud of its employees and the contribution they make. Come and visit us. Learn the truth.

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We're celebrating our 25th year!

Evaluation of Mid-Florida Mining Permit to Burn Hydrocarbon Contaminated Soils

By:

Vic A. Cundy, PhD.

Prepared for:

Mr. Jim Scaggs
Assistant Superintendent
Marion County Public Schools
512 S.E. 3rd Street
Ocala, Florida 32768

April 30, 1990

<u>CONTENTS</u>

Summary

The discussion provided in this document pertains to a technical engineering review of the permit application of Mid-Florida Mining to thermally process hydrocarbon contaminated soils. The review focuses only on engineering aspects of the proposed permit. Human health effects or inferred health effects are not within the scope of this review and are therefore not provided.

It is my professional judgement that the proposed permit application from Mid-Florida Mining (MFM) is technically sound. I am satisfied that the afterburner will destroy the volatile and semi-volatile compounds admitted to the afterburner to a minimum of 99.99% efficiency. Allowable maximums of HCl and metal emissions are satisfactory. By the very nature of the design (high temperature afterburner following the relatively low temperature dryer and baghouse), I believe most of the metals will remain fixed to the incoming soil, minimizing concern for potential metal emissions from the stack. All parties should however be aware that metal emissions is an area of scientific debate and study and therefore absolute conclusions regarding potential metal emissions are not justified. As such, I am recommending independent third-party ambient air and stack sampling in an effort to alleviate concerns of all parties. Estimated levels of sulfur dioxide and nitrogen oxide are well within accepted norms and I feel the permit limitations are reasonable; however, third-party monitoring should also be involved in this area as I have specified below. In my judgement, the soils handling process (both before and after the thermal process) is of equal importance to the thermal operation. I am concerned about dust emissions resulting from the blending process and the vehicle loading process. In addition, I am equally concerned about the potential fugitive emissions that may result from the blending operation. I have therefore made specific recommendations regarding these areas below.

The recycle of baghouse residue is not conventional technology. While the approach seems technically sound, I am advising that MFM address concerns regarding the decontaminated soils and have specified this below. With the general uncertainty surrounding the fate of metals in thermal systems, I feel it is incumbent upon MFM to demonstrate that this technology is sound, and does not result in inconsistent metals concentrations in the decontaminated soil stream exiting the dryer.

I would not be unduly concerned about the permit application for MFM to process hydrocarbon contaminated soils provided the following are included as part of the permit conditions:

1. MFM agrees to install and maintain CO and THC monitors on the stack of their proposed facility along with the proposed stack O_2 monitor. MFM should develop a written policy, as part of the permit application, describing frequency and method of instrument calibration. (I further advise MFM to install a video imaging unit in proximity to the stack, but I would not require this as part of the permit application)

2. MFM needs to provide a better assessment of potential dust emissions that may occur during the blending operation and the off-loading of decontaminated soils and the methods that will be employed to minimize these emissions. This written assessment, with clearly defined allowable maximums, should be a part of the final permit.

3. MFM needs to provide a better assessment of potential fugitive emissions that may occur during the blending operation and the methods that will be employed to minimize these emissions. This written assessment, with clearly defined allowable maximums, should be a part of the final permit.

4. Inasmuch as the recycling of baghouse residues represents a novel technique, I would recommend that MFM develop a comprehensive testing plan to assure that the decontaminated soil (and baghouse residue) exiting the dryer is non-hazardous. Composite samples should be collected and analyzed using approved EPA methods. Analyses should be carried out for appropriate volatile and semi-volatile compounds as well as metals of interest. I would propose sampling with higher frequency at the initiation of the decontamination program and then reducing this frequency as, or if, the process is demonstrated to be technically sound.

5. I would propose independent third-party sampling be used throughout this project. To insure independence of the third-party assessment, I would recommend that direct payment for services not come from MFM or the FDER. Details of the reimbursement plan will need to be carefully considered. The independent third-party should be involved in collection and analyses of ambient air samples in proximity to the plant, in proximity to the schools in question, and in proximity to the MFM mine. Background levels of contaminants (including metals of concern) should be CLEARLY defined BEFORE and after hydrocarbon decontamination operations begin. Furthermore, I would recommend that MFM agree to allow the independent third-party unannounced access to the facility for periodic sampling of the incoming contaminated soils, the blended mixtures, the decontaminated soils, and the stack effluent (to include at least particulate emissions, sulfur dioxide, nitrogen oxide, CO, O_2, THC, and lead emissions). This party should also be charged with periodically assessing both the dust and fugitive emissions from the plant in a scientifically approved manner.

All of the areas I address in this report are relevant and I am pleased to inform you that I feel MFM is already concerned with many of them. Will MFM maintain its facility? Is operator training at the MFM facility sufficient? Perhaps most importantly, can you verify, once the permit is issued, that the facility is operating in an environmentally responsible manner? As I'm sure you are aware, much of this, by virtue of the permitting and operating regulations, is left to MFM. This is why I believe impressions are very important. My impressions regarding the MFM facility are mixed. In many areas, directly related to the requested permit, the MFM personnel have quite favorably impressed me, and in other peripheral areas I remain concerned. I encourage you to press MFM to address many of the peripheral areas I discuss in this report. In my professional judgement, while not absolutely critical to the permit request, these peripheral issues are indeed important and represent ones that MFM should willingly consider and implement as time proceeds. MFM is not a major industry with unlimited resources and therefore you should not expect overnight results in many of these areas; however, I believe a demonstrated effort on their part will signal the response of a concerned and responsible neighbor. Clean-up of hydrocarbon contaminated soil sites around the country is absolutely critical and, in my judgement, incineration, as proposed in the MFM permit application, does indeed represent a best available strategy to perform this task - provided it is carried out in a technically correct manner by responsible individuals.

1.0 Introduction

The purpose of this evaluation is to:

- review the Mid-Florida Mining applications for permit and supporting documentation,
- perform an on-site review of the Mid-Florida Mining facility,
- identify unmitigated and/or potential environmental hazards and,
- make a recommendation regarding the proposed permit.

The review of the Mid-Florida Mining (hereafter referred to as MFM) request to burn hydrocarbon contaminated soils has been conducted. This review consisted of: access to the original and amended Technical Evaluation and Preliminary Determination submitted to the FDER (dated September 29, 1989), numerous other documentation associated with MFM's request to add an afterburner and associated equipment to process hydrocarbon contaminated soils (provided by Mr. Jim Scaggs), numerous documentation from the "We the People" organization associated with MFM's request to add the afterburner and associated equipment to process hydrocarbon contaminated soils (provided by Mr. Jim Scaggs), numerous documentation associated with MFM's request to add an afterburner and associated equipment to process hydrocarbon contaminated soils (provided by Dr. John Koogler - MFM retained consultant), a site visit to the MFM plant (the plant was shut-down for planned maintenance) involving considerable discussions with MFM personnel (David Kibbler, John Koogler, Edward Curtis and others), and discussions with Mr. David Townsend, the Environmental Health Director of the Marion County Public Health Unit.

2.0 Background

The MFM facility is surrounded by naturally occurring clays that are processed into various absorbing materials (kitty liter, oil sorbent and etc.) For several years, the MFM facility has been processing virgin clay soil using waste oils (containing some concentrations of heavy metals) as regulated by the USEPA and the FDER. The MFM facility has also been processing petroleum contaminated soils for approximately 2 years. Processing of these soils (both contaminated and uncontaminated) is accomplished using a counter-current rotary dryer (solids residence time estimated at 30-35 minutes) fired by waste and virgin fuel oils, a baghouse, a stack, and associated product handling equipment. A simplified flow chart is presented in Figure 1.

Mid-Florida Mining is requesting a permit to thermally process soils, sludges (excluding wastewater treatment sludges), and still bottoms containing hydrocarbon products (including, but not limited to gasoline, fuel oils, coal tar, creosote, OSHA materials and substances, and other non-hazardous halogenated and non-halogenated hydrocarbons). This will require a facility modification to include addition of a high temperature afterburner (2000 °F at 2 seconds residence time), a quench chamber, and new stack. Both the afterburner and dryer will be fired using virgin fuel oils when thermally processing hydrocarbon contaminated soils. The contaminated soils will be blended with uncontaminated clay to assure consistent feed to the dryer avoiding unacceptable excursions that might otherwise occur. The blending will occur in a partially covered storage area of the facility. The baghouse filter residue will be recycled at the burner face of the dryer. A simplified flow chart is presented in Figure 2.

The MFM facility was granted two temporary permits associated with the proposed facility modification. These permits allowed processing of a limited quantity of creosote and coal tar (the primary contaminants) to aid in design of the proposed facility.

The relevant issues of environmental impact associated with this request include:

- potential emission of organic pollutants resulting from the thermal processing of hydrocarbon contaminated soils with virgin fuel oils,
- potential emission of heavy metal pollutants resulting from the thermal processing of hydrocarbon contaminated soils with virgin fuels,
- particulate emissions resulting from the thermal process,
- particulate emissions resulting from the materials handling process,
- fugitive emissions resulting from the materials handling process,
- potential hazards associated with the reclaimed, decontaminated soil, and
- rain water and process water drainage control.

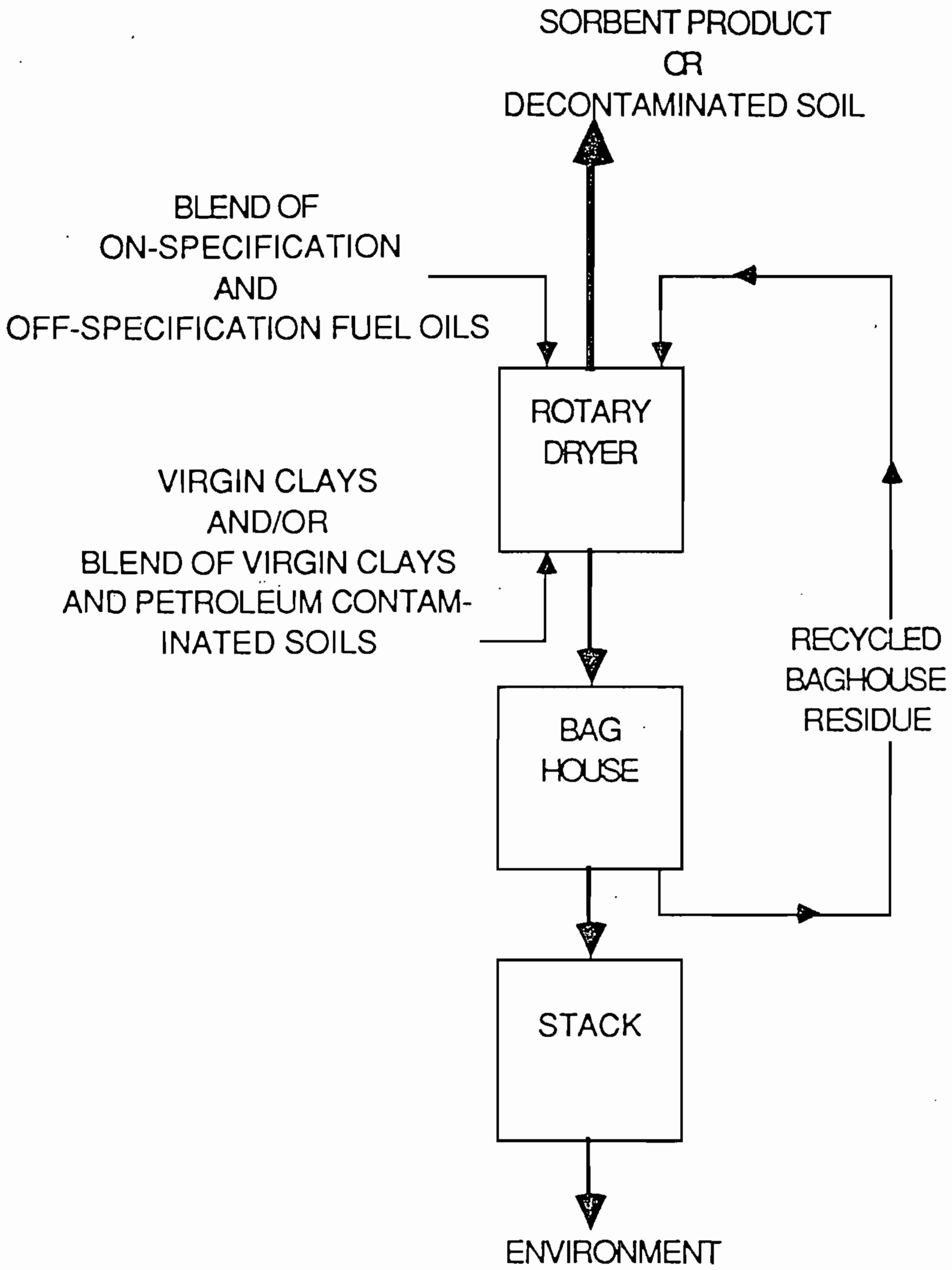

Figure 1. Current flow-chart of MFM operating facility.

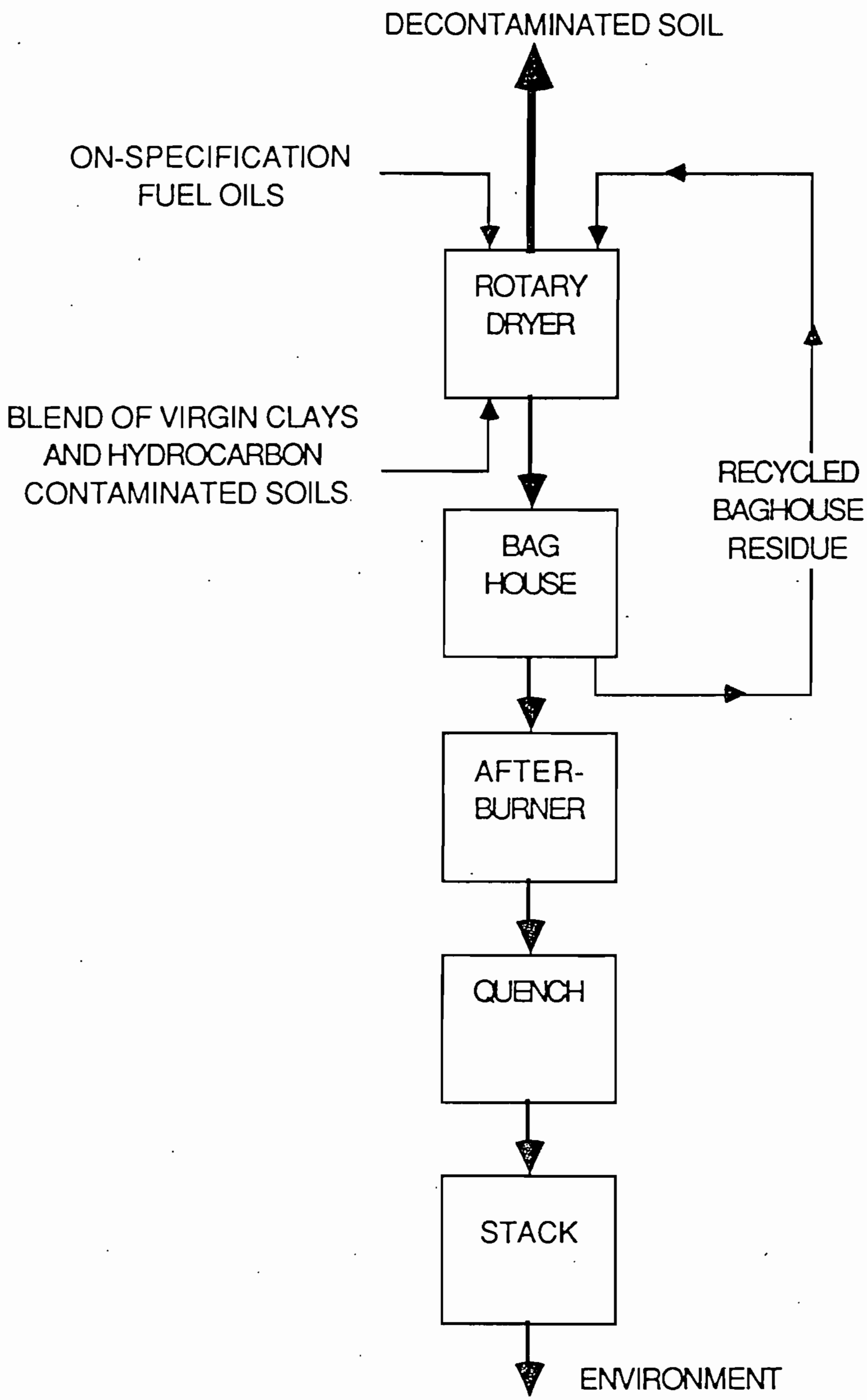

Figure 2. Proposed modification to MFM facility for hydrocarbon contaminated soils.

3.0 Discussion

A discussion of each area of environmental impact is provided. This is followed by a series of general discussions associated with various issues.

3.1 Potential Emissions of Organic Pollutants Resulting From the Thermal Processing of Hydrocarbon Contaminated Soils with Virgin Fuels.

3.1.a Hydrocarbon Contaminated Soils.

I have thoroughly reviewed the thermodynamic calculations provided by Dr. John Koogler as they relate to the design of the afterburner unit. In my professional opinion, the afterburner is of sufficient design to convert the volatile and semi-volatile hydrocarbon compounds in the contaminated soils to non-toxic products of combustion. The approach represents conventional practice in the incineration community. A 99.99% minimum destruction efficiency should be achieved for each volatile and semi-volatile organic compound that is in the feed stream to the afterburner provided the unit is operated according to the permitted conditions (minimum 2000 °F and 2 seconds residence time). The chlorinated compounds will be discussed separately.

From a combustion and waste processing viewpoint, the blending of soils proposed by MFM represents a positive aspect of the request. It is widely known in the incineration community that one of the major contributors to improper processing of waste materials results from transients occasioned by inconsistent feed. Such inconsistency can result in violent excursions (usually termed puffs) where rapid hydrocarbon release overruns available oxygen resulting in incomplete combustion. Such puffs usually result in spiking of CO and THC and place a greater burden on the afterburner unit to insure waste destruction. Blending of the soils will result in a homogeneous mixture that is input to the dryer resulting in a reasonably steady (non-transient) operating condition with reasonably constant input to the afterburner. In my professional opinion (from a combustion and waste destruction viewpoint) blending of the contaminated soils with virgin soils to assure consistent feed into the dryer represents good judgement and I encourage MFM to continue this practice.

It is my professional judgement that, in addition to O_2 monitoring at the stack, MFM should also continuously monitor stack carbon monoxide (CO) and stack total hydrocarbons (THC). While there is not complete unanimity in the scientific community, the overwhelming majority now feel that these measurements do indeed provide a reasonably accurate picture of waste destruction particularly during hydrocarbon combustion. I would advise FDER and MFM personnel to arrive at acceptable values of running averages and peak values of stack O_2, CO and THC that might be included into the permit. Such surrogate measurements provide valuable evidence of operating integrity.

The terminology in the permit as it relates to "non-hazardous halogenated compounds" is misleading and should be eliminated. Non-hazardous halogenated compounds do not exist. The MFM personnel indicated that there may be trace quantities of chlorinated compounds in the contaminated soils and this terminology (non-hazardous halogenated compounds) was suggested to make the permit more flexible. The expected quantities of chlorinated compounds will be sufficiently small so that the soil will be classified non-hazardous, and this is the key issue. When chlorinated compounds are present in the feed soil, hydrogen chloride (HCl) will certainly occur as a combustion product (in fact, in operating incinerators, the goal is to reduce toxic chlorinated compounds to HCl since it is easily scrubbed from the exhaust gas). The proposed permit limits emissions of HCl to 115 tons/yr. and I find this acceptable. MFM could reduce this to near zero with the inclusion of an appropriate scrubber in their facility upgrade. While I feel this would represent a good faith effort on the part of MFM, I do not feel it to be required based upon the emissions allowed under the permit conditions.

3.1.b Virgin Fuels.

MFM has proposed to use only virgin fuel oil when processing contaminated soils. In my professional opinion, this is a positive action on the part of MFM. Of principle concern during the combustion of on-specification fuel oils are potential emissions of oxides of nitrogen and sulfur dioxide. The use of virgin fuel oils will significantly reduce the sulfur dioxide emissions from the originally proposed levels which I felt were already adequate. In my opinion, the proposed limit on nitrogen oxide is also satisfactory as stipulated in the permit.

Burning of virgin, on-specification fuel oils during hydrocarbon processing is the key issue that I feel has been met.

3.1.c Summary - Organic Emissions.

- The afterburner design is sufficient to convert the volatile and semi-volatile hydrocarbon compounds in the contaminated soils to non-toxic products of combustion.
- From a combustion viewpoint, blending of the soils represents good practice and is highly encouraged.
- MFM should install continuous CO and THC monitoring capabilities to the stack in addition to the available stack O_2 capabilities.
- The terminology "non-hazardous halogenated compounds" is misleading and should be eliminated from the permit request. In my judgement, this terminology should be replaced with non-hazardous hydrocarbon contaminated soils.
- When chlorinated compounds are present in the soil, HCl will occur as a combustion product and exit the stack. While the estimated emissions are acceptable, these could be nearly eliminated with the insertion of a scrubbing unit as part of the air pollution control train.
- Burning virgin, on-specification fuel oils in both the dryer and afterburner during hydrocarbon contaminated soils processing is a very positive aspect of the permit application.

3.2. Potential Emissions of Heavy Metal Pollutants Resulting From the Thermal Processing of Hydrocarbon Contaminated Soils with Virgin Fuels.

The fate of metals in combustion systems is still an area of much debate and concern in the scientific and regulatory community. Since thermal combustion systems do not destroy metals, the ultimate fate of the metals present in the contaminated soils entering this system may be of concern. I believe that there is a high probability that most metals entering this system will pass through unchanged and remain in the soil provided the dryer is operated at temperatures less than 1000 °F. The bulk of the metals that might be released from the soil will be found in the the baghouse residue and eventually exit the system in the processed soil (since the baghouse residue is recycled into the dryer). In my professional opinion, the emissions of metals from the stack will be of minimal concern due to the relatively low temperatures expected in the dryer and the high collection efficiency of the baghouse. However, some metals will inevitably become entrained in the flue gases and escape the baghouse as emissions. MFM has set the lead emission limit in the permit application to 70 lbs./yr. and I believe this is acceptably low. The estimate of lead emission has been readjusted to this lower value as a result of burning virgin fuel oils during processing of contaminated soils - again, this is a positive aspect of the permit application. I would encourage MFM to conduct their desorption process at minimum temperature to minimize the potential of metals release into the baghouse.

Several other points are worthy of mention. There is a considerable body of evidence that suggests the affinity of metals to clay materials under certain conditions. The blending process (mixing of contaminated soils with virgin clay) may indeed result in an enhanced bonding of the metals (that might be released from the contaminated soils in the dryer) to the virgin clay. In any event, the blending process will certainly result in a decrease in metals concentration exiting the dryer and this is a positive aspect of the MFM operating process (the total mass of metals exiting the dryer will not decrease for a decontamination operation, however, the concentration in the blended mix exiting the dryer will decrease as a result of the mixing process).

There is also a growing body of evidence that demonstrates the considerable impact of chlorine on metals partitioning. The presence of chlorine in the waste can have a significant impact on the effective vapor pressures of a number of metals including lead and silver. In general, metal chlorides that may form appear to be more volatile than corresponding metal oxides. Thus, the effective vapor pressure of most metals appears to increase with chlorine concentration in the waste (in this case, the contaminated soil). These metal chlorides may subsequently condense in the cooler regions of the combustion system both homogeneously to form fine fume particles and heterogeneously, on the finer particulate particles. The extent to which this may be of concern in the MFM operation should be small because the chlorine content of the contaminated soils is thought to be small; however, it does demonstrate the considerable complexity associated with metals partitioning and the considerable uncertainty associated with the state-of-the-art of metals fate in thermal systems.

Recycling the baghouse residue back into the dryer represents an interesting and unconventional aspect of the MFM process. Provided the temperature in the dryer is kept as low as possible, I believe this will have no bearing on the partitioning of the metals since the metals will remain fixed in the soil throughout the dryer and exit in basically the same concentration as they were introduced or in less concentration due to the blending process. However, if the temperature in the dryer increases, the potential for metals release from the soils into the combustion gases and fine particulates also increases. The metals may then concentrate in higher accumulations in the baghouse residues, be reintroduced at the hot end of the dryer, and be eventually entrained in the exiting decontaminated soil stream. In my professional opinion, we can only guess what steady-state conditions might result under such a scenario and hence, I would suggest close and frequent monitoring of the decontaminated soils to assure that the decontaminated soil stream exhibits a consistent and acceptably low level of metals concentration (in other words, confirm that the exiting soil is consistently a non-hazardous material). I would further recommend that MFM insure that the temperature of this baghouse residue be maintained as low as possible to avoid potential volatilization of metals entrained in the baghouse residue (MFM should not re-inject directly into the flame-zone of the dryer). Recycling of the baghouse residue represents an unconventional practice (in the incineration community) and therefore should be closely monitored (through frequent analysis of decontaminated soils) until a considerable body of evidence indicates that such practice is acceptable - from a metals standpoint. MFM should perform a metals balance by quantifying metal concentrations in incoming contaminated soils, in exiting decontaminated soils, and in the stack emissions provided concentrations are at measurable levels.

The on-specification virgin fuels represent no threat to the environment in terms of metals emissions.

3.2.a Summary - Metals Emissions.

- The fate of metals in combustion systems is an area of considerable debate and concern in the scientific community.

- Due to the relative low temperature of the decontamination process in the dryer, there is a high probability that most metals entering the MFM system will pass through the dryer unaltered and remain in the soil.

- The bulk of metals that are evolved should become entrained in the baghouse residue.

- A limited amount of metals will inevitably escape the baghouse and exit the system as an emission. MFM has set the lead emission limit to 70 lbs./yr. and this is acceptably low.

- Blending of virgin clay soils with contaminated soils is a positive aspect of the permit request due to the affinity of metals to bond with clay materials. Such bonding action may prevent release of metals that would otherwise be captured in the baghouse residue, or exit the stack as an emission. In addition, the blending process will reduce the concentration of metals in the decontaminated soils.

- Chlorine has a significant negative impact on metals partitioning. The extent of this concern is minimized in the proposed MFM operation due to the minimal amounts of chlorine expected in the contaminated soils.

- Recycling of the baghouse residue back to the dryer represents an unconventional aspect of the MFM process. This part of the process should be closely monitored (through frequent analysis of decontaminated soils) until a considerable body of evidence indicates that such practice is acceptable. MFM should perform a metals balance by quantifying metal concentrations in incoming contaminated soils, in exiting decontaminated soils, and in the stack emissions when possible.

- Metals emissions from the on-specification fuel oils is of no concern.

3.3 Particulates Resulting from the Thermal Process.

Provided the baghouse equipment is maintained, the particulate emissions expected from the stack as specified within the permit is well within accepted limits. The baghouse represents a conventional technology that has been proven in similar applications. MFM must be encouraged to maintain baghouse related equipment as this is a critical component of the proposed request.

I would recommend that MFM purchase a video monitoring system to be mounted in proximity to the stack. Such a system would provide additional visual evidence of compliance. Many operating incinerator facilities make use of such devices.

3.3.a Summary - Particulates from the Thermal Process.

- The baghouse represents state-of-the-art technology and high collection efficiencies are possible provided the equipment is maintained and operated properly.

- MFM should install a stack video system to aid in monitoring of particulate control.

3.4 Particulate Emissions Resulting from the Materials Handling Process.

Dust escape into the environment might result from two processes: (i) the blending process and (ii) the loading of the decontaminated soil into the transportation equipment (trucks and/or rail cars). In my opinion, the handling of the soils, both before and after the combustion process, is certainly as important as the thermal processing component of the proposed request. MFM is aware of the "dust" problems and is making a considerable effort to alleviate these problems; however, I believe that further considerations in this area are warranted.

While I support the blending concept to achieve a homogeneous feed to the kiln and hence a steady combustion process, I cannot fully support the MFM blending operation, from a dust and particulate viewpoint. I do not share the optimism of MFM personnel that the blending process will consistently occur without considerable dust emissions; however, I must note that during my visitation, I observed virtually no dust from the loading and handling of virgin clay material used to make the sorbent products at the plant (it had rained the day before and much of the material was wet). MFM personnel indicated that the clay feedstock is typically "wet" and hence they do not anticipate dust problems. I would encourage FDER and MFM personnel to develop a written procedure that might provide more assurance that consistently minimal dust emissions will result during the blending and subsequent handling process.

During my site visit to MFM, the facility was shut-down for planned maintenance. I did not observe any loading into transportation vehicles; however, I viewed a video presentation supplied by MFM that discussed the proposed loading methods and I also viewed the loading dock. Again, MFM is making a considerable effort in my judgement to control dust emissions as the decontaminated soil is loaded into the transport trucks. The use of vacuum equipment, the use of aprons covering the top of the trucks during the loading procedure, the use of covers on the tops of all trucks, and the fact that all trucks are washed prior to leaving the MFM facility are all very positive aspects of this procedure and indicate the sensitivity of MFM to the environment in this area. While arriving at the plant early on the morning of 23 April 1990, I twice observed a truck loading (from a distance on the highway) and both times observed considerable dust escaping during this process. When I questioned MFM personnel, they informed me that they were testing a new loading method and this would be rectified if they elected to continue with this new procedure. Clearly, the only loading I observed was resulting in considerable dust emissions. I cannot comment on whether this is standard operating procedure. Again, I would encourage the FDER and MFM personnel to develop a written procedure that might provide more assurance that minimal dust emissions will result during this process.

3.4.a Summary - Particulate Emissions from Handling Procedures.

- While I support the blending process from a combustion viewpoint, I have considerable reservations regarding this process from a particulate emissions viewpoint.

- I recommend FDER and MFM personnel develop a written procedure that addresses potential dust problems that might arise from the blending and transport loading operations.

3.5 Fugitive Emissions Resulting from the Materials Handling Process.

Fugitive emissions are of concern during the blending process. Blending of the contaminated soils will require mixing with virgin clay material and/or mixing of contaminated soils from different sites. MFM personnel indicated that the contaminated soils usually contain significant moisture content and that the soils are contaminated with heavy compounds (creosote and coal tars) exhibiting low vapor pressures. In addition, they pointed out that the virgin clay material usually contains significant amounts of water. In their opinion, these factors will result in minimal fugitive emissions.

In my professional opinion, there still exists a considerable potential for fugitive emissions during the blending operation. Rather than being of concern to the community at large, I feel the fugitive emissions will be of more concern to workers whose responsibilities are to blend and load the soils into the dryer. I have been to numerous hydrocarbon contaminated soil sites and the odor is considerable, simply because there are usually lighter compounds in these pits in addition to the heavy compounds. MFM should develop a plan in conjunction with the FDER to insure minimization of fugitive emissions at the plant site due to the blending operation.

3.5.a <u>Summary - Fugitive Emissions.</u>

- While the I support the blending process from a combustion viewpoint, I have considerable reservations regarding this process from a fugitive emissions viewpoint.

- I recommend FDER and MFM personnel develop a written procedure that addresses potential fugitive emissions problems that might arise from the blending and materials handling operation.

3.6 <u>Potential Hazards Associated with Reclaimed, Decontaminated Soil.</u>

The final disposition of the decontaminated materials involves handling of the soil/recycled baghouse residue exiting the dryer. In discussions with MFM personnel, I am lead to understand that the majority of these materials will be returned to the original site for back filling. A minimal amount will find its way to the MFM mining site.

Of primary concern is the manner in which MFM will sample the mixture of decontaminated soil and baghouse residue to insure that it remains a non-hazardous material. Two issues must be addressed: (i) the soil must be free of hydrocarbon contaminants and (ii) the metals concentrations must remain acceptably low. My primary concern is the novelty of recycling the baghouse residues into the dryer as this procedure pertains to the metal emissions issue. I would recommend composite sampling of decontaminated soils every 1/2 hour during all operations involving decontamination of the soils until a considerable body of evidence is obtained that demonstrates the feasibility of the procedure (recycling of baghouse residue). Testing should concentrate on appropriate metals analysis (especially lead) and organic constituents of concern. Testing should be conducted by MFM personnel and also an outside, independent laboratory. The amount of time that this sampling frequency is maintained should be determined by FDER and MFM personnel.

3.6.a <u>Summary - Decontaminated Soils Analysis.</u>

- The soil and baghouse residue exiting the dryer should be closely monitored (at least initially) to insure that the mixture is non-hazardous. Due to the unconventional nature of recycling the baghouse residue, it is incumbent on MFM to demonstrate that the final product is benign not only from an organic viewpoint, but also from a metals viewpoint.

3.7 <u>Rain Water and Process Water Drainage Control.</u>

The final area of environmental impact involves the treatment of rain and process water that might exit the MFM facility. It is inevitable that some of the contaminated soils will be tracked into uncovered areas of the plant where contaminants could be carried off-site in run-off water. MFM currently collects all water from the site (including run-off water and process water) and directs this water to a collection pond (measuring approximately 200 ft. x 200 ft.). Eventually the accumulated solids in the pond may need to be removed and I would encourage MFM officials to consider the collected residue to be contaminated and process it in the rotary dryer and afterburner system when this is required.

3.7.a Summary - Containment of Plant Drainage.

- Existing water collection systems appear to be adequate.

3.8 General.

3.8.a Sampling and Analytical Procedures.

I asked MFM personnel to describe the procedure involved when a customer requests decontamination of a soil site. The following reply was given (to the best of my recollection):

- Client contacts MFM by phone and informs MFM of contaminants in soil
- A representative sample is sent to MFM - MFM analyzes, outside lab analyzes to confirm the client information
- MFM sends representative to waste site for sample collection
- Collected sample is analyzed
- Each load entering the MFM facility is further analyzed by collecting a composite and representative sample
- Upon confirmation of all sample analyses, the soil is eventually thermally processed

I am satisfied that this procedure is adequate to insure that MFM is aware of what it is processing. I am aware that MFM has also refused soils that were contaminated with PCBs when they were originally informed that there were no PCBs in the contaminated soil. In such instances, it is my understanding that MFM contacted appropriate authorities and rejected the waste load. I feel that such action is absolutely necessary and is a credit to the MFM operation.

I reviewed the MFM laboratory and analytical facilities and while the facilities are certainly not state-of-the-art, they are adequate. The lab was clean and organized and the technician was technically competent. In my opinion, the laboratory is too small and I was informed that laboratory personnel were having air-conditioning problems (which were being repaired). I would encourage MFM to make the laboratory part of their operation as state-of-the-art as possible and to provide adequate and modern space for this laboratory.

3.8.b Instrumentation.

I found the control room instrumentation to be more than adequate and commend MFM on a well thought-out design and safety protocol. I was informed that the new design will include computer control and computer data acquisition and would encourage MFM to follow through with this. Redundancy of critical control instrumentation has been achieved and various "panic" buttons insure complete and safe shut-down of the facility in the event of extreme problems.

In terms of instrument calibration, I would suggest that FDER and MFM personnel develop written guidelines for calibration schedules of all critical instruments. I asked about the stack O_2 meter calibration schedule and received two different replies from different MFM personnel. It is critical that stack monitoring equipment be calibrated on a daily basis, or even a shift basis. Larger incineration facilities routinely have this written into the permit and I would encourage MFM to suggest this to the FDER authorities. In my opinion, critical instrumentation that should be routinely calibrated are: stack oxygen, stack carbon monoxide, and stack total hydrocarbons. Furthermore, the requested permit suggests that EPA method 5 sampling will occur at the entrance to the afterburner and at the stack. MFM personnel will need to be trained in these techniques and the probes and associated instrumentation will need to be maintained and upgraded as required.

I was informed by MFM personnel that the halon safety system is checked prior to any contaminated soils processing and this will continue. This is commendable and I encourage continuation of this practice.

3.8.c Personnel.

MFM is headed by David Kibbler. I found Mr. Kibbler to be well informed on environmental issues and technically competent. Mr. Edward Curtis is the engineering/projects manager for MFM and I also found him to be well informed on environmental issues and technically competent. Other individuals I spoke with at the facility were articulate and seemed to be technically competent. I was particularly impressed with the operator on duty in the control room. This individual was very knowledgeable and certainly well trained. If this is an indication of the trained operator at MFM, I am favorably impressed. I was similarly impressed with the analytical technician that I spoke with (Mr. "Ski").

Mr. Kibbler has also retained Dr. John Koogler as an outside consultant whom I have found to be technically competent. It is my understanding that Dr. Koogler and Mr. Curtis designed the afterburner. I believe the design is technically correct.

I would encourage Mr. Kibbler and the other management personnel to develop a written procedure of requirements for each of the positions in the MFM operation (operator and etc.). In my opinion, it is absolutely critical that personnel associated with the control and operation of the facility during thermal processing of contaminated soils exhibit a high degree of competency.

3.8.d Trial Burn.

The FDER will require a trial burn. This burn should address all areas of concern in this report including not only thermal aspects, but also materials handling aspects and sampling procedures. An independent third-party should perform sampling and analyses at the trial burn.

3.8.e General Procedures and Plant Conditions.

MFM informed me that they maintain a power generation system that can provide sufficient power to operate the facility should external power be lost. Additionally, in the event of a quench failure, the processed gases exiting the afterburner are diverted to an "emergency stack" and the facility is immediately shut down. In my opinion, these factors represent good engineering practice and MFM should be recognized for this.

On the other hand, I also observed some areas of the MFM facility that appear to me to be in need of attention. One side of the baghouse was observed to be severely corroded on my visit of 23 April 1990 (Dr. Koogler has subsequently informed me that the internals of the baghouse are intact and the corrosion I observed was only on the shell of the unit, covering the insulation). Nonetheless, seeing a critical part of the facility in somewhat degraded condition represents some cause for alarm. I also noticed considerable corrosion on other steel structures and some of the foundation concrete appears to be extensively deteriorated. General housekeeping was not as good as I feel it could have been and the general appearance of the plant could be significantly improved.

While I am pleased with the safety aspects of the thermal processing part of the plant that I observed, I am somewhat concerned about some of the peripheral safety aspects of the plant operation. Although the sorbent processing is not directly concerned with this requested permit, I observed the bag loading procedure at the tail end of the plant. MFM personnel appeared to me to be working in a dusty and noisy area loading bags of product material with little to no safety equipment (that I observed in use). Fork lift operators were also racing through this area. It certainly left me with the impression that this is not a safe area to work in and that considerable safety improvements could be achieved.

These negative observations have a tendency to leave one with the impression that management may not be totally committed to optimal operation of the facility, even though this may not be the case. While I was favorably impressed with many general issues directly related to the MFM permit application, I also observed peripheral areas that could be significantly improved thereby helping to improve the overall impression of facility operational protocol (which, in my opinion, is important).

I would encourage MFM management to demonstrate a concentrated effort toward an upgrade of the peripherals mentioned above. I encourage MFM management to develop maintenance and replacement schedules for equipment in the plant. I further encourage MFM management to review their entire safety protocol. While these issues may seem peripheral to the central issue of this permit request, they are important in that they may mirror the general attitude of the company.

3.8.f Community Activity.

While visiting the MFM facility, I asked MFM personnel to provide me with information regarding their place in the community. I was quite impressed with the list of activities that were mentioned (Mr. Scaggs verified that the discussion was accurate). I was further impressed with Mr. Kibbler's attitude toward informing the public as to the intentions of MFM as it relates to this requested permit. In my professional judgement, MFM is attempting to provide the public with a scientifically accurate picture of their proposed action as it relates to processing of hydrocarbon contaminated soils (of course, this is based upon Mr. Kibbler's discussion since I have never attended any of his presentations). The issues are emotional and, under most circumstances, tend to become scientifically incorrect. The position of the company in the community is important and, to the best of my knowledge, I feel that MFM is acting responsibly in this respect.

3.8.g Summary - General Conditions.

- The MFM analytical facilities are adequate although not state-of-the-art.
- The current control room instrumentation at MFM is quite satisfactory and that proposed as part of the permit request is even better. Instrumentation calibration is essential. Written guidelines for instrument calibrations should be developed by MFM and FDER personnel and included in the permit.
- MFM personnel appear to be technically competent and aware of environmental issues. Written guidelines for operator training and minimum qualifications should be developed.
- The FDER and MFM should address the concerns of this report in development of the trial burn(s) protocol - particularly those associated with dust emissions during the handling and blending process, and the fugitive emissions that might occur during the blending process.
- Many aspects of MFM's plant design and safety procedures are very positive (the current halon shut-down system, the current emergency back-up power system, the current and proposed control room instrumentation, the proposed quench by-pass system, and etc.).
- MFM management should demonstrate a concentrated effort toward an upgrade of the several plant peripherals previously discussed. I encourage MFM management to develop maintenance and replacement schedules for equipment in the plant. I further encourage MFM management to review their entire safety protocol. While these issues may seem peripheral to the central issue of this permit request, they are important in that they may mirror the general attitude of the company.
- Community activity of the MFM company appears to be above average. I commend MFM for taking positive steps in attempt to better inform the

public regarding their proposed facility upgrade. I would encourage continuation of such activity in the future.

4.0 Summary and Conclusions.

The discussion of this document has presented a technical engineering review of the permit application of Mid-Florida Mining to thermally process hydrocarbon contaminated soils. The review focussed only on engineering aspects of the proposed permit. Human health effects or inferred health effects are not within the scope of this review and have therefore been intentionally omitted.

In my professional judgement, the proposed permit request from MFM regarding processing of hydrocarbon contaminated soils is technically sound. I am satisfied that the afterburner will destroy the volatile and semi-volatile compounds admitted to the afterburner to a minimum of 99.99% efficiency. Estimated levels of HCl and metal emissions are satisfactory for this type of operation as are estimated levels of sulfur dioxide and nitrogen oxide.

I would not be unduly concerned about the permit application for MFM to process hydrocarbon contaminated soils provided the following are included as part of the permit conditions:

1. MFM agrees to install and maintain CO and THC monitors on the stack of their proposed facility along with the proposed stack O_2 monitor. MFM should develop a written policy, as part of the permit application, describing frequency and method of instrument calibration. (I further advise MFM to install an video imaging unit in proximity to the stack as well, but I would not require this as part of the permit application)

2. MFM needs to provide a better assessment of potential dust emissions that may occur during the blending operation and the off-loading of decontaminated soils and the methods that will be employed to minimize these emissions. This written assessment, with clearly defined allowable maximums, should be a part of the final permit.

3. MFM needs to provide a better assessment of potential fugitive emissions that may occur during the blending operation and the methods that will be employed to minimize these emissions. This written assessment, with clearly defined allowable maximums, should be a part of the final permit.

4. Inasmuch as the recycling of baghouse residues represents a novel technique, I would recommend that MFM develop a comprehensive testing plan to assure that the decontaminated soil (and baghouse residue) exiting the dryer is non-hazardous. Composite samples should be collected and analyzed using approved EPA methods. Analyses should be carried out for appropriate volatile and semi-volatile compounds as well as metals of interest. I would propose sampling with higher frequency at the initiation of the decontamination program and then reducing this frequency as, or if, the process is demonstrated to be technically sound.

5. I would propose independent third-party sampling be used throughout this project. To insure independence of the third-party assessment, I would recommend that direct payment for services not come from MFM or the FDER. Details of the reimbursement plan will need to be carefully considered. The independent third-party should be involved in collection and analyses of ambient air samples in proximity to the plant, in proximity to the schools in question, and in proximity to the MFM mine. Background levels of contaminants (including metals of concern) should be CLEARLY defined BEFORE and after hydrocarbon decontamination operations begin. Furthermore, I would

> recommend that MFM agree to allow the independent third-party unannounced access to the facility for periodic sampling of the incoming contaminated soils, the blended mixtures, the decontaminated soils, and the stack effluent (to include at least particulate emissions, sulfur dioxide, nitrogen oxide, CO, O_2, THC, and lead emissions). This party should also be charged with periodically assessing both the dust and fugitive emissions from the plant in a scientifically approved manner.

All of the areas I have addressed in this report are relevant and I am pleased to inform you that I feel MFM is already concerned with many of them. Will MFM maintain the facility? Is operator training sufficient? Perhaps most importantly, can you verify, once the permit is issued, that the facility is operating in an environmentally responsible manner? As I'm sure you are aware, much of this, by virtue of the permitting and operating regulations, is left to MFM. This is why I believe impressions are very important. My impressions regarding the MFM facility are mixed. In many areas, directly related to the permit application, the MFM personnel have quite favorably impressed me, and in other peripheral areas I remain concerned. I encourage you to press MFM to address many of the peripheral areas I have discussed. In my professional judgement, while not absolutely critical to the permit request, these issues are important and represent ones that MFM should willingly consider and implement as time proceeds. MFM is not a major industry with unlimited resources and therefore you should not expect overnight results in many of these areas; however, I believe a demonstrated effort on their part will signal a concerned and responsible neighbor. Clean-up of hydrocarbon contaminated soil sites around the country is absolutely critical and, in my judgement, incineration, as proposed in the MFM permit application, does indeed represent a best available strategy to perform this task - provided it is carried out in a technically correct manner by responsible individuals.

MFM
INDUSTRIES

April 27, 1990

RECEIVED
MAY 01 1990
DER-BAQM

Mr. James H. Scarbrough, P.E.
Chief, RCRA Branch
Waste Management Division
U.S. EPA, Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

RE: Request for Information Pursuant to Section 104 of CERCLA and Section 3007 of RCRA to Mid Florida Mining Company Concerning a Facility in Lowell, Florida.

Dear Mr. Scarbrough:

This constitutes formal response to Mr. Tobin's request for information. We had asked for a slight delay in our letter to you of April 10th since Mr. Tobin's original request had been misdirected.

MFM Industries, located in Ocala, Florida, is the parent company of MFM Environmental and Mid-Florida Mining. We mine and manufacture clay products for various consumer, industrial and environmental uses. Cat litter is our primary consumer product. We also process non-hazardous soil contaminated with petroleum products.

Last fall we received from the Florida Department of Environmental Regulation a Notice of Intent to Issue a permit to build an afterburner that would allow us to process soil contaminated with more complex, non-hazardous hydrocarbons and treat the gas emissions from those processed soils. We have no intention or desire to ever process soil contaminated with hazardous waste.

A small group of citizens organized to oppose our permit. EPA has undoubtedly heard from this group. An Administrative Hearing on the issuance of our permit was originally set for May 15-17, 1990. This hearing has now been postponed until August 28-29, 1990.

We welcome the opportunity to discuss and review our request for the afterburner permit with any and all Federal, state and local regulators. MFM is a longtime responsible citizen of Marion County who has been in business for 26 years. We are trying to offer an environmentally sound and safe solution to the potential non-hazardous groundwater contamination that Florida faces.

The opposition group does not appear satisfied with the formal hearing process. They have engaged in serious personal attacks on our non-environmental business and company personnel. Competitors in the soil purging business have helped direct and fund these attacks. We will continue to responsibly work with our state and local authorities and of course we are happy to provide you with any and all information we can.

As you are aware, this is first and foremost a scientific issue. Apart from the scientists and experts at FDER that have reviewed our application, we suggested that other concerned local groups conduct their independent research. At our suggestion, the Marion County School Board and the Florida Thoroughbred Breeders Association each hired independent experts to review our proposed permit. The preliminary reports from these experts are very favorable. We will be happy to forward the final reports when they are officially released.

In response to your request for submission of documents:

<u>Paragraphs 1-3</u>

We have attached our original permit request. Please note the addendum which changes fuel to be used to <u>virgin fuel only</u> and changed maximum estimated emissions. See comment in Paragraph 4.

<u>Paragraph 4</u>

After consultation with Florida DER, the Florida Thoroughbred Breeder Association, and local officials we have agreed to modify our permit and have agreed to burn <u>only virgin fuel</u>. This will substantially change maximum allowable emissions as the attached documents demonstrate.

<u>Paragraph 5</u>

All soil shall be returned to the generator.

<u>Paragraph 6</u>

These reports are with Dr. John Koogler of Koogler & Associates, Inc. in Gainesville, Florida. We have asked Dr. Koogler to forward to you copies of prior tests that Koogler & Associates has performed.

Prior to reviewing the attached documents, please call Clair Fancy, FDER's Air Resources Management Bureau Chief for Permitting, (904) 488-1344, and David Schwartz, an attorney with FDER's Office of General Counsel, (904) 488-9730. We ask that you speak with these two gentlemen since we have recently discussed this permitting situation with them and believe their views would be helpful.

We also would appreciate the opportunity to come to Atlanta to make a formal presentation concerning the afterburner permit and our current and proposed operating procedures. Further, we believe that a tour of our mining and manufacturing facilities would be most edifying. Please let me know when it will be convenient for us to come to Atlanta or arrange a personal tour for you and your staff of our plant and mine. We look forward to meeting you and your staff and stand ready to assist you.

Sincerely,

David B. Kibler, IV
President

DBK:lfw

cc: Dr. John Koogler
Larry Curtin, Esq. Holland & Knight
Clair Fancy, FDER
David Schwartz, FDER

List of Attachments

1. Letter from EPA to Allen Edgar dated March 23, 1990.

2. Extension letter from David Kibler to James H. Scarbrough dated April 10, 1990.

3. Notice of Intent to Issue permit to MFM by Florida Department of Environmental Regulation together with permit parameters issued by Clair Fancy on September 29, 1990.

4. EPA statement on creosote dated March 29, 1990.

5. Statement by MFM of use of virgin fuel oil in proposed processing of contaminated soils.

6. Revised emission rates while burning virgin fuel in dryer and afterburner dated April 11, 1990 as prepared by Dr. John Koogler of Koogler & Associates, Inc.

7. Statement by MFM of current processing procedures for the thermal processing of hydrocarbon contaminated soil.

Attachment #1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET. N.E.
ATLANTA. GEORGIA 30365

MAR 23 1990

4WD-RCRA

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Allen C. Edgar, President
Mid Florida Mining Company
P.O. Box 68
Lowell, Florida 32663

RE: Request for Information Pursuant to Section 104 of CERCLA and Section 3007 of RCRA to Mid Florida Mining Company Concerning a Facility in Lowell, Florida

Dear Mr. Edgar:

The United States Environmental Protection Agency (EPA) is requesting information on a facility (EPA I.D. No. FLD 991 275 355) which does business in Lowell, Florida. This information is needed to determine the regulatory status of this facility.

EPA requests the following information for the purposes of enforcing the provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, 42 U.S.C. §9604, as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), P.L. 99-499, and Section 3007 of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. §6927. Pursuant to these statutory provisions, you are hereby requested to submit any documents which provide the following information to EPA within fifteen (15) days of receipt of this letter:

(1) A complete description of any proposed operating changes at Mid Florida Mining (MFM). It has recently come to our attention that MFM proposes to add a 50 million Btu/hr afterburner to their existing kiln for the destruction of volatile and semi-volatile organic compounds contained in contaminated soils, sludges, and still bottoms.

(2) A description of the types, volume, and sources of contaminated materials to be burned, and procedures to be used to document this information in the facility's files.

(3) The estimated operating time to be used burning these materials.

(4) The fuels to be used in the kiln and the afterburner when burning these materials.

(5) The final disposition of any residuals of the combustion process when burning these materials.

(6) A description of any previous instances when similar materials may have been burned at the facility, and any reports generated as a result of these instances.

If you desire, you may assert a business confidentiality claim covering part or all of the information requested, in the manner described in 40 C.F.R. Part 2, Subpart B. If no such claim accompanies the information when it is received by EPA, such information may be made available to the public by EPA without further notice to you. EPA will construe the failure to furnish a confidentiality claim with your response to this letter as a waiver of that claim. You should read the above-cited regulations carefully before asserting a business confidentiality claim, since certain categories of information are not properly the subject of such a claim.

Compliance with this request for information is mandatory. Failure to respond fully and truthfully to each and every question or request within fifteen (15) days of receipt of this letter, or to justify adequately such failure to respond, may result in enforcement action by EPA pursuant to Section 104 of CERCLA, as amended, and/or Section 3008 of RCRA. Each of these statutes permit EPA to seek the imposition of penalties of up to twenty-five thousand dollars ($25,000) for each day of continued noncompliance. Please be further advised that false, fictitious, or fraudulent statements or representations may subject you to criminal penalties under 18 U.S.C. § 1001.

Your response to this request for information should be mailed to:

Mr. James H. Scarbrough, P.E.
Chief, RCRA Branch
Waste Management Division
U.S. EPA, Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Should you have any questions on the technical aspects of this matter, please contact Robin Mitchell at (404) 347-3433.

Sincerely yours,

Patrick M. Tobin

Patrick M. Tobin, Director
Waste Management Division

cc: Mr. Barry Swihart, Chief
Bureau of Waste Planning and Regulation
Florida Department of Environmental Regulation
Mr. Alex Alexander, Deputy Assistant Secretary
Central District
Florida Department of Environmental Regulation

Attachment #2

MFM
INDUSTRIES

April 10, 1990

Mr. James H. Scarbrough, P.E.
Chief, RCRA Branch
Waste Management Division
U.S. EPA, Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

RE: Request for Information Pursuant to Section 104 of CERCLA and Section 3007 of RCRA to Mid Florida Mining Company Concerning a Facility in Lowell, Florida.

Dear Mr. Scarbrough:

I am responding to Mr. Tobin's above referenced request for information. I did not receive this request for information until Friday, April 6, 1990 because it was incorrectly sent to Mr. Allen C. Edgar, former President of MFM. The request for information was also sent to an incorrect address. In the future, please address all communications between your agency and MFM to the following:

David B. Kibler IV, President
Mid Florida Mining Company
3300 S.W. 34th Ave., Suite 152
Ocala, FL 32674

I am happy to fully respond, but request until Monday, April 30, 1990 to do so. Please contact me if this is not acceptable.

Sincerely,

David B. Kibler, IV
President

DBK/lah

3300 Southwest 34th Ave., Suite 152 • Ocala, FL 32674 • 904/854-0070 • 1-800-877-0897

Attachment #3

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

September 29, 1989

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. David B. Kibler IV, Executive Director
Mid-Florida Mining Company
P. O. Box 68
Lowell, Florida 32663

Dear Mr. Kibler:

Attached is one copy of the Technical Evaluation and Preliminary Determination and proposed permit for the addition of a 50 million Btu/hr. afterburner to the existing rotary kiln type clay dryer. The afterburner will be used to destroy volatile and semi-volatile organic compounds when the proposed rotary kiln/afterburner system is operated for the thermal processing of soils, sludges (excluding wastewater treatment sludges), and still bottoms containing hydrocarbon products. The hydrocarbon products in the materials to be processed may include but are not limited to gasoline, fuel oils, coal tar, creosote, OSHA materials and substances, and other non-hazardous halogenated and non-halogenated hydrocarbons. The rotary kiln may still be operated without the proposed afterburner when it is used to dry soils that do not contain hydrocarbon products.

Please submit any written comments you wish to have considered concerning the Department's proposed action to Mr. Bill Thomas of the Bureau of Air Regulation.

Sincerely,

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

CHF/mdh

Attachments

cc: J. Koogler, P.E.
W. Butler
C. Collins

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

In the Matter of
Application for Permit by:

Mid-Florida Mining Co.
P. O. Box 68
Lowell, Florida 32663

DER File No. AC 42-162996

INTENT TO ISSUE

The Department of Environmental Regulation hereby gives notice of its intent to issue a permit (copy attached) for the proposed project as detailed in the application specified above. The Department is issuing this Intent to Issue for the reasons stated in the attached Technical Evaluation and Preliminary Determination.

The applicant, Mid-Florida Mining Company (MFM) applied on March 8, 1989 to the Department of Environmental Regulation for a permit to add an afterburner to the existing rotary kiln type clay dryer. The afterburner will be used to destroy organic compounds when the proposed rotary kiln/afterburner system is used for the thermal processing of soils, sludges (excluding wastewater treatment sludges), and still bottoms containing non-hazardous halogenated and non-halogenated hydrocarbon products. The rotary kiln may still be operated without the proposed afterburner when it is used to dry soils that do not contain hydrocarbon products. The proposed modification is expected to result in minor increases in pollutant emissions. The proposed permit includes specific conditions that prohibit the emission of objectionable odors and require MFM to minimize emissions of fugitive dust. If the source is responsibly operated within the constraints of the proposed permit and state regulations, no violations of applicable air quality standards are expected to occur.

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

Pursuant to Section 403.815, F.S. and DER Rule 17-103.150, F.A.C., you (the applicant) are required to publish at your own expense the enclosed Notice of Intent to Issue Permit. The notice shall be published one time only within 30 days, in the legal ad section of a newspaper of general circulation in the area affected. For the purpose of this rule, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. The applicant shall provide proof of publication to the Department, at the address specified within seven days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit.

The Department will issue the permit with the attached conditions unless a petition for an administrative proceeding (hearing) is filed pursuant to the provisions of Section 120.57, F.S.

A person whose substantial interests are affected by the Department's proposed permitting decision 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 intent. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of receipt of this intent, whichever first occurs. 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 applicant 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 publication 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.

Executed in Tallahassee, Florida

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

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

Copies furnished to:

J. Koogler, P.E.
W. Butler
C. Collins

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this NOTICE OF INTENT TO ISSUE and all copies were mailed before the close of business on 10-2-89.

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

[signature] Clerk

10-2-89 Date

State of Florida
Department of Environmental Regulation
Notice of Intent to Issue

The Department of Environmental Regulation hereby gives notice of its intent to issue a permit to Mid-Florida Mining Company (MFM), P. O. Box 68, Lowell, Florida, 32663, to add an afterburner to the existing rotary kiln type clay dryer. The afterburner will be used to destroy organic compounds when the proposed rotary kiln/afterburner system is used for the thermal processing of soils, sludges (excluding wastewater treatment sludges), and still bottoms containing non-hazardous halogenated and non-halogenated hydrocarbon products. The rotary kiln may still be operated without the proposed afterburner when it is used to dry soils that do not contain hydrocarbon products. Mid-Florida Mining Company's facility is located on SR 329 at Seaboard Coast Line (now CSX) R. R., Lowell, Marion County, Florida. The proposed modification is expected to result in minor increases in pollutant emissions. The proposed permit includes specific conditions that prohibit the emission of objectionable odors and require MFM to minimize emissions of fugitive dust. If the source is responsibly operated within the constraints of the proposed permit and applicable regulations, no violations of applicable air quality standards are expected to occur. A determination of Best Available Control Technology (BACT) was not required. The Department is issuing this Intent to Issue for the reasons stated in the Technical Evaluation and Preliminary Determination.

A person whose substantial interests are affected by the Department's proposed permitting decision 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, within fourteen (14) days of publication 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;

Technical Evaluation
and
Preliminary Determination
(Amended)

Mid-Florida Mining Company

Addition Of An Afterburner To A Rotary Kiln Clay Dryer

Permit No. AC 42-162296

Florida Department of Environmental Regulation
Division of Air Resources Management
Bureau of Air Regulation

September 29, 1989

(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 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 publication of this notice in the Office of 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.

The application is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Department of Environmental Regulation
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dept. of Environmental Regulation
Central Florida District Office
Suite 232
3319 Maguire Blvd.
Orlando, Florida 32803-3767

Marion County Health Department
3230 Southeast Maricamp Road
Ocala, Florida 32671

Any person may send written comments on the proposed action to Mr. Bill Thomas at the Department's Tallahassee address. All comments mailed within 14 days of the publication of this notice will be considered in the Department's final determination.

I. Project Description

A. Applicant

Mid-Florida Mining Company
Post Office Box 68
Lowell, Florida 32663

B. Project and Location

The applicant proposes to add a 50 million Btu/hr. afterburner to an existing rotary kiln type clay dryer (35 million Btu/hr. heat input and 40 tons/hr. of raw material feed) to destroy volatile and semi-volatile organic compounds when the proposed rotary kiln/afterburner system is used for the thermal processing of soils, sludges (excluding wastewater treatment sludges), and still bottoms containing hydrocarbon products. The hydrocarbon products may include but are not limited to gasoline, fuel oils, coal tar, creosote, OSHA materials and substances, and other non-hazardous halogenated and non-halogenated hydrocarbons. The rotary kiln may still be operated without the proposed afterburner when it is used to dry soils that do not contain hydrocarbon products.

The Standard Industrial Classification Codes are Major Group 14, Industry 1459, Clay, Ceramic, and Refractory Minerals, Not Classified Elsewhere. The Source Classification Codes are 5-03-001-01, Incineration-Multiple Chamber, and 5-03-005-06, Incineration-Sludge, when the rotary kiln/afterburner system is operated as a two chamber incinerator. The Source Classification Codes are 3-90-004-99, In-Process Fuel Use-Residual Oil-General, and 3-05-040-33, Mining and Quarrying of Nonmetallic Minerals-Ore Dryer, when the rotary kiln is used to dry soils that are not contaminated with hydrocarbon products.

Mid-Florida Mining Company's project is located at their facility on State Road 329 adjacent to the Seaboard Coast Line railroad (now CSX), Lowell, Marion County, Florida. The universal transverse mercator (UTM) coordinates of the project are Zone 17, 384.5 km East, and 3245.3 km North.

The application was received on March 8, 1989 and the Department determined that it was complete on June 13, 1989. Following receipt of the public notice package dated July 5, 1989, the applicant filed for an extension of time to request an administrative hearing. The applicant elected to amend the permit application after discussing the issues with the Department.

C. Project Description and Controls

Mid-Florida Mining Company operates a facility that has been used to produce grease absorbents and cat litter. The product is produced by the drying of montmorillinite clays in a rotary kiln type clay dryer that has been fired with No. 2-5 oil and waste solvents. Particulate emissions from the rotary kiln are controlled by a baghouse. The rotary kiln type clay dryer is presently subject to construction permit AC 42-113787, which authorizes the installation of the equipment that will enable the applicant to burn coal in the rotary kiln. The Department previously amended that permit to allow the company to decontaminate soils that are contaminated with on-specification hydrocarbon products. The permit was also amended on two separate occasions to allow the applicant to decontaminate soils that were contaminated with coal tar and creosote. The Department authorized the decontamination of the soils contaminated with coal tar and creosote in order to allow the applicant to develop the parameters needed to design an afterburner. The proposed construction of that afterburner is the subject of this permit application.

The applicant plans to modify the rotary kiln by installing an afterburner system. The proposed afterburner system consists of a combustion chamber, quench section, burner and fuel supply system, ducts and fans, electrical system, and a 135-ft. stack. The proposed system will also include a by-pass stack that will be located between the afterburner and the 135-ft. stack. Mid-Florida Mining Company proposes to install the afterburner system such that the gases from the rotary kiln will be vented to the baghouse and then either to the afterburner system or directly to the stack. If the rotary kiln is being used for the purpose of drying soils that are not contaminated with hydrocarbon products, then the gases are to be vented directly from the baghouse to the 135-ft. stack. If soils contaminated with hydrocarbon products are being fed to the rotary kiln, then the volatile and semi-volatile organic compounds that contaminate the soil are vaporized and, in some cases, partially combusted in the rotary kiln. The gas stream is vented from the rotary kiln to the baghouse which removes some of the entrained particulate matter. The gas stream is then vented from the baghouse to the afterburner system where the remaining volatile and semi-volatile organic compounds are burned. The gases from the afterburner system are ducted to a quench chamber and then to a stack. The applicant proposes to increase the stack height to an elevation of 135 ft., the good engineering practice stack height, in order to prevent downwash.

The 50 million Btu per hour afterburner system has been custom designed. The information provided by the applicant indicates that the afterburner system is designed to destroy 99.99% of the volatile and semi-volatile organic compounds in the gas stream. The 250°F gas stream from the baghouse will be exposed to a temperature of about 2,000°F for 2 seconds in the afterburner. The gases will be cooled from 2,000°F to 350°F by direct contact with water sprays in the quench chamber. The applicant is of the opinion that the design of the afterburner is such that emissions of dioxins should not be a problem.

The applicant proposes to ensure the proper operation of the rotary kiln/afterburner system by installing instruments to monitor a number of operational variables. The applicant proposes to monitor the following parameters:

- soil feed rate,
- fuel firing rate,
- cumulative fuel use,
- fuel use per ton of soil processed,
- fuel pressure,
- oxygen content of gas leaving the dryer,
- gas temperature leaving the dryer,
- gas temperature entering the baghouse,
- gas temperature entering the afterburner,
- afterburner temperature,
- total air flow rate to the afterburner,
- stack gas temperature, and
- oxygen content of the stack gas.

Mid-Florida Mining Company will develop a recommended set of surrogate parameter limits that provide an indication that the rotary kiln/afterburner system is being operated in a way that minimizes emissions. The proposed surrogate parameter limits will be submitted to the Department for approval.

The proposed system is being installed so that the company can safely decontaminate soils. Mid-Florida Mining Company plans to use the rotary kiln/afterburner system to thermally process soils contaminated with hydrocarbons that are not listed in 40 CFR 261.31 thru 40 CFR 261.33 and that do not show hazardous characteristics of corrosivity, reactivity, EP toxicity and ignitability. The applicant further proposes to limit the chloride content of the soil to be processed to 100 ppm total organic chlorides.

Mid-Florida Mining Company will fuel the rotary kiln with a mixture of waste oil, No. 2-5 fuel oil, terpene derivative type fuels, non-halogenated spent hydrocarbon solvent mixtures (such as xylene, acetone, etc.), and used kerosene. The fuel shall not contain more than 500 ppm lead, 100 ppm antimony, 100 ppm mercury, 100 ppm thallium, 4000 ppm chlorides (as chlorine), and

1.20% sulfur. The fuel mixture shall neither contain beryllium nor cesium. The company has agreed to limit the supplementary fuel burned in the afterburner to No. 2-5 virgin oil and on-specification used oil when the rotary kiln/afterburner system is being used to process soils that contain hydrocarbon products. The sulfur content of the fuel supplied to the afterburner will be no greater than 1.0% . Also, coal is not to be burned when the rotary kiln/afterburner system is being used for the decontamination of soils.

Note: The Department has considered the fact that the materials processed in the rotary kiln may be contaminated with sulfur. If sulfur dioxide emissions should exceed those authorized by the proposed permit, then the permittee will have to reduce the sulfur content of the fuels and unprocessed materials supplied to the rotary kiln/afterburner system.

The applicant proposes to implement the practice of soil blending in order to ensure that the soils to be processed contain a uniform concentration of contaminants. Mid-Florida Mining Company believes this practice will enable the company to operate the system at a uniform rate and to achieve uniform decontamination of the soils being processed.

II. Rule Applicability

Mid-Florida Mining Company's plant is a major facility pursuant to Florida Administrative Code (F.A.C.) Rule 17-2.100(112) [Definitions-Major Facility]. The facility is not one of the 28 major facility categories listed in Table 500-1 of F.A.C. Rule 17-2.500 [Prevention of Significant Deterioration].

The proposed project is a modification pursuant to F.A.C. Rule 17-2.100(119) [Definitions-Modification] because an increase in actual emissions is expected to occur. Based on the applicant's statements, the Department presently does not believe that the proposed project is subject to the preconstruction review requirements of F.A.C. Rule 17-2.500(5) [PSD-Preconstruction Review Requirements]. Pursuant to F.A.C. Rule 17-2.500(1)(d) [Prevention of Significant Deterioration-General Prohibitions], the Department is required to condition each permit to insure that the provisions of F.A.C. Rule 17-2.500 [Prevention of Significant Deterioration] are not violated. The source is also subject to the provisions of F.A.C. Rules 17-2.520 [Sources Not Subject to Prevention of Significant Deterioration Requirements and 17-4.070(3) [Standards of Issuing or Denying Permits].

Pursuant to the definitions in F.A.C. Rule 17-2.100(179) [Definitions-Source or Stationary Source] the proposed rotary kiln/afterburner system will be a source of air pollution. Pursuant to the definition in F.A.C. Rule 17-2.100(64) [Definitions-Emission or Discharge Point], the emission or discharge points include the 135-ft. stack and the "emergency" by-pass stack. [Note: The applicant proposes to operate the "emergency" bypass stack only in the event that the temperature of the gas flow to the main stack exceeds 500°F.] The rotary kiln/afterburner system is a classic two-chamber incinerator pursuant to F.A.C. Rule 17-2.100(91) [Definitions-Incinerator] when the system is used to thermally process soils for the purpose of decontamination. The operation of the associated systems for unloading, mixing, storing, handling, and loading contaminated and decontaminated soils may result in unconfined emissions as defined in F.A.C. Rule 17-2.100(205) [Definitions-Unconfined Emissions]. The unconfined emissions may consist of particulate matter, hydrocarbons, and objectionable odor pursuant to F.A.C. Rule 17-2.100(205) [Definitions-Unconfined Emissions].

The particulate emissions from the operation of the proposed rotary kiln/afterburner system will be subject to the particulate emission limiting standards in F.A.C. Rule 17-2.600(1) [Specific Source Emission Limiting Standards-Incinerators]. Particulate emissions from the rotary kiln/afterburner system will be limited to 0.08 grains/standard cubic foot of dry gas corrected to 50% excess air, 17.4 lbs./hr., 72.2 tons/yr. Please note that the applicant has elected to accept a restriction to limit soil decontamination to 8,300 hrs./yr. The rotary kiln/afterburner system will not be allowed to emit any compounds that produce objectionable odors as defined by F.A.C. Rule 17-2.100(132) [Definitions-Objectionable Odor]. In this case, the Department will consider objectionable odors to be those that result in verifiable, valid and legitimate environmental complaints that originate with Department personnel, county health officials, or surrounding residents.

The applicant has proposed to achieve a destruction efficiency of 99.99% for volatile and semi-volatile organic compounds. The proposed destruction efficiency is consistent with that required for hazardous waste incinerators pursuant 40 CFR 264.343(a)(1). The Department believes the applicant's proposed destruction efficiency is adequate, especially in view of the fact that the facility will not be used to process hazardous waste.

The Department has placed additional limitations upon the proposed rotary kiln/afterburner system pursuant to F.A.C. Rules 17-2.500(1)(c) [Prevention of Significant Deterioration-General Prohibitions], 17-2.520 [Sources Not Subject to Prevention of Significant Deterioration Requirements, and 17-4.070(3) [Standards of Issuing or Denying Permits]. Limitations have been placed on the operation rate; the hours of operation; the type and rate of fuel use; emissions of sulfur dioxide, nitrogen oxides, volatile organic compounds, arsenic, hexavalent chromium (Cr^{+6}), cadmium, and hydrogen chloride; and, the contaminants in the soil to be processed.

Mid-Florida Mining Company's facility is subject to the applicable provisions of F.A.C. Rules 17-2.610(3) [Unconfined Emissions of Particulate Matter], 17-2.620(1) [Volatile Organic Compound Emissions or Organic Solvent Emissions], and 17-2.620(2) [Objectionable Odor Prohibited]. Unconfined emissions of particulate matter shall be controlled pursuant to F.A.C. Rule 17-2.610(3). The applicant will be required to develop a set of reasonable measures, acceptable to the Department, for the control of unconfined emissions of particulate matter, volatile organic compounds, and objectionable odor.

The applicant's proposed project will also be subject to the applicable provisions of F.A.C. Rules 17-2.240 [Circumvention], 17-2.250 [Excess Emissions], and 17-4.130 [Plant Operation Problems]. Mid-Florida Mining Company proposes to monitor and record the variables described on page 3 [Section I.C.] of this document. The applicant will be required to develop a set of surrogate parameters, acceptable to the Department, which demonstrate that the rotary kiln/afterburner system is being properly operated and maintained in compliance with the conditions of the permit during those times that soil is being decontaminated.

The applicant will be required to install source sampling facilities to demonstrate compliance with the emission limitations established by this permit and construction permit AC 42-113787 pursuant to F.A.C. Rule 17-2.700 [Stationary Point Source Emissions Test Procedures].

The Department has also included a specific condition in this construction permit (AC 42-162296) that will make specific conditions Nos. 23-28 of construction permit No. AC 42-113787 null and void either upon completion of the proposed project or as of December 31, 1990. Upon completion of construction or after December 31, 1990, whichever occurs first, the use of the rotary kiln alone to decontaminate soils contaminated with on-specification hydrocarbon products will constitute circumvention pursuant to F.A.C. Rule 17-2.240 [Circumvention] if the afterburner is not operated. The February 15, 1989 amendment to construction permit No. AC 42-113787, and the March 28, 1989 change to the February 15, 1989 amendment to construction permit No. AC 42-113787 will become null and void upon issuance of the proposed permit. The application for the construction permit effectively negates the need to conduct testing to determine the parameters that are needed to design the afterburner system.

III. Summary of Emissions and Air Quality Analysis

A. Summary of Emissions

Based on the information supplied by the applicant, the Department expects the following emissions to occur.

SUMMARY OF ESTIMATED EMISSIONS FOR PSD PURPOSES

Pollutant	Clay Processing[1]		Soil Decontamination[2]		Emissions Change	
	lbs./hr.	TPY	lbs./hr.	TPY	lbs./hr.	TPY
Particulate[3]	15.0	65.7	17.4	75.7	+2.4	+10.0
SO_2	52.5	230.0	112.5	479.0	+60.0	+249.0
NO_x	29.4	128.8	37.4	162.0	+8.0	+33.2
CO	0.8	3.5	2.8	11.8	+2.0	+8.3
VOC	0.2	0.9	1.0	4.3	+0.8	+3.4
Lead	0.2	0.9	0.4	1.7	+0.2	+0.8
HCl	19.7	86.3	27.7	119.5	+8.0	+33.2
Mercury4	0.0	0.0	0.02	0.09	+0.02	+0.09

1. Considers Clay Processing 8,760 hrs./yr.

2. Considers Soil Decontamination 8,300 hrs.yr. And Clay Processing 460 hrs./yr.

3. All Particulate Matter Assumed To Be PM_{10}.

4. Emission Rate Substantially Less Than That Required For Sludge Incinerators By NESHAP, 40 CFR 61.52

B. Air Quality

An ambient air quality analysis was not required, because the applicant predicted that there would not be any increase in mass emissions that would make the project subject to the preconstruction review requirements of F.A.C. Rule 17-2.500(5) [PSD-Preconstruction Review Requirements]. But, the applicant and the Department agreed that the nature of the proposed activity justified an analysis of the impacts of both criteria and noncriteria pollutants. The results of the analysis indicate that the emissions from the proposed activity will not result in a violation of the state or federal ambient air quality standards. The results of the analysis further indicate that emissions of noncriteria pollutants are not expected to produce concentrations that would adversely affect surrounding residents if the source is operated within the constraints of the proposed permit.

IV. Conclusion

Based on the information provided by Mid-Florida Mining Company the Department has reasonable assurance that the proposed rotary kiln/afterburner system as described in this evaluation and subject to the conditions proposed herein, will not cause or contribute to a violation of any ambient air quality standard or PSD increment, or violate any other technical provision of Chapter 17-2 of the Florida Administrative Code.

Michael D. Harley
October 2, 1989

DRAFT

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

PERMITTEE:
Mid-Florida Mining Co.
P. O. Box 68
Ocala, Florida 32663

Permit Number: AC 42-162296
Expiration Date: Dec. 31, 1990
County: Marion
Latitude/Longitude: 29°19'52"N
82°11'28"W
Project: Afterburner For Soil Rotary Kiln Soil Processor (AC 42-113787)

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

The addition of a 50 million Btu/hr. afterburner to an existing rotary kiln type clay dryer (capable of 35 million Btu/hr. and 40 tons/hr. of feed) to destroy volatile and semi-volatile organic compounds when the rotary kiln/afterburner system is used for the thermal processing of soils, sludges (excluding wastewater treatment sludges), and still bottoms containing hydrocarbon products. The hydrocarbon products in the materials to be processed may include but are not limited to gasoline, fuel oils, coal tar, creosote, OSHA materials and substances, and other non-hazardous halogenated and non-halogenated hydrocarbons. The rotary kiln type clay dryer is considered to be simply a clay dryer when it is used to dry soils that do not contain hydrocarbon products.

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

Attachments to the permit are listed below:

1. Permit application for Afterburner for Soil Processor, received March 8, 1989.

2. C. H. Fancy's letter to D. B. Kibler, dated May 19, 1989.

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PERMITTEE:
Mid-Florida Mining Co.

Permit Number: AC 42-162296

Expiration Date: Dec. 31, 1990

Attachments to the permit (Continued):

3. J. B. Koogler's letter to M. D. Harley, dated April 28, 1989, received May 1, 1989.

4. J. B. Koogler's letter to C. H. Fancy, dated May 19, 1989, received May 23, 1989.

5. J. B. Koogler's FAX to M. D. Harley, dated June 13, 1989, received June 13, 1989.

6. J. B. Koogler's letter to M. D. Harley, dated August 4, 1989, received August 7, 1989.

7. J. B. Koogler's letter to M. D. Harley, dated September 11, 1989, received September 12, 1989.

8. Technical Evaluation and Preliminary Determination (Amended) dated September 29, 1989.

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the permittee and enforceable pursuant to the authority of Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is hereby placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or

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PERMITTEE:
Mid-Florida Mining Co.

Permit Number: AC 42-162296

Expiration Date: Dec. 31, 1990

GENERAL CONDITIONS:

approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant or aquatic life or property and penalties therefor caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

6. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:

a. Having access to and copying any records that must be kept under the conditions of the permit;

b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

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PERMITTEE:
Mid-Florida Mining Co.

Permit Number: AC 42-162296

Expiration Date: Dec. 31, 1990

GENERAL CONDITIONS:

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the Department with the following information:

a. a description of and cause of non-compliance; and

b. the period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

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

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the Department, may be used by the Department as evidence in any enforcement case arising under the Florida Statutes or Department rules, except where such use is proscribed by Sections 403.73 and 403.111, Florida Statutes.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.12 and 17-30.30, as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

DRAFT

PERMITTEE:
Mid-Florida Mining Co.

Permit Number: AC 42-162296

Expiration Date: Dec. 31, 1990

GENERAL CONDITIONS:

13. The permittee shall comply with the following monitoring and record keeping requirements:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the Department, during the course of any unresolved enforcement action.

b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include:

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

15. When requested by the department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be submitted or corrected promptly.

SPECIFIC CONDITIONS:

1. The rotary kiln/afterburner system is a two-chamber rotary kiln incinerator that is permitted to operate continuously, i.e. 8,760 hrs./yr.

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PERMITTEE:
Mid-Florida Mining Co.

Permit Number: AC 42-162296

Expiration Date: Dec. 31, 1990

SPECIFIC CONDITIONS:

2. The rotary kiln/afterburner system shall be used to thermally process only those materials that are not listed in 40 CFR 261.31, 261.32, 261.33 (revised as of July 1, 1988) and do not show the hazardous characteristics of corrosivity, reactivity, EP toxicity, and ignitability. Prior to the acceptance of contaminated materials for processing, MFM shall obtain certification from the generator that the material is not classified as a hazardous waste pursuant to the federal regulations cited in this specific condition.

3. Upon completion of the construction and testing authorized by this permit, contaminated materials shall only be processed at those times when the emissions from the rotary kiln are vented to the atmosphere through the baghouse and afterburner; and, both the baghouse and afterburner are operating properly. Specific Conditions Nos. 23-28 of construction permit No. AC 42-113787 shall become null and void either upon completion of the construction and testing authorized by this permit, or the expiration date shown on the face of this permit, whichever occurs first. The February 15, 1989 amendment to construction permit No. AC 42-113787, and the March 28, 1989 change to the February 15, 1989 amendment to construction permit No. AC 42-113787 are now null and void.

4. The maximum hourly feed rate of unprocessed material to the rotary kiln/afterburner system shall not exceed 40 tons/hr. The unprocessed material shall neither contain more than 10% hydrocarbon material, nor more than 100 ppm by weight organic chlorides, nor more than 5.10% coal tar products (such as coal tar-RTECS No. GF8600000, coal tar pitch-RTECS No. GF8655000, coal tar distallate-RTECS No. GF8617500, creosote-RTECS No. GF8615000, etc.). The unprocessed material shall not contain beryllium.

5. The rotary kiln shall be fired with liquid fuel that consists of waste oil, No. 2-5 fuel oil, terpene derivative type fuels, non-halogenated spent hydrocarbon solvent mixtures (such as xylene, acetone, etc.), and used kerosene. The liquid fuel for the rotary kiln shall not contain more than 500 ppm lead, 100 ppm antimony, 100 ppm mercury, 100 ppm thallium, 4000 ppm chlorides (as chlorine), and 1.20% sulfur. The liquid fuel for the rotary kiln shall neither contain beryllium nor cesium. The afterburner shall only be fired with virgin fuel oil No. 2-5 or used oil meeting the specifications listed in the table entitled, "Used Oil Exceeding Any Specification Level Is Subject To This Subpart

When Burned For Energy Recovery," in 40 CFR 266.40 (revised as of July 1, 1988). The maximum sulfur content of the fuel input to the afterburner shall not exceed 1.0% sulfur. The maximum fuel input rate to the rotary kiln shall not exceed 272 gallons/hr. (35 MMBtu/hr.). The maximum fuel input rate to the afterburner shall not exceed 400 gallons/hr. (50 MMBtu/hr.). Coal shall not be burned when the rotary kiln/afterburner system is in operation.

6. The total input of chromium (Cr), arsenic (As), and cadmium (Cd) to the rotary kiln/afterburner system shall not exceed the levels that satisfy the following equation:

$$(2.343 \text{ X } Cr_1) + (46.85 \text{ X } Cr_2) + (1.679 \text{ X } As_1) + (16.79 \text{ X } As_2) + (0.703 \text{ X } Cd_1) + (7.028 \text{ X } Cd_2) = 1$$

Cr, As, and Cd are inputs of chromium, arsenic, and cadmium in lbs./hr. The subscript "1" denotes total input of the element to the rotary kiln as a result of both fuel and raw material feeds. The subscript "2" denotes total input of the element to the afterburner as a result of fuel feed. The chromium, arsenic, and cadmium content of the materials input to the rotary kiln/afterburner system shall be determined using the methods required by 40 CFR 261.

7. The following emission limitations shall apply to the rotary kiln/afterburner system:

a. Particulate emissions from the rotary kiln/afterburner system shall neither exceed 0.08 grain/DSCF corrected to 50% excess air, nor 17.4 lbs./hr., nor 72.2 tons/yr. Particulate emissions shall be determined by EPA Methods 1, 2, 3, and 5 (40 CFR 60 revised as of July 1, 1988).

b. Hexavalent chromium (Cr^{+6}), arsenic (As), and cadmium (Cd) emissions from the rotary kiln/afterburner system shall not exceed:

$$(Cr^{+6} \text{ X } 46.85) + (As \text{ X } 16.79) + (Cd \text{ X } 7.028) = 1$$

Emissions of Cr^{+6}, As, and Cd are expressed in lb./hr. Hexavalent chromium (Cr^{+6}), arsenic (As), and cadmium (Cd) emissions shall be directly determined using:

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PERMITTEE:
Mid-Florida Mining Co.

Permit Number: AC 42-162296

Expiration Date: Dec. 31, 1990

SPECIFIC CONDITIONS:

(1) EPA Methods 1, 2, 3, and 5 (40 CFR 60 revised as of July 1, 1988); sodium hydroxide extraction; and, ion chromatography for hexavalent chromium (Cr^{+6}).

(2) EPA methods 1, 2, 3, and 108 (40 CFR 60 and 61 revised as of July 1, 1988) for arsenic (As).

(3) EPA methods 1, 2, and 3 (40 CFR 60 revised as of July 1, 1988); and the EPA's draft Appendix A-Methodology for the Determination of Metals Emissions in Exhaust Gases From Stationary Source Combustion Processes for cadmium (Cd).

c. Sulfur dioxide emissions from the rotary kiln/afterburner system shall neither exceed 112.5 lbs./hr. nor 466.9 tons/yr. Sulfur dioxide emissions shall be determined by EPA Methods 1, 2, 3, and 6 (40 CFR 60 revised as of July 1, 1988).

d. Nitrogen oxide emissions from the rotary kiln/afterburner system shall neither exceed 37.4 lbs./hr. nor 155.2 tons/yr. Nitrogen oxide emissions shall be determined using EPA Methods 1, 2, 3, and 7 (40 CFR 60 revised as of July 1, 1988).

e. Hydrogen chloride emissions from the rotary kiln/afterburner system shall neither exceed 27.7 lbs./hr. nor 115.0 tons/yr. Hydrogen chloride emissions shall be determined using EPA Methods 1, 2, and 3 (40 CFR 60 revised as of July 1, 1988); and Draft Method For The Determination Of HCl Emissions From Municipal And Hazardous Waste Incinerators.

f. The afterburner shall achieve a minimum destruction efficiency of 99.99% by weight for each volatile and semi-volatile organic compound that is in the feed stream to the afterburner. Emissions of semi-volatile organic compounds shall be measured at points ahead of and after the afterburner using EPA's Modified Method 5 (Method No. 0010) in SW-846 (September 1986). The destruction efficiency may be determined using one or more surrogate compounds approved by the Department.

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PERMITTEE:
Mid-Florida Mining Co.

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SPECIFIC CONDITIONS:

g. The rotary kiln/afterburner system shall not emit objectionable odors. In this case, the Department will consider objectionable odors as defined in F.A.C. Rule 17-2.100(132) [Definitions-Objectionable Odors] to be those which result in verifiable, valid and legitimate environmental complaints that originate with Department personnel, county health officials, or surrounding residents.

8. In order to minimize on-site emissions from contaminated soil the permittee shall:

a. Minimize unconfined emissions of particulate during loading, unloading, storage, and handling of both contaminated and decontaminated soil. Reasonable precautions to minimize unconfined particulate emissions may include, but shall not be limited to those measures identified in F.A.C. Rule 17-2.610(3)(c) [Unconfined Emissions of Particulate Matter].

b. Process contaminated soil that is brought to the site as expeditiously as possible in order to minimize storage time.

c. Store contaminated soil on an impermeable concrete pad in a covered, semi-enclosed storage area. Any leachate that drains from the contaminated soil shall be collected and mixed with the contaminated soil prior to introduction into the rotary kiln/afterburner system for decontamination.

d. The loading, unloading, and handling of soil, whether contaminated or decontaminated, shall not emit objectionable odors. In this case, the Department will consider objectionable odors to be those which result in verifiable, valid and legitimate environmental complaints that originate with Department personnel, county health officials, or surrounding residents.

11. The permittee shall monitor and record the following parameters:

a. The hourly rate that unprocessed materials are fed to the rotary kiln/afterburner system.

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PERMITTEE:
Mid-Florida Mining Co.

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Expiration Date: Dec. 31, 1990

SPECIFIC CONDITIONS:

b. The hourly feed rate of fuel to the rotary kiln and the hourly feed rate of oil to the afterburner.

c. The chromium, arsenic, cadmium, sulfur, and coal tar products (as benzene solubles) content of the fuels and materials that are fed to the rotary kiln/afterburner system on a daily basis. The daily sample for each fuel and unprocessed material shall consist of a composite of 24 hourly samples.

d. The temperature of the flue gases entering and exiting the afterburner.

e. The flow rate of gases entering the afterburner.

f. The oxygen content of gases exiting the afterburner.

g. The types, dates, and quantities of materials processed. These records shall also include the certification required by Specific Condition No. 2 and any analytical results that were used to verify/show that the materials to be processed conform to the requirements of Specific Condition No. 2.

9. The permittee shall develop a set of recommended surrogate parameter limits that will be continuously monitored to provide reasonable assurance that the rotary kiln/afterburner system is being operated and maintained in a way that minimizes emissions and complies with the conditions of this permit. The proposed limits shall be submitted to the Department's Central Florida District office for approval with the application for an operation permit. If approved, the specific limits shall become an amendment to this construction permit.

10. All monitoring and recording systems shall be regularly calibrated and maintained in proper working condition pursuant to written procedures and schedules based on the recommendations of the instrument manufacturer.

11. All excess emissions from the rotary kiln/afterburner system shall be subject to the applicable requirements of F.A.C. Rules 17-2.240 [Circumvention], 17-2.250 [Excess Emissions], and 17-4.130 [Plant Operation Problems]. The rotary kiln/afterburner system (except fans and water quench system) shall be shutdown immediately upon the activation of the by-pass stack.

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PERMITTEE:
Mid-Florida Mining Co.

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Expiration Date: Dec. 31, 1990

SPECIFIC CONDITIONS:

12. The rotary kiln/afterburner system shall be equipped with the point source sampling facilities required by F.A.C. Rule 17-2.700.

13. Point source compliance testing shall be conducted pursuant to the following requirements:

a. Compliance testing shall initially be conducted prior to the expiration date of this permit and annually, thereafter.

b. Point source compliance testing shall be conducted with all sources operating at 90 to 100 percent of the operation rates allowed by Specific Conditions Nos. 4 and 5.

c. Compliance test reports shall include all of the information required by F.A.C. Rule 17-2.700(7).

d. Compliance test reports shall be submitted pursuant to the applicable requirements of F.A.C. Chapter 17-2.

e. Notification of testing shall be furnished to the DER Central Florida District office at least 15 days prior to the date that testing is to commence.

f. Emission testing for the purpose of demonstrating compliance with Specific Condition No. 7 shall not be required if the rotary kiln/afterburner system was used to thermally process materials contaminated with hydrocarbon products for less than 40 hours during the year prior to the required testing.

g. The Department may authorize the permittee to demonstrate compliance with Specific Condition No. 7.b. through direct measurement of emissions on other than an annual basis. The Department's decision would include, but not be limited to, consideration of the results of the initial and subsequent direct emission measurements (compliance tests) and the correlation of those measurements to the levels allowed by Specific Condition No. 6.

14. The following emission data shall be used for PSD purposes

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PERMITTEE:
Mid-Florida Mining Co.

Permit Number: AC 42-162296

Expiration Date: Dec. 31, 1990

SPECIFIC CONDITIONS:

in the absence of actual emissions data except where the Department elects to require or the permittee elects to provide actual emission measurements using the appropriate federal reference methods:

SUMMARY OF ESTIMATED EMISSIONS FOR PSD PURPOSES

Pollutant	Clay Processing[1]		Soil Decontamination[2]		Emissions Change	
	lbs./hr.	TPY	lbs./hr.	TPY	lbs./hr.	TPY
Particulate[3]	15.0	65.7	17.4	75.7	+2.4	+10.0
SO_2	52.5	230.0	112.5	479.0	+60.0	+249.0
NO_x	29.4	128.8	37.4	162.0	+8.0	+33.2
CO	0.8	3.5	2.8	11.8	+2.0	+8.3
VOC	0.2	0.9	1.0	4.3	+0.8	+3.4
Lead	0.2	0.9	0.4	1.7	+0.2	+0.8
HCl	19.7	86.3	27.7	119.5	+8.0	+33.2
Mercury4	0.0	0.0	0.02	0.09	+0.02	+0.09

1. Considers Clay Processing 8,760 hrs./yr.

2. Considers Soil Decontamination 8,300 hrs./yr. And Clay Processing 460 hrs./yr.

3. All Particulate Matter Assumed To Be PM_{10}.

4. Emission Rate Substantially Less Than That Required For Sludge Incinerators By NESHAP, 40 CFR 61.52

15. The permanent source identification number assigned to the permitted source is 30ORL42001702, Clay Dryer. Please cite this number on all test reports and other correspondence for each permitted point source.

16. The permittee for good cause, may request that this construction permit be extended. Such request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration date of the permit (F.A.C. Rule 17-4.090).

17. The application for an operation permit must be submitted to the Central Florida District office at least 90 days prior to the expiration date of this construction permit or within 45 days after the completion of compliance testing whichever occurs first. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, and

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PERMITTEE:
Mid-Florida Mining Co.

Permit Number: [illegible] 42[illegible]62296

Expiration Date: Dec. 31, 1990

SPECIFIC CONDITIONS:

certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rule 17-4.220).

Issued this ______ day
of ________________, 1989

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

____
Dale Twachtmann, Secretary

Attachment #4

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

RECEIVED
MAR 29 1990
H... S WASTE
P... ITTING

MAR 26 1990

4WD-RCRA

Mr. Satish Kastury
Environmental Administrator
Hazardous Waste Regulation
Florida Department of Environmental
Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Proposed Revisions to Draft Air Construction Permit
Petition by Cornelius A. Link
Mid Florida Mining Company
EPA I.D. No. FLD 991 275 355

Dear Mr. Kastury:

This is in response to two documents regarding Mid Florida Mining (MFM) which we recently received from your office: (1) the proposed revisions to the draft construction permit prepared by the Florida Department of Environmental Regulation's (FDER) Air Division and (2) a petition filed with the Florida Division of Administrative Hearings by Cornelius A. Link (OGC File No. 89-1093). Both documents raise two questions. The first is whether the rotary kiln at MFM is considered an industrial furnace or an incinerator when burning contaminated soils; and the second is whether creosote-contaminated soil is a hazardous waste.

Based on recent discussions with EPA Headquarters personnel, we have determined that the final disposition of the residual material, i.e., ash, remaining after burning the contaminated soils is an important element in determining whether the facility should be considered an incinerator or industrial furnace when burning the soils. Because of this, we have recently sent a letter to MFM, pursuant to Section 3007 of RCRA, requesting additional information on the proposed changes in operating practices (enclosed). Once this information is received and reviewed, we will be better able to respond to this question.

Whether creosote-contaminated soil is a listed hazardous waste under 40 CFR §261.33 is the major issue raised in Mr. Link's petition. It is clearly stated in §261.33 that it applies only to commercial chemical products or manufacturing chemical intermediates, off-specification commercial chemical products or manufacturing chemical intermediates, and residue or contaminated soil, water, or other debris resulting from the cleanup of a spill of the aforementioned products or intermediates. Once a commercial chemical product is used for its intended purpose, it no longer falls into any of these categories.

Therefore, if the creosote-contaminated soil resulted from the spill of creosote product or off-specification creosote before these materials were used for their intended purpose, it would be considered hazardous waste. If the contamination resulted after the creosote had been used for its intended purpose and was not from a K001 waste listed in §261.32, then the soil would not be considered a hazardous waste. An example of this would be soils beneath a drip pad or pole storage area which have been contaminated with creosote.

EPA Headquarters is working on regulatory changes that are intended to regulate additional woodtreating waste streams. Included in this rulemaking, creosote-contaminated media is proposed as a new hazardous waste stream. However, current RCRA Subtitle C regulations do not give EPA the authority to require that all creosote-contaminated soils be regulated as hazardous waste. It is possible that state regulations may be more stringent than federal regulations. Certainly, a facility burning these soils will need to maintain adequate records to document that the soils are indeed nonhazardous.

We will send additional comments on the first issue raised once we have received the information from Mid Florida Mining. Should you have any questions, please contact Robin Mitchell at (404) 347-3433.

Sincerely yours,

James H Scarbrough

James H. Scarbrough, P.E.
Chief, RCRA Branch
Waste Management Division

Enclosure

Attachment # 5

MFM

ENVIRONMENTAL

MFM Virgin Fuel Oil Procedures

MFM will burn only virgin fuel when processing contaminated soil. To ensure that virgin fuel and only virgin fuel will be burned, MFM will adopt the following monitoring and certification procedures.

MFM will dedicate, in its tank farm, one 35,000 gallon tank for the purpose of storing virgin fuel oil.

The virgin fuel oil will be transferred to a virgin fuel only burn tank (15,000 gallon capacity). This dedicated burn tank will supply the dryer/calciner and the afterburner combustion systems with the proper quality and quantities of virgin fuel oil when processing contaminated soils.

Each load of virgin fuel coming into our facility will be checked and verified by MFM personnel to ensure that the virgin fuel has met MFM standards of quality. Once inside MFM's plant, only trained and authorized MFM personnel will handle the virgin fuel. The virgin fuel, after certification, will be transferred to the dedicated burn tank only by MFM trained and authorized personnel.

Every load of fuel being transferred to the dedicated burn tank by MFM personnel will also be under the direct control of MFM's process supervisor. Each load will be checked by the process supervisor and he, as well as the MFM oil personnel, will certify by signature that each load has met MFM's internal standards of certification.

Attachment # 6

MFM EMISSION RATES WHILE BURNING VIRGIN FUEL IN DRYER AND AFTERBURNER

Particulate Matter Emissions

Present Permit	-	15.0 lb/hr
While Soil Processing @ 0.08 gr/scf corrected to 50% excess air	-	17.4 lb/hr

SO2

Present Permit	-	52.5 lb/hr
While Soil Processing		
Virgin fuel in afterburner @ 0.3 % Sulfur	-	18.0 lb/hr
Virgin fuel in dryer @ 0.3% Sulfur	-	12.2 lb/hr
TOTAL	-	30.2 lb/hr

NOx

Present	-	29.4 lb/hr
While Soil Processing	-	37.4 lb/hr

CO

Present	-	0.8 lb/hr
While Soil Processing	-	2.8 lb/hr

HCl

Present	-	19.2 lb/hr
While Soil Processing		
Virgin fuel in afterburner	-	0.0 lb/hr
Soil @ 100 mgCl/kg soil	-	6.8 lb/hr
Virgin fuel in dryer	-	0.0 lb/hr
TOTAL	-	6.8 lb/hr

Lead

(At 99.9% Control in Baghouse)

Present with 100 ppm lead in dryer feed	-	0.01 lb/hr
While Soil Processing		
Virgin fuel in afterburner	-	0.00 lb/hr
Soil with 100 ppm lead	-	0.01 lb/hr
Virgin fuel in dryer	-	0.00 lb/hr
TOTAL	-	0.01 lb/hr

MFM
Soil Processing
Air Quality Impact Analysis with Afterburner
Exhaust Gas Flow Rate per 9/11/89 Letter to DER

Model - ISCST
Met Data - Orlando (1976)
Downwash accounted for
Modeled Emisson Rate - 10.0 g/sec.

Model Impacts

Time Period	Impact at 10.0 g/s emissions	Distance
Annual	0.5 ug/m^3	2000 meters
Quarterly	1.0 ug/m^3	2000 meters
24-hour	5.7 ug/m^3	2000 meters
8-hour	10.7 ug/m^3	1000 meters
3-hour	21.0 ug/m^3	1000 meters
1-hour	28.5 ug/m^3	1500 meters

IMPACT ANALYSIS WITH VIRGIN FUEL IN DRYER AND AFTERBURNER

	Expected Impact (ug/m^3) Present	Afterburner	Air Quality Std (ug/m^3)	Significant Impact (ug/m^3)
SO_2				
Annual	0.3	0.2	60	1
24-hour	3.8	2.2	260	5
3-hour	13.9	8.0	1300	25
NOx				
Annual	0.2	0.2	100	1
Particulate Matter (PM10)				
Annual	0.1	0.1	50	1
24-hour	1.1	1.2	150	5
Lead				
Quarterly	0.0001	0.0001	1.5	-
HCl				
Annual	0.12	0.04	7	-
3-min	11.31	4.00	150	-

Attachment #7

MFM

ENVIRONMENTAL

Thermal Processing of Hydrocarbon Contaminated Soil From Receiving to Final Disposition at the Mine.

All soils coming into the plant contaminated with hydrocarbons are received and processed on an approval basis only. The contaminated material is, and has been, approved by testing laboratories that have determined the material has met DER requirements for the following criteria as far as heavy metals are concerned:

CONSTITUENT/PROPERTY	ALLOWABLE/LEVEL
Arsenic	5 PPM MAX
Cadmium	2 PPM MAX
Chromium	10 PPM MAX
Lead	100 PPM MAX
Total Halogens	4000 PPM MAX
PCB	*2 PPM MAX

*NOTE: This spec has been established by MFM Environmental. The State level is 40 PPM and the Federal EPA level is 50 PPM.

Prior to thermal processing, the contaminated material is screened and blended with our wet clay, (non-contaminated). Blending allows for a more effective and smooth combustion process and allows the metals in the contaminated soils to bind or fixate to the wet clay. Only clean clay, never baghouse dust, is used as the blending medium.

The clay-blended contaminated hydrocarbon soil material is fed into the thermal processing unit and the temperature of the material is raised from ambient temperature to a pre-established temperature range of 650 degrees F min. -- 1150 degrees F max. for the removal of the hydrocarbon compounds that are to be vaporized into the gas stream at approximately 130 degrees F-- 150 degrees F for most oil, diesel and gasoline laden materials.

The thermal processing system follows the standard procedure for any process unit operation relying upon the function of time and temperature to process the solid material and control the outlet gas stream requirements. The gas stream and the processed solids flow of material shall be reviewed in detail as follows:

GAS FLOW:

The process gas flow initially starts with the combustion primary air blower that provides the primary air source required for the actual combustion of the preheated fuel oil of the combustion burner system. The burner at this point releases the standard theoretical products of combustion into the gas stream and also is blended, just downstream from the combustion chamber, with the required secondary air that controls the actual inlet gas temperature to the process system.

The process system of the kiln being a counter-current operation, the highest gas temperature is in contact with the highest temperature of the solids establishing a large Delta T ( ) temperature difference between the two process streams.

The elevated temperature of the gas stream as it travels counter-current through the system is transfered to the solids causing the temperature of the hydrocarbons to also rise until they reach the volitalization temperature required in the thermal process operation.

The gas stream as it travels through the rotating kiln based on the internal design of the unit and predicated on the internal velocity of the gas stream, approximately 2% of the solids, based on inlet feed rate, are entrained in the outlet gas stream traveling downstream to the dry solids collector (bag house), where the solids are separated from the gas stream using the bag filters and the solids for the additional filtration media for the air/solids separation method.

The solids collected in the baghouse are conveyed to a rotary valve and transferred through a pneumatic transfer system to a plenium chamber section on the discharge hood of the dryer/ calciner for the purpose of recycling this fine material back into the process system for continual thermal processing. (This continual reprocessing of the baghouse solids is operational only during thermal processing.) Samples of this material are sent to a State certified laboratory for complete analytical data along with the analytical data of the purged material from the kiln being transported to our mine for land reclamation purposes.

The amount of solids in this final gas stream (which is always above the dew point) is always less then the DER requirement of .08 grains/standard cubic foot of air at standard operating conditions.

SOIL PURGE: **MATERIAL HANDLING, ROUTING FROM EXIT OF KILN TO MINE SITE**

1.) Soil during purge leaves the drum via an enclosed chute at temperatures from 650 degrees F to +1150 degrees F.

2.) Soil then enters a 95 foot high bucket elevator which carries the material up and discharges the material down a separate 10 inch dia. pipe to a surge bin.

3.) After the material leaves the surge bin there is an enclosed hood that covers the open truck bed. This hood is fitted with a spray water nozzle cooling and de-dusting system, a series of small nozzles lining the inside of the hood area. The injected water cools the product and reduces dust emission. Also fitted in this hood transition is dust collection pipes that vent dust and steam to the collector. The load out trucks are monitored by personnel in the area. The condition of the bed load, is signed off on the load out person and the driver of the load, when the truck is filled to the correct level. The load out person shuts the purged material off the truck by a series of pneumatic valves. While the exchange of trucks are taking place, the small surge bin starts to fill thusly not having an interruption in the process. After the trucks are changed, the load out cycle restarts, then the newly loaded truck is washed and inspected before leaving the plant gate. The load in the truck is completely covered with high-temperature tarpolion. The entire bed of the truck is completely sealed with the exception of the tailgate which is hydraulically closed by extended closure arms to ensure total closure. (No truck leaves the plant without washing and inspection.

4.) After leaving the plant gate, the truck arrives at the mine site, approximately 7 miles N.W. of the plant down SR 329. Here the purged soil is stored in a prepared holding area. This area is clay based at an average of 20 feet thick. The purged soil is contained in this holding area until the following steps are taken:

4-1) Soil samples are taken during the entire run at the plant while trucks are being loaded. Samples are taken at the discharge end of kiln for temperature, automatically by control room instruments, and electronically chart recorded. Temperature is also manually recorded and charted by the sample taker. The samples are cooled and labeled and sealed in clean jars, with an I.D. number and time. These samples are delivered to an independent certified approved lab for complete analysis. Once the lab results are received and approved, the material may be moved out of the holding area.

4-2) If the customer does not have a need for the decontaminated soil to be returned to him, the cleaned, certified soil is put in a prepared burial area at the mine site. This site has a 20 foot minimum protective clay liner. The area is charted, recorded and sealed with a clay product cap.

4-3) All records of purge run and process variables of that run, are put into a contaminated soil beneficiation report. Both manual and electronically recorded data of every purge is retained by MFM.

OCALA STAR★BANNER

VOLUME 44, NO. 247, 123RD YEAR Ocala, Florida, Sunday, May 6, 1990 75¢

Register protest over expanding MFM activities

Editor:

The Florida Thoroughbred Breeders Association is now behind We The People For Safe Environment in their attempt to prevent a waste chemical disposal company, Mid-Florida Mining, from enlarging their operation. Hopefully, public pressure can slow down their existing pollution capabilities. M.F.M. has applied for a permit from D.E.R. for an "afterburner."

Soon all supplies of leaded gasoline will have to be destroyed. Many millions of dollars will be made by disposal companies. Lead is a very harmful element. It can also be melted and formed into bullets. When soil contaminated with leaded gasoline is burned, this lead is melted but not destroyed. When heated hot enough, it is melted into fine particles. What is not collected by the "scrubbers" will go up into the air and then onto the grass. None of it is saved to be turned into rifle bullets - just "miniature bullets" that eventually will kill our horses, children or grandchildren.

M.F.M. also wants to burn creosote. Creosote sales were banned recently because of lots of health problems. But M.F.M. wants to "spread" it onto our county. Last, but certainly not least, the permit will allow burning of "other chemicals." Some of these chemicals are the "building blocks" for PCBs and Dioxins. Do we want Marion County to become a "Love Canal?"

M.F.M. could purchase land in a remote area of Florida. But they can save money by using their property in Lowell, since they already own it and have the abandoned mine pits to bury the residues. Will any miner abandon a mine before all or most of the gold, silver or clay have been removed? Therefore, these pits must have only a thin layer of soil covering the water table. Of course all of this will be "safe," we are told. Big money and governments never lie, do they?

Do the citizens of Marion County want to help M.F.M. save money to the detriment of our health? How many months or years remain before this area is no longer a safe place to live?

We must oppose the gradual enlargement of this, or any other, company's polluting of our county. Please write to the D.E.R.

Mildred Barthlow
Fairfield

We must face up to environmental problems

Editor:

Recently in Marion County there have been several meetings devoted to the discussion of the proposed expansion of the Lowell Mid Florid Mining incinerator.

Some local citizens have done a commendable job in presenting the potential hazards of burning contaminated soils and possibly other materials. Representatives from MFM have spoken on the benefits of the incinerator facility.

These contaminated soils/materials now have the ability to leach into the ground water wherever spills or contamination have occurred. By burning these products, various pollutants will be released into our air, creating increased levels of lead (and other heavy metals) and adding many undesirable products to the air we breathe. Whether the soils/wastes are burned or not, it is hard to see that the majority of citizens will be winners.

The lead, mercury and other heavy metals that are discharged by incinerating contaminants, should not have leaked into the ground in the first place. Years ago plans were made to phase out leaded gasolines, but under President Reagan these deadlines were greatly extended. For the last nine years the Environmental Protection Agency has been weakened. Burning wastes was devised as the fastest, cheapest way to greatly reduce the bulk of unwanted materials.

Undoubtedly, the recycling of chemicals, often into usable products, and the elimination of compounds that are dangerous to our environment, is the final solution. Our environment should be of utmost importance to all people , and we must act accordingly. The environmental record of all candidates for public office should be known. We must elect those officials that will protect our air, land, water, etc. for in so doing we will be saving our own lives. I think more people are becoming environmentally aware, but I am sorry that it takes a local incinerator to raise awareness.

The Lowell MFM incinerator is only one of many crucial environmental problems that, if we do not handle correctly, will cause our demise.

Robert Anderson
Ocala

ARE YOU WILLING TO **SACRIFICE**

YOUR HEALTH, CHILDREN, FAMILY, PETS, GARDENS, HOME, PROPERTY VALUE, AIR, WATER SUPPLY AND ENVIRONMENT FOR

MID FLORIDA MINING???

WARNING!... **MFM** has requested a permit to **INCREASE POLLUTANTS** from 30% to 300% by building a 135 foot **HAZARDOUS WASTE INCINERATOR!!!** The emissions fallout can travel up to 300 miles... **IF YOU ARE READING THIS... IT AFFECTS YOU!!!**

RED ALERT!... The storage and burning of these wastes has been linked throughout the **world** to acid rain, ozone damage, smog and respiratory problems, contaminated water and agriculture, cancer and other health complications in **HUMANS, LIVESTOCK, FISH and GAME.** The **COUNTY YOU ARE LIVING IN WILL BE RECOGNIZED AS A TOXIC DUMP!**

TAX HIKE?... When Mid Florida Mining **IMPORTS** an estimated 17,500 truck loads of contaminated wastes from **OTHER** counties, states and possibly nations, you will risk chemical fires, road hazards and endanger the hundreds of school children in the vicinity. You will most likely suffer **INCREASED TAXES** for clean-ups and road repairs. And even more taxes if the equine industry in Marion County fails because the horses cannot tolerate the additional pollutants or their value is tarnished by their proximity to this county.

ACCIDENTS CAN HAPPEN... BUT THIS ONE CAN BE PREVENTED!

If YOU can do only ONE thing for this cause, then PLEASE ATTEND:

MONDAY, MAY 7th, 7:00 PM
COUNTY COMMISSION MEETING
McPHEARSON COMPLEX AUDITORIUM
601 S.E. 25th Ave.
Ocala

AND BRING 10 FRIENDS! WITH 10 OF THEIR FRIENDS!!

You can also help prevent this terrible "accident" by writing your County and State representatives demanding a county ordinance of

NO STORAGE, BURNING OR IMPORTING OF HAZARDOUS WASTES!

THE TIME TO STOP THIS IS BEFORE IT HAPPENS...
AND YOU CAN MAKE THE DIFFERENCE!

For further information contact:

WE THE PEOPLE FOR A SAFE ENVIRONMENT

CONNIE BONBREST 591-2137
SHIRLEY DAVENPORT 591-1156
CAROL PARKER 591-1020

HISTORY OF MFM PERMIT APPLICATION

10-8-81	Permit #AC 42-43771 ORIGINAL CONSTRUCTION
2-3-83	Permit #A042-68778 FULLERS EARTH ROTARY DRYER
12-20-83	Permit #AC 42-77048 CONSTRUCTION OF A CLAY STORAGE SILO
10-86	Attempt by Argitis Inc. to locate a Regional Hazardous Waste Transfer site inLowell.
5-87	Permit #HO 42-123860 for 15,000 gallons of Hazardous Waste Storage tank.
6-87	Application to increase capacity to **over** 300,000 gallons storage of Waste Oil. PERMIT NOT NEEDED "Not a Hazardous Waste"
5-27-88	MFM requested wording changes in permit #AC 42-113787 to "Decontaminate soil contaminated with hydrocarbon products—instead of petroleum products." NO APPROVAL GIVEN.
6-18-88	MFM requested further amendment to AC 42-113787 to allow Decontamination of soils which exceed limits of CFR-261. NO APPROVAL GIVEN.
7-14-88	MFM Burned 1,684 tons of Creosote contaminated soil and received a fine by DER for $5,460.00. Consent Order #88-0938.
2-15-89	A one time Amendment to AC 42-113787 TO CONDUCT TESTING VALIDATING ABILTY OF MFM TO SUCCESSFULLY DECONTAMINATE 10,000 tons of CREOSOTE SOILS AND REFINE DESIGN PARAMETERS FOR TAIL GAS TREATMENT SYSTEM.
3-16-89	DER records indicate an application was submitted to "Air Quality" DER to both upgrade and increase contaminated soil treatment both in quantity and types of contaminates.
6-13-89	DER records indicate an application was completed and signed by a "Mike Harley."
7-6-89	Intent and Public Notice permit was given but for some reason not used.
10-2-89	Intent and Public Notice reissued. Notice one time only in a newspaper as printed in the Ocala Star Banner. 4 or more persons filed a Petition for Administrative Hearing to block permit for Plant expanstion. (Only one was accepted, that of Dr. Link, owner of Flamingo Farm.)
10-3-89	Dr. Cornelious Link petitioned for Administrative Hearing which was accepted by DER. Other filed also but were not accepted.
10-9-89	Intent to Issue Permit AC 42-162296 for constrution of an afterburner for use when processing soils contaminated with hydrocarbon products.
12-2-89	Meeting of concerned citizens, Reddick, FL gathered over 400 signatures on petitions to block expansion. Permit applied for 24 hours a day 365 days a yr. operations would more than double output of LEAD and other toxicants despite the afterburner which would be required. A maximum 10 tons of particles a year output would include sulphur Dioxide Nitrous Oxide, Hydrochloric Acid and LEAD. 24 Thoroughbred farms are within 2 miles.
2-11-90	"Need for" cited by DER, Marion County alledged to produce 2,032 tons of ignitable, corrosive or reactive waste such as gasoline, acid or explosives. Mid Florida Mining Plant treats Petroleum contaminated soil by rotating kiln, breaking down contaminates into water and carbon dioxide (nothing else). Application for an afterburner (a Kiln several seconds at 2,000 degrees breaks down chemicals further before being released into Air would allow a greater variety of soil contaminates to be treated including hologenated hydrocarbons, non-halogenated hydrocarbons, creosote and coal tar. Now also to include chlorohydronated hydrocarbons such as chlorine, flourine and iodine. Estimates now at 75.7 tons of dust into the air. John Kookler, environmental engineer drafted the Mid Florida Mining permit application said Mr. Kibler. Dioxins now an issue. Evidence that afterburners emit Dioxins when used with chloronated products and a cause of cancer. Five drops in Olympic size pool capable of killing newborn mammals and fish. Don Ehlenbeck, an engineer with DER alleges "A properly operated incinerator will provide 99.9% destruction of hydrocarbons contaminants."

"We the People for Safe Environment"

incorporated as a non-profit Corporation with officers. P.O. Box 9, Reddick, FL 32686.

A legal advisor retained and donations solicited.

2-28-90 Marion County Commission schedules a future public meeting to address "afterburner at Mid Florida Mining Company, Lowell facility. DER has already given notice of "Intent to issue a permit for the afterburner."

3-2-90 Fessenden Elementary School PTA addressed by Dr. Link and Mr. Kibler, Pres. of Mid Florida Mining Co. and members believe if permitted, Permit would "damage Air Quality further."

3-2-90 Mid Florida Mining Co. co-sponsors a public forum at CFCC on environmental concerns but stifle comment on their Lowell facility. Sen. McPherson however reveals that Florida's 7,000 incinerators are inspected approximately once every 7½ years by one of the 4 inspectors.

3-18-90 Gov. Marginez alarmed by Mercury contaminated Large Mouth Bass across Florida, starts tests of salt water fish to see if toxic metal has entered the Marine food chain.

3-13-90 Marion County School Board after statements by Dr. Link and Mr. Kibler decides at their regular meeting to investigate soil samples at North Marion schools in close proximity to the plant. Tests by independent sources will be arranged. Mrs. Hutto of the Fessenen PTA also spoke. Mr. Kibler was brief said only "All DER regulations are being met."

3-15-90 Dr. Paul Connett addresses a large gathering of concerned citizens in Ocala. An Assoc. Prof. in NY and a member of many advisory boards regarding environmental issues and having Degrees from Cambridge, advises to begin testing the land around them for contamination. He warned of Furans and Dioxins which are OK in the furnace but reform in the stock. Whit Palmer Jr. identified as Plant owner, and George Steinbrenner, Pres. of FTBA are family related. MFM argues that Dioxins are not a problem because of their rotary kiln design. (Designed for cat litter.)

4-2-90 FTBA is accused of personal and political connections with MFM executives resulting on no activity of charges that pollution is causing horse birth defects. DER schedules a 5/15 to 5/17 State Administrative hearing based on Dr. Link's filed protest. A Dr. Jerry Murphy, engineer from Univ. of South Florida is to collect information regarding MFM. Death of a foal suspected of LEAD poisoning is confirmed and a Dr. Stephen Sundlof, UF Vet toxicologist confirms and will assist in collecting information.

4-15-90 Former manager MFM, Jim Kleekamp claims MFM plans afterburner to enter coal tar and creosote soil treatment at $300 a ton compared to $19-$25 a ton for petroleum contaminated soil. Since 1981 the Lowell Plant has been cited 10 times. During June 1988 as result of DER tests, excessive levels of ARSENIC AND CHROMIUM were found. Permit estimates now at 249 TONS A YEAR of Sulphur Dioxide and 10 tons of dust. John Koogler UF engineer employed by MFM said the numbers are not real "it is typical to apply for permits this way."

David Kibler, president of MFM said, "We didn't draft this permit, DER did and worst case scenario permitting is the most responsible approach by government agencies."

4-21-90 FTBA Roundtable in Ocala, Dr. Ron Lundock, DVM revealed AIR samples tested near the Plant found .6PPM LEAD, .37 PPM at 100', and 450', this over 4,285 times higher than the Massachusetts Dept. of Environmental Protection considers safe. National Standard of .00015 PPM maximum limit by DER.

Soil samples tested for LEAD	.1 miles = 23.8 PPM
	.15 miles = 23.6 PPM
	3.5 miles = 14.5 PPM
	4.0 miles = 9.5 PPM

30 PPM LEAD in soil is considerd toxic according to Dr. Sunloft, U.F. toxicologist, and according to local geologist who has taken many soil samples in Marion County, this is highly significant because he has never found any lead in Marion County.

Kidney sample of foal that died 4 miles from the plant had 8.8 part per million LEAD, a toxic level and blood from its mother also showed a toxic level. Three other mares in the area had blood levels of .2 PPM or greater, and all 3 aborted. A water sample in the area showed LEAD.

FTBA advises prohibiting waste motor oil as fuel for the Plant kiln, monitoring and auditing incoming soils, U.F. nutritionist Dr. Edgar Ott, to supervise tests in the area.

DER Administrative hearing for May 15 is postponed at DER request, no date set. DER is alleged to be re-evaluating its position on the proposed afterburner.

It is revealed that for the past 3 years contaminated soils treated in the kiln are not returned to sender. Estimated 60% of the contaminated soil is then stored in a mine pit, secondary storage in Fairfield, FL, a few miles away and for a fee. an estimated 20 to 25 feet of clay beneath the treated contaminated soil is believed to prevent pollution from settling into the aquafer, well water supply.

4-28-90 Picketing demonstration SR 200 and SW 34th Ave. Corporate offices of MFM Environmental to publicize the Marion County Public meeting of 5-7-90.

5-4-90 Plan further demonstration at Lowell Plant facility MFM C329 and 25A, to also publicize the Marion County Public meeting of 5-7-90.

5-7-90
7:00 P.M. Meeting of Marion County Commissioners at McPhearson Governmental Complex (open to the public) to discuss MFM permit.

ARE YOU CONCERNED ABOUT **HAZARDOUS AND CONTAMINATED WASTE BURNING** IN MARION COUNTY?

FACT: HIGH LEVELS OF LEAD HAVE ALREADY BEEN DISCOVERED IN THE AIR, SOIL, AND LIVESTOCK OF NORTH MARION COUNTY.

FACT: MID FLORIDA MINING HAS APPLIED FOR A PERMIT WHICH WOULD DOUBLE THEIR LEAD EMISSIONS-ACCORDING TO THEIR OWN FIGURES ON THEIR ORIGINAL APPLICATION.

FACT: THIS PERMIT WOULD BRING AN ESTIMATED 17,500 TRUCKS CARRYING CONTAMINATED WASTE ANNUALLY ONTO THE SCHOOL BUS ROUTES OF NORTH MARION COUNTY.

FACT: WE DON'T KNOW IF THERE ARE ALREADY HIGH LEVELS OF OTHER TOXINS IN THE AREA BECAUSE NO ONE HAS PROPERLY TESTED.

FACT: THERE IS AN OPEN FORUM ON THIS SUBJECT BEFORE THE COUNTY COMMISSIONERS.

MONDAY MAY 7th AT 7:00
AT THE McPHEARSON COMPLEX

COME AND ASK FOR:

STRICT ZONING REQUIRING SPECIAL ZONING FOR INDUSTRIES USING OR DISPOSING OF HAZARDOUS OR CONTAMINATED WASTE OR SPENT PETROLEUM PRODUCTS.

COUNTY ORDINANCE PROHIBITING THE IMPORTATION OF ANY CONTAMINATED OR HAZARDOUS MATERIAL OR SPENT PETROLEUM PRODUCTS INTO MARION COUNTY.

WRITTEN STATEMENT FROM OUR COUNTY COMMISSIONERS TO THE GOVERNOR'S OFFICE AND THE FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION STRONGLY OPPOSING THE PROPOSED MID FLORIDA MINING PERMIT.

COMMITMENT OF COUNTY FUNDS TO TEST SOIL, AIR AND **PEOPLE** IN NORTH MARION COUNTY FOR LEAD AND OTHER TOXINS.

CALL OR WRITE YOUR GOVERNMENTAL REPRESENTATIVES LISTED ON THE BACK AND TELL THEM HOW YOU FEEL!!

FOR MORE INFORMATION CONTACT:
WE THE PEOPLE FOR A SAFE ENVIRONMENT

CONNIE BONBREST
591-2137

SHIRLEE DAVENPORT
591-1156

CAROL PARKER
591-1020

* Mr. Dale Twachtmann, P.E.
  Sec. Dept. of
  Environmental Regulation
  2600 Blair Stone Rd.
  Tallahassee, FL 32399-2400

* Mr. John Shearer, P.E.
  Assistant Sec. Dept. of
  Environmental Regulation
  2600 Blair Stone Rd.
  Tallahassee, FL 32399-2400

* Senator George G. Kirpatrick Jr. (D)
  1003 N.E. 13th St.
  Gainesville, FL 32601
  904/377-3800

* Senator Karen Thurman (D)
  Rm 102
  No. 1 Courthouse Square
  Inverness, FL 32650
  904/344-3044

* Rep. George Albright (R)
  111 S.E. 25th Ave.
  Ocala, FL 32671
  904/732-6658

Rep. Dick Locke
P.O. Box 5008
Inverness, FL 32650-0008
904/726-8500

Rep. Stain Bainter (R)
301 West Ward Ave.
Eustis, FL 32726
904/589-1998

Rep. David Flagg (D)
Suite L, 4401 N.W. 25th Place
Gainesville, FL 32606
904/374-9888

* Rep. Sidney Martin
  P.O. Box 37
  Hawthorne, FL 32640
  904/481-3013

COUNTY COMMISSIONERS:

Gail Cross Dist. 1
601 S.E. 25th Ave.
Ocala, FL 32671

Don Greene District 2
601 S.E. 25th Ave.
Ocala, FL 32671

Glen Fiorello Dist. 5
601 S.E. 25th Ave.
Ocala, FL 32671

Tommy Needham Dist. 4
601 S.E. 25th Ave.
Ocala, FL 32671

Parnell Townley Dist. 3
601 S.E. 25th Ave.
Ocala, FL 32671

County Commission Phone:
904/622-0305

Citrus/Marion

The Tampa Tribune, Friday, May 4, 1990

Greenpeace bolsters Marion efforts

International group joins in rally against mining firm

By TOM HENRY
Tribune Staff Writer

LOWELL — A grass roots effort to keep Mid-Florida Mining Co. from treating more kinds of contaminated soil has caught the attention of Greenpeace, an international group best known for trying to save the lives of baby seals and whales and for crusading against toxic metals.

Greenpeace is sending about 20 members from its Orlando office and four members from its Southeast regional office in Atlanta to a rally near the plant today, said Brian Hunt, Greenpeace's Southeast regional toxic campaigner.

The rally will be from 11 a.m. to 1 p.m. at the home of Connie Bonbrest, a member of a group called We the People for a Safe Environment. The home, at 4131 County Road 329, is about a block from the plant.

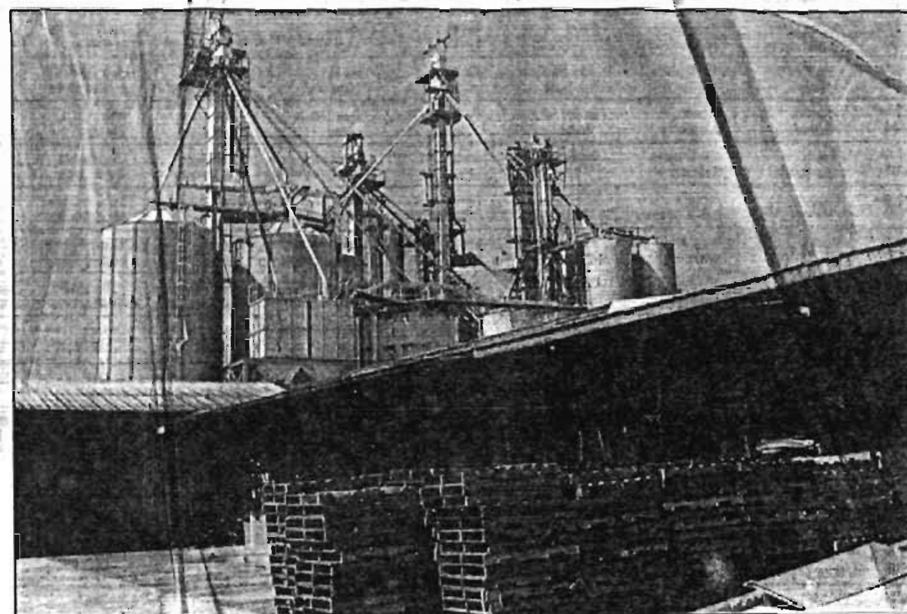
Hunt said the rally is in support of We the People's effort to convince the state that Mid-Florida Mining should not be allowed to build an afterburner.

The company wants to build an afterburner to treat soil contaminated with creosote, coal tar and other substances. About three years ago, the state authorized it to periodically treat soil contaminated with petroleum products in a rotary kiln that was built to manufacture cat litter.

"We offered to come on down and put on a demonstration for them," Hunt said, adding that the rally is part of a 17-day tour of the South for Greenpeace. "We can offer them a lot of encouragement that they aren't alone," he said.

After the Mid-Florida Mining

See GREENPEACE, Page 5



Tribune photograph by DAVID J. PHILI

Mid-Florida Mining Co.'s plan to treat contaminated soil earned environmentalists' wrath.

Greenpeace, Marion environmentalists to rally today

■ From Page 1

rally, Greenpeace members will travel to Madison County to co-sponsor a demonstration there against a plan for a medical waste incinerator, Hunt said.

Mid-Florida Mining President David Kibler said he believes it is "silly and kind of amusing" that Greenpeace is getting involved.

He called Greenpeace members "out-of-state zealots" and "anti-business people with hidden agendas.

"I am perplexed as to why they would involve themselves with a company that processes clay products," Kibler said. "The afterburner will protect the environment. It has nothing to do with hazardous waste — never has, never will."

Environmental activists, including members of We the People and Greenpeace, say they are concerned that air and water pollution will become rampant in this part of the state if the company is allowed to build an afterburner.

They say recent tests in the area, which were paid for by We the People, show high levels of lead being released into the air. They say it has caused birth defects and respiratory problems in Marion County's thoroughbred horse breeding industry, which is second only to Lexington, Ky.

Activists say that allowing the company to treat more types of contaminated soil will create more problems and cripple Florida's horse industry, a multimillion dollar business.

Company officials dispute the lead studies. They say the technology is safe and does not release metals into the air. They also say the soil to be treated does not fit the state Department of Environment Regulation's definition of hazardous material.

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

FAX TRANSMITTAL LETTER

DATE: 4-19-90

TO:

NAME: Richard C. Hancock

AGENCY: Florida Thoroughbred Breeders Assn.

TELEPHONE: 904/629-3603

NUMBER OF PAGES (INCLUDING COVER SHEET) 5

FROM:

NAME: Mike Harley

AGENCY: DER Air Regulation

IF ANY OF THE PAGES ARE NOT CLEARLY RECEIVED, PLEASE CALL IMMEDIATELY. PHONE NO. 904/488-1344

SENDERS NAME: Patty Adams

COMMENTS:

Parmit File

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

April 19, 1990

Mr. Richard E. Hancock
Executive Vice President
Florida Thoroughbred Breeders' Association
4727 N.W. 80th Avenue
Ocala, Florida 32675

RE: Proposed Construction Permit For Mid-Florida Mining Company (MFM)

Dear Mr. Hancock:

Thank you for writing to express your concerns about the above referenced draft permit. We have attempted to address each of the concerns that you have expressed. Our responses are numbered so as to correspond to each of your questions.

1. Blending Contaminated Soil With Wet Uncontaminated Soil.

   A. MFM has indicated in letters dated April 28 and May 22, 1989, that blending of the soil at the plant-site may uniformly distribute contaminants throughout the soil prior to processing. The uniform distribution of contaminants is expected to allow soils to be processed at rates that will result in optimum clean-up and minimize emissions from the rotary kiln/afterburner system.

   B. If the processed soil becomes a hazardous waste, then it will have to be stored, transported, and disposed of as a hazardous waste pursuant to RCRA requirements.

2. Regulatory Criteria for MFM Process and Alternate Disposal of Residues.

   A. Koogler & Associates prepared a report concerning tests that were conducted at MFM on July 15, 1988. The report included a limited examination of heavy metals in raw (unprocessed) soil, processed soil, and baghouse dust. The draft permit limits the lead content of the unprocessed soil supplied to MFM to less than 5 parts per million (ppm). The Department plans to change the proposed permit to require the use of <u>virgin</u> fuel, in both the kiln and the afterburner, when soil is being decontaminated. It will be MFM's responsibility to ensure that the processed soil (whether from the rotary kiln or the baghouse) complies with the applicable requirements enforced by federal, state, and local agencies (i.e., lead concentrations below RCRA limitations - 5 ppm lead).

B. The regulation of the transportation and disposal of materials, as well as soil and vegetative sampling are generally beyond the scope of air permits; however, these activities are regulated by the rules of this and other state and federal agencies. We are willing to discuss these points with representatives of your organization, MFM, and other interested parties. It would be helpful if you would explain how zinc affects horses and could define the levels that are of concern to you.

3. <u>Sampling and Testing Decontaminated Soil and Process Residues.</u>

Solid materials are difficult to sample because contaminant concentrations may vary, even in thoroughly mixed materials. One procedure for obtaining a representative sample is the required composite of grab samples obtained at hourly intervals during a 24-hour period. We are willing to discuss alternative sampling plans and requirements, including test procedures, with representatives of your organization, MFM, and other interested parties.

4. <u>Processing Described In The Attachment.</u>

At present, we do not have any reason to believe increased emissions of fine particulate will result from the processing of the baghouse residue with contaminated soil fed to the rotary kiln. It appears that MFM intends to ensure adequate treatment of soils collected in the baghouse. MFM's permit application was based on the assumption that the particulate emissions would be fine particulate. The ambient air quality modeling analysis did not indicate a problem. If MFM should be unable to comply with the emission limitations in the permit upon completion of construction and testing, then MFM would not receive a permit to operate the proposed system.

5. Testing

A. We were not aware of the unique aspects of the horse industry prior to your March 20, 1990, meeting with representatives of the Bureau of Air Regulation. The lead content of the soils in your area was not tested when the proposed permit was drafted. The analysis of the lead content of surrounding soils is not a routine part of the air permitting process. We have compared the maximum expected concentrations of lead in the ambient air to the federal and state ambient air quality standard for lead (1.5 micrograms per cubic meter, quarterly average) and EPA's recommended reference air concentration (0.09 micrograms per cubic meter, annual average). The maximum projected concentrations due to controlled emissions of lead are predicted to be 0.03 and 0.01 micrograms per cubic meter, respectively.

B. The draft permit includes limitations for and requirements for the measurement of particulate, hexavalent chromium, arsenic, cadmium, sulfur dioxide, nitrogen oxide, and hydrogen chloride emissions. The draft permit also includes a requirement for MFM to demonstrate through measurement that 99.99% of the organic compounds emitted by the rotary kiln are destroyed in the afterburner. We are willing to discuss the inclusion of emission limitations and source sampling requirements for other pollutants (i.e., lead) with representatives of your organization, MFM, and other interested parties. The Tallahassee air permit files include three emission test reports (one by Acurex Corp. and two by Koogler & Associates) that may be of interest to you. Based on the July 15, 1988, emission test by Koogler & Associates the heavy metal emissions included arsenic-0.0017 lb./hr.; chromium-0.0081 lb./hr.; copper-0.0030 lb./hr.; lead-0.0018 lb./hr.; mercury-0.00005 lb./hr.; and, zinc-0.0322 lb./hr. If you would like copies of the individual test reports, please let us know.

C. The Bureau of Air Regulation limited its consideration of exposure for the proposed air permit to concentrations in the ambient air.

If you have any questions or would like to arrange a meeting with us, please call me at (904) 488-1344 or write to me at the address above. You are encouraged to attend the public meeting that the Marion County Commission has scheduled to discuss the proposed MFM permit. The meeting will be held at 7:00 P.M. on May 7, 1990, at the Marion County Commission Auditorium, 601 S.E. 25th Avenue, Ocala, Florida.

Sincerely,

Michael D. Harley

Michael D. Harley, P.E.
Professional Engineer
Permitting and Standards Section

cc: C. Fancy
G. Smallridge
D. MacLaughlin
S. Kastury
D. Ehlenbeck
L. Curtin

MFA FILE

BLOOD LEAD (Pb) ANALYSIS (ppm)

Sample Type: BLOOD
Test Number: SARA NETA
The Concentration of Pb by HNO_3 (Internal) in the sample is 0.15 (ug/ml)

Sample Type: BLOOD
Test Number: JM'S DANCER
The Concentration of Pb by HNO_3 (Internal) in the sample is 0.28 (ug/ml)

Sample Type: BLOOD
→ Test Number: PRINCESS   Mother of Aborted Foal – LAST
The Concentration of Pb by HNO_3 (Internal) in the sample is 0.54 (ug/ml) (TOXIC)

Sample Type: BLOOD
Test Number: ALTIWIRL
The Concentration of Pb by HNO_3 (Internal) in the sample is 0.20 (ug/ml)

HAIR LEAD (Pb) ANALYSIS (ppm)

	MANE	TAIL	FETLOCK
SARA NETA	1.00	2.60	3.20
DANCER	0.80	1.70	1.50
→ PRINCESS	1.70	1.20	0.80
ALTIWIRL	0.80	1.60	0.80

ALL mares aborted this year

LAB: FLORIDA DEPT. OF AGRICULTURE + CONSUMER SERVICES
DIVISION OF ANIMAL INDUSTRY/
KISSIMMEE DIAGNOSTIC LAB.
P.O. BOX 466. KISSIMMEE FL. 32741

phone # (407)847-3185

ACCESSION # 90-006997

VET: DR. R.B. LUNDOCK
P.O. BOX 218
LOWELL, FL. 32663

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

ACTION NO

ACTION DUE DATE

TO: (NAME, OFFICE, LOCATION)	
1. ~~[illegible]~~	Initial / Date
2. Steve Smallwood	Initial / Date
3. John Glunt	Initial / Date
4.	Initial / Date

RECEIVED

APR 16 1990

DER - BAQM

REMARKS:

FYI some test data on horses done in Marion County in the vicinity of Mid-Florida Mining. The person you gave me this said a group was going to the press with it and ~~[illegible]~~ thought we might want to know about it before. They are trying to draw a correlation between Mid-Florida / high lead levels / horse abortions -

INFORMATION

- Review & Return
- Review & File
- Initial & Forward

DISPOSITION

- Review & Respond
- Prepare Response
- For My Signature
- For Your Signature
- Let's Discuss
- Set Up Meeting
- Investigate & Report
- Initial & Forward
- Distribute
- Concurrence
- For Processing
- Initial & Return

FROM:

DATE

PHONE

Raoul Clarke

4-12-90

 FLORIDA DEPARTMENT OF AGRICULTURE & CONSUMER SERVICES 03/28/90

DIVISION OF ANIMAL INDUSTRY / KISSIMMEE DIAGNOSTIC LABORATORY
P. O. BOX 460, KISSIMMEE FL 32741

PHONE (407)847-3185

ACCESSION # 90-006997
DATE REC'D 03/28/90

VETERINARIAN	OWNER
DR. R. G. LUNDOCK	SCHMIDT, HILMER
P. O. BOX 218	12191 N. MAGNOLIA AVE.
LOWELL FL 32663	OCALA FL 32670

SPECIES/TYPE EQUINE AGE SEX
NUMBER OF ANIMALS 1

SPECIMENS - FRESH TISSUE.

TESTS REQUESTED AND HISTORY ON FILE. COPY AVAILABLE UPON REQUEST.

REPORTS- PRELIMINARY TELEPHONE FINAL 03/28/90

CASE COORDINATOR DR. T. J. KEEFE

RESULTS OF EXAMINATION:

03/28/90

TB, PREMATURE FOAL

CHEMISTRY

LEAD (PPM) - KIDNEY - 8.8
(TOXIC LEVEL)

ARSENIC (PPM) - KIDNEY - NEGATIVE

Foal

Laboratory Test Results

Client: R. Lundock

Two air filters were submitted by R. Lundock for metals analysis. The air filters were digested in concentrated nitric acid, which was then diluted by demineralized water. Spectrophotometric methods were then used to analyze the sample.

Client ID	Lab ID
Sample A (100 feet south of stack-down wind)	011190-8
Sample B (150 yards west of stack)	011190-9

Discussion

Lead was detected in both sample A and sample B at concentrations of 0.60 parts per million and 0.37 parts per million respectively. These levels are significantly higher than Massachusetts threshold effects exposure limits (see table below). Lead causes brain damage, hyperactivity and impairs hearing. Copper was detected at a concentration of 0.12 parts per million, a concentration that is above the typical range expected in uncontaminated air. Total chromium, cobalt, nickel and zinc were detected at levels within the range typically found in air. There was no hexavalent chromium or cadmium detected in the sample.

No toxic organic compounds were detected in the air filter samples. The analysis found no PCBs, pesticides, halogenated aromatics, or petrochemicals.

As you can see this is 4285 time higher then MEPA consider safe

Massachusetts Department of Environmental Protection
Threshold Effects Exposure Limits

Chemical	CAS Number	Threshold Effects Exposure Limit (TEL) (24 hour ceiling)
Lead	7439721	0.00014 mg/cubic meter

NATIONAL TOXICS CAMPAIGN
ENVIRONMENTAL LABORATORY
37 TEMPLE PLACE
BOSTON, MA 02111

TEL: 617-482-1477

CH2M HILL
Engineers
Planners
Economists
Scientists

REPORT OF ANALYSIS

Florida Certification: 82112; E82124

BEST AVAILABLE COPY

Connie Bonbrest	CH2M Hill
Attention: Connie Bonbrest	Project No: LGN00000.XX Received: 01/22/90 Reported: 02/09/90

Collected: 01/21/90 by Connie Bonbrest
Type: water & soil, grab

SAMPLE NUMBER	75954	75955	75956
SAMPLE DESCRIPTIONS	Well Water 01/21/90 2:00pm	Soil 01/21/90 2:00pm	Laboratory Method Blank
Percent Solids (%)	n/r n/r	87.5 01/22/90	Not Applicable 01/22/90
METALS			
Lead - FL	0.004 02/07/90	23.6 mg/kg dry 02/07/90	<1.0 02/07/90

NOTE: Values are mg/l as substance unless otherwise stated.

Respectfully submitted,

Thomas C. Emenhiser, Laboratory Manager

n/r = not requested
NOTE: This report contains test data and no interpretation is intended or implied.

COLLEGE OF VETERINARY MEDICINE
J. HILLIS MILLER HEALTH CENTER
INSTITUTE OF FOOD AND AGRICULTURAL SCIENCES

DEPARTMENT OF PHYSIOLOGICAL SCIENCES
BUILDING 471, MOWRY ROAD
IFAS 633
GAINESVILLE zip 32611 - 0633
Tel: (904) 392-1841
Fax: (904) 392-9704

April 12, 1990

Mr. Richard E. Hancock
Executive Vice President
Florida Thoroughbred Breeders Association
4727 NW 80th Ave.
Ocala, FL 32675

Dear Mr. Hancock:

Attached please find my report on the recent events associated with the death of a newborn foal at Green Key Farm. My findings are based on information from the Florida Veterinary Diagnostic Laboratory in Kissimmee, a report from Dr. Ott, and data produced in my laboratory on horses located at Green Key Farm and Indian Hill farm.

Please do not hesitate to contact me if you have any questions regarding the report or if you require any further information.

Sincerely,

Stephen F. Sundlof, D.V.M., Ph.D.
Diplomate, American Board of
Veterinary Toxicology

cc: Dr. Richard E. Dierks
Dr. A.C. Asbury
Dr. E.A. Ott

Assessment of Findings Associated with the Recent Death of a Foal at Green Key Farm

Background Information:

On 3/27/90, a thoroughbred foal born to JM's Princess died. The foal was approximately 24 hours old when it died.

Dr. R.G. Lundock sent a sample of the foal's kidney to the Veterinary Diagnostic Laboratory in Kissimmee for analysis of lead and arsenic.

On 3/28/90, the Kissimmee laboratory reported the concentration of lead in the kidneys to be 8.8 parts per million (ppm) while no arsenic was detected in the kidneys.

On 3/28/90, Dr. Lundock, Mr. Hancock and I went to Indian Hill Farm and Green Key farm to collect samples of blood and hair from horses for lead analysis.

On 3/29/90, Dr Ott went to Indian Hill Farm and Green Key Farm to collect samples of pasture grasses, hay, and soil for lead analysis.

Assessment of All Data Collected to Date:

It is considered diagnostically significant when kidney tissues contain at least 10 ppm lead on a wet weight basis. The foal which died had kidney lead concentrations of 8.8 ppm, and although this is slightly lower than the level which is generally considered to be toxic, other factors should be taken into consideration when assessing the relevance of the findings. Lead accumulates in the kidney with age and so it is usually present in low concentrations in newborn animals and is present at higher concentrations in mature animals. Finding levels which are close to toxic concentrations in a newborn foal indicates that abnormally high exposure to lead occurred either in utero, or during the short period (1 day) between the birth and death of the foal. Both scenarios are possible since newborn foals are able to absorb ingested metals from the gastrointestinal tract to a much greater extent than are older animals. However, in this instance it seems more likely that the foal was exposed to the lead in utero since the concentration of lead in the blood of the dam was found to be abnormally high. Furthermore, it is known that lead from the dam crosses the placenta to the extent that lead concentrations in the fetal circulation are only slightly lower than those in the blood of the dam. The results of the kidney analysis do not imply that lead poisoning was necessarily the cause of death in the foal. It is my understanding that, although the level of lead in the foal's kidney was abnormally high, the cause of death of the foal has not been established and may have been due to conditions other than lead poisoning.

The concentration of lead (0.54 ppm) in the blood of the dam (JM's Princess) exceeded the range of normal values for samples run in my laboratory (0.0 to 0.35 ppm). Horses with blood lead levels between 0.35 and 0.60 ppm are diagnosed as lead poisoned only if they are exhibiting clinical signs of lead poisoning. Nevertheless, the finding of abnormally elevated lead levels in the blood of the dam and the kidney of the foal are cause for concern and it is my opinion that efforts should be directed toward determining the source of the lead in order to prevent further exposure to the dam and other horses on Green Key Farm.

In my judgment, soil containing lead at concentrations less than 30 ppm should not pose a health hazard to horses, assuming that lead from other sources (e.g. water, air, feeds) is not abnormally high. This number (30 ppm) was determined by me following an exhaustive search of the veterinary literature pertaining to lead poisoning in horses. That search revealed that the lowest amount of lead in pasture grasses which caused clinical poisoning in horses was 80 ppm. In arriving at the 30 ppm tolerance level in soil, the following safety factors were taken into account:

1. Assuming that the lowest toxic dose in the feed is 80 ppm, a dose of 30 ppm (37.5% of the toxic dose) should not result in clinical manifestation of lead poisoning.

2. Even if 30 ppm of lead in the diet can cause adverse effects in horses, animals would have to eat a quantity of soil equivalent to 3% percent of their body weight every day in order to reach this level. Since horses normally eat 3% of their body weight in feed each day, this means that the entire diet of the horse would have to consist of soil in order for lead-induced problems to occur.

3. Uptake of lead from the soil by pasture grasses is a very inefficient process. Even when pasture grasses are grown in soil containing 3000 ppm of lead (100 times greater than the 30 ppm proposed tolerance) the maximum concentration of lead attained by the plants is 15 ppm (1/2 of the 30 ppm proposed tolerance). Therefore, soil lead concentrations of 30 ppm would not be expected to cause pasture grasses to accumulate toxic levels of lead. The relatively low lead levels in pasture grass samples collected from Indian Hill Farm and Green Key Farm lend support to this hypothesis.

In summary, I do not feel that soil lead concentrations listed in Dr. Ott's report are high enough to be considered as the sole source of the lead responsible for the abnormally high concentrations in the kidney of the foal or the blood of the mare, JM's Princess. I further recommend that continued efforts be made to track down the source of the lead on Green Key Farm in order to prevent any potentially adverse health effects in horses from occurring in the future.

As you indicated, Green Key Farm is situated on property on which was once located a citrus grove. I have consulted with the University of Florida Pesticide Extension Specialist, Dr. Norman Nesheim, and learned that lead arsenate is used on citrus as a herbicide. Although its present day use is very limited, in the past it may have been used extensively.

Dr. Nesheim also remembered reading of incidents in which soil in apple orchards treated with lead arsenate accumulated high concentrations of lead. Presently, I am pursuing this avenue further and will report back to you any new information.

UNIVERSITY OF FLORIDA

INSTITUTE OF FOOD AND AGRICULTURAL SCIENCES

TEACHING RESEARCH EXTENSION

ANIMAL SCIENCE DEPARTMENT
210 ANIMAL SCIENCE BUILDING
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GAINESVILLE, FLORIDA 32611

Henry Wieneke
Green Key Farm
P.O. Box 310
Sparr, FL 32690

Hilmer Schmidt
12191 N. Magnolia Ave.
Ocala, FL 32670

Richard Hancock
Vice President, FTBA
4727 N.W. 80th Ave.
Ocala, FL 32675

Dear Sirs:

In response to your request regarding the source of lead found in the foal that died shortly after birth on Green Key Farm and the subsequent determination that the mare producing the foal had elevated blood lead concentrations, I collected soil, pasture (bahiagrass), C. Bermudagrass hay and alfalfa hay samples on Green Key Farm and soil and bahiagrass samples on the adjacent Indian Hill Farm. The results of these analyses are enclosed.

Mineral intakes of an animal is the product of the various feed sources available to the animal and the mineral concentration of those feeds. None of the feeds analyzed contained toxic concentrations of lead. Data on chronic effects of lead intake indicate that 80-85 ppm was toxic to horses and 30 ppm was not toxic but did result in an accumulation of lead in body tissues. Hay containing 21 ppm lead has been used as a control diet in some studies on lead toxicity. There is very little information on the toxicity of lead to gestating mares. We do know that the young of several species are more susceptible to lead toxicity than adults.

In my opinion the mare did not consume enough lead via the bahiagrass and hay to cause lead toxicity. Several possibilities exist:

1) She may have been eating soil.
2) She may have been eating the roots of the grass which are known to be higher than the leaves.
3) She may have found a concentrated source of lead such as an old storage battery or some old lead based paint.

4) She may have received some other exterior source of lead.
5) The samples we collected were not representative of what the mare was consuming.

The soil lead content is higher than I expected, however, we have no information on the normal soil lead content in the area. I have asked the FTBA to fund a study of the soil and forage mineral content in Marion County. Until this study is complete we will not know whether the 9.7 and 14.5 ppm lead concentrations found on these two farms are normal or abnormal. Please bear with us for a few weeks until we gather more information.

Sincerely,

Edgar A. Ott
Professor

cc: S. Sundlof

ANALYSIS REPORT

Date of Report 4/10/90
Samples Collected 3/29/90

	Lead Contact -- ppm
Green Key Farm:	
Soil -- mare pasture[1]	9.7
Bahiagrass -- mare pasture[2]	3.4
C. Bermuda hay[2]	0.9
Alfalfa hay (stored in Indian Hill barn)[2]	0.7
Indian Hill Farm:	
Soil -- mare pasture no. 5[1]	14.5
Bahiagrass -- mare pasture no. 5[2]	2.6

[1]air dry

[2]dry matter basis

Mel Jacobs
Biologist
Equine Nutrition Lab

March 16, 1990

To whom it may concern,

On Thursday, March 15, I viewed a two-hour presentation by Dr. Paul Connett, chemist and international expert on public health risks and hazards created by waste incineration. Dr. Connett's appearance was in behalf of *We The People for a Safe Environment*, a local citizen's group opposed to a permit request by Mid-Florida Mining which, as I understand it, would allow the manufacturer to use increasingly more toxic waste fuel and contaminated soil to fuel its operation.

According to material provided by We the People..., MFM -- which manufactures dried clay products such as kitty litter -- received permits in 1987 that now allow it to burn waste oil and "contaminated" soil to fuel its drying kilns. MFM recently applied for another permit which would allow it to burn increased toxic levels of contaminated soils and waste fuels, including coal tar and creosote. If successful in gaining this permit, Connett said this operation would in fact be a toxic waste handling, processing and disposal facility. But because it bills itself as a kitty litter manufacturing plant, the operation would not be required to meet the more-stringent EPA and DER pollution control requirements of a declared hazardous waste disposal facility. What this means is that toxic waste from all over the state, country and even foreign countries could be trucked to the plant located on CR-329 -- about 1.5 miles from North Marion Middle School -- either to be burned as a fuel or "decontaminated" by thermal processing.

Dr. Connett cited a similar operation which began in the mid-1980s in Amelia City, La. Marine Shale Processors purported to be in the business of safely decontaminating waste for sale as construction filler. We watched the slick videotaped advertisements as such. A check of the company's records revealed that MSP made profits of $22 million from accepting hazardous materials. The profit from the sale of construction filler totaled $11,000. Connett posed this question: can you determine the true nature of this company's business? A footnote to this story: a rare form of cancer in children is occurring in Amelia city at a medically astronomical rate.

Connett discussed particular dangers inherent in this type of incineration operation. First, *toxic metals such as lead and mercury cannot be destroyed by burning*. What happens is that they are reduced to very minute particles or gases and either released in the air or included in ash. The process of incinerating chlorinated substances along with carbon, hydrogen and oxygen has potential to produce furans and dioxins (including a particular 2,3,7,8 tetrachlorodibenzodioxin (TCDD)) which, according to Connett is 50,000 times more toxic than arsenic and is one of the most toxic substances ever made.)

MFM's proposed afterburner is claimed to remove 99.99 percent of certain substances. Connett warned not to be lulled into a false sense of security by regulations that mandate a 99.99 percent removal of certain substances, citing an operation in El Dorado, Ark., which has an astounding tested removal rate of 99.999998 percent. Yet, scientists have reported an abnormally high incidence of respiratory diseases there.

If released in the air, he said these substances eventually return to the local plant and water ecosystem. Mercury, furans and dioxins are fat soluable, carcinogenic (cancer causing) and highly persistent meaning they accumulate in increasing levels in the food chain. Connett cited an example from Holland, where a nearby incinerator is believed responsible for causing dangerous dioxin levels in dairy milk. Other examples were cited from Wales, Scotland and Kentucky (where one licensed hazardous waste company was caught disposing waste in the local landfill.)

If trapped in the ash, there is still the problem of disposal -- proper or otherwise. Other dangers associated with this type of operation include fugitive emissions from the plant, accidental leakages and spills, fires, explosions and traffic accidents.

During his presentation, Connett cited actions and responses from government and company officials, such as pointing to regulations and arguing micrograms or parts per million, which match rhetoric I've heard to date on the subject. After attending my first meeting on the subject at Fessenden Elementary School March 1, I was skeptical of We the People. In fact, my sympathy was toward MFM and its president, David Kibler. Today, I am personally convinced that this permit represents a clear and present danger to our health and our county's continued economic viability. Call it what you want -- a kitty litter plant or hazardous waste facility. Semantics are irrelevant. At this point, I would refer you to the attached list of 20 Questions. Are we willing to gamble our health and property investment because a company has the opportunity to make huge profits? Are we convinced of EPA and DER's abilities to monitor and enforce its regulations? Once approved, the likelihood of stopping the operation is virtually nil. I strongly urge each citizen to become as informed on this issue as quickly as possible.

Connet offered ideas pertaining to testing. As a starting point, he suggested testing human and animal blood for lead which is relatively quick, accurate and cheap. Perhaps this is something that the county health department could be brought into. A single sample test for dioxin costs approximately $1,000.

Connett summarized the situation thusly:

> *"You have something beautiful here. Beautiful green pastures, a unique thoroughbred horse industry, plus you have development. This is not a case of government and big business ganging up to hold down a small businessman. Rather, it's a case of a small industry truly threatening a large industry. People don't relocate here because of a kitty litter plant. If this plant applied to start operation today, it couldn't satisfy the necessary environmental impact statement. Any economic advantage gained by the continued operation or expansion of this plant will be absolutely dwarfed by losses caused by declines in property values, degradation of the thoroughbred industry and clean, desirable industries which ultimately will locate elsewhere because of it. A toxic dump is not the beginning of economic development. It's the end."*

In approximately 60 days, (May 15-17) a hearing concerning Mid-Florida Mining's application for a permit allowing the company to burn increasingly toxic contaminated soils will be held at the County Administrative Complex.

I offer this information as a concerned citizen who has taken time to independently and impartially examine the issues. I have no affiliation with either We the People... or Mid-Florida Mining.

Tony Burke
Ocala

Tony

Public Relations Director
MC School Board

Submitted by Dr. Kirk

Robert J. Murphy P.E., Ph D.

215 Bannockburn Ave.
Temple Terrace, FL. 33617

Consulting Engineer
(813) 985-8417

To: John K.
From: DBK
#

April 11, 1990

Mr. Richard Hancock
Executive Director
Florida Thoroughbred Breeders
Association
4727 N.W. 80th Ave.
Ocala, FL 32675

Dear Mr. Hancock:

RE: Evaluation of Mid Florida Mining Permit

1. The Mid-Florida Mining (MFM) permit intent provides for thermal processing of non-hazardous contaminated soil. The soil contaminants are to be limited to combustible petroleum or solvent materials and creosote. The system includes: material handling of contaminated and decontaminated soil; a thermal processing facility which includes a rotary furnace kiln to combust the contaminants in the soil and an afterburner incinerator to further combust any hydrocarbons in rotary kiln gases; and a baghouse filter system to collect particulate or dusts from the process. A flow diagram of the process is attached as an enclosure.

2. In the course of reviewing Mid-Florida Minings' (MFM) air pollution intent for permit issue during the last two months, they have proposed modifications that will significantly reduce potential emissions from the process. The nature of the process merits scrutiny from two perspectives. The actual air contaminants released to the atmosphere in handling materials and processing contaminated soil, and residues accumulated in the air pollution emission control devise which must be disposed. A discussion of these issues follows.

a.) <u>Air emissions.</u>

The air emissions from this process that may have major concern are sulfur dioxide, particulates and heavy metals, principally lead, that are components in the fuel and petroleum contaminated soil to be processed. MFM originally proposed to burn virgin fuel oil in their afterburner process and waste oil/solvents in rotary kiln. They have now proposed burning virgin fuel oil in both processes, which will reduce sulfur dioxide emissions to one-third the originally proposed levels. This was accomplished in light of our concern of burning waste oil fuels.

Likewise, the original proposal provided for concentrations of lead in the fuels and contaminated soil to levels of 500 parts per million. This was revised to 100 parts per million. It should be noted that the majority of lead will be retained on the particulate collected in baghouse filter. These particulates, with the decontaminated soil, are the residues requiring final disposal.

Therefore, the process air emissions, even though originally within regulatory limits, have been further reduced with these modifications in dealing with FTBA concerns on these matters.

b.) <u>Material handling.</u>

MFM anticipates that the contaminated soil to be processed may be super-saturated with liquid petroleum products. In such a case it may be necessary to blend the contaminated soil with locally available uncontaminated soil to facilitate processing and combustion of the materials. Such processing provides for the release of contaminants that are characterized as fugitive emissions. Although the emissions from such processing may be minimal, their magnitude and provision for their control has not been specified in the permit intent. It is anticipated that some particulate, as well as volatile hydrocarbons from the petroleum products, should be assessed for this aspect of the operation.

c.) Disposal of Residues.

As previously mentioned the final disposal includes the decontaminated soil and the baghouse filter residues. The original permit intent provided for independent handling and disposal of these materials. However, lead emission particulates will accumulate to higher concentrations in the baghouse filters residues than were found in the original materials. Consequently, MFM has now proposed recycling the baghouse residues into the contaminated soil as it is processed in the rotary kiln. It is therefore blended with final decontaminated soil. This also assures that all hydrocarbons are combusted that may remain in baghouse residue. The blended baghouse residue and decontaminated soil are then loaded through a ventilated hopper in to trucks which transport the material to MFM's mining site. The decontaminated material is wetted as it is loaded in truck and the trucks are covered during transport to mining site to control fugitive emissions. These measures all appear adequate.

The outstanding issue in disposal of residues is the manner of sampling the mixture of decontaminated soil and baghouse residues to assure it has been thoroughly decontaminated and does not itself represent a hazardous waste. Currently a composite sample is to be taken over an entire day's processing and analyzed. A more reliable method for sampling would be to take at least five grab samples per day and evaluate each independently. This would provide a statistical basis to evaluate results. Further, the final product testing should include a USEPA method to assess the toxicity of the residue to assure it does not constitute a hazardous waste.

Finally, since the disposal involves transport and handling of residues it would be prudent to collect samples and define background levels of air and soil contaminants that may evolve from the process. Such sampling should include sulfur dioxide, particulates and lead concentrations in the air, and lead in the soil. Sampling sites should include the area around the process and mining sites, as well as along the route of residue transport. Followup sampling should be periodically performed after operations begin.

d.) Summary/Recommendations.

MFM has addressed numerous issues in their proposal to deal with our concern's with their permit. These include: revision of fuel used in the process to limit emissions, limits on the amount of lead that will be allowed in the contaminated material and blending the baghouse residue with decontaminated soil to minimize potential lead accumulation in the residue.

I would not recommend that FTBA support the approval of a permit for operation of this facility unless the aforementioned matters are included in the permit conditions, and the following outstanding matters are addressed in the permit.

1) Fugitive air emissions in blending operations of the contaminated and uncontaminated soil require more comprehensive assessment, and control, if warranted.

2) Disposal of decontaminated soil and baghouse residues are well controlled. However, the provisions of sampling and analysis of the residues to assure destruction of contaminants and that the residue itself is non-hazardous should be expanded and specifically defined.

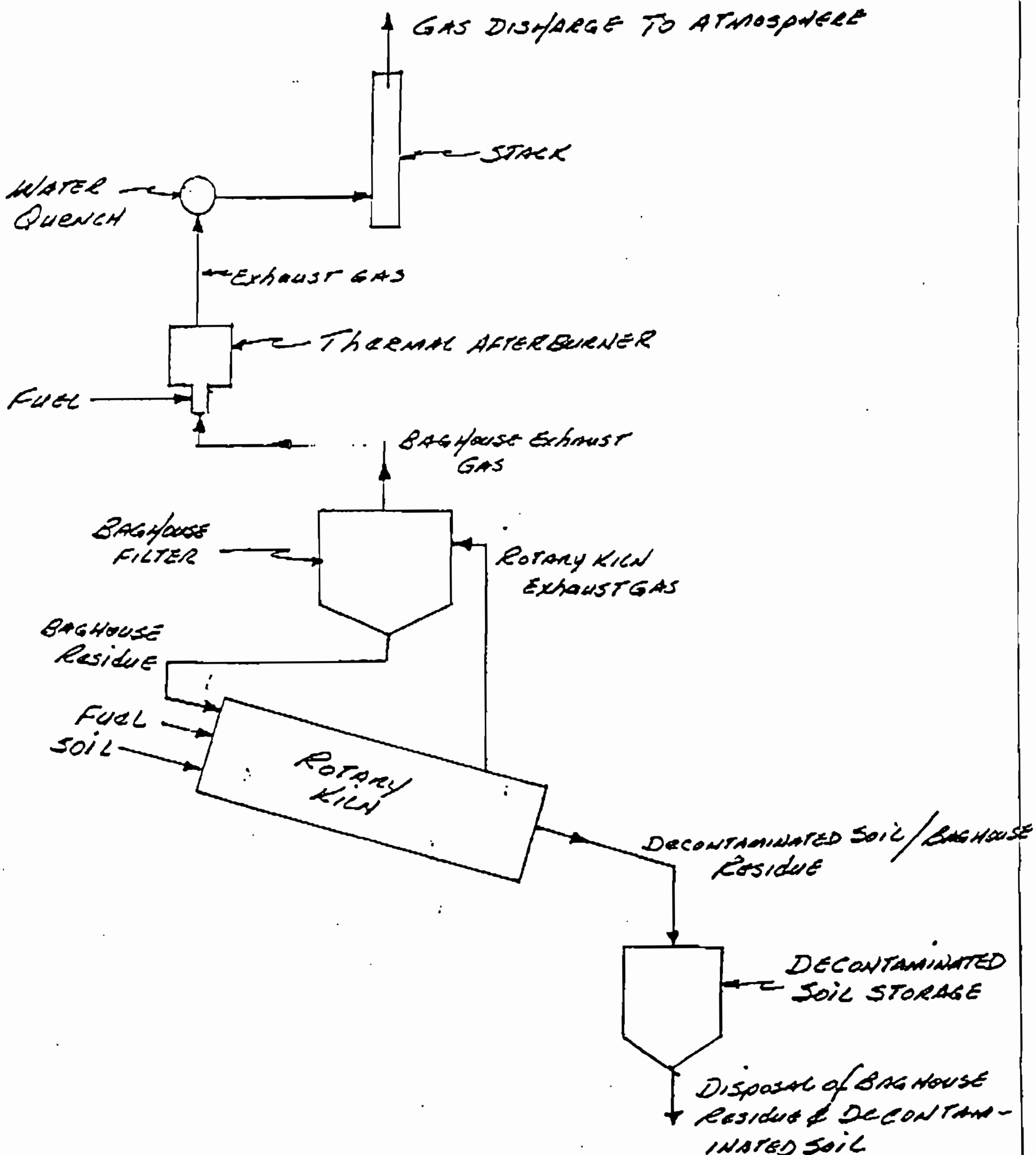
3) In order to assure no long term degradation of environmental quality occurs, monitoring should be performed in vicinity of the plant, mine and transport route to the mine. Background levels of contaminants should be defined before and periodically after operations begin. The air contaminants of interest are; sulfur dioxide, particulate and lead. The soil contaminant of interest is lead.

Sincerely,

Robert J. Murphy, Ph.D., P.E.
Consulting Engineer

Enclosure: Flow Diagram

RJM/sb



FLOW DIAGRAM

MFM THERMAL PROCESSING FACILITY

MFM

ENVIRONMENTAL

Explanation of Mid-Florida Mining's Afterburner Permitting Process

The Florida Department of Environmental Regulation (DER), on the advice of their engineers and scientists, is issuing Mid-Florida Mining a permit to install an afterburner unit that improves air quality by burning gases and eliminating odors. An afterburner can reasonably be compared to a catalytic converter on an automobile. Both serve the same purpose of reducing air emissions and creating a cleaner environment.

In DER's own words:

> The intent of the afterburner is to prevent possibly dangerous emissions from occurring. You should understand the operation of a rotary kiln which simply is a tilted rotating drum. The combustion zone is the lower end with the soil to be processed fed to the upper end. Due to rotation and tilt the soil progresses downward into increasing temperatures. Most contaminants in the soils are volatilized and driven off by the increasing temperatures and the flow of combustion gases into the atmosphere. In the proposed permit these gases will be passed through a fabric filter to remove particulates and then the gases will go to the afterburner where they will be held at a high temperature (approximately 2000 degrees Fahrenheit) for a long enough time to break down (or incinerate) the contaminants, controlling atmospheric pollution. Only clean fuel may be burned in the afterburner to maintain the high temperature.

Dr. Cornelius Link does not want the afterburner built and has initiated action challenging the DER and Mid-Florida Mining. (It is important to remember that while Dr. Link has made many wild and unsubstantiated statements about the afterburner and Mid-Florida Mining, <u>he has yet to present one shred of valid scientific evidence that challenges the safety of the after-burner.</u>) An administrative hearing will be held to decide whether DER and Mid-Florida Mining can build the afterburner. If DER and Mid-Florida Mining overcome this challenge, the afterburner will be built. If Dr. Link can show valid environmental reasons why the afterburner should not be built, the afterburner will either be redesigned to accommodate Dr. Link's suggestions or it will not be built. In such event, Mid-Florida Mining operations will continue in their present state as a clay mining and manufacturing facility that also thermally processes soil contaminated with petroleum products.

3300 Southwest 34th Ave., Suite 152 • Ocala, FL 32674 • 904/854-0070 • 1-800-877-0897

Mid-Florida Mining's Lowell manufacturing plant is a safe, efficient, and effectively run facility. It is fully permitted, licensed, and regulated by both DER and the Environmental Protection Agency. It is important to understand that over 90% of Mid-Florida Mining's business concerns the mining and manufacturing of various industrial and consumer clay products. Mid-Florida Mining also thermally processes contaminated soil. The afterburner will be used only when Mid-Florida thermally processes soils contaminated with hydrocarbon residue.

While the DER permit assumes that, in order to assess the worst case impact on air quality, Mid-Florida Mining would decontaminate soil and use the afterburner every available hour in a year, in actuality Mid-Florida Mining's soil decontamination and afterburner use will be much less than the permitted every available hour in a year. Recent events demonstrate Mid-Florida Mining's commitment to its base clay business in that recently the company became the cat litter supplier (in boxes) to every K-Mart store in the United States.

MFM

ENVIRONMENTAL

MFM Virgin Fuel Oil Procedures

MFM will burn only virgin fuel when processing contaminated soil. To ensure that virgin fuel and only virgin fuel will be burned, MFM will adopt the following monitoring and certification procedures.

MFM will dedicate, in its tank farm, one 35,000 gallon tank for the purpose of storing virgin fuel oil.

The virgin fuel oil will be transferred to a virgin fuel only burn tank (15,000 gallon capacity). This dedicated burn tank will supply the dryer/calciner and the afterburner combustion systems with the proper quality and quantities of virgin fuel oil when processing contaminated soils.

Each load of virgin fuel coming into our facility will be checked and verified by MFM personnel to ensure that the virgin fuel has met MFM standards of quality. Once inside MFM's plant, only trained and authorized MFM personnel will handle the virgin fuel. The virgin fuel, after certification, will be transferred to the dedicated burn tank only by MFM trained and authorized personnel.

Every load of fuel being transferred to the dedicated burn tank by MFM personnel will also be under the direct control of MFM's process supervisor. Each load will be checked by the process supervisor and he, as well as the MFM oil personnel, will certify by signature that each load has met MFM's internal standards of certification.

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MFM

ENVIRONMENTAL

Thermal Processing of Hydrocarbon Contaminated Soil From Receiving to Final Disposition at the Mine.

All soils coming into the plant contaminated with hydrocarbons are received and processed on an approval basis only. The contaminated material is, and has been, approved by testing laboratories that have determined the material has met DER requirements for the following criteria as far as heavy metals are concerned:

CONSTITUENT/PROPERTY	ALLOWABLE/LEVEL
Arsenic	5 PPM MAX
Cadmium	2 PPM MAX
Chromium	10 PPM MAX
Lead	100 PPM MAX
Total Halogens	4000 PPM MAX
PCB	*2 PPM MAX

*NOTE: This spec has been established by MFM Environmental. The State level is 40 PPM and the Federal EPA level is 50 PPM.

Prior to thermal processing, the contaminated material is screened and blended with our wet clay, (non-contaminated). Blending allows for a more effective and smooth combustion process and allows the metals in the contaminated soils to bind or fixate to the wet clay. Only clean clay, never baghouse dust, is used as the blending medium.

The clay-blended contaminated hydrocarbon soil material is fed into the thermal processing unit and the temperature of the material is raised from ambient temperature to a pre-established temperature range of 650 degrees F min. -- 1150 degrees F max. for the removal of the hydrocarbon compounds that are to be vaporized into the gas stream at approximately 130 degrees F-- 150 degrees F for most oil, diesel and gasoline laden materials.

The thermal processing system follows the standard procedure for any process unit operation relying upon the function of time and temperature to process the solid material and control the outlet gas stream requirements. The gas stream and the processed solids flow of material shall be reviewed in detail as follows:

GAS FLOW:

The process gas flow initially starts with the combustion primary air blower that provides the primary air source required for the actual combustion of the preheated fuel oil of the combustion burner system. The burner at this point releases the standard theoretical products of combustion into the gas stream and also is blended, just downstream from the combustion chamber, with the required secondary air that controls the actual inlet gas temperature to the process system.

The process system of the kiln being a counter-current operation, the highest gas temperature is in contact with the highest temperature of the solids establishing a large Delta T ( ) temperature difference between the two process streams.

The elevated temperature of the gas stream as it travels counter-current through the system is transfered to the solids causing the temperature of the hydrocarbons to also rise until they reach the volitalization temperature required in the thermal process operation.

The gas stream as it travels through the rotating kiln based on the internal design of the unit and predicated on the internal velocity of the gas stream, approximately 2% of the solids, based on inlet feed rate, are entrained in the outlet gas stream traveling downstream to the dry solids collector (bag house), where the solids are separated from the gas stream using the bag filters and the solids for the additional filtration media for the air/solids separation method.

The solids collected in the baghouse are conveyed to a rotary valve and transferred through a pneumatic transfer system to a plenium chamber section on the discharge hood of the dryer/ calciner for the purpose of recycling this fine material back into the process system for continual thermal processing. (This continual reprocessing of the baghouse solids is operational only during thermal processing.) Samples of this material are sent to a State certified laboratory for complete analytical data along with the analytical data of the purged material from the kiln being transported to our mine for land reclamation purposes.

The amount of solids in this final gas stream (which is always above the dew point) is always less then the DER requirement of .Ø8 grains/standard cubic foot of air at standard operating conditions.

SOIL PURGE: MATERIAL HANDLING, ROUTING FROM EXIT OF KILN TO MINE SITE

1.) Soil during purge leaves the drum via an enclosed chute at temperatures from 650 degrees F to +1150 degrees F.

2.) Soil then enters a 95 foot high bucket elevator which carries the material up and discharges the material down a separate 10 inch dia. pipe to a surge bin.

3.) After the material leaves the surge bin there is an enclosed hood that covers the open truck bed. This hood is fitted with a spray water nozzle cooling and de-dusting system, a series of small nozzles lining the inside of the hood area. The injected water cools the product and reduces dust emission. Also fitted in this hood transition is dust collection pipes that vent dust and steam to the collector. The load out trucks are monitored by personnel in the area. The condition of the bed load, is signed off on the load out person and the driver of the load, when the truck is filled to the correct level. The load out person shuts the purged material off the truck by a series of pneumatic valves. While the exchange of trucks are taking place, the small surge bin starts to fill thusly not having an interruption in the process. After the trucks are changed, the load out cycle restarts, then the newly loaded truck is washed and inspected before leaving the plant gate. The load in the truck is completely covered with high-temperature tarpolion. The entire bed of the truck is completely sealed with the exception of the tailgate which is hydraulically closed by extended closure arms to ensure total closure. (No truck leaves the plant without washing and inspection.

4.) After leaving the plant gate, the truck arrives at the mine site, approximately 7 miles N.W. of the plant down SR 329. Here the purged soil is stored in a prepared holding area. This area is clay based at an average of 20 feet thick. The purged soil is contained in this holding area until the following steps are taken:

4-1) Soil samples are taken during the entire run at the plant while trucks are being loaded. Samples are taken at the discharge end of kiln for temperature, automatically by control room instruments, and electronically chart recorded. Temperature is also manually recorded and charted by the sample taker. The samples are cooled and labeled and sealed in clean jars, with an I.D. number and time. These samples are delivered to an independent certified approved lab for complete analysis. Once the lab results are received and approved, the material may be moved out of the holding area.

4-2) If the customer does not have a need for the decontaminated soil to be returned to him, the cleaned, certified soil is put in a prepared burial area at the mine site. This site has a 2Ø foot minimum protective clay liner. The area is charted, recorded and sealed with a clay product cap.

4-3) All records of purge run and process variables of that run, are put into a contaminated soil beneficiation report. Both manual and electronically recorded data of every purge is retained by MFM.

BEST AVAILABLE COPY

MEMORANDUM

TO: Dr. Stephen F. Sundlof and Dr. Jerry Murphy

FROM: John Koogler and David Kibler

DATE: April 11, 1990

SUBJECT: Response to Several Recent Issues Regarding Soil Processing Activities

<u>Dr. Stephen F. Sundlof letter of March 23, 1990</u>

1. The Florida Ambient Air Quality Standard for lead is 1.5 micrograms per cubic meter, quarterly (3-month) average. The Florida Ambient Air Quality Standards for sulfur dioxide are 60 micrograms per cubic meter, annual average; 260 micrograms per cubic meter, 24-hour average; and 1300 micrograms per cubic meter, 3-hour average. The results of the air quality modeling attached hereto demonstrate that sulfur dioxide emissions from the MFM Lowell facility are well below these standards.

2. The deposition rate of lead in the first 1-inch of topsoil cannot be estimated with any degree of certainty at this time. As a point of reference, however, it can be stated that lead emissions from the MFM Lowell facility under present and proposed operating conditions will be in the range of 0.01 pounds per hour (see attached emission summary), or approximately 70 pounds a year, based on the assumption that the facility will operate 7,000 hours per year. As a point of comparison, it is estimated that in the mid-1970s, lead emissions in Marion County were in the range of 90-100 tons per year and, at the present time, lead emissions in Marion County are in the range of 80 tons per year. It has also been estimated that lead emissions from automobile traffic on Interstate 75 are in the range of 1,000 pounds of lead per mile of interstate per year. Compared with lead emissions from automobiles, the projected lead emission rate of 70 <u>pounds</u> per year from the MFM facility is not significant.

3. In worst case conditions, the highest short-term sulfur dioxide impact (3-hour averaging period) near the MFM facility will be in the range of 8-15 micrograms per cubic meter, depending on the fuel use and the type of operation (clay drying or soil processing). The impact analyses are summarized in the attached table.

As a point of comparison, the Florida Ambient Air Quality Standard for sulfur dioxide for the 3-hour period is 1300 micrograms per cubic meter. This is an air quality standard designed to protect human health and welfare (vegetation, materials and domestic animals). The expected impact of MFM emissions is approximately 1/100th of the air quality standard.

Undated FTBA (Florida Thoroughbred Breeders Association) letter to FDER (prepared in early April 1990)

1. Contaminated soils will be blended with clean clay when soils containing abnormally high levels of hydrocarbon products are received. Generally, soils requiring blending will be soils that have been reclaimed as a result of an emergency spill response or when soils containing heavier fuel oils are received. The high hydrocarbon levels that could be encountered in these fuels result in unstable combustion within the dryer and require blending to eliminate this unstable combustion condition.

   When the soils are blended, fugitive emissions, particulate matter and organic compounds are non-existent. The moisture content of soil that is received (usually in the 7-15 percent range) will eliminate the emission of fugitive particulates. The fact that the soils which will require blending will generally contain hydrocarbon products that have low vapor pressures will assure that fugitive emissions of organic compounds are minimal.

   MFM has blended several types of soil in the past and has first-hand operating experience that fugitive emissions are not a problem, either on-site or off-site.

2. A concern has been expressed that there will be a build-up of lead in the dust collected in the baghouse. This is not true. Because of temperatures achieved in the dryer while processing contaminated soil, virtually no lead will be vaporized and driven from the soil. As a result, the lead concentration in the dust collected in the baghouse will be essentially the same as the lead concentration in the soil that is being processed. Since only virgin fuel will be burned in the dryer, there is no possibility that the lead concentration in the baghouse dust will be increased by lead from the fuel being burned. As a further protection, the baghouse dust is re-injected back into the dryer for further decontamination and incorporation with the processed, decontaminated soil.

4. There has also been concern raised regarding the effect of introducing baghouse dust into the dryer on the performance of the baghouse. MFM has first-hand operating experience that demonstrates that the baghouse dust can be re-injected into the dryer for decontamination and incorporation with the processed decontaminated soil without affecting the performance of the baghouse. Visible emissions observations conducted on the baghouse stack while the baghouse dust was re-injected showed that the opacity of emissions from the baghouse remained at zero percent.

5. As stated in response to a previous concern, the lead emission rate of 0.01 pounds per hour from the MFM facility is at least several thousand times less than lead emissions from automotive traffic in Marion County. Because of the minimal amount (70 pounds per year, at most) of lead emissions from MFM, no environmental impact is expected; either over the short-term or long-term.

BEST AVAILABLE COPY

MFM EMISSION RATES WHILE BURNING VIRGIN FUEL IN DRYER AND AFTERBURNER

Particulate Matter Emissions

Present Permit	-	15.0 lb/hr
While Soil Processing @ 0.08 gr/scf corrected to 50% excess air	-	17.4 lb/hr

SO2

Present Permit	-	52.5 lb/hr
While Soil Processing		
Virgin fuel in afterburner @ 0.3 % Sulfur	-	18.0 lb/hr
Virgin fuel in dryer @ 0.3% Sulfur	-	12.2 lb/hr
TOTAL	-	30.2 lb/hr

NOx

Present	-	29.4 lb/hr
While Soil Processing	-	37.4 lb/hr

CO

Present	-	0.8 lb/hr
While Soil Processing	-	2.8 lb/hr

HCl

Present	-	19.2 lb/hr
While Soil Processing		
Virgin fuel in afterburner	-	0.0 lb/hr
Soil @ 100 mgCl/kg soil	-	6.8 lb/hr
Virgin fuel in dryer	-	0.0 lb/hr
TOTAL	-	6.8 lb/hr

Lead

(At 99.9% Control in Baghouse)

Present with 100 ppm lead in dryer feed	-	0.01 lb/hr
While Soil Processing		
Virgin fuel in afterburner	-	0.00 lb/hr
Soil with 100 ppm lead	-	0.01 lb/hr
Virgin fuel in dryer	-	0.00 lb/hr
TOTAL	-	0.01 lb/hr

MFM
Soil Processing
Air Quality Impact Analysis with Afterburner
Exhaust Gas Flow Rate per 9/11/89 Letter to DER

Model - ISCST
Met Data - Orlando (1976)
Downwash accounted for
Modeled Emisson Rate - 10.0 g/sec.

Model Impacts

Time Period	Impact at 10.0 g/s emissions	Distance
Annual	0.5 ug/m^3	2000 meters
Quarterly	1.0 ug/m^3	2000 meters
24-hour	5.7 ug/m^3	2000 meters
8-hour	10.7 ug/m^3	1000 meters
3-hour	21.0 ug/m^3	1000 meters
1-hour	28.5 ug/m^3	1500 meters

IMPACT ANALYSIS WITH VIRGIN FUEL IN DRYER AND AFTERBURNER

	Expected Impact (ug/m^3)		Air Quality	Significant
	Present	Afterburner	Std (ug/m^3)	Impact (ug/m^3)
SO_2				
Annual	0.3	0.2	60	1
24-hour	3.8	2.2	260	5
3-hour	13.9	8.0	1300	25
NOx				
Annual	0.2	0.2	100	1
Particulate Matter (PM10)				
Annual	0.1	0.1	50	1
24-hour	1.1	1.2	150	5
Lead				
Quarterly	0.0001	0.0001	1.5	-
HCl				
Annual	0.12	0.04	7	-
3-min	11.31	4.00	150	-

M E M O R A N D U M

TO: David Kibler

FROM: John Koogler

SUBJECT: Preliminary Review of Letter Report of Jerry Murphy to the Florida Thoroughbred Breeders Association

DATE: March 9, 1990

I have reviewed Dr. Murphy's preliminary report dated March 2, 1990, to the Florida Thoroughbred Breeders Association (FTBA). Following are my preliminary comments on various issues contained in Dr. Murphy's cover letter and his three pages of background and supporting information.

1. Dr. Murphy stated that because the facility did not fit into a well-defined category, emission limiting standards were not pre-defined by FDER and were consequently negotiated. There are several facilities permitted by FDER that do not fit into well defined categories and require "negotiated" emission limiting standards. In the cases where emission limits are established on a case-by-case basis, the emission limitations generally reflect Best Available Control Technology or the most stringent of regulations applicable to similar facilities. In the case of the MFM afterburner, we based the permit on a 99.99 percent destruction of all volatile organic compounds entering the afterburner. According to data developed by EPA, this destruction can be achieved with a temperature of 1450-1500°F and a residence time in the afterburner of 1.0 seconds. We

KOOGLER & ASSOCIATES

designed our afterburner for an operating temperature of 2000°F and a residence time of 2.0 seconds. As a result, the efficiency of our afterburner as it will actually operate will be 100 to 1,000 times more effective than the "worst case" conditions (99.99 percent efficient) we assumed for permitting.

For particulate matter control, we are using a baghouse to control particulate matter emissions from fuel combustion in the dryer and from the entrainment of particles of contaminated soil. The efficiency of the baghouse for controlling these particles is 99+ percent and baghouses are routinely considered Best Available Control Technology by FDER and EPA.

The sulfur dioxide that will be emitted from the dryer/afterburner is minimized by using low-sulfur fuel. Even though we assumed a fuel with 1.2 percent sulfur in the dryer and 1.0 percent sulfur in the afterburner for permitting purposes, actual fuel sulfur contents will routinely average 20 to 40 percent of these values.

In summary, the "negotiated" emission limits for the dryer/afterburner represent Best Available Control Technology or standards that represent some of the most stringent that are applied to similar facilities by FDER.

2. Dr. Murphy states that the "concept that this (the soil processing operation) is not hazardous waste incineration is one such judgment

call." The definition of hazardous wastes and the incineration of hazardous waste are defined by EPA and FDER taking into consideration the risks associated with such wastes and incineration of the wastes. MFM has stated, and permit issued by FDER requires, that no hazardous wastes will be introduced into the dryer/ afterburner system.

3. Regarding the definition of hazardous wastes, Dr. Murphy states an opinion that is contrary to rules established by EPA and FDER and to interpretations of rules by these agencies. Dr. Murphy states that soils contaminated at five percent with creosol or coal tar cannot credibly be excluded as a hazardous waste. Just because Dr. Murphy is of this opinion, does not change the well thought out and scientifically based rules and interpretations that have been put forth by EPA and FDER.

In the statement of this opinion, Dr. Murphy also incorrectly identifies creosol (correct spelling cresol) as creosote. In addressing cresol, Dr. Murphy states that because of the provision to have a bypass stack that functions only if there is a malfunction in our quench system, there is a potential for a short-term, high, level exposure to cresol downwind of the facility. It is apparent is that Dr. Murphy does not recognize that the bypass stack will operate only when our water quench system fails; not when the afterburner fails. The purpose of the bypass stack is to exhaust the 2000 degree gases from the afterburner to the atmosphere if the water quench system fails rather than to allow these hot gases to damage the main stack. Once the bypass stack opens, the entire system (dryer and afterburner) is shutdown and remains down until all operational problems are resolved. Even with the fuel to the afterburner shut-off, any organic compounds that might be generated by the hot residual contaminated soils remaining in the dryer will be destroyed by the heat retained in the refractory of the afterburner.

Regarding the "high-level exposures downwind of the facility," we demonstrated to the satisfaction of FDER that ground-level concentrations of all organic compounds during our trial burns in 1988 were well below exposure limits that would result in any detrimental effects. This was true even though the trial burns were conducted with no afterburner. Dr. Murphy is concerned about "high-level exposure" during a period of a few minutes during which gases may be exhausted through the bypass stack with the afterburner operating. It is quite apparent that Dr. Murphy does not understand the process that we have designed.

4. Dr. Murphy's comments on significant concentrations of metals such as lead, cadmium, mercury and arsenic in the soil are unfounded. If contaminated soil has significant quantities of any of these substances, the soil will be classified as a hazardous waste and would not be processed by MFM. It is true that some of the soil processed by MFM may contain small quantities of these metals or

other metals. Many of these metals naturally occur in virgin soil in the central Florida area (including Ocala). One factor Dr. Murphy does not recognize is that the particles of the soil that are entrained in the exhaust gases of the dryer must first pass through the baghouse before passing through the afterburner and then being discharged to the atmosphere. The baghouse is 99+ percent effective for removing the particles. Furthermore, the trial burn conducted by an EPA contractor at MFM in February 1984 showed that 99.94 percent of the lead introduced to the kiln system would be captured and not released to the atmosphere (We assumed only a 90 percent control for permitting purposes). This same test showed that 99.92 percent of all metals introduced to the kiln system would be captured and not released into the atmosphere.

Dr. Murphy's comments about not having uniformly blended soil (soil blended to reduce the concentration of metal in the feed material) is without basis. First, the environmental effects of metals (at concentrations we are talking about) are based on annual average exposure. Thus, even though the soil may not be uniformly blended, the long-term average emission rate is going to be reduced by the fraction of clean soil blended with the contaminated soil. Secondly, clean clay will be blended with the contaminated soil and it has been fairly well established by others that there is an affinity between clay and the metals which will bind the metals to the processed soil and prevent their release.

5. Dr. Murphy's statement that blending to lower the rate at which heavy metals are fed to the kiln does not alter the total mass of material that will be processed is also not accurate. For example, let's assume that the system can operate 4000 hours a year processing contaminated soil, with the remaining time allotted to only clay products and maintenance. If the soil to be processed can be handled without blending (40 tph x 4000 hr), 160,000 tons of soil could be processed a year. If the soil had to be blended 50/50 with clay, only 80,000 tons of soil could be processed a year and the total mass of contaminants processed would certainly be reduced.

Regarding the total mass of heavy metals that might be discharged from the system, we estimated for permitting purposes that with soil decontamination occurring 8300 hours a year, the lead emission rate, under worst case conditions, would be 1.7 tons per year. During 1975, there were 86,717 vehicles registered in Marion County and it is estimated that these automobiles would have released about 195,000 pounds of lead a year. Between 1975 and 1978, the registered automobiles (139,000) would have emitted about 149,000 pounds a year of lead and, currently, the registered automobiles (242,544) emit about 160,000 pounds of lead per year. Compared to these emission rates, the 1.7 tons per year that we estimate seems awfully insignificant.

6. Dr. Murphy's statement regarding the impact of heavy metals deposited on land and forage also appears to be made with no

critical thought. As an example, refer back to the comments regarding lead emissions in my previous comment and ask if there have been any problems with humans or animals over the past several years as a result of lead emissions from automobiles. His comments regarding exposure of these animals to cresol should also be considered in light of the fact that many horses gnaw on creosote fence boards and graze on grass grown in creosote-soaked soils under fences.

7. In the background material it is stated that particulate matter emissions are not mitigated by control equipment. The system is equipped with a baghouse that is 99+ percent effective; or Best Available Control Technology.

8. The comment about increased ambient sulfur dioxide levels is also unfounded. For example, ambient sulfur dioxide levels in the Lexington, Kentucky area (outside of the city) are in the range of 16 micrograms per cubic meter, annual average,; 73 micrograms per cubic meter, 24-hour average; and 117 micrograms per cubic meter, three-hour average. The sulfur dioxide levels we project (in the immediate vicinity of MFM) are 4 micrograms per cubic meter, annual average; 48 micrograms per cubic meter, 24-hour average; and 177 micrograms per cubic meter, three-hour average; and these are projected using absolute worst-case sulfur dioxide emission rates and worst-case meteorological conditions.

March 27, 1990

Mr. Norman H. Nosenchuck, P.E.
Director of the Division of Solid Waste
New York State Department
of Environmental Conservation
50 Wall Road, Room 208
Albany, New York 12233

Dear Mr. Nosenchuck:

MFM Industries, located in Ocala, Florida, is the parent company of MFM Environmental and Mid-Florida Mining. We mine and manufacture clay products for various industrial, environmental and consumer uses. Cat litter is our primary consumer product. We also process non-hazardous soil contaminated by petroleum products.

Last fall we received from the Florida Department of Environmental Regulation a notice of intent to issue a permit to build an afterburner that would allow us to treat emissions from thermally processed hydrocarbon contaminated soils. (See enclosure). The afterburner will remove 99.99 percent of all potentially harmful emissions.

A small group of citizens organized to oppose our permit. An administrative hearing is scheduled in the middle of May before an administrative law judge to present any and all experts and evidence on the process.

First, we would like to assure you that we do not object to responsible dialogue concerning the DER's intent to issue a permit. The opposition, however, does not appear satisfied with the formal hearing process. They appear to want to circumvent the legal process by creating fear in the community. They are doing this through half truths, untruths and totally unsubstantiated claims.

The most recent tactic they employed was inviting Paul Connett to speak to a group of local residents. Mr. Connett was styled in the press as an "internationally known and respected expert" on waste storage and incineration and a member of a New York State solid waste advisory panel.

We have included a summary of his talk in front of this group. The summary is self explanatory. In this talk, Mr. Connett implies that state agencies are not competent to do their jobs and that engineers and experts are deceiving the public. Mr. Connett makes specific reference to not only opposing our permit but trying to shut our plant down completely.

We have had several conversations with Bob McCarty of your office and write this letter at his suggestion. We would appreciate your impression of Mr. Connett as well as a description of his relationship with the New York State government. We would like to know if New York considers him a competent advisor and expert. We would also like to know how New York feels about incineration in general and what steps if any the state is taking to approve or promote this process.

We intend to report back to our local officials on what we find from you in order to allay some of the fear and misinformation we feel has been generated. We include background material on both Mr. Connett's visit and our permit in general. If you have any comments or questions please let me know. We deeply appreciate your help in this matter.

Sincere thanks,

John F. Mizroch
General Counsel

JFM:lfw

Enclosures

File Copy

LAW OFFICES

HOLLAND & KNIGHT

1401 Manatee Avenue West
P. O. Box 241
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(813) 747-5550
Fax (813) 748-6945

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Fax (305) 463-2030

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(904) 353-2000
Fax (904) 358-1872

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Fax (904) 224-8832

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H&K Mia
Telex 52-2233 Miami

888 Seventeenth Street, N.W.
Suite 900
Washington, D.C. 20006
(202) 955-5550
Fax (202) 955-5564

Please reply to:

Tallahassee
April 6, 1990

VIA HAND DELIVERY

RECEIVED
APR 06 1990
DER - BAQM

Douglas MacLaughlin, Esquire
Florida Department of Environmental
  Regulation
2600 Blair Stone Road
Twin Towers Office Building
Tallahassee, Florida 32399-2400

Re: MFM Industries, Inc. - Notice of Intent to Issue

Dear Doug:

As we discussed at our meeting yesterday, I have enclosed for your review a copy of the procedures that MFM will employ to ensure that virgin fuel oil is segregated from other types of fuel for the kiln and afterburner.

Please let us have your comments at your earliest convenience.

Sincerely,

HOLLAND & KNIGHT

[signature]

Lawrence N. Curtin

4-11-90

LNC/rt
Enclosure

cc: David Schwartz, Esquire
Gary Smallridge, Esquire
Mr. Mike Harley
(with enclosure)

~~CHF~~, CHS

FYI. Initial and return to Patty for filing.

14633-54 4690a:311

CHF/JP/BT each
Chuck Collins - Cent. Dist } 4-11-90 Ran

cc'd:
JP
BT
Chuck Collins
MH
File

[signature]

MFM

ENVIRONMENTAL

MFM Virgin Fuel Oil Procedures

MFM will burn only virgin fuel when processing contaminated soil. To ensure that virgin fuel and only virgin fuel will be burned, MFM will adopt the following monitoring and certification procedures.

MFM will dedicate, in its tank farm, one 35,000 gallon tank for the purpose of storing virgin fuel oil.

The virgin fuel oil will be transferred to a virgin fuel only burn tank (15,000 gallon capacity). This dedicated burn tank will supply the dryer/calciner and the afterburner combustion systems with the proper quality and quantities of virgin fuel oil when processing contaminated soils.

Each load of virgin fuel coming into our facility will be checked and verified by MFM personnel to ensure that the virgin fuel has met MFM standards of quality. Once inside MFM's plant, only trained and authorized MFM personnel will handle the virgin fuel. The virgin fuel, after certification, will be transferred to the dedicated burn tank only by MFM trained and authorized personnel.

Every load of fuel being transferred to the dedicated burn tank by MFM personnel will also be under the direct control of MFM's process supervisor. Each load will be checked by the process supervisor and he, as well as the MFM oil personnel, will certify by signature that each load has met MFM's internal standards of certification.

3300 Southwest 34th Ave., Suite 152 • Ocala, FL 32674 • [illegible]

For Routing To Other Than The Addressee

To: ______ Location: ______
To: ______ Location: ______
To: ______ Location: ______
From: ______ Date: ______

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

Interoffice Memorandum

TO: Dale Twachtmann

FROM: Steve Smallwood

DATE: March 12, 1990

SUBJ: Mid Florida Mining's Permit Status

Mid Florida Mining (MFM) requested a permit on October 24, 1988 to use their No. 1 kiln to decontaminate soils containing petroleum products which were not listed as hazardous wastes under the Resource Conservation and Recovery Act (RCRA) regulations. It was determined that an afterburner fired by clean fuels should be installed to insure the destruction of the contaminants which would be evaporated from the soil.

The revised Preliminary Determination and Draft Permit was issued on October 2, 1989. As of this date, the required proof of publication has not been received by the Department. Dr. Cornelius Link, a resident who lives near MFM, has requested an administrative hearing to contest the issuance of the permit. The hearing has been scheduled for May 15, 16 and 17, 1990 in Ocala. The first two sets of interrogatories by the Plaintiff, Dr. Link, did not directly impact the Division of Air Resources Management. The first were directed to MFM and the second set were addressed to RCRA issues.

The U.S. EPA, by letter dated February 8, 1990 (attached), has determined that when decontaminating soils through the No. 1 kiln, MFM may not use hazardous waste fuels or off-specification used oil as the kiln fuel without upgrading the kiln-afterburner system to meet the hazardous waste incinerator requirements and obtaining the appropriate RCRA permits.

A meeting between the Division of Waste Management and MFM is planned for early next week to relay this finding to MFM and discuss the potential impacts to the proposed afterburner permit.

SS/JP/plm

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

RECEIVED

FEB 12 1990

HAZARDOUS WASTE
PERMITTING

FEB 08 1990

Mr. Satish Kastury
Environmental Administrator
Hazardous Waste Regulation
Florida Department of Environmental
Regulation
Twin Towers Office Building
2600 Blair Stone
Tallahassee, Florida 32399-2400

RE: Thermal Processing of Soils, Sludges, and Still Bottoms in
Rotary Kiln/Afterburner System
Mid Florida Mining Company
EPA I.D. No. FLD 991 275 355

Dear Mr. Kastury:

It has recently come to our attention that Mid Florida Mining has applied to the Florida Department of Environmental Regulation's (FDER) Division of Air Resources Management for a permit to construct an afterburner as an addition to the currently operated rotary kiln clay dryer. This rotary kiln/afterburner system will then be used for the thermal destruction of volatile and semi-volatile organic compounds in soils, sludges, and still bottoms containing hydrocarbon products. The Draft Air Permit clearly states that these wastes will be non-hazardous. However, we are concerned about the effect of these activities on the facility's current standing under the Resource Conservation and Recovery Act (RCRA) regulations.

Mid Florida Mining currently has an FDER-issued RCRA permit for the storage of hazardous waste fuels prior to burning them in the rotary kiln for energy recovery. It was determined that the rotary kiln met the definition of an industrial furnace in 40 CFR §260.10 and, therefore, did not require a RCRA permit. An industrial furnace is defined as an enclosed device which is an integral part of a manufacturing process.

From reviewing the FDER's Draft Air Permit, it appears that of the 8,760 potential operating hours per year, Mid Florida Mining will be allowed to conduct soil decontamination for 8,300 hours, or approximately 95% of the operating time (see enclosure). The primary purpose of the unit will then be for incineration of the contaminated media, rather than use as an industrial furnace.

This distinction is reflected in the FDER Air Division's "Technical Evaluation and Preliminary Determination (Amended)", dated September 29, 1989. When operating the rotary kiln/afterburner system as a two-chamber incinerator, the Source Classification Codes are "Incineration-Multiple Chamber" and "Incineration-Sludge." When operating the rotary kiln only, the Source Classification Codes are "In-Process Fuel Use-Residual Oil-General" and "Mining and Quarrying of Nonmetallic Minerals-Ore Dryer."

Since 40 CFR Part 266 limits the burning of hazardous waste fuels and off-specification used oil to boilers and industrial furnaces only, the burning of such materials in the rotary kiln/afterburner system when it is used as an incinerator would be in violation of these regulations.

We suggest that Mid Florida Mining be contacted to determine whether their proposed operating practices are as we have interpreted. If so, the facility should be informed that hazardous waste fuels and off-specification used oil may be burned in the rotary kiln only when it is being used as an industrial furnace, i.e., when manufacturing clay aggregate. When used as a solid waste incinerator, hazardous waste fuels and off-specification used oil may <u>not</u> be burned in <u>either</u> the rotary kiln or the afterburner without first obtaining a RCRA permit for operation of a hazardous waste incinerator.

Please copy my office on any correspondence between the FDER and Mid Florida Mining regarding this issue. Should you have any questions, please contact Robin Mitchell at (404) 347-3433.

Sincerely yours,

James H Scarbrough

James H. Scarbrough, P.E.
Chief, RCRA Branch
Waste Management Division

Enclosure

cc: Laxsamee Levin, FDER, Central District

ROBIN MITCHEL

To Steve S.,

From Dale Twachtmann

Date 9 March 90

Prepare me a one-page memo on the present status of the MFM "afterburner" application (and maybe a little history) so that I can send a copy of the memo to some opponents of the permit that are calling me about it.

I promised them I would get an up-to-date reading.

DHT

To: File

TL

From: Tom Conrardy

Date: 11/29/89

Subject: Rationale for heavy metals criteria in the proposed sludge rule, Rule 17-640, F.A.C.

I. Maximum Cumulative Site Limitations

The primary basis for establishing criteria for heavy metals in the proposed sludge rule is found in the EPA Process Design Manual for Land Application of Sludge, 1983. This document recommends limitations for the maximum cumulative amounts of heavy metals which should be land applied on a site. This is considered a site's lifetime capacity and may take several or many years to attain, depending on the concentration of heavy metals in the sludge and the rate at which sludge is land applied. Excerpts from the EPA manual which explain this basis are in attachment A. Five metals are included with varying loading levels. The loading levels were established based on various limiting affects which include health risk concerns and phytotoxicity to plants. EPA's recommendation provides for a range of cumulative site capacity values which are a function of soil cation exchange capacity. However, since Florida's sandy soils typically have low cation exchange capacity, we have selected the lowest range of values for cumulative site limitations:

Metal	Maximum lbs/acre
Cadmium	4.4
Copper	125
Lead	500
Nickel	125
Zinc	250

This criteria therefore has been established in the proposed rule as the maximum allowable loading rates for land application of sludge (17-640.700(4)(d)). The rule includes recordkeeping requirements to keep track of the amounts of sludge and heavy metals applied annually.

II. Maximum allowable heavy metal concentrations

Though the most significant concern with heavy metals in sludge is the accumulated quantities on a land application site as discussed above, another standard has been used by some states; maximum allowable concentration of heavy metals in sludge. There are several reasons for establishing such limitations. This approach is relatively easy to monitor and has the advantage of encouraging pretreatment to remove contaminants from the wastewater stream. Also when heavy metals appear in relatively high concentrations in sludge it is a likely indicator of significant industrial activity which is adversely affecting sludge quality. This is a concern because of the possibility of wide fluctuations in heavy metals concentrations which are not indicated by periodic analysis, and also the likelihood that other contaminants not analyzed may be present in concentrations of concern. Therefore, though there are no direct health affects associated with the proposed concentration limits for "Sludge suitable for land application" (17-640.700(3)), it is considered prudent to establish such limits. There are over twenty states which have established maximum concentration limits for sludge (attachment B). It is estimated that less than 1/2 of one percent of Florida sludge generators will be prevented from applying sludge due to these limitations.

The concentration levels of individual metals which constitute a "safe" sludge, and which metals should be included, is, and has been, a topic of considerable debate. Attachment B shows the range of contaminants and values which are utilized by various states. EPA is currently involved in a significant research and evaluation process to develop heavy metals limitations for their proposed national sludge standards. EPA is receiving considerable technical support from experts on sludge health risks nationwide. The EPA standard is due to be promulgated in October of 1991. The Department will closely monitor the EPA research effort to stay abreast of the most current information on health effects due to heavy metals and revise the heavy metals criteria of this rule accordingly.

III. Distribution and Marketing of Residuals

This proposed rule contains a special category for highly stabilized sludge products which are sold or given away to the public or applied in areas accessible to the public. Such residuals products may be distributed in the marketplace in a variety of manners, from retail sales of individual bags to the public for use around the home, to bulk shipment to nurseries and large agricultural operations. Because of the nature of the distribution and use of these products, it is not possible to track information on heavy metals which are accumulating on application areas. For this reason it is considered prudent to establish conservative maximum contaminant concentration limits. These limits should be set at a level such that the maximum loading limits identified in section I of this memo would not be exceeded under any reasonably anticipated application scenario. As discussed above, there is no firmly established consensus of which metals should be included in this criteria and what the concentration limits should be. The EPA 503 regulation, "Standards for the Disposal of Sewage Sludge" should provide criteria for sludge to be Distributed and marketed which have a sound technical basis and are generally accepted among sludge experts. However, we must establish standards for the Florida sludge rule for the interim period before EPA's rule is promulgated in 1991.

The criteria in the existing rule for Grade I sludge were evaluated for suitability to serve this purpose. The following assumptions were made in evaluating these criteria:

- Residuals are applied at 3 dry tons/acre/year
- Project life (application period) = 20 years.

Heavy metal	Rule 17-7 Grade I limits (mg/kg)	lbs/acre/year applied based on 3 tons/acre	total accumulated in 20 years (lbs/acre)	EPA recommended site limits (lbs/acre)
Cd	30	.18	3.6	4.4
Cu	900	5.4	108	125
Pb	1000	6	120	500
Ni	100	.6	12	125
Zn	1800	10.8	216	250

This analysis demonstrates that application of sludge with these heavy metals concentrations, at average agronomic rates for 20 years would not result in any of the cumulative heavy metals limitations recommended in part I of this memo being exceeded. Using these limitations has an additional advantage in that they are familiar to most people who have used sludge under the standards of the existing sludge rule, Rule 17-7, Part IV, F.A.C.

These values have been included in section 17-640.850 of the rule as the maximum allowable contaminant levels in sludge which is to be distributed and marketed.

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Attacnment A

6.3.4 Cadmium

From a human health standpoint, Cd is the sludge-borne metal that has received the greatest attention. It has been estimated that the current dietary intake of Cd by the U.S. population is less than 50 percent of the limit set by the World Health Organization, and that increased Cd levels are sometimes observed following application of sludges to soils. Cd contained in the diet, whether derived from soil or sludge sources, accumulates in the kidneys, and may cause a chronic disease called proteinuria (increased excretion of protein in the urine).

It is difficult to predict the effect of sludge application on Cd in the human diet for the following reasons:

- Crops vary markedly in Cd uptake (e.g., leafy vegetables are significantly higher in Cd than cereal crops).
- Cd uptake by crops is dependent on soil properties and the amount of Cd applied.
- The Cd content of the current human diet is not accurately known, and varies with each individual's diet preferences.
- Projected increases in dietary Cd due to sludge utilization are strongly influenced by the proportion of land treated with sludge, the types of crops grown, soil properties, and other factors.

The reader is referred to recent publications discussing the uptake of Cd by crops (14) and the impact of sludge application on dietary Cd (15). Table 6-1 summarizes relative accumulation of Cd in common food crops.

The "Criteria" (10) specify interim final limits for annual and cumulative amounts of Cd applied to different crops, and require that soil pH be maintained at 6.5 or above. These regulations were developed from considerations of allowable increases in dietary Cd for a worst case situation, e.g., a vegetarian growing 100 percent of his food on an acid, sludge-treated soil. Even though application of most sludges will increase the Cd content of some crops, the regulations were designed to limit the increases to a level where no adverse effect on human health would result. The crop Cd concentrations of concern to human health are far below those where Cd decreases crop yields (i.e., phytotoxicity from Cd), so phytotoxicity does not offer protection against excessive levels of Cd in crops. Some states have adopted more conservative limitations on total Cd applications to cropland, so it is imperative to consult state regulations when designing a specific system.

6.3.5 Lead, Zinc, Copper, and Nickel

In addition to Cd, the cumulative amounts of Pb, Zn, Cu, and Ni applied to soils in sludge can be used to determine the number of years that sludge can be utilized. The recommendations in Table 6-2 for Pb, Zn, Cu, and Ni were developed through the joint efforts of researchers in various Agricultural Experiment Stations, U. S. Department of Agriculture, and EPA, and were adopted as guidelines by EPA in 1977 (6). Some states have developed regulations which are very similar.

Limitations on total metal additions to soils are needed to protect soil productivity and animal health. The majority of crops do not accumulate Pb, but there is concern regarding the potential ingestion of Pb and possibly other trace elements (Cu, Se, Mo) by animals grazing on sludge-contaminated forages and indirect consumption of soil. The surface application of sludge on forages can lead to some sludge adhering to the foliage, resulting in direct consumption by grazing animals. Furthermore, raindrop splash can cause contamination of foliage with soil-sludge materials, and animals typically consume some soil when grazing. The total amounts of Zn, Cu, and Ni applied are limited, because crop yields will decrease (phytotoxicity) if excessive amounts of these metals are added to soils. In general, Zn, Cu, and Ni will be toxic to crops before their concentration in plant tissues reaches a level that poses a problem to human or animal health. The cumulative metal limits (Table 6-2) assume that soil pH is maintained at 6.5 or above during and after sludge application.

These cumulative metal limits are a function of soil CEC. The use of soil CEC in establishing metal limits does not imply that metals added to soils in sludge are retained by the exchange complex as an exchangeable cation. It has been shown experimentally that nearly all metals in sludge-amended soils are not present as an exchangeable cation (i.e., exchangeable with a neutral salt). Thus, CEC was chosen as an indicator of soil properties, since it is easily measured and related to soil components that minimize plant availability of sludge-borne metals in soil. In general, the CEC categories of <5, 5-15, and >15 meq/100 g correspond to sands, sandy loams, and silt loams, respectively; however, regional differences in this relationship occur.

Sludge applications should cease when any single metal limit is attained (see Table 6-2). If soil pH is maintained at 6.5 or above, cessation of sludge application at the limits presented should enable the growth of any crop in the future without adverse affects on yield. In addition, soil productivity will be at a level equal to, and most likely greater than, that which existed prior to initiation of sludge application.

6.3.6 Other Sludge Constituents

The yields of agronomic crops can be influenced by other sludge constituents in certain regions of the United States. For example, in arid regions where most crops are irrigated, soluble salts, Mo, and B should

TABLE 6-1
RELATIVE ACCUMULATION OF CADMIUM INTO
EDIBLE PLANT PARTS BY DIFFERENT CROPS (7)*

High Uptake	Moderate Uptake	Low Uptake	Very Low Uptake
Lettuce	Kale	Cabbage	Snapbean family
Spinach	Collards	Sweet corn	Pea
Chard	Beet	Broccoli	Melon family
Escarole	Turnip root	Cauliflower	Tomato
Endive	Raddish globes	Brussel sprouts	Pepper
Cress	Mustard	Celery	Eggplant
Turnip greens	Potato	Berry fruits	Tree fruits
Beet greens	Onion		
Carrot			

* The above classification is based upon the response of crops grown on acidic soils that have received a cumulative Cd application of 5 kg/ha. It should not be implied that the above higher uptake crops cannot be grown on such a soil, or soils of higher Cd concentrations. Such croos can be safely grown if the soil pH is 6.5 or greater at the time of planting, since the tendency of the crop to accumulate heavy metals is significantly reduced as the soil pH increases above 6.5.

TABLE 6-2
RECOMMENDED CUMULATIVE LIMITS FOR METALS OF
MAJOR CONCERN APPLIED TO AGRICULTURAL CROPLAND (6)(9)*

Metal	Soil Cation Exchange Capacity, meq/100 g†,# <5	5 to 15	>15
	---kg/ha (lb/ac)**---		
Pb	560 (500)	1,120 (1,000)	2,240 (2,000)
Zn	280 (250)	560 (500)	1,120 (1,000)
Cu	140 (125)	280 (250)	560 (500)
Ni	140 (125)	280 (250)	560 (500)
Cd	5 (4.4)	10 (8.9)	20 (17.8)

* See Table 4-2 in Chapter 4 for guidance on use of sludge for production of fruits and vegetables.

† Interpolation should be used to obtain values in the CEC range 5-15.

Soil must be maintained at pH 6.5 or above.

** lb/ac shown in parentheses.

be considered when determining sludge application rates. The concentration of these components in the irrigation water, along with the amount applied in sludge, should be considered to minimize any potential problems. Information on the quality of local irrigation water and the prevailing irrigation management systems must be obtained to design sludge utilization systems in irrigated regions (16). In nonirrigated areas, soluble salts are rarely a problem because of minimal soluble salts in sludge and low application rates.

Sludges may also contain other trace elements such as Hg, Cr, As, and Se. These elements are not included in the design criteria either because of the minimal uptake by crops (4)(6)(8) or the relatively low concentrations in most sludges. The range and median concentrations for elements commonly found in sludge are shown in Appendix A. Abnormally high levels of specific chemical species should be dealt with on a case-by-case basis. Pretreatment of industrial waste streams prior to discharge into the sewerage system may be necessary prior to utilization of sludge on cropland. Further, sludges that are grossly contaminated with metals or organics will not likely pass the U.S. EPA extraction procedure for toxic and hazardous waste (17), and must thus be disposed of at an approved hazardous waste disposal site.

6.4 Sludge Application Rate Calculations

Sludge application rates are calculated from data on sludge composition, soil test information, N fertilizer need of the crop grown, and limits on annual Cd additions. In essence, this approach views sludge as a substitute for conventional N fertilizers in crop production. The number of years that sludge can be applied is based on recommended limits for total additions of Pb, Zn, Cu, Ni, and Cd, as shown in Table 6-2.

Since the majority of sludges contain roughly equal amounts of total N and P while crops requirements for N are two to five times greater than those for P, a conservative approach to annual sludge application rates involves applying sludge to meet the P rather than N needs of the crop. Sludges could also be applied to agricultural cropland at rates that exceed the N requirements of crop or the prevailing limitations on Cd additions. These types of systems should be viewed as dedicated sludge disposal sites that require more intensive monitoring, careful control of the end use of any crop grown, and possible restrictions on future site use (see Chapter 9).

The general approach for determining application rates on agricultural cropland can be summarized as follows:

- Nutrient requirements for the crop selected are based on the yield level and soil test data. If sludge has been applied in previous years, fertilizer recommendations are corrected for carryover of nutrients added by previous sludge additions.

Attachment B

Table E7-1. Land Application - State Multi-Grade Sludge Contaminant Concentration Limits (Source: Weston 1987)

Region	State	Contaminant	Contaminant Limit (mg/kg)			
			Grade 1 Sludge	Grade 2 Sludge	Grade 3 Sludge	Grade 4 Sludge
2	NY	Cadmium	25	-	-	-
10	OR		25	-	-	-
8	UT		25	70	125	-
3	VA		25	-	-	-
1	VT		25	-	-	-
3	WV		25	-	-	-
4	FL		<30	100	>100	-
4	KY		30	-	-	-
3	PA		50	-	-	-
		Median	25	55	125	
		Mode	25	25/70	125	
2	NJ	Chlordane	0.10	0.10	>0.10	0.0
5	MI	Chromium	<50	1,000	5,000	>5,000
7	IA		1,000	-	-	-
1	MA		1,000	1,000	>1,000	-
1	ME		1,000	-	-	-
1	NH		1,000	-	-	-
2	NJ		1,000	1,000	>1,000	-
2	NY		1,000	-	-	-
3	PA		1,000	-	-	-
3	VA		1,000	-	-	-
1	VT		1,000	-	-	-
		Median	1,000	1,000	1,000	
		Mode	1,000	1,000	1,000	
7	MO	Cobalt	250	-	-	-
5	MI	Copper	<250	1,000	2,000	>2,000
2	NJ		600	1,200	>1,200	-
8	CO		625	1,850	3,125	-
8	UT		625	1,650	3,125	-
10	OR		800	-	-	-
4	FL		900	3,000	>3,000	-
4	KY		1,000	-	-	-
7	IA		1,000	-	-	-
1	MA		1,000	1,000	>1,000	-
3	MD		1,000	-	-	-
1	ME		1,000	-	-	-
1	NH		1,000	-	-	-
2	NY		1,000	-	-	-
3	PA		1,000	-	-	-
1	RI		1,000	-	-	-
3	VA		1,000	-	-	-
1	VT		1,000	-	-	-
3	WV		1,000	-	-	-
		Median	1,000	1,450	2562.5	
		Mode	1,000	1,000/1,650	3,125	
2	NJ	Dieldrin	0.10	0.10	0.00	0.00
2	NJ	Endrin	0.10	0.10	>0.10	0.00
7	MO	Fluoride	4,000	-	-	-
2	NJ	Heptachlor	0.10	0.10	>0.10	0.00
2	NJ	Heptachlor Epox	0.10	0.10	>0.10	0.00

Table E7-1. Land Application - State Multi-Grade Sludge Contaminant Concentration Limits (continued)

Region	State	Contaminant	Contaminant Limit (mg/kg)			
			Grade 1 Sludge	Grade 2 Sludge	Grade 3 Sludge	Grade 4 Sludge
1	RI	Lead	5	-	-	-
5	MI		<250	500	2,000	2,000
1	MA		300	1,000	1,000	-
9	CA		500	-	-	-
4	KY		500	-	-	-
1	ME		700	-	-	-
1	NH		700	-	-	-
8	CO		1,000	2,500	5,000	-
4	FL		<1,000	1,500	1,500	-
7	IA		1,000	-	-	-
3	MD		1,000	-	-	-
2	NY		1,000	-	-	-
10	OR		1,000	-	-	-
3	VA		1,000	-	-	-
8	SD		1,000	-	-	-
6	TX		1,000	-	-	-
8	UT		1,000	2,500	5,000	-
3	TX		1,000	-	-	-
1	VT		1,000	-	-	-
3	WV		1,000	-	-	-
2	NJ		2,400	4,800	>4,800	-
		Median	1,000	2,000	3,400	
		Mode	1,000	2,500	5,000	
2	NJ	Lindane	0.10	0.10	>0.10	-
7	MO	Lithium	500	-	-	-
7	MO	Manganese	2,500	-	-	-
5	MI	Mercury	2	5	10	>10
1	RI		5	-	-	-
7	IA		10	-	-	-
1	MA		10	10	>10	-
3	MD		10	-	-	-
1	ME		10	-	-	-
1	NH		10	-	-	-
2	NJ		10	10	>10	-
2	NY		10	-	-	-
3	PA		10	-	-	-
8	SD		10	-	-	-
1	VT		10	-	-	-
7	MO		11	-	-	-
3	VA		15	-	-	-
3	WV		15	-	-	-
		Median	10	10	10	
		Mode	10	10	10	
2	NJ	Methoxychlor	0.25	0.25	>0.25	-
2	NJ	Mirex	0.25	0.25	>0.25	-
1	MA	Molybdenum	10	10	>10	-
5	MI		<10	20	50	50
3	VA		20	-	-	-
7	MO		40	-	-	-
		Median	15	15	30	
		Mode	10	N/A	N/A	

Table E7-1. Land Application - State Multi-Grade Sludge Contaminant Concentration Limits (continued)

Region	State	Contaminant	Contaminant Limit (mg/kg)			
			Grade 1 Sludge	Grade 2 Sludge	Grade 3 Sludge	Grade 4 Sludge
5	MI	Nickel	< 25	200	1,000	1,000
4	FL		< 100	500	> 500	-
4	KY		100	-	-	-
10	OR		100	-	-	-
7	IA		200	-	-	-
1	MA		200	200	> 200	-
3	MD		200	-	-	-
1	ME		200	-	-	-
1	NH		200	-	-	-
2	NY		200	-	-	-
3	PA		200	-	-	-
1	RI		200	-	-	-
3	VA		200	-	-	-
1	VT		200	-	-	-
3	WV		200	-	-	-
8	CO		250	650	1,250	-
8	UT		250	650	1,250	-
2	NJ		625	1,250	> 1,250	-
		Median	200	575	1,125	
		Mode	200	200/650	1,250	
7	IA	Nitrogen/Nitrate	0 Total 10%	-	-	-
2	NJ	Oil and Grease	3%	3%	3%	-
7	MO	Organics	1	-	-	-
2	NJ	P,P1-DDE	0.25	0.25	> 0.25	-
2	NJ	P,P1-DDT	0.25	0.25	> 0.25	-
2	NJ	P,P1-TDE (DDD)	0.25	0.25	> 0.25	-
7	MO	Pesticides	10	-	-	-
2	NJ	Phenols	22	22	> 22	-
7	IA	Phosphorus	0 Total 6.9%	-	-	-
7	IA	Potassium	0 Total 6.9%	-	-	-
8	WY	Selenium	0.2	-	-	-
5	IL		4	-	-	-
5	MI		10	40	80	80
7	MO		80	-	-	-
		Median	7			
		Mode	None			

Table E7-1. Land Application State Multi-Grade Sludge Contaminant Concentration Limits (continued)

Region	State	Contaminant	Contaminant Limit (mg/kg)			
			Grade 1 Sludge	Grade 2 Sludge	Grade 3 Sludge	Grade 4 Sludge
2	NJ	Total PCBs	1	1	> 1	-
5	MI		< 1	10	50	50
1	MA		2	-	-	-
6	TX		2	-	-	-
9	CA		5	-	-	-
8	CO		5	10	10	-
8	UT		5	10	10	-
10	AK		10	-	-	-
5	IN		10	-	-	-
4	KY		10	-	-	-
3	MD		10	-	-	-
1	ME		10	-	-	-
7	MO		10	-	-	-
4	MS		10	-	-	-
2	NY		10	-	-	-
6	OK		10	-	-	-
1	RI		10	-	-	-
8	SD		10	-	-	-
3	VA		10	-	-	-
5	IL		50	-	-	-
5	MN		50	-	-	-
4	SC		50	-	-	-
5	WI		50	-	-	-
		Median	10	10	30	
		Mode	10	10	10	
2	NJ	Toxaphene	1	1	> 1	-
1	NH	Zinc	200	-	-	-
5	MI		< 750	2,500	5,000	> 5,000
2	NJ		1,200	2,400	> 2,400	-
8	CO		1,250	3,325	6,250	-
8	UT		1,250	3,325	6,250	-
4	FL		< 1,800	10,000	> 10,000	-
4	KY		1,800	-	-	-
7	IA		2,000	-	-	-
1	ME		2,000	-	-	-
10	OR		2,000	-	-	-
3	PA		2,000	-	-	-
1	RI		2,000	-	-	-
1	MA		2,500	2,500	> 2,500	-
3	MD		2,500	-	-	-
2	NY		2,500	-	-	-
3	VA		2,500	-	-	-
1	VT		2,500	-	-	-
3	WV		2,500	-	-	-
		Median	2,000	2,913	5,625	
		Mode	2,500	2,500/3,325	6,250	

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State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

Interoffice Memorandum

TO: File

FROM: TC Tom Conrardy, Residuals Coordinator

DATE: February 7, 1990

SUBJECT: Proposed Residuals Rule, Chapter 17-640, F.A.C., Domestic Wastewater Residuals Stabilization Standards and Corresponding Site Management Requirements

When rule development was initiated in February, 1989, it was determined that lack of specific criteria to define adequate stabilization was a significant deficiency of the existing sludge rule, Chapter 17-7, F.A.C. Establishing stabilization criteria was therefore identified as one of the primary goals of the rule development effort. This memo is to explain the basis for the stabilization standards and site management requirements in the proposed residuals rule. The stabilization standards and corresponding site management restrictions are discussed separately below:

Stabilization Standards

Stabilization is the treatment of domestic wastewater residuals for the purpose of controlling the pathogens in residuals which could be a threat to public health. To be adequately stabilized, a process must be used which both reduces the number of pathogens in residuals and also alters the residuals to reduce the ability for regrowth of pathogens and attractiveness to disease vectors.

There are several considerations which affected development of the proposed standards:

1. Early in rule development Howard Rhodes directed that any new stabilization standard which was proposed should not result in municipalities having large capital expenditures to construct new or expanded sludge treatment facilities to meet the new standard.

2. EPA is currently developing a national sludge standard known as 40 CFR, Part 503, Standards for the Disposal of Sewage Sludge; Proposed Rule. EPA's regulation is expected to be promulgated in October, 1991 and the

regulation will apply to all treatment facilities which generate domestic wastewater sludge. Consistency between our rule and EPA's proposed standards would ease the transition when federal standards are promulgated. EPA's proposal uses a concept of having three classes of stabilization (A, B, and C). The class of stabilization is determined by sampling the residuals for pathogenic organisms. EPA's proposed pathogen sampling criteria have been the subject of significant comment and are likely to be modified significantly before the final regulation is promulgated. There is, therefore, no sound technical basis currently available for establishing pathogen sampling criteria (density/unit volume of residuals) as a means of determining the stabilization level. The 40 CFR, Part 503 regulation is in Attachment A.

3. EPA has an existing regulation which has been effective since 1979, 40 CFR, Part 257 (Attachment B). This regulation includes two stabilization levels. The level of stabilization is determined based on the type of process used to stabilize residuals (process methodology). The two degrees of stabilization are known as Process to Further Reduce Pathogens (PFRP) and Process to Significantly Reduce Pathogens (PSRP). The regulation lists the following processes as suitable to provide these stabilization levels:

PFRP*	PSRP*
Composting	Aerobic Digestion
Heat Drying	Anaerobic Digestion
Heat Treatment	Air Drying
Thermophilic Aerobic Digestion	Composting
	Lime stabilization

* Other methods may be approved on a case-by-case basis

As shown in Attachment B, each process must meet certain design and operational characteristics to qualify as PFRP or PSRP.

Using these three considerations, a modified version of EPA's proposed 503 standard was developed for the stabilization standard in the proposed state rule. This combines the format of EPA's proposed 503 standard (3 classes of stabilization) with the criteria from the current EPA regulation, 40 CFR, Part 257 (process methodology). The PFRP and PSRP levels of stabilization are comparable to the A and B classes of EPA's 40 CFR, Part 503 regulation. We have, therefore, used PFRP and PSRP as the Class A and B standards in our state rule.

Many wastewater facilities in Florida would not be able to meet either the Class A or B standards, however. Criteria for a third class is necessary both to be consistent with EPA's future rule and to have a standard which most facilities would be capable of meeting. With no better means of establishing the criteria for the Class C stabilization standards, we have used the following language in the proposed rule: "Class C stabilization standards will be achieved if one of the domestic wastewater residuals processes identified as a Process to Significantly Reduce Pathogens is utilized but the design or operational characteristics do not meet the minimum standards of Title 40, Code of Federal Regulation, Part 257. However, the design or operational characteristics must as a minimum comply with conventional design standards." Conventional design standards criteria may be determined in accordance with Ten State Standards (Recommended Standards for Sewage Works, Great Lakes - Upper Mississippi River Board of State Sanitary Engineers), the Process Design Manual for Sludge Treatment and Disposal, or other manuals used by District Offices in the review of applications for proposed treatment facilities.

Our proposed state rule will therefore have three classes of stabilization (Section 17-640.600). Classes A and B will have the same process design requirements as the PFRP and PSRP standards of 40 CFR, Part 257. To qualify for Class C standards the design will have to comply with conventional design criteria.

Site Management Requirements

A primary aspect of having three levels of stabilization is the different site management practices which need to be provided for each level of stabilization to protect public health. With a high degree of stabilization (Class A), there is minimal concern for the public being exposed to pathogenic organisms, and therefore few site management restrictions are necessary. With lower degrees of stabilization, more restrictive site management requirements are necessary to protect public health. The existing 40 CFR, Part 257 regulation includes site management requirements for sites which have received PFRP and PSRP residuals. This is the source of most of the Class A and B site management requirements listed in Rule 17-640.600(5) and Rule

17-640.600(6). As stated earlier, the 40 CFR, Part 257 regulation only contains two levels of stabilization (PFRP and PSRP). Site management requirements for the third class (Class C) needed to be developed as well. The site restrictions for Class C stabilized residuals in the proposed state rule were obtained from the proposed Class C site management requirements of 40 CFR, Part 503 (503.52(c)). The Class C site management requirements are found in Section 17-640.600(7) of the proposed state rule.

TC/hh

Attachment A

SUBCHAPTER O—SEWAGE SLUDGE

PART 503—TECHNICAL STANDARDS FOR THE USE AND DISPOSAL OF SEWAGE SLUDGE

Authority: Sections 405 (d) and (e), Clean Water Act, as amended by Pub. L. 95-217, Sec. 54(d), 91 Stat. 1591 (33 U.S.C. 1345 (d) and (e)); and Pub. L. 100-4, Title IV, Sec. 406 (a), (b), 101 Stat. 71, 72.

Subpart A—General Provisions

§ 503.1 Purpose and applicability.

(a) *Purpose.* The purpose of this part is to establish standards for the use or disposal of sewage sludge that is generated during the treatment of domestic sewage in treatment works or that is treated in treatment works. This regulation contains numerical pollutant limitations, management practices, and other requirements for the use and disposal of sewage sludge which protects public health and the environment from any reasonably anticipated adverse effects of each regulated pollutant.

(b) *Applicability.* (1) This part establishes minimum requirements for the sewage sludge that is applied to agricultural and non-agricultural land, distributed and marketed, disposed of in monofills, disposed of on surface disposal sites, and incinerated.

(2) Any person who employs a method of final use or disposal identified in paragraph (b)(1) of this section must do so in accordance with this part.

(3) This part does not apply to processes used to treat municipal wastewater and domestic sewage or processes used to treat sewage sludge prior to the final use or disposal of the sewage sludge.

(4) The determination of the manner in which sewage sludge is finally used or disposed of is a matter for local communities. Any use or disposal method may be used as long as the use or disposal is carried out in accordance with the requirements of this part.

§ 503.2 Relationship to other requirements.

(a) Permits for the use and disposal of sewage sludge are addressed in 40 CFR Parts 122 through 124.

(b) Requirements for the approval of State sewage sludge management programs are included in 40 CFR Part 501.

§ 503.3 State authority.

Nothing in this part precludes States from imposing more stringent requirements for any sewage sludge use or disposal method covered by this part.

§ 503.4 Exclusions.

(a) *Industrial sludge.* (1) This part does not apply to any sludge that is generated or treated by industrial wastewater treatment works treating industrial waste or wastewater or treating domestic sewage along with industrial waste or wastewater.

(2) Standards for the use and disposal of non-hazardous industrial sludge are established in 40 CFR Parts 257 and 258.

(b) *Hazardous sewage sludge.* (1) This part does not apply to sewage sludge determined to be hazardous in accordance with Appendix II of 40 CFR Part 261.

(2) Standards for the disposal of sewage sludge determined to be hazardous are established in 40 CFR Parts 261 through 268.

(3) Use or disposal of hazardous sewage sludge in compliance with the requirements in 40 CFR Parts 261 through 268 will constitute compliance with the requirements of section 405 of the Clean Water Act.

(c) *Incinerator ash.* (1) This part does not apply to the ash generated during the incineration of sewage sludge.

(2) Standards for the use and disposal of ash generated during the incineration of sewage sludge are established in 40 CFR Part 257, Part 258, or Parts 261 through 268.

(d) *Disposal of sewage sludge in municipal landfills.* (1) This part does not apply to sewage sludge that is disposed of in a landfill with municipal solid waste. Standards for the disposal of sewage sludge in municipal solid waste landfills are established in 40 CFR Part 258.

(2) Treatment works disposing of their sewage sludge in municipal solid waste landfills must ensure that their sewage sludge meets the requirements of 40 CFR Part 258 and that the sewage sludge is sent to a State-permitted facility.

(3) Disposal of sewage sludge in compliance with 40 CFR Part 258 will constitute compliance with section 405 of the Clean Water Act.

(e) *Co-firing of sewage sludge.* This part does not apply to sewage sludge that is fired in an incinerator with other wastes.

(f) *Deepwell wet air oxidation systems.* The part does not apply to sewage sludge that is placed in deepwell wet air oxidation systems or to the location or operation of these systems.

(g) *Septic tanks.* This part does not apply to the location and operation of septic tanks, but does apply to septage that is pumped and collected for disposal.

(h) *Marine sanitation devices.* (1) This part does not apply to Type I or Type II marine sanitation devices, as defined in 33 CFR Part 159.

(2) This part does apply to the pumpings from Type III marine sanitation devices, as defined in 33 CFR Part 159, that are delivered to shore-side facilities for disposal.

§ 503.5 General definitions.

(a) CWA means the Clean Water Act (formerly referred to either as the Federal Water Pollution Act or the Federal Water Pollution Control Act Amendments of 1972) Pub.L. 92–500, as amended by Pub.L. 95–217, Pub.L. 95–576, Pub.L. 96–483, Pub.L. 97–117 and Pub.L. 100–4.

(b) Domestic sewage is waste and wastewater from humans or from household operations that are discharged to or otherwise enter treatment works.

(c) Ground water is water below the land surface in a zone of saturation.

(d) Industrial wastewater treatment works are privately owned treatment works that treat waste and wastewater generated by industrial, manufacturing, and commercial processing facilities.

(e) Municipality means a city, town, borough, county, parish, district, association, or other public body (including an intermunicipal Agency of two or more of the foregoing entities) created by or under State law; an Indian tribe or an authorized Indian tribal organization having jurisdiction over sewage sludge management; or a designated and approved management Agency under section 208 of the CWA, as amended. The definition includes a special district created under State law, such as a water district, sewer district, sanitary district, utility district, drainage district, or similar entity, and an integrated waste management facility as defined in section 201(e) of the CWA, as amended, that has as one of its principal responsibilities the treatment, transport, or disposal of sewage sludge.

(f) Person is an individual, association, partnership, corporation, municipality, State or Federal agency, or an agency or employee thereof.

(g) Pollutant means those organic or inorganic substances, or combinations of substances, including disease-causing agents, which after discharge and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through the food-chain, will, on the basis of information available to the Administrator, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction), or physical deformations in such organisms or their offspring.

(h) Pollutant limit is a numeric limit for a pollutant that describes the maximum amount of a pollutant allowed per unit amount of sewage sludge (e.g., milligrams of pollutant per kilogram of dry solids); the maximum amount of a pollutant that can be applied per unit area of land (e.g., kilograms per hectare); or the maximum amount of a pollutant per unit volume of air (e.g., micrograms per cubic meter).

(i) Publicly owned treatment works, or POTW, means any device or system used in the treatment (including recycling and reclamation) of domestic sewage or industrial waste of a liquid nature that is owned by a municipality or State entity.

(j) Septage is the liquid and solid material pumped from a septic tank, cesspool, or similar domestic sewage treatment system or a holding tank when the system is cleaned and maintained.

(k) Sewage sludge is any solid, semi-solid, or liquid residue removed during the treatment of municipal wastewater and domestic sewage or the treatment of domestic sewage. Sewage sludge includes, but is not limited to, solids removed during primary, secondary, or advanced wastewater treatment, scum, septage, portable toilet pumpings, Type III marine sanitation device pumpings, and sewage sludge products.

(l) State is one of the United States of America, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Trust Territory of the Pacific Islands, and the Commonwealth of the Northern Mariana Islands.

(m) Treatment works are publicly owned treatment works owned by a State, or municipal entity or federally or privately owned treatment works that treat domestic sewage. Treatment works do not include septic systems. Privately owned industrial waste treatment works that process industrial, manufacturing, or commercial waste and wastewater along with domestic sewage are not included in this definition.

Subpart B—Land Application of Sewage Sludge

§ 503.10 Applicability.

This subpart applies to the application of sewage sludge to either agricultural or non-agricultural land and to any person who uses, disposes of, or distributes sewage sludge by or for application to either agricultural or non-agricultural land. Sewage sludge which is distributed and marketed in compliance with Subpart C is not subject to this subpart.

§ 503.11 Specialized definitions.

(a) Agricultural land is land to which sewage sludge is applied, in order to use the nutrient and soil conditioning properties of sewage sludge, for crops which are intended for direct or indirect human consumption or for animal feed for animals intended for human consumption. This includes land used as pasture for the grazing of animals.

(b) Annual pollutant loading rate is the maximum amount of a pollutant that may be applied to a unit area of land during a 365-consecutive-day period.

(c) Annual whole sludge application rate is the maximum amount of sewage sludge that may be applied to a unit area of land during a 365-consecutive-day period.

(d) Applier is a person who receives sewage sludge from treatment works or distributors and who is responsible for the proper application of the sewage sludge.

(e) Base flood is a flood that has a one-percent or greater chance of recurring in any given year or a flood of a magnitude equalled or exceeded once in 100 years, on the average, over a significantly long period.

(f) Cumulative pollutant loading rate is the maximum amount of an inorganic pollutant that may be applied to a unit area of land.

(g) Dedicated land is land that is used for the disposal of sewage sludge. No attempt is made to use the nutrient and soil conditioning properties of the sewage sludge for a beneficial purpose on this land.

(h) Distributor is a person who receives sewage sludge from treatment works and delivers the sewage sludge to a user or another distributor.

(i) Feed crops are crops intended for consumption by animals.

(j) Floodplain is the lowland and relatively flat areas adjoining inland and coastal waters, including flood prone areas of offshore islands that are inundated by a base flood.

(k) Food crops are crops intended for human consumption.

(l) Forest land is land to which sewage sludge is applied in order to use the nutrient and soil conditioning properties of the sludge for the growth of the trees on the land.

(m) Land application is the application of liquid, de-watered, dried, or composted sewage sludge to the land. Sewage sludge may be sprayed or spread onto the surface of the land, injected below the surface of the soil, or incorporated into the soil.

(n) Non-agricultural land is land where sewage sludge is applied but where no food or feed crops are grown or animals are grazed. This includes, but is not limited to, forest land, reclaimed land, and dedicated land.

(o) Pasture land is land to which sewage sludge is applied in order to use the nutrient and soil conditioning properties of the sludge for the growing of crops, such as legumes, grasses, grain stubble, and stover, that are intended for animals grazing on the land.

(p) Reclaimed land is land that has been drastically disturbed (e.g., a strip mine) or that is marginally productive. As part of the reclamation process, sewage sludge is applied for its nutrient and soil conditioning properties to help re-vegetate and reclaim the land.

(q) Sewage sludge boundary is the outermost perimeter of an area of land to which sewage sludge is applied.

§503.12 Land application—general requirements.

(a) No person subject to this subpart shall use or dispose of sewage sludge by land application or distribute sewage sludge for use or disposal by land application except in accordance with this subpart.

(b) Treatment works shall enter into an agreement with the distributor or applier of sewage sludge that requires the distributor or applier to comply with the requirements in this subpart. Each distributor of sewage sludge shall enter into an agreement with the applier of sewage sludge to comply with the requirements in this subpart. All agreements must include the general provisions in paragraph (b)(1) and the provisions in paragraph (b)(2) or paragraph (b)(3) of this section.

(1) General provisions include the following:

(i) The name and address of persons receiving and applying the sewage sludge:

(ii) The location and legal description of the sites to which the sludge is to be applied:

(iii) The size of the sites (or portion thereof) to which the sludge is to be applied, in hectares or acres:

(iv) The nitrogen content of the sewage sludge;

(v) A prohibition on applying sewage sludge at rates in excess of the nitrogen requirements of the vegetation (food or feed crops, trees, grasses, etc.) and at rates that would cause the excess nitrogen in the sewage sludge to leach to the ground water;

(vi) The amount of sewage sludge to be applied to each site, in metric tons:

(vii) The class of pathogen reduction used in treating the sewage sludge and the applicable use and access restrictions set forth in 40 CFR 503.52 for that class of pathogen reduction:

(viii) The method used in complying with the vector attraction reduction requirements in 40 CFR 503.53;

(ix) The period of time after receipt within which the sewage sludge must be applied:

(x) The application method to be used (i.e., injection below the soil surface, spraying, surface application, etc.) and whether or not the sludge is to be incorporated into the soil;

(xi) The storage method to be used in case of inclement weather and the public health and environmentally protective practices to be used until the sludge is applied:

(xii) The provisions in § 503.12 (c), (d), and (e).

(2) Provisions for agricultural lands include the following:

(i) The concentrations of the pollutants in Table 1 and Table 2 of 40 CFR 503.13;

(ii) Specification of the amount of sewage sludge, in metric tons per hectare, that may be applied in a 365-consecutive-day period without exceeding the annual pollutant loading rates in Table 1 of 40 CFR 503.13 (see Appendix B of this part to determine the appropriate whole sludge application rate);

(iii) Specification of the number of years that sewage sludge may be applied to the land without exceeding the pollutant loading rates in Table 2 of 40 CFR 503.13 (see Appendix C of this part to determine the number of years that sewage sludge may be applied to the land): and

(iv) The management practices set forth at 40 CFR 503.14.

(3) Provisions for non-agricultural lands include the following:

(i) The concentrations of the pollutants in Table 3 of 40 CFR 503.15:

(ii) The management practices set forth at 40 CFR 503.16.

(c) Sewage sludge shall not be applied to the land if the application would cause or contribute to the harm of a threatened or endangered species of plant, fish, or wildlife or would result in the destruction or adverse modification of the critical habitat of a threatened or endangered species.

(d) Sewage sludge shall not be applied to the land if the application of the sewage sludge would restrict the flow of a base flood, would reduce the temporary water storage capacity of the floodplain, or would pose a hazard to human health, wildlife, or land or water resources because of sewage sludge in the runoff from the flood base.

(e) Sewage sludge shall not be applied to frozen, snow-covered, or flooded land unless it can be demonstrated that the application will not cause a discharge of pollutants into waters of the United States, including wetlands, that violates any requirements of the CWA.

(f) Owners or operators of treatment works or distributors of sewage sludge not from treatment works shall comply with the monitoring requirements in § 503.81 and the record keeping and report requirements in § 503.82.

§ 503.13 Agricultural land—national pollutant limits.

(a) Sewage sludge shall be applied to agricultural land at an annual whole sludge application rate that does not exceed the annual pollutant loading rates in Table 1. The procedure in Appendix B shall be used to determine the annual whole sludge application rate.

(b) Sewage sludge shall be applied to agricultural land in amounts that do not exceed the cumulative pollutant loading rates in Table 2. The procedure in Appendix C shall be used to determine the number of applications sewage sludge may be applied to the land.

TABLE 1.—ANNUAL POLLUTANT LOADING RATES

Pollutant	Annual pollutant loading rate [1] (kilograms per hectare)
Aldrin/dieldrin (total)	0.016
Benzo(a)pyrene	0 13
Chlordane	1.2
DDT/DDE/DDD (total) [2]	0.0055

TABLE 1.—ANNUAL POLLUTANT LOADING RATES—Continued

Pollutant	Annual pollutant loading rate [1] (kilograms per hectare)
Dimethyl nitrosamine	0.039
Heptachlor	0.073
Hexachlorobenzene	0.039
Hexachlorobutadiene	0.34
Lindane	4.6
Polychlorinated biphenyls	0.0056
Toxaphene	0.048
Trichloroethylene	0.013

[1] Maximum amount of a pollutant that can be applied per hectare of land per 365-consecutive-day period.
[2] DDT-2,2-Bis(chloropheyl)-1,1,1-trichloroethane
DDE-1,1-Bis(chlorophenyl)-2,2-dichloroethane
DDD-1,1-Bis(chlorophenyl)-2,2-dichloroethane

TABLE 2.—CUMULATIVE POLLUTANT LOADING RATES

Pollutant	Cumulative pollutant loading rate [1] (kilograms per hectare)
Arsenic	14
Cadmium	18
Chromium	530
Copper	46
Lead	125
Mercury	15
Molybdenum	5
Nickel	78
Selenium	32
Zinc	170

[1] Maximum amount of an inorganic pollutant that can be applied to a hectare of land.

§ 503.14 **Agricultural land—management practices.**

The application of sewage sludge to agricultural land must meet the following requirements:

(a) Sewage sludge shall be applied to agricultural land at an annual whole sludge application rate that is 50 metric tons per hectare or less (on a dry weight basis).

(b) Sewage sludge shall only be applied to land in accordance with the crop and land access restrictions of § 503.52(b) (3) and (4) or in § 503.52(c) (3) and (4).

(c) Sewage sludge shall not be applied to the land at rates in excess of the nitrogen requirements of the crops (food or feed crops) and at rates that would cause the excess nitrogen in the sewage sludge to leach to the ground water.

(d) Sewage sludge shall not be applied to land that is 10 meters (30 feet) or less from a surface water.

§ 503.15 **Non-agricultural land—national pollutant limits.**

The concentration of the pollutants in sewage sludge applied to non-agricultural land shall not exceed the pollutant limits in Table 3.

TABLE 3.—NON-AGRICULTURAL LAND POLLUTANT LIMITS

Pollutant	Maximum Sewage sludge concentration [1] (milligrams per kilogram)
Aldrin/dieldrin	0.33
Arsenic	36
Benzo(a)pyrene	6.9
Cadmium	380
Chlordane	24
Chromium	3100
Copper	3300
DDT/DDE/DDD (total) [2]	0.11
Dimethyl nitrosamine	1.4
Heptachlor	1.5
Hexachlorobenzene	2.8
Hexachlorobutadiene	6.8
Lead	1600
Lindane	92
Mercury	30
Molybdenum	230
Nickel	990
Polychlorinated biphenyls	0.11
Selenium	64
Toxaphene	0.97
Trichloroethylene	180
Zinc	8600

[1] Dry weight basis.
[2] DDT—Bis 2,2-(chlorophenyl)-1,1,1-trichloroethane
DDE—Bis 1,1-(chlorophenyl)-2,2-dichloroethane
DDD—Bis 1,1-(chlorophenyl)-2,2-dichloroethane.

§ 503.16 **Non-agricultural land—management practices.**

The application of sewage sludge to non-agricultural lands must meet the following requirements:

(a) Food crops and feed crops shall not be grown or harvested during the period when sewage sludge is applied to that land or for a period of 5 years after the final application of the sewage sludge;

(b) Animals shall not be grazed during the period when sewage sludge is applied or for a period of five years after the final application of the sewage sludge;

(c) A vegetative cover shall be established on the land;

(d) When sewage sludge meeting the Class A pathogen reduction requirements specified in § 503.52(a) is applied, public access to the land shall be restricted for the period of time necessary to establish a vegetative cover on the land;

(e) Sewage sludge shall not be applied to the land at rates in excess of the nitrogen requirements of the vegetation (trees, grasses, etc.) and at rates that would cause the excess nitrogen in the sewage sludge to leach to the ground water; and

(f) Sewage sludge shall not be applied to land that is 10 meters (30 feet) or less from a surface water.

§ 503.17 **Pathogen and vector attraction reduction requirements.**

Sewage sludge applied to either agricultural or non-agricultural land shall comply with the requirements in § 503.52 (a), (b), or (c) and the requirements in § 503.53 (a), (b), (c), (d), (e), or (f).

Subpart C—Distribution and Marketing of Sewage Sludge

§ 503.20 **Applicability.**

This subpart applies to the distribution and marketing of sewage sludge, to any person who distributes and markets sewage sludge, and to any person who uses sewage sludge that is distributed and marketed. Sewage sludge which is applied to either agricultural or non-argicultural land in compliance with Subpart B is not subject to this subpart.

§ 503.21 **Specialized definitions.**

(a) Annual product application rate is the maximum amount of the product prepared by a distributor that may be applied to a unit area of land in a 365-consecutive-day period in compliance with the pollutant limits in this subpart.

(b) Annual whole sludge application rate is the maximum amount of sewage sludge (or a product derived from sewage sludge prior to disbursement by the treatment works) that may be applied to a unit area of land in a 365-consecutive-day period in compliance with the pollutant limits in this subpart.

(c) Distribution and marketing is the give-away or sale of sewage sludge or a product derived from sewage sludge, either in containers (e.g., bags) or in bulk form, by owners or operators of treatment works or by a person who receives sewage sludge from treatment works.

(d) Distributor is a person who prepares the product for distribution and marketing and who is responsible for distributing and marketing the product.

(e) Product is the material that is distributed and marketed. The product may be either sewage sludge, processed sewage sludge, or a mixture of sewage sludge and other materials such as woodchips.

§ 503.22 **Distribution and marketing—general requirements.**

(a) No person subject to this part shall distribute and market sewage sludge except in accordance with this subpart.

(b) When the treatment work is not the distributor of the product, the treatment work shall enter into an agreement with the distibutor to comply with the requirements of this subpart. The agreement must include the following:

(1) Name and address of the distributor:

(2) Concentrations of the pollutants listed in Table 4 of 40 CFR 503.23 that are in the sewage sludge disbursed to the distributor:

(3) Appropriate annual whole sludge application rate of the sewage sludge disbursed by the treatment work:

(4) Appropriate annual product application rate of the product to be distributed and marketed:

(5) Documentation that the sewage sludge disbursed to the distributor is in compliance with the Class A pathogen reduction requirements in 40 CFR 503.52(a) and that it has been monitored for compliance with 40 CFR 503.53 (a), (b), (c), (d), or (e).

(6) Facsimile of the label affixed to the product or the information sheet accompanying the product that contains the information required in 40 CFR 503.24(b).

(c) Sewage sludge shall not be applied at rates that would exceed the nitrogen requirements of the vegetation (food crops, grasses, ornamental plants, etc.) and that would cause the excess nitrogen to leach to the ground water.

(d) Owners or operators of treatment works or distributors of sewage sludge shall comply with the monitoring requirements in § 503.81 and the record keeping and report requirements in § 503.83.

§ 503.23 Distribution and marketing—national pollutant limits.

(a) The concentration of the pollutants in sewage sludge that is distributed and marketed shall not exceed the pollutant limits in Table 4 for the appropriate annual whole sludge application rate prior to being disbursed by the treatment works. The procedure in Appendix B shall be used to determine the annual whole sludge application rate.

(b) The annual product application rate for sewage sludge that is distributed and marketed by distributors shall not exceed the pollutant limits in § 503.23(a).

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TABLE 4

DISTRIBUTION AND MARKETING POLLUTANT LIMITS

Maximum Sewage Sludge Concentration
(milligrams per kilogram - dry weight basis)

Annual Whole Sludge Application Rate (metric tons per hectare)	1	3	5	10	15	20	25	30	35	40	45	50
Pollutant												
Aldrin/dieldrin	16	5.5	3.3	1.6	1.1	0.82	0.66	0.56	0.47	0.41	0.36	0.33
Arsenic	700	230	140	70	47	35	28	23	20	18	16	14
Benzo(a)pyrene	80	26	15	7.7	5.1	3.8	3.1	2.6	2.2	1.9	1.7	1.5
Cadmium	900	310	180	90	61	46	37	31	26	23	20	18
Chlordane	22500	7500	4500	2200	1500	1100	900	750	640	560	500	450
Chromium	26500	8800	5300	2700	1770	1330	1060	880	760	660	590	530
Copper	2300	770	460	230	150	110	92	77	66	57	51	46
DDT/DDE/DDD (total)[1]	46	15	9.2	4.6	3.1	2.3	1.8	1.5	1.3	1.2	1	0.92
Heptachlor	79	26	19	7.9	5.3	3.9	3.2	2.6	2.3	2	1.8	1.6
Hexachlorobenzene	46	15	9.1	4.6	3	2.3	1.8	1.15	1.3	1.14	1.01	0.91
Hexachlorobutadiene	41000	14000	8200	4100	2700	2100	1600	1400	1200	1000	910	820
Lead	6000	2100	1300	600	400	310	250	210	180	160	140	130
Lindane	293500	97800	58700	29350	19570	14680	11740	9780	8390	7340	6500	5870
Mercury	1990	660	400	199	133	99	80	66	57	50	44	40
Nickel	3900	1300	780	390	260	200	160	130	110	98	87	76
Polychlorinated biphenyls	49	49	30	15	10	7	6	5	4	4	3	3
Selenium	8106	2702.1	1600	810	540	410	320	270	230	200	160	160
Toxaphene	117	39	23	12	7.8	5.8	4.7	3.9	3.3	2.9	2.6	2.3
Zinc	8600	2900	1700	860	570	430	340	290	250	220	190	170

1 DDT - 2,2-Bis(chlorophenyl)-1,1,1-trichloroethane
DDE - 1,1-Bis(chlorophenyl)-2,2-dichloroethylene
DDD - 1,1-Bis(chlorophenyl)-2,2-dichloroethane

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§ 503.24 Distribution and marketing—management practices.

(a) When sewage sludge is distributed and marketed, a label shall be affixed to the product or an information sheet shall acompany the product. The label or information sheet shall contain the information required by paragraph (b) of this section.

(b) When sewage sludge is distributed and marketed, the following information shall be provided on a label or information sheet:

(1) Name and address of the distributor of the product:

(2) Statement that the product is derived from sewage sludge:

(3) List of the nitrogen and pollutant concentrations in the product (at a minimum, the list of pollutants is to include the pollutants on Table 4 in § 503.23 that are present in the product):

(4) Statement prohibiting the use of the product on frozen, snow-covered, or flooded land:

(5) Statement prohibiting use, except in accordance with the instructions:

(6) Instructions on the appropriate uses of the product:

(7) Statement prohibiting the use of the product 10 meters (30 feet) or less from a surface water:

(8) Rate at which the product may be applied for stipulated uses (rates may not exceed the nitrogen requirements of the vegetation—food crops, grasses, ornamentals, etc.):

(9) Warning to keep the product out of reach of children:

(10) Statement prohibiting the grazing of animals intended for human consumption on land where the product is applied:

(11) Statement prohibiting the use of crops grown on land where the product is applied as feed for animals intended for human consumption: and

(12) Statement that compliance with the instructions on the label or information sheet will constitute compliance with section 405(e) of the CWA, as amended.

§ 503.25 Pathogen and vector attraction reduction requirements.

Sewage sludge that is distributed and marketed shall be treated to comply with the Class A pathogen reduction requirements in § 503.52(a) and one of the vector attraction reduction requirements in § 503.53 (a) through (e).

Subpart D—Disposal of Sewage Sludge in Monofills

§ 503.30 Applicability.

This subpart applies to the disposal of sewage sludge in monofills accepting only sewage sludge, to sewage sludge monofills, and to any person who disposes of sewage sludge in a monofill.

§ 503.31 Specialized definitions.

(a) Base flood is a flood that has a one-percent or greater chance of recurring in any given year or a flood of a magnitude equalled or exceeded once in 100 years, on the average, over a significantly long period.

(b) Class I ground water is ground water of unusually high value that is highly vulnerable to contamination and is either an irreplaceable source of drinking water to substantial populations or ecologically vital.

(c) Class II ground water is ground water that is not Class I ground water and that is used currently or is available potentially as a source of drinking water and other beneficial uses.

(d) Class III ground water is ground water that:

(1) Is not a source of drinking water and has a total dissolved solids concentration greater than 10,000 milligrams per liter:

(2) Is not a source of drinking water and is contaminated by either naturally occurring conditions or the effects of broad scale human activity to levels that cannot be cleaned up using treatment methods reasonably employed in public water supply systems: or

(3) Is not a source of drinking water because of insufficient yields to meet the minimum needs of an average household.

(e) Closed sewage sludge unit is a sewage sludge unit that no longer receives sewage sludge as of the effective date of this rule and that has received a final cover.

(f) Cover material is soil or other suitable material used to cover sewage sludge in a sewage sludge unit.

(g) Displacement is the relative movement of a fault measured in any direction.

(h) Fault is a fracture along which rocks on one side are displaced with respect to those on the other side.

(i) Final cover is suitable material that permanently covers the sewage sludge unit.

(j) Floodplain is the lowland and relatively flat areas adjoining inland and coastal waters, including floodplain areas of offshore islands that are inundated by a base flood.

(k) Holocene time is the most recent epoch of the Quaternary period, extending from the end of the Pleistocene to the present.

(l) Lateral expansion is a horizontal expansion of a sewage sludge unit boundary.

(m) Monofill is an area of land that contains one or more sewage sludge units.

(n) Runoff is rainwater, leachate, or other liquid that drains overland on any part of a sewage sludge unit.

(o) Saturated zone is that part of the earth's crust in which all voids of porous materials are filled with water.

(p) Seismic impact zone is an area that has had horizontal ground level acceleration equal to or greater than 0.10 gravities.

(q) Sewage sludge unit is an area of land where only sewage sludge is placed and where the sewage sludge is covered with suitable material at the end of each operating day or at more frequent intervals. Land does not include waters of the United States as defined in 40 CFR 230.3(s).

(r) Sewage sludge unit boundary is the outermost perimeter of the sewage sludge unit.

(s) Unsaturated zone is the zone between the land surface and the water table.

(t) Water table is the upper surface of ground water where the pressure in the porous medium above the ground water equals the atmospheric pressure.

(u) Wetland areas are areas that are inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands include, but are not limited to, swamps, marshes, bogs, and similar areas.

§ 503.32 Monofills—general requirements.

(a) No person shall place sewage sludge in a monofill unless the requirements in this subpart are met.

(b) In addition to the requirements of this subpart, owners or operators of monofills shall comply with the National Pollutant Discharge Elimination System (NPDES) requirements promulgated pursuant to section 402 of the CWA.

(c) Owners or operators of a monofill shall determine the class of ground water over which a monofill is located.

(d) Monofills shall not cause or contribute to the harm of a threatened or endangered species of plant, fish, or wildlife or result in the destruction or adverse modification of the critical habitat of a threatened or endangered species.

(e) Monofills and sewage sludge units shall not restrict the flow of a base flood; reduce the temporary water storage capacity of a floodplain; or present a hazard to human health, wildlife, or land or water resources because of sewage sludge in the run-off from the base flood.

(f) A monofill located within 3,048 meters (10,000 feet) of an airport runway used by turbine-powered aircraft or within 1,524 meters (5,000 feet) of an airport runway used only by piston engine-powered aircraft shall not pose a hazard to aircraft from birds.

(g) When a monofill is located in a seismic impact zone, the sewage sludge units shall be designed to withstand the maximum recorded horizontal ground level acceleration.

(h) Sewage sludge units shall be located 60 meters or more from a fault or stress fractures that have had displacement in Holocene time.

(i) Sewage sludge units shall be located in areas where adequate support for the structural components of the sewage sludge unit exists.

(j) Sewage sludge units shall be located outside the perimeter of wetland areas.

(k) Owners or operators of a sewage sludge unit shall collect and discharge the volume of run-off from a 24-hour, 25-year storm event, in accordance with an applicable NPDES permit.

(l) Sewage sludge units located within 60 meters of a fault or stress fractures that have had displacement in Holocene time, located in unstable areas, or located in wetland areas shall be closed within 1 year of the effective date of this rule.

(m) Owners or operators of monofills shall develop a written plan that describes the steps necessary to close each sewage sludge unit and the measures required after each closure to protect public health and the environment for each sewage sludge unit. The plan shall be submitted to the permitting authority with a permit application. At a minimum, the plan shall include:

(1) A description of the final cover to be used on each sewage sludge unit that closes;

(2) A description of how the final cover will minimize the effects of any volatilization of the pollutants, minimize settling, subsidence, erosion, or other events, and minimize runoff from, or other damage to, the final cover;

(3) A description of how the final cover will be maintained for a period of 10 years;

(4) A description of the methane gas monitoring that will be conducted for a period of 10 years to ensure continued compliance with the requirements in § 503.34(b); and

(5) A description of how public access restrictions to the sewage sludge unit will be maintained for a period of 10 years.

(n) Owners or operators of treatment works shall comply with the monitoring requirements in § 503.81 and the record keeping and report requirements in § 503.84.

§ 503.33 Monofills—pollutant limits.

(a) *National limits.* The concentration of the pollutants in the sewage sludge placed in monofills located over Class I, Class II, and Class III(1) or Class III(3) ground water as defined in § 503.31 (b), (c), and (d)(1) and (d)(3) shall not exceed the pollutant limits in Table 5 or (b)(1) of this section, except as provided in (b)(3) of this section.

(b) *Case-by-case limits.* (1) Where a sewage sludge unit boundary is located less than 150 meters from the property line of the monofill:

(i) Owners or operators of the monofill shall submit the actual distance of the sewage sludge unit boundary to the property line of the monofill; and

(ii) The permitting authority must calculate numeric limits for the pollutants in Table 5 using an EPA-approved model and the actual distance of the sewage sludge unit to the monofill boundary.

(2) When a monofill is located over Class III(2) ground water as defined in § 503.31(d)(2):

(i) Owners or operators of the monofill must submit the actual concentration for those pollutants that exceed the values in Appendix A; and

(ii) The permitting authority shall calculate the numeric limits using an EPA-approved model and the actual concentration in the ground water of those pollutants that exceeded the values in Appendix A.

(3) When one or more of the pollutant limits in § 503.33(a), § 503.33(b)(1), or § 503.33(b)(2) are exceeded and when the monofill site characteristics are different from the values in Table 6, alternative limits may be developed in accordance with the following procedure:

(i) Owners or operators shall document site-specific values for one or more of the parameters in Table 6; and

(ii) The permitting authority shall calculate numeric limits for all pollutants in Table 5 using an EPA-approved model and the site-specific values provided by the owner or operator.

TABLE 5.—MONOFILL POLLUTANT LIMITS

MAXIMUM SEWAGE SLUDGE CONCENTRATION

[Milligrams per kilogram [1]]

Pollutant	Monofills over class I ground water	Monofills over class II/class III(1) and class III(3) ground water
Arsenic	0.20	24
Benzene	0.28	0.85
Benzo(a)pyrene	99	250
Bis(2-ethylhexyl)phthalate	4.5	1600
Cadmium	0.040	9.6
Chlordane	180	
Copper	8.4	
DDT/DDE/DDD (Total) [2]	0.95	51
Dimethyl nitrosamine	0.0019	0.07
Lead	0.35	530
Lindane	2.3	75
Mercury	0.0070	26
Nickel	7.0	
Polychlorinated biphenyls	49	49
Toxaphene	0.5	1.63
Trichloroethylene	2.4	7.4

[1] Dry weight basis.

[2] DDT—2,2-Bis(chlorophenyl)-1,1,1-trichloroethane
DDE—1,1-Bis(chlorophenyl)-2,2-dichloroethene
DDD—1,1-Bis(chlorophenyl)-2,2-dichloroethane.

TABLE 6.—MONOFILL PARAMETERS

Parameter	Value [1]
Depth to ground water	0 meters for Class I ground water; 1 meter for Class II and Class III ground water
Soil type	Sand
Net ground water recharge rate.	0.5 meters per year
Ground water electromotive potential (Eh).	+500 millivolts
Ground water pH	6.0
Partition coefficient (liters per kilogram):	
Arsenic	5.86
Benzene	0.0074
Benzo(a)pyrene	63.0
Bis(2-ethylhexyl)phthalate	0.7244
Cadmium	14.9
Chlordane	17.0
Copper	41.0
DDT/DDE/DDD (Total) [2]	500.0
Dimethyl nitrosamine	0.000004
Lead	234.0
Lindane	0.108
Mercury	322.0
Nickel	12.2
Polychlorinate biphenyls	32.0
Toxaphene	0.096
Trichloroethylene	0.0198

[1] Use value in this Table or measured site-specific value for parameter.
[2] DDT—2,2-Bis(chlorophenyl)-1,1,1-trichloroethane
DDE—1,1-Bis(chlorophenyl)-2,2-dichloroethene
DDD—1,1-Bis(chlorophenyl)-2,2-dichloroethane.

§ 503.34 **Monofills—management practices.**

(a) The owners or operators of a monofill shall cover sewage sludge units with suitable material at the end of each operating day. Cover material shall be applied at more frequent intervals, if necessary, to control disease vectors, odors, gas venting, and scavenging.

(b) The owners or operators of a monofill shall ensure that:

(1) The concentration of methane gas generated in the sewage sludge units does not exceed 1.25 percent methane in any structure within the monofill;

(2) The concentration of methane gas generated in the sewage sludge units does not exceed 5.0 percent methane at the property line of the monofill;

(3) A routine methane gas monitoring program is implemented in accordance with § 503.84(a); and

(4) All necessary and appropriate actions are taken immediately to protect public safety if the limits specified in paragraph (b) (1) or (2) of the section are detected.

(c) Owners and operators shall restrict public access to monofills to protect human health and the environment and to prevent unauthorized vehicular traffic or dumping in the monofill.

§ 503.35 **Pathogen reduction requirements.**

Sewage sludge placed in a monofill shall be treated to comply with either the Class A pathogen reduction requirements in § 503.52(a) or the Class B pathogen reduction requirements in § 503.52(b).

Subpart E—Disposal of Sewage Sludge on Surface Disposal Sites

§ 503.40 **Applicability.**

This subpart applies to the disposal of sewage sludge on surface disposal sites, to surface disposal sites, and to any person who disposes of sewage sludge on a surface disposal site.

§ 503.41 **Specialized definitions.**

(a) Base flood is a flood that has a one-percent or greater chance of recurring in any given year or a flood of a magnitude equalled or exceeded once in 100 years, on the average, over a significantly long period.

(b) Displacement is the relative movement of a fault measured in any direction.

(c) Fault is a fracture along which rocks on one side are displaced with respect to those on the other side.

(d) Floodplain is the lowland and relatively flat areas adjoining inland and coastal waters, including floodplain areas of offshore islands that are inundated by a base flood.

(e) Holocene time is the most recent epoch of the Quaternary period, extending from the end of the Pleistocene to the present.

(f) Lateral expansion is a horizontal expansion of a surface disposal site.

(g) Runoff is a rainwater, leachate, or other liquid that drains overland on any part of a surface disposal site.

(h) Saturated zone is that part of the earth's crust in which all voids of porous materials are filled with water.

(i) Seismic impact zone is an area that has had horizontal ground level acceleration equal to or greater than 0.10 gravities.

(j) Surface disposal site is an area of land on which only sewage sludge is placed for a period of 1 year or longer. Surface disposal sites do not have a vegetative or other cover. Land on which a surface disposal site is located does not include waters of the United States as defined in 40 CFR 230.3(s).

(k) Unsaturated zone is the zone between the land surface and the water table.

(l) Water table is the upper surface of ground water where the pressure in the porous medium above the ground water equals the atmospheric pressure.

(m) Wetland areas are areas that are inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands include, but are not limited to, swamps, marshes, bogs, and similar areas.

§ 503.42 **Surface disposal sites—general requirements.**

(a) No person subject to this part shall place sewage sludge in a surface disposal site except in accordance with this subpart.

(b) In addition to the requirements of this subpart, owners or operators of surface disposal sites shall comply with the NPDES requirements promulgated pursuant to section 402 of the CWA.

(c) Surface disposal sites shall not cause or contribute to the harm of a threatened or endangered species of plant, fish, or wildlife or result in the destruction or adverse modification of the critical habitat of a threatened or endangered species.

(d) Surface disposal sites shall not restrict the flow of a base flood; reduce the temporary water storage capacity of a floodplain; or present a hazard to human health, wildlife, or land or water resources because of sewage sludge in the runoff from the base flood.

(e) A surface disposal site located within 3,048 meters (10,000 feet) of an airport runway used by turbine-powered aircraft or within 1,524 meters (5,000 feet) of an airport runway used only by piston engine-powered aircraft shall not pose a hazard to aircraft from birds.

(f) When a surface disposal site is located in a seismic impact zone, the surface disposal site shall be designed to withstand the maximum recorded horizontal ground level acceleration.

(g) Surface disposal sites shall be located 60 meters or more from a fault or stress fractures that have had displacement in Holocene time.

(h) Surface disposal sites shall be located in areas where adequate support for the structural components of the surface disposal site exists.

(i) Surface disposal sites shall be located outside the perimeter of wetland areas.

(j) Owners or operators of surface disposal sites shall collect and discharge the volume of runoff from a 24-hour, 25-year storm event, in accordance with an applicable NPDES permit.

(k) Sewage sludge surface disposal sites located within 60 meters of a fault or stress fractures that have had displacement in Holocene time, located in unstable areas, or located in wetland areas shall be closed within 1 year of the effective date of this rule.

(l) Owners or operators of treatment works shall comply with the monitoring requirements in § 503.81 and record keeping and report requirements in § 503.85.

§ 503.43 Surface disposal sites—national pollutant limits.

The concentration of the pollutants in sewage sludge placed on a surface disposal site shall not exceed the pollutant limits in Table 7.

TABLE 7.—SURFACE DISPOSAL SITES POLLUTANT LIMITS

Pollutant	Maximum sewage sludge concentration [1] (milligrams per kilogram)
Arsenic	36
Benzene	15
Benzo(a)pyrene	99
Bis(2-ethylhexyl)phthalate	782
Cadmium	385
Chlordane	180
Copper	3300.3
DDT/DDE/DDD (Total) [2]	0.95
Dimethyl nitrosamine	1.4
Lead	1622
Lindane	2.3
Mercury	17
Nickel	988
Polychlorinated biphenyls	49
Toxaphene	0.5
Trichloroethylene	181

[1] Dry Weight Basis.

[2] DDT—2,2-Bis(chlorophenyl)-1,1,1,-trichloroethane. DDE—1,1-Bis(chlorophenyl)-2,2-dichoeroethene. DDD—1,1,-Bis(chlorophenyl)-2,2-dichloroethane.

§ 503.44 Surface disposal sites—management practices.

(a) The owners and operators of a surface disposal site shall ensure that:

(1) The concentration of methane gas generated in a surface impoundment does not exceed 1.25 percent methane in any structure within the property line of the surface disposal site;

(2) The concentration of methane gas generated in a surface disposal site does not exceed 5.0 percent methane at the property line of the surface disposal site;

(3) A routine methane gas monitoring program is implemented in accordance with § 503.85(a); and

(4) All necessary and appropriate actions are taken immediately to protect public safety if the limits specified in paragraph (a) (1) or (2) of this section are detected.

(b) Food crops and feed crops intended for human or animal consumption shall not be grown on the sewage sludge.

(c) Animals shall not be grazed on the sewage sludge.

(d) Owners and operators shall restrict public access to surface disposal sites to protect human health and the environment and to prevent unauthorized dumping at the site.

§ 503.45 Pathogen and vector attraction reduction requirements.

Sewage sludge placed on a surface disposal site shall be treated to comply with either the Class A pathogen reduction requirement in § 503.52(a) or the Class B pathogen reduction requirements in § 503.52(b) and one of the vector attraction reduction requirements in § 503.53 (a) through (f).

Subpart F—Pathogen and Vector Attraction Reduction Requirements

§ 503.50 Applicability and scope.

(a) *Applicability.* This subpart applies to sewage sludge that is applied to agricultural and non-agricultural land, distributed and marketed, disposed of in a monofill, or disposed of on a surface disposal site.

(b) *Scope.* This subpart establishes the requirements for eliminating or reducing pathogenic organisms in sewage sludge and for eliminating or reducing the characteristics of sludge that attract vectors.

§ 503.51 Specialized definitions.

(a) Aerobic digestion is the oxidation of organic matter in sewage sludge into carbon dioxide by aerobic bacteria.

(b) Anaerobic digestion is the decomposition of organic matter in sewage sludge into methane and carbon dioxide by anaerobic bacteria.

(c) Density of microbial organisms per unit mass of volatile suspended solids is the number of microbial organisms divided by the mass of volatile suspended solids in the sewage sludge.

(d) Feed crops are crops intended for consumption by animals.

(e) Food crops are crops intended for human consumption.

(f) Indicator organisms are fecal coliform and fecal streptococci (enterococci) that are used to indicate the presence of pathogenic organisms in the processed sewage sludge.

(g) Pathogen reduction is the elimination or reduction of pathogenic bacteria (*Salmonella* sp.), viruses, protozoa, and helminth ova in sewage sludge.

(h) Specific oxygen uptake rate (SOUR) is the rate at which bacteria consume oxygen in a liquid sewage sludge that has undergone aerobic digestion (i.e., mass of oxygen consumed per unit time per unit mass of sewage sludge solids).

(i) Vector attraction reduction is the elimination or reduction of the characteristics of sewage sludge that attract rodents, flies, mosquitos, and other organisms (i.e., organic amines and short-chained fatty acids).

(j) Volatile solids is that portion of the total solids in sewage sludge that evaporates when the sewage sludge is combusted at 550 degrees Celsius in the presence of excess air.

(k) Volatile suspended solids is that portion of the total suspended solids in sewage sludge that evaporates when the sewage sludge is combusted at 550 degrees Celsius in the presence of excess air.

§ 503.52 Pathogen reduction requirements.

(a) *Class A pathogen reduction requirements.* Owners or operators of treatment works or distributors of sewage sludge not from treatment works shall monitor their sewage sludge in accordance with the methods in § 503.81(b) (3) through (11) to ensure that pathogenic organisms or indicator organisms do not exceed the limits in paragraph (a) (1) or (2) of this section. Also, owners or operators of treatment works or distributors shall comply with paragraph (a)(3) and, if applicable paragraph (a)(4) of this section.

(1) Pathogenic organisms are equal to or less than:

(i) 3 *Salmonella* sp. per gram of volatile suspended solids;

(ii) 1 plaque forming virus unit per gram of volatile suspended solids;

(iii) 1 protozoan organism per gram of volatile suspended solids; and

(iv) 1 helminth egg per gram of volatile suspended solids.

(2) Sewage sludge is raised to 53 degrees Celsius for 5 days, to 55 degrees Celsius for 3 days, or to 70 degrees Celsius for one-half hour and the densities of indicator organisms are equal to or less than:

(i) 2 $\log_{10}$ fecal coliform per gram of volatile suspended solids; and

(ii) 2 $\log_{10}$ fecal streptococci (enterococci) per gram of volatile suspended solids.

(3) Owners or operators of treatment works or distributors shall process the sewage sludge to achieve the limits in paragraph (a) (1) or (2) of this section prior to or concurrent with § 503.53 (a) through (e).

(4) If the method selected for vector attraction reduction is injection below the soil surface as provided in § 503.53(f), treatment works or distributors shall monitor the sewage sludge to ensure that the densities of fecal coliform and fecal streptococci (enterococci) each do not exceed 3 $\log_{10}$ per gram of volatile suspended solids prior to injection.

(b) *Class B pathogen reduction requirements.* Owners or operators of treatment works or distributors of sewage sluge not from treatment works shall monitor their sewage sludge in accordance with the methods in § 503.81(b) (3) through (11) to ensure that pathogenic organisms or indicator organisms do not exceed the limits in paragraph (b) (1) or (2) of this section. Also, owners or operators of treatment works or distributors shall comply with paragraphs (b) (3) and (4) of this section.

(1) The density of pathogenic organisms in the influent to the treatment work is reduced in the final processed sludge by:

(i) 2 $\log_{10}$ for *Salmonelli* sp. per gram of volatile suspended solids; and

(ii) 2 $\log_{10}$ for viruses per gram of volatile suspended solids.

(2) When the influent to the treatment work or sewage sludge not from a treatment work is processed by a physical or biological method and when the sewage sludge from those methods is treated in a physical, biological, or chemical addition method, or is stored for at least 1 day, the densities of the indicator organisms are equal to or less than:

(i) 6 $\log_{10}$ fecal coliform per gram of volatile suspended solids; and

(ii) 6 $\log_{10}$ fecal strepotococci (enterococci) per gram of volatile suspended solids.

(3) When sewage sludge is applied to the land, owners or operators of treatment works or distributors shall ensure that:

(i) Food crops with harvested parts that touch the sludge-soil mixture and that are totally above ground shall not be grown for a period of 18 consecutive months after application of the sewage sludge to the land;

(ii) Food crops with harvested parts that are below the surface of the ground shall not be grown for a period of 5 consecutive years after application of the sewage sludge, unless no viable helminth ova are present in the soil; if there are no ova present, food crops with harvested parts that are below the surface of the ground may be grown 18 months after application of the sewage sludge;

(iii) Feed crops shall not be harvested for a period of 30 consecutive days after the sewage sludge is applied; and

(iv) Animals shall not be allowed to graze for a period of 30 consecutive days after the sewage sludge is applied.

(4) Owners or operators of treatment works or distributors shall ensure that public access to agricultural and non-agricultural lands is restricted for a period of 12 consecutive months after the application of the sewage sludge.

(c) *Class C pathogen reduction requirements.* Owners or operators of treatment works or distributors of sewage sludge not from treatment works shall monitor their sewage sludge in accordance with the methods in § 503.81(b)(3) through (11) to ensure that pathogenic organisms or indicator organisms do not exceed the limits in paragraph (c) (1) or (2) of this section. Also, owners or operators of treatment works or distributors shall comply with paragraphs (c) (3) and (4) of this section.

(1) The density of pathogenic organisms in the influent to the treatment work is reduced in the final processed sludge by:

(i) 1.5 $\log_{10}$ for *Salmonelli* sp. per gram of volatile suspended solids; and

(ii) 1.5 $\log_{10}$ for viruses per gram of volatile suspended solids.

(2) When the influent to the treatment work or sewage sludge not from a treatment work is processed by a physical or biological method and when the sewage sludge from those methods is further processed by a physical or biological method, is stored in a lagoon, is air dried, or is otherwise stored for at least 1 day, the densities of the indicator organisms are equal to or less than:

(i) 6.3 $\log_{10}$ fecal coliform per gram of volatile suspended solids; and

(ii) 6.7 $\log_{10}$ fecal streptococci (enterococci) per gram of volatile suspended solids.

(3) When sewage sludge is applied to the land, owners or operators of treatment works or distributors shall ensure that:

(i) Food crops with harvested parts that touch the sludge-soil mixture and that are totally above the ground shall not be grown for a period of 18 consecutive months after application of the sewage sludge;

(ii) Food crops with harvested parts that are below the surface of the ground shall not be grown for a period of 5 consecutive years after application of the sewage sludge, unless no viable helminth ova are present in the soil; if there are no ova present, food crops with harvested parts that are below the surface of the ground may be grown 18 months after application of the sewage sludge;

(iii) Feed crops shall not be harvested for a period of 60 consecutive days after the sewage sludge is applied; and

(iv) Animals shall not be allowed to graze for a period of 60 consecutive days after the sewage sludge is applied.

(4) Owners or operators of treatment works or distributors shall ensure that access to agricultural and non-agricultural lands is restricted for a period of 12 consecutive months after the application of the sewage sludge.

§ 503.53 Vector attraction reduction requirements.

Any of the approaches in paragraphs (a) through (f) of this section may be used in meeting the vector attraction reduction requirements when sewage sludge is applied to agricultural and non-agricultural land or disposed of on a surface disposal site. Owners or operators of treatment works that distribute and market their sewage sludge may not use the approach in paragraph (f) of this section.

(a) The mass of volatile solids in sewage sludge that is treated by an aerobic or anaerobic digestion process is reduced by 38 percent.

(b) The mass of volatile solids in sewage sludge that is treated by an anaerobic digestion process is reduced by less than 15 percent when the sewage sludge is processed for 40 additional days at 30 or more degrees Celsuis by anaerobic digestion.

(c) For sewage sludge that is processed by aerobic digestion, the specific oxygen uptake rate (SOUR) of the sewage sludge prior to final disposal is 1 milligram of oxygen per hour, per gram or less of sewage sludge solids.

(d) The pH of the sewage sludge is raised to 12 or above by alkali addition and, without the addition of more alkali, remains at 12 or above for 2 consecutive hours and then remains at 11.5 or above for an additional period of 22 hours.

(e) The percent solids of the sewage sluge, based on the moisture and solids content of the sewage sludge prior to mixing with other materials, is 75 percent or greater.

(f) The sewage sludge is injected below the surface of the soil with no evidence of the sewage sludge on the land surface within 1 hour after injection of the sewage sludge.

with requirements specified by EPA to determine the actual control efficiency of the sewage sludge incinerator(s) in preventing the release of beryllium to the atmosphere. The control efficiency obtained from the performance test shall be used in equation (1) to calculate a maximum allowable concentration of beryllium in sewage sludge which may be fed into the incinerator.

(c) Mercury.

The maximum allowable concentration of mercury in sewage sludge which may be incinerated shall not exceed the concentration in paragraph (c)(1) of this section, except as provided in paragraph (c)(2) of this section.

(1) National limit—mercury.

The maximum allowable concentration of mercury shall be calculated using equation (2).

$$C = \frac{3200}{(1-CE) \times SF} \qquad (2)$$

Where:

C = Maximum allowable concentration of mercury in sewage sludge, in milligrams per kilogram (dry weight basis).

CE = Sewage sludge incinerator control efficiency (from Table 10).

SF = Sewage sludge feed rate in metric tons per day (dry weight basis).

If the concentration of mercury in the sewage sludge that is to be incinerated exceeds the concentration in equation (2), owners or operators may perform a test of the incinerator(s) in accordance with requirements specified by EPA to determine the actual control efficiency of the sewage sludge incinerator(s) in preventing the release of mercury to the atmosphere. The control efficiency obtained from the performance test shall be used in equation (2) to calculate a maximum allowable concentration of mercury in the sewage sludge which may be fed into the incinerator.

(d) Lead.

The maximum allowable concentration of lead in sewage sludge which may be incinerated shall not exceed the concentration in paragraph (d)(1) of this section, except as provided in paragraph (d)(2)(i) or (2)(ii) of this section.

(1) National limit—lead.

The maximum allowable concentration of lead incinerated shall be calculated using equation (3).

$$C = \frac{.25\ (NAAQS) \times 86.400}{DF \times (1-CE) \times SF} \qquad (3)$$

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Subpart G—Incineration of Sewage Sludge

§ 503.60 Applicability.

This subpart applies to the incineration of sewage sludge in an incinerator that only fires sewage sludge, to sewage sludge incinerators, and to any person who disposes of sewage sludge in a sewage sludge incinerator.

§ 503.61 Specialized definitions.

(a) Air pollution control system is one or more processes used to collect emissions from a sewage sludge incinerator.

(b) Control efficiency is the mass of a metallic pollutant in the sewage sludge fed to an incinerator minus the mass of that pollutant in the emission from the incinerator stack divided by the mass of the pollutant in the sewage sludge fed to the incinerator.

(c) Dispersion factor is a numerical value that correlates the maximum allowable emission rate for a pollutant from a sewage sludge incinerator stack to the maximum allowable increase in the ground level ambient air concentration for that pollutant at a specified distance from the incinerator stack.

(d) Incineration is the firing of sewage sludge in an enclosed device using controlled flame combustion. An enclosed device includes, but is not limited to, multiple hearth incinerators, fluidized bed incinerators, electric incinerators, or rotary kiln incinerators.

(e) Maximum combustion temperature is the maximum temperature in the combustion zone of a sewage sludge incinerator.

(f) Risk specific concentration is the increase in the concentration of a pollutant that sewage sludge incinerators may contribute to the average annual ground level ambient air concentration for that pollutant.

(g) Sewage sludge feed rate is the average amount of sewage sludge incinerated per day for all sewage sludge incinerators within the property line of a facility or the incinerator design capacity for the total amount of sewage sludge that can be incinerated per day for all sewage sludge incinerators within the property line of the facility.

(h) Stack height is the difference between the elevation of the top of a sewage sludge incinerator stack and the elevation of the ground surface at the base, when this difference is equal to or less than 65 meters. For incinerator stacks higher than 65 meters, the creditable stack height above 65 meters is determined in accordance with 40 CFR 51.1(l)(ii).

(i) Total hydrocarbons
all emitted organic comp
one or more carbon-to-ca
one or more carbon-to-hy
and that also may have c
carbon-to-chlorine, carbo
or carbon-to-oxygen bon

§ 503.62 Incineration—ge requirements.

(a) No person shall fire
in a sewage sludge incine
the sewage sludge and th
sludge incinerator meet t
requirements in this subp
(b) In addition to the re
this subpart, owners or o
sewage sludge incinerato
with the requirements pr
under the authority of th
in 40 CFR 61.30 through 6
61.50 through 61.55, and 6
through 60.154.
(c) Ash from the incine
sewage sludge shall be d
accordance with the requ
CFR Parts 257, 258, or 26
as appropriate.
(d) Sewage sludge feed
sewage sludge incinerato
property line of treatmen
be used to calculate the
in § 503.63 (b) through (e)
(e) An instrument that
measures the sewage slu
shall be installed, calibra
and maintained for each
incinerator. The instrume
an accuracy of plus or mi
percent over its operatin
(f) Access to the sewag
fed to an incinerator sha
so that representative gr
the sewage sludge can be
(g) An instrument that
continuously records the
of the combustion chamb
the point at which any ai
combustion chamber gas
installed, calibrated, ope
maintained. The oxygen
instrument shall have an
plus or minus five percen
operating range and shal
at least once every 24-ho
period.
(h) Instruments that m
continuously record tem
be installed, calibrated,
maintained. The number
of the instruments shall
(1) For a multiple hear
one instrument in every
instruments in the comb
(2) For a fluidized bed
instrument in the bed an
instrument in the outlet
fluidized bed:

performance test shall be used in equation (4) to calculate a maximum allowable concentration of arsenic, cadmium, chromium, or nickel in the sewage sludge which may be fed into the incinerator.

(f) Total hydrocarbons.

The maximum allowable concentration of total hydrocarbons that may be in the emissions from sewage sludge incinerators shall not exceed the concentration in paragraph (f)(1) of this section, except as provided in paragraph (f)(2) of this section.

(1) National limit—total hydrocarbons.

The maximum allowable concentration of total hydrocarbons shall be calculated using equation (5).

$$THC = \frac{RSC \times 3{,}240{,}000{,}000}{DF \times GF} \quad (5)$$

Where:

THC = Maximum allowable concentration of total hydrocarbons in the sewage sludge incinerator's emissions, in parts per million, on a volumetric basis, corrected for seven percent oxygen (dry basis).

RSC = Risk specific concentration, in micrograms per cubic meter (from Table 8).

3,240,000,000 = Conversion factors.

DF = Dispersion factor, in micrograms per cubic meter, per gram, per second (from Table 9).

GF = Maximum combustion gas flow rate from the sewage sludge incinerator, in gram moles per day.

(i) The dispersion factor (DF) in equation (5) shall be obtained from Table 9 if the sewage sludge incinerator stack height is 65 meters or less.

(ii) When the sewage sludge incinerator stack height exceeds 65 meters, the creditable stack height shall be determined in accordance with 40 CFR 51.1(I)(ii) and shall be used in an EPA-approved air dispersion model to determine the appropriate dispersion factor for equation (5).

(iii) The maximum combustion gas flow rate (GF) in equation (5) shall be determined using the procedure in Appendix D of this part.

(iv) The concentration of total hydrocarbons measured in the emissions shall be corrected to 50 percent excess air (seven percent oxygen), zero percent moisture as shown in equation (6).

Correction factor dimensionless) = 14 (6) (21−Y)

Where:

Y = Oxygen concentration in the sewage sludge incinerator exit gas (percent).

(v) The corrected concentration of total hydrocarbons is the total hydrocarbon concentration that must meet the concentration calculated with equation (5), except as provided in paragraph (f)(2) of this section.

(2) Case-by-case limit—total hydrocarbons.

If the concentration of total hydrocarbons from incinerator emissions—measured with the device specified in § 503.62(i) and corrected to 50 percent excess air (seven percent oxygen), as provided in equation (6)—exceeds the limit in equation (5) because of the dispersion factor in Table 9, owners or operators may determine an alternative dispersion factor using an EPA-approved air dispersion model. The dispersion factor obtained from the dispersion modeling shall be used in equation (5) to calculate a maximum allowable concentration of total hydrocarbons in sewage sludge which may be fed into the incinerator.

TABLE 8.—RISK SPECIFIC CONCENTRATION

Pollutant	RSC (Micrograms per cubic meter)
Arsenic	0.0023
Cadmium	0.0057
Chromium	0.085
Nickel	0.033
Total Hydrocarbons	2.69

TABLE 9.—DISPERSION FACTORS

Stack height (meters)	Dispersion factor (micrograms per cubic meter per gram per second)
5	58.24
6	57.67
7	57.12
8	56.58
9	56.04
10	55.80
11	54.96
12	50.98
13	47.00
14	42.41
15	37.83
16	33.24
17	28.65
18	25.88
19	23.10
20	20.33
21	17.55
22	14.78
23	12.00
24	11.73
25	11.46
26	11.19
27	10.93
28	10.66
29	10.39
30	10.12

TABLE 9.—DISPERSION FACTORS—Continued

Stack height (meters)	Dispersion factor (micrograms per cubic meter per gram per second)
31	9.85
32	9.59
33	9.32
34	9.04
35	8.78
36	8.51
37	8.24
38	7.98
39	7.71
40	7.52
41	7.37
42	7.23
43	7.09
44	6.95
45	6.81
46	6.67
47	6.53
48	6.39
49	6.25
50	6.1[illegible]
51	5.97
52	5.83
53	5.69
54	5.54
55	5.40
56	5.26
57	5.12
58	4.98
59	4.84
60	4.70
61	4.56
62	4.42
63	4.28
64	4.14
65	3.99

TABLE 10.—INCINERATOR CONTROL EFFICIENCIES

Pollutant	Control Efficiencies
Arsenic	0.96
Beryllium	0.99
Cadmium	0.65
Chromium	0.96
Lead	0.67
Mercury	0.00
Nickel	0.95

§ 503.64 Incineration—management practices.

(a) Except as provided in paragraph (b) of this section, sewage sludge incinerators must be operated as follows:

(1) The miximum combustion temperature in the sewage sludge incinerator shall be no greater than 898 degrees Celsius (1650 degrees Fahrenheit);

(2) The maximum oxygen content of the exit gas from a sewage sludge incinerator stack shall be 12 percent (dry basis) for a multiple hearth sewage

sludge incinerator, seven percent (dry basis) for a fluidized bed sewage sludge incinerator, nine percent (dry basis) for an electric sewage sludge incinerator, and 12 percent (dry basis) for a rotary kiln sewage sludge incinerator; and

(3) The air pollution control system, including instrumentation, used to collect emissions from the sewage sludge incinerator stack shall be appropriate for the type of incinerator used and shall be operated and maintained to meet all applicable requirements.

(b) When a performance test of an incinerator is used to obtain a control efficiency for the pollutants in § 503.63(b) through (e), the incinerator must be operated as follows:

(1) The maxium combustion temperature and maximum oxygen content of the stack exit gas for the sewage sludge incinerator shall be based on the results of the performance test; and

(2) The air pollution control system used to collect emissions from the sewage sludge incinerator stack, including instrumentation, shall be appropriate for the type of incinerator used and shall be operated and maintained to meet all applicable requirements.

Subpart H—Removal Credits

§ 503.70 Applicability and description of a removal credit.

(a) *Applicability*. This subpart applies to those pollutants in sewage sludge for which pollutant limits are established in this part, to additional pollutants that do not pose an unreasonable risk to human health or the environment when sewage sludge is used or disposed of by a particular method, and to pollutants in sewage sludge that is disposed of in accordance with 40 CFR Part 258.

(b) *Description of a removal credit*. Regulations at 40 CFR Part 403 provide that, subject to the conditions of Part 403, any POTW receiving wastes from an industrial user to which a categorical pretreatment standard applies, at its discretion, upon authorization from the approval authority, may grant credits to industrial users that reflect removal by the POTW of pollutants specified in the categorical pretreatment standards.

§ 503.71 Specialized definition.

Categorical pretreatment standard is a numerical effluent limit promulgated by EPA for a pollutant discharged into a POTW with which all processes in an industrial category must comply.

§ 503.72 Pollutants for which removal credits may be authorized.

Subject to the conditions of 40 CFR Part 403, the owners or operators of a POTW may grant removal credits under any of the following conditions:

(a) For any pollutant listed on Table 11 that is regulated in the use or disposal method employed by the POTW, if the POTW complies with the requirements of this part;

(b) For any pollutant listed on Table 12 in the use or disposal method employed by the POTW if the POTW's sewage sludge does not exceed the levels shown on Table 13 and if the POTW complies with the requirements of this part; or

(c) For any pollutant present in the sewage sludge of the POTW, if the owner or operator disposes of the sludge in accordance with 40 CFR Part 258.

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TABLE 11

REGULATED POLLUTANTS ELIGIBLE FOR REMOVAL CREDITS

Pollutants	LA	D&M	MF	SD	I
Acrylonitrile					X
Aldrin	X	X			X
Arsenic	X	X	X	X	X
Benzene			X	X	X
Benzidine					X
Benzo(a)pyrene	X	X	X	X	X
Beryllium					X
Bis(2-chloroethyl)ether					X
Bis(2-xethylhexyl)phthalate			X	X	X
Bromodichloromethane					X
Bromoethane					X
Cadium	X	X	X	X	X
Carbon tetrachloride					X
Chlordane	X	X	X	X	X
Chloroform					X
Chromium	X	X			X
Copper	X	X	X	X	
DDD,DDE,DDT	X	X	X	X	X
Dibromochloromethane					X
Dibutyl phthalate					X
2,4-dichlorophenol					X
1,3-dichloropropene					X
Diethyl phthalate					X
2,4-dinitrophenol					X
1,2-diphenylhydrazine					X
Dieldrin	X	X			
Dimethyl nitrosamine	X		X	X	
Endosulfan					X
Endrin					X
Ethylbenzene					X
Heptachlor	X	X			X
Heptachlor epoxide					X
Hexachlorobenzene	X	X			
Hexachlorobutadiene	X	X			
alpha-hexachlorocyclohexane					X
beta-hexachlorocyclohexane					X
Hexachloropentadiene					X
Hexachloroethane					X
Hydrogen cyanide					X
Isophorone					X
Lead	X	X	X	X	X
Lindane	X	X	X	X	X

(continued)	LA	D&M	MF	SD	I
Mercury	X	X	X	X	X
Molybdenum	X				
Nitrobenzene					X
N-Nitrosodimethylamine					X
N-Nitrosodi-n-propylamine					X
Nickel	X	X	X	X	X
Pentachlorophenol					X
Phenol					X
Polychlorinated biphenyls	X	X	X	X	X
Selenium	X	X			
2,3,7,8-tetrachlorodibenzo-p-dioxin					X
1,1,2,2,-tetrachloroethane					X
Tetrachloroethylene					X
Toulene					X
Toxaphene	X	X	X	X	X
Trichloroethylene	X		X	X	X
1,2,4-trichlorobezene					X
1,1,1-trichloroethane					X
1,1,2-trichloroethane					X
2,4,6-trichlorophenol					X
Zinc	X	X	X	X	X

KEY: LA refers to land application
D&M refers to distribution and marketing
MF refers to sludge-only landfills
SD refers to surface disposal unit
I refers to incineration

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TABLE 12.—ADDITIONAL POLLUTANTS ELIGIBLE FOR REMOVAL CREDITS

	mg/kg
Land Application of Sewage Sludge	
Cyanide	2,686.6
Flouride	738.7
Iron	78,700
Pentachlorophenol	30.43
Distribution and Marketing of Sewage Sludge:	
Cyanide	2,686.6
Dimethyl nitrosamine	2.55
Fluoride	738.7
Iron	78,700
Pentachlorophenol	30.43
Trichloroethylene	13.07
Disposal of Sewage Sludge in Monofills:	
Chlordane	12
Chromium	1,499.7
Copper [1]	1,427
Cyanide	2,686.6
2,4 Dichlorophenoxyacetic acid	7.16
Malathion	0.63
Molybdenum	40
Nickel	1,662.7
Phenol	82.06
Selenium	4.85
Zinc	4,580
Disposal of Sewage Sludge on Surface Disposal Sites:	
Chromium	1,499.7
Cyanide	2,686.6
2,4 Dichlorophenoxyacetic acid	7.16
Malathion	0.63
Molybdenum	40
Phenol	82.06
Selenium	4.85
Zinc	4,580
Incineration of Sewage Sludge:	
Copper	1,427
Selenium	4.85
Zinc	4,580

[1] A removal credit may be granted for this pollutant when the monofill is located over ground water classified as Class II, Class III(1), and Class III(3), as defined in § 503.31 (c) and (d).

Subpart I—Monitoring, Record Keeping, and Reports

§ 503.80 Purpose.

This subpart contains the minimum frequencies that owners or operators of treatment works must monitor their sewage sludge; the minimum records that owners or operators of treatment works must keep; the period of time the records must be kept; and the minimum information that owners or operators of treatment works must report to the permitting authority. Nothing in this subpart prevents the establishment of more stringent monitoring, record keeping, and report requirements for any practice covered by this part.

§ 503.81 General.

Owners or operators of treatment works or distributors of sewage sludge shall collect sewage sludge samples and analyze these samples in accordance with the procedures, methods, and frequency specified in paragraphs (a), (b), and (c) of this section. The pollutants and pathogenic organisms or indicator organisms for which owners or operators of treatment works shall analyze their sewage sludge depend on the use or disposal method employed by the treatment work or distributor and are specified in § 503.93 through § 503.97 of this part.

(a) Sampling protocol.

"Sampling Procedures and Protocols for the National Sewage Sludge Survey," Office of Water Regulations and Standards (March 1988).

(b) Analytical methods.

(1) Organic pollutants.

Methods 1624 and 1625 in "Analytical Methods for the National Sewage Sludge Survey," Office of Water Sample Control Center (March 1988) or Methods 624 and 625 in 40 CFR Part 136.

(2) Inorganic pollutants.

"Analytical Methods for the National Sewage Sludge Survey," Office of Water Sample Control Center (March 1988).

(3) Pathogenic bacteria. *Salmonella* sp.

(i) Part 912 C.1. "Standard Methods for the Examination of Water and Wastewater," 16th Edition (1985); or

(ii) Kenner, B.A. and H.A. Clark. "Detection and enumeration of *Salmonella* and *Pseudomonas aeruginosa*." "J. Water Pollution Control Federation." 46(9):2163–2171.

(4) Viruses.

"The Manual of Methods for Virology," EPA/600/4–84/013 (February 1984), as revised.

(5) Protozoa.

(i) Part 917, "Standard Methods for the Examination of Water and Wastewater," 16th Edition (1985); or

(ii) Fox, J.C., P.R. Fitzgerald, and C. Lue-Hing, "Sewage Organisms: A Color Atlas," Lewis Publishers, Chelsea, Michigan (1981).

(6) Helminth ova.

(i) Part 917, "Standard Methods for the Examination of Water and Wastewater," 16th edition (1985); or

(ii) Fox, J.C., P.R. Fitzgerald, and C. Lue-Hing, "Sewage Organisms: A Color Atlas," Lewis Publishers, Chelsea Michigan (1981).

(7) Fecal coliform.

Part 908 or Part 909, "Standard Methods for the Examination of Water and Wastewater," 16th Edition (1985).

(8) Fecal streptococci/enterococci.

(i) Part 910 A. "Standard Methods for the Examination of Water and Wastewater," 16th Edition (1985); or

(ii) Slantely, L.W. and C.H. Bartley. "Numbers of enterococci in water, sewage, and feces determined by the membrane filter technique with an improved medium." "J. Bacteriology." 74:591–595 (1957).

(9) Volatile solids.

Part 209 C. "Standard Methods for the Examination of Water and Wastewater," 16th Edition (1985).

(10) Volatile suspended solids.

Part 209 G. "Standard Methods for the Examination of Water and Wastewater," 16th Edition (1985).

(11) Percent volatile solids reduction.

The percent volatile solids reduction shall be calculated using the following equation:

$$\text{Percent Volatile Solids Reduction} = \frac{(Mi - Mg) \cdot 100}{Mi}$$

Where:
Mi = The mass of volatile solids in sewage sludge prior to processing.
Mg = The mass of volatile solids in sewage sludge after processing.

(12) Specific oxygen uptake rate (SOUR).

Part 213 A. "Standard Methods for the Examination of Water and Wastewater," 16th Edition (1985).

(c) Frequency of monitoring and reporting.

Unless otherwise specified, owners or operators of treatment works shall monitor and report the parameters specified in this subpart in accordance with the following:

Treatment works design capacity (million gallons per day)	Frequency of monitoring
Less than 1.0	Once per year.
1.0 to 10.0	Once per quarter.
Greater than 10.0	Once per month.

§ 503.82 Land application of sewage sludge.

(a) Monitoring—(1) Agricultural land.

(continued)	LA	D&M	MF	SD	I
Mercury	X	X	X	X	X
Molybdenum	X				
Nitrobenzene					X
N-Nitrosodimethylamine					X
N-Nitrosodi-n-propylamine					X
Nickel	X	X	X	X	X
Pentachlorophenol					X
Phenol					X
Polychlorinated biphenyls	X	X	X	X	X
Selenium	X	X			
2,3,7,8-tetrachlorodibenzo-p-dioxin					X
1,1,2,2,-tetrachloroethane					X
Tetrachloroethylene					X
Toulene					X
Toxaphene	X	X	X	X	X
Trichloroethylene	X		X	X	X
1,2,4-trichlorobezene					X
1,1,1-trichloroethane					X
1,1,2-trichloroethane					X
2,4,6-trichlorophenol					X
Zinc	X	X	X	X	X

KEY: LA refers to land application
D&M refers to distribution and marketing
MF refers to sludge-only landfills
SD refers to surface disposal unit
I refers to incineration

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From a representative sample of sewage sludge, owners or operators of treatment works or distributors of sewage sludge, in accordance with the applicable frequency specified in § 503.81(c), shall:

(i) Determine the concentrations of nitrogen and the pollutants listed on Tables 1 and 2 in § 503.13. Also, owners or operators shall monitor for the pollutants listed on Table 12 in § 503.72 if the POTW grants removal credits for these pollutants.

(ii) Determine compliance with Class A, Class B, or Class C pathogen-reduction requirements in § 503.52.

(iii) Determine compliance with the vector attraction reduction requirements in § 503.53.

(iv) When owners or operators of treatment works inject the sewage sludge below the surface of agricultural land to comply with the vector attraction reduction requirements in § 503.53(f), the sewage sludge does not have to be monitored for volatile solids, SOUR, pH, or moisture content.

(2) *Non-agricultural land.* From a representative sample of sewage sludge, owners or operators of treatment works or distributors of sewage sludge, in accordance with the applicable frequency specified in § 503.81(c), shall:

(i) Determine the concentrations of nitrogen and the pollutants listed on Table 3 in § 503.15. Also, owners or operators shall monitor for the pollutants listed on Table 12 in § 503.72 if the POTW grants removal credits for these pollutants.

(ii) Determine compliance with Class A, Class B, or Class C pathogen reduction requirements in § 503.52.

(iii) Determine compliance with the vector attraction reduction requirements in § 503.53.

(iv) When owners or operators of treatment works inject the sewage sludge below the surface of non-agricultural land to comply with the vector attraction reduction requirements in § 503.53(f), the sewage sludge does not have to be monitored for volatile solids, SOUR, pH, or moisture content.

(b) *Record keeping*—(1) *Agricultural land.* Owners or operators of treatment works or distributors of sewage sludge shall retain for the life of the treatment works the following:

(i) The name and address of the applier of the sewage sludge:

(ii) The location and legal description of the field, including the area of each field where the sewage sludge is applied:

(iii) The concentrations of nitrogen and the pollutants listed on Tables 1 and 2 in § 503.13;

(iv) The amount of sewage sludge applied to each site;

(v) The amount of each organic pollutant listed on Table 1 in § 503.13 applied to each site;

(vi) The amount of each inorganic pollutant listed on Table 2 in § 503.13 applied to each site;

(vii) The results of monitoring the sewage sludge to determine compliance with the pathogen reduction requirements in § 503.52;

(viii) The results of monitoring the sewage sludge to determine compliance with the vector attraction reduction requirements in § 503.53;

(ix) A record that indicates whether sewage sludge was injected below the soil surface to comply with the vector attraction reduction requirement in § 503.53(f);

(x) The contracts between the treatment work and the distributors and appliers of the sewage sludge;

(xi) Certification that the applier was informed about the access and use restrictions;

(xii) Certification that the land application does not cause or contribute to the harm of a threatened or endangered species or result in the destruction or adverse modification of the critical habitat of a threatened or endangered species; does not restrict the flow of the base flood; does not reduce the temporary water storage capacity of a floodplain; and does not present harm to human health, wildlife, or land or water resources; and

(xiii) Certification, for each application site, that the distance between the sewage sludge boundary and any surface water is at least 10 meters.

(2) *Non-agricultural land.* Owners or operators of treatment works or distributors of sewage sludge shall keep, for 5 years, the following:

(i) The name and address of the applier of the sewage sludge:

(ii) The concentrations of nitrogen and the pollutants listed on Table 3 in § 503.15;

(iii) The results of monitoring the sewage sludge to determine compliance with the pathogen reduction requirements in § 503.52;

(iv) The results of monitoring the sewage sludge to determine compliance with the vector attraction reduction requirements § 503.53;

(v) A record that indicates whether sewage sludge was injected below the soil surface to comply with the vector attraction reduction requirement in § 503.53(f);

(vi) The contracts between the treatment works and the distributors and appliers of the sewage sludge:

(vii) Certification that the applier was informed about the access and use restrictions;

(viii) Certification that the land application does cause or contribute to the harm of a threatened or endangered species or result in the destruction or adverse modification of the critical habitat of a threatened or endangered species; does not restrict the flow of the base flood; does not reduce the temporary water storage capacity of a floodplain; and does not present harm to human health, wildlife, or land or water resources; and

(ix) Certification, for each application site, that the distance between the sewage sludge boundary and any surface water is at least 10 meters.

(c) *Reports.*—(1) *Agricultural land.* In accordance with the applicable frequency specified in § 503.81(c), owners or operators of treatment works or distributors of sewage sludge shall provide the permitting authority with:

(i) The information required by § 503.82(b)(1).

(ii) After the initial submission, the owners or operators of a treatment work or distributors of sewage sludge shall re-submit the information in § 503.82(b)(1) (x) through (xiii) only when there are changes.

(2) *Non-agricultural land.* In accordance with the applicable frequency specified in § 503.81(c), owners or operators of treatment works or distributors of sewage sludge shall provide the permitting authority with:

(i) The information required by § 503.82(b)(2).

(ii) After the initial submission, the owners or operators of a treatment work or distributors of sewage sludge shall re-submit the information in § 503.82(b)(2) (vi) through (ix) only when there are changes.

§ 503.83 Distribution and marketing of sewage sludge.

(a) *Monitoring.* (1) Owners or operators of treatment works shall determine the concentrations of nitrogen and the pollutants listed on Table 4 in § 503.23 from a representative sample of sewage sludge prior to its disbursement or in accordance with the applicable frequency specified in § 503.81(c), whichever is the more frequent period of time. Also, owners or operators shall determine the concentrations of the pollutants listed on Table 12 in § 503.72 if the POTW grants removal credits for these pollutants.

(2) When a treatment work is not the distributor, the distributor of the product shall determine the concentrations of nitrogen and the pollutants on Table 4 in

§ 503.23 from a representative sample of the product prior to its disbursement.

(3) Owners or operators of treatment works shall determine compliance with the Class A pathogen reduction requirements in §503.52(a) from a representative sample of the sewage sludge that is disbursed.

(4) Owners or operators of treatment works shall determine compliance with the vector attraction reduction requirement selected in § 503.53 (a) through (e) from a representative sample of the sewage sludge that is disbursed.

(b) *Record keeping.* Owners or operators of treatment works shall keep, for 5 years, the following:

(1) The name and address of the distributor of the sewage sludge;

(2) The concentrations of nitrogen and the pollutants that are listed on Table 4 in § 503.23 prior to disbursement by the treatment work;

(3) The concentrations of nitrogen and the pollutants in the product that are listed on Table 4 in § 503.23;

(4) The appropriate annual whole sludge application rate prior to disbursement by the treatment work;

(5) The annual product application rate;

(6) The contracts between the distributor of the product and the treatment work, when applicable;

(7) The results of monitoring the sewage sludge prior to disbursement by the treatment work to determine compliance with the pathogen reduction requirements;

(8) The results of monitoring the sewage sludge prior to disbursement by the treatment work to determine complicance with the vector attraction reduction requirements; and

(9) A copy of the label affixed to the product or the informational sheet accompanying the product.

(c) *Reports.* In accordance with the applicable frequency specified in § 503.81(c), owners or operators of treatment works shall provide the permitting authority with:

(1) The information required by § 503.83(b).

(2) After the initial submission, the owners or operators of a treatment work shall re-submit the information in § 503.83(b) only if there are changes.

§ 503.84 Disposal of sewage sludge in monofills.

(a) *Monitoring.* (1) From a representative sample of sewage sludge, owners or operators of treatment works shall determine the concentrations of the pollutants listed on Table 5 in § 503.33 in accordance with the applicable frequency specified in § 503.81(c). Also, owners or operators shall monitor for the pollutants listed on Table 12 in § 503.72 if the POTW grants removal credits for these pollutants.

(2) From a representative sample of sewage sludge, owners or operators of treatment works shall determine compliance with either Class A or Class B pathogen reduction requirements in § 503.52(a) or (b) in accordance with the applicable frequency specified in § 503.81(c).

(3) Owners or operators of monofills shall continuously monitor the air for methane gas in any structure within a monofill and at the property line of the monofill.

(4) Owners or operators of monofills shall monitor the run-off from the monofill that is collected to determine the volume of the run-off discharged and the concentration of pollutants in the discharge.

(b) *Record keeping.* Owners or operators of treatment works or of the monofill, as appropriate, shall keep, for 10 years, the following:

(1) The concentrations of the pollutants listed on Table 5 in § 503.33;

(2) The results of monitoring the sewage sludge to determine compliance with the pathogen reduction requirements in § 503.52 (a) or (b);

(3) A record of the methane gas concentration in any structure within the monofill and at the property line of the monofill;

(4) The volume of run-off collected and discharged and the concentration of the pollutants in the discharge;

(5) Certification that the monofill does not cause or contribute to the harm of a threatened or endangered species or result in the destruction or adverse modification of the critical habitat of a threatened or endangered species; does not restrict the flow of a base flood; does not reduce the temporary water storage capacity of a floodplain; and does not present a hazard to human health, wildlife, or land or water resources;

(6) Certification that the monofill is not a hazard to aircraft from birds if the monofill is located within 3,048 meters (10,000 feet) of aircraft runways used by turbine-powered aircraft or within 1,524 meters (5,000 feet) of an airport runway used only by piston engine-powered aircraft;

(7) Certification that the monofill is designed to withstand stress created by the maximum horizontal ground level acceleration if the monofill is located in a seismic zone;

(8) Certification that each sewage sludge unit is located 60 meters or more from a fault or stress fractures that have had displacement in Holocene time;

(9) Certification that each sewage sludge unit is located in an area that has adequate support for the structural components of the unit; and

(10) Certification that each sewage sludge unit is located outside wetland areas.

(c) *Reports.* In accordance with the applicable frequency specified in § 503.81(c), owners or operators of treatment works or of the monofills, as appropriate, shall provide the permitting authority with:

(1) The information required in § 503.84(b).

(2) After the initial submission, the owners or operators of a treatment work or monofill, as appropriate, shall re-submit the information in § 503.84(b) (5) through (10) only when there are changes.

§ 503.85 Disposal of sewage sludge on surface disposal sites.

(a) *Monitoring.* (1) From a representative sample of sewage sludge, owners or operators of treatment works shall determine the concentrations of the pollutants listed on Table 7 in § 503.43 in accordance with the applicable frequency specified in § 503.81(c). Also, owners or operators shall monitor for the pollutants listed on table 12 in § 503.72 if the POTW grants removal credits for these pollutants.

(2) From a representative sample of sewage sludge, owners or operators of treatment works shall determine compliance with either Class A or Class B pathogen reduction requirements in § 503.52 (a) or (b) in accordance with the applicable frequency specified in § 503.81(c).

(3) From a representative sample of sewage sludge, owners or operators of treatment works shall determine compliance with the vector attraction reduction requirements in § 503.53 in accordance with the applicable frequency specified in § 503.81(c).

(4) When owners or operators of treatment works inject the sewage sludge below the soil surface to reduce the vector attraction, the sewage sludge does not have to be monitored for volatile solids, SOUR, pH, or moisture content.

(5) Owners or operators of surface disposal sites shall continuously monitor the air for methane gas in any structure on the disposal site and at the property line of the site.

(6) Owners or operators of surface disposal sites shall monitor the runoff from the surface disposal site that is collected to determine the volume of the runoff discharged and the concentration of pollutants in the discharge.

(b) *Record keeping.* Owners or operators of treatment works or of the surface disposal sites, as appropriate, shall keep, for 5 years, the following:

(1) The concentrations of the pollutants listed on Table 7 in § 503.43;

(2) The results of monitoring the sewage sludge to determine compliance with the pathogen reduction requirements in § 503.52 (a) or (b).

(3) The results of monitoring the sewage sludge to determine compliance with the vector attraction reduction requirements of § 503.53;

(4) A record of the methane gas concentration in any structure within the surface disposal site and at the property line of the surface disposal site;

(5) The volume of run-off collected and discharged and the concentration of the pollutants in the discharge;

(6) Certification that the surface disposal site does not cause or contribute to the harm of a threatened or endangered species or result in the destruction or adverse modification of the critical habitat of a threatened or endangered species; does not restrict the flow of a base flood; does not reduce the temporary water storage capacity of a floodplain; and does not present a harzard to human health, wildlife, or land or water resources;

(7) Certification that the surface disposal site is not a hazard to aircraft from birds if the surface disposal site is located within 3,048 meters (10,000 feet) of aircraft runways used by turbine-powered aircraft or within 1,524 meters (5,000 feet) of an airport runway used only by piston engine-powered aircraft;

(8) Certification that the surface disposal site is designed to withstand stress created by the maximum ground level acceleration if the surface disposal site is located in a seismic zone;

(9) Certification that each surface disposal site is located 60 meters or more from a fault or stress fractures that have had displacement in Holocene time;

(10) Certification that each surface disposal site is located in an area that has adequate support for the structural components of the site; and

(11) Certification that each new surface disposal site is located outside wetland areas.

(c) *Reports.* In accordance with the applicable frequency specified in § 503.81(c), owners or operators of treatment works or of the surface disposal site, as appropriate, shall provide the permitting authority with:

(1) The information required in § 503.85(b).

(2) After the initial submission, owners or operators of a treatment work or surface disposal site, as appropriate, shall re-submit the information in § 503.85(b) (6) through (11) only when there are changes.

§ 503.86 Incineration of sewage sludge.

(a) *Monitoring.* (1) From a representative sample of sewage sludge, owners or operators of treatment works that incinerate their sewage sludge shall determine the concentrations of arsenic, beryllium, cadmium, chromium, lead, mercury, and nickel in accordance with the applicable frequency specified in § 503.81(c). Also, owners or operators shall monitor for the pollutants listed on Table 12 in § 503.72 if the POTW grants removal credits for these pollutants.

(2) Owners or operators of sewage sludge incinerators shall continuously monitor:

(i) The total hydrocarbon concentration in the incinerator stack;

(ii) The rate at which sewage sludge is fed to an incinerator;

(iii) The combustion temperature in the incinerator;

(iv) The oxygen content of the exit gas; and

(v) The pressure drop across the air pollution control system, if applicable.

(b) *Record keeping.* Owners or operators of treatment works or of the sewage sludge incinerator, as appropriate, shall keep, for 5 years, the following:

(1) The concentrations of arsenic, beryllium, cadmium, chromium, lead, mercury, and nickel in the sewage sludge;

(2) A record of the parameters in § 503.86(a)(2) that are continuously monitored;

(3) Calibration and maintenance records and original instrument chart recordings for continuous-monitoring instruments;

(4) Results of any site-specific air modeling; and

(5) Results of any incinerator performance tests.

(c) *Reports.* In accordance with the applicable frequency specified in § 503.81(c), owners or operators of treatment works or of the incinerator, as appropriate, shall provide the permitting authority with the following:

(1) The information required in § 503.86(b);

(2) The periods when the combustion temperature in the incinerator was above the maximum allowable temperature, as specified in § 503.64 (a)(1) or (b)(1), for 15 minutes or longer;

(3) The periods when the oxygen content of the exit gas from the incinerator stack was above the maximum allowable, as specified in § 503.64 (a)(2) or (b)(1), for 15 minutes or longer;

(4) The periods when the pressure drop across the air pollution control device remained outside the range of allowable drop, as specified in § 503.64 (a)(3) or (b)(2), if applicable, for longer than 1 hour;

(5) The recordings for the concentration of total hydrocarbons in the incinerator stack, required in § 503.86(a) (i); and

(6) The recordings for the sewage sludge feed rate, required in § 503.86(a)(2)(ii).

APPENDIX A.—GROUND WATER POLLUTANT CRITERIA

Pollutant	Concentration (micrograms per liter) [1]
Arsenic	50.0
Benzene	5.0
Bezo(a)pyrene	0.3
Bis(2-ethylhexyl)phthalate	246.0
Cadmium	10.0
Chlordane	2.1
Copper	1300.0
DDT/DDE/DDD (total) [2]	10.2
Dimethylnitrosamine	0.1
Lead	50.0
Lindane	4.0
Mercury	2.0
Nickel	1750.0
Polychlorinated biphenyls	0.45
Toxaphene	5.0
Trichloroethylene	5.0

[1] Pollutant concentration values referenced in 503.33(a).

[2] DDT—2,2-Bis(chlorophenyl)-1,1,1-trichloromethane
DDE—1,1-Bis(chlorophenyl)-2,2-dichloroethene
DDD—1,1-Bis(chlorophenyl)-2,2-dichloroethane

APPENDIX B—Procedure To Determine Annual Whole Sludge Application Rate

Land Application

Section 503.13(b) requires that sewage sludge be applied to agricultural land at an annual whole sludge application rate (AWSAR) that does not exceed the annual pollutant loading rates (APLR) in Table 1. This appendix contains a procedure to be used in determining the AWSAR that will not cause the APLRs to be exceeded.

The relationship between APLR and AWSAR is shown in equation (1).

$$APLR = C \times 0.001 \times AWSAR \qquad (1)$$

Where:

APLR = Annual pollutant loading rate, in kilograms per hectare, per 365-consecutive-day period.

C = Pollutant concentration in sewage sludge, in milligrams per kilogram (dry weight basis).

AWSAR = Annual whole sludge application rate, in metric tons per hectare, per 365-consecutive-day period (dry weight basis).

To determine the pollutant concentration in the sewage sludge, equation (1) is rearranged into equation (2):

$$C = \frac{APLR}{.001 \times AWSAR} \quad (2)$$

The APLR rates are given in Table 1 in § 503.13. The APLR remains constant for all AWSAR and all sludge pollutant concentrations. When the pollutant concentrations vary. AWSARs vary. As the AWSAR increases, the pollutant concentration decreases and vice versa.

Table B–1 contains the pollutant concentrations based on the APLRs in Table 1 for various AWSARs. Table B–1 is used to illustrate the procedure to determine the appropriate AWSAR for a sewage sludge.

Procedure:

1. Locate the sludge pollutant concentrations in Table B–1. The circled values in Table B-1 represent the actual pollutant concentrations for this example. When an actual pollutant concentration is between the values in Table B–1. circle the concentration for the lower AWSAR. For example, if the actual concentration for lindane is 125 mg/kg. circle the value for the 35 MT/ha AWSAR (i.e., 130).

2. Determine the limiting AWSAR for the sewage sludge. The limiting AWSAR is the lowest AWSAR considering all of the circled concentration values. In this example. the limiting AWSAR is 10 MT/ha/365-consecutive-day period.

3. Sewage sludge with the actual pollutant concentrations used in this example (i.e., the circled values in Table B–1) can be applied to agricultural land at an annual whole sludge application rate of 10 MT/ha or less. If the sewage sludge is applied to agricultural land at an annual whole sludge application rate greater than 10 MT/ha. the annual pollutant loading rate for hexachlorobutadiene would be exceeded.

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TABLE B-1

Maximum Sewage Sludge Concentration
(mg/kg - dry weight basis)

Annual Whole Sludge Application Rate (metric tons per hectare)	1	3	5	10	15	20	25	30	35	40	45	50
Pollutant												
Aldrin/dieldrin	16	5.5	3.3	1.6	1.1	0.82	0.66	0.55	0.47	0.41	0.36	0.33
Benzo(a)pyrene	130	45	27	13	8.9	6.7	5.4	4.5	3.8	3.4	3	3
Chlordane	1200	400	240	120	80	60	48	40	34	30	27	24
DDT/DDE/DDD (total)*	5.5	1.8	1.1	0.55	0.36	0.27	0.22	0.18	0.16	0.14	0.12	0.11
Dimethyl nitrosamine	39	13	7.8	3.9	2.6	1.9	1.6	1.3	1.1	0.97	0.87	0.78
Heptachlor	73	24	15	7.3	4.9	3.7	2.9	2.4	2.1	1.8	1.6	1.5
Hexachlorobenzene	39	13	7.8	3.9	2.6	1.9	1.6	1.3	1.1	0.97	0.87	0.78
Hexachlorobutadiene	340	110	68	34	23	17	14	11	9.7	8.5	7.5	6.8
Lindane	4600	1500	920	460	310	230	180	150	130	120	102	92
Polychlorinated biphenyls	5.64	1.88	1.13	0.56	0.38	0.28	0.23	0.19	0.16	0.14	0.13	0.11
Toxaphene	48	16	9.7	4.8	3.2	2.4	1.9	1.6	1.4	1.2	1.08	0.97
Trichloroethylene	13	4.2	2.5	1.3	0.85	0.64	0.51	0.42	0.36	0.32	0.28	0.25

* DDT - 2,2-Bis(chlorophenyl)-1,1,1-trichloroethane

DDE - 1,1-Bis(chlorophenyl)-2,2-dichloroethylene

DDD - 1,1-Bis(chlorophenyl)-2,2-dichloroethane

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Distribution and Marketing

Section 503.23 requires sewage sludge that is distributed and marketed to meet the pollutant limits in Table 4 for an applicable AWSAR. This appendix contains a procedure that can be used to determine the applicable AWSAR for distribution and marketing.

Equations (1) and (2) in the land application section of this appendix show the relationship between annual pollutant loading rate, annual whole sludge application rate, and pollutant concentration in sewage sludge. Equation (2) is used to calculate the pollutant concentrations in Table B-2 for various AWSARs. The procedure to determine the appropriate AWSAR for a sewage sludge that is distributed and marketed is presented below.

Procedure:

1. Determine the actual concentration of the pollutants listed in Table B-2 in the sewage sludge. The circled values in Table B-2 represent the actual pollutant concentrations for this example. When an actual pollutant concentration is between the values in Table B-2, circle the concentration for the lower AWSAR (see Step 1 of the procedure in this appendix for land application).

2. Determine the applicable AWSAR for the sewage sludge. The applicable AWSAR is the lowest AWSAR considering all of the circled concentration values. In this example, the applicable AWSAR is 15 MT/ha/365-consecutive-day period.

3. The pollutant limits that the sewage sludge has to meet prior to disbursement by the treatment works are those for an AWSAR of 15 MT/ha. If a higher AWSAR is used, the annual pollutant loading rate for lindane would be exceeded.

4. The label or information sheet accompanying the product, required by § 503.24(a), would indicate that the annual product application rate should not exceed 15 MT/ha (i.e., 307 pounds per 1000 square feet per year) if the product is sewage sludge only. If the product is a mixture of sewage sludge and other material such as wood chips, the annual product application rate for the mixture may be higher than 15 MT/ha/365-consecutive-day period, depending on the actual pollutant concentrations in the mixture.

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Table 8-2

Maximum Sewage Sludge Concentration
(mg/kg - dry weight basis)

Annual Whole Sludge Application Rate (metric tons per hectare)	1	3	5	10	15	20	25	30	35	40	45	50
Pollutant												
Aldrin/dieldrin	16	5.5	3.3	1.6	1.1	0.82	0.66	0.55	0.47	0.41	0.36	0.33
Arsenic	700	230	140	70	47	35	28	23	20	18	16	14
Benzo(a)pyrene	80	26	15	7.7	5.1	3.8	3.1	2.6	2.2	1.9	1.7	1.5
Cadmium	900	310	180	90	61	46	37	31	26	23	20	18
Chlordane	22500	7500	4500	2200	1500	1100	900	750	640	560	500	450
Chromium	26500	8800	5300	2700	1770	1330	1060	880	760	660	590	530
Copper	2300	770	460	230	150	110	92	77	66	58	51	46
DDT/DDE/DDD (total)	46	15	9.2	4.6	3.1	2.3	1.8	1.5	1.3	1.2	1	0.92
Heptachlor	79	26	16	7.9	5.3	3.9	3.2	2.6	2.3	2	1.8	1.6
Hexachlorobenzene	46	15	9.1	4.6	3	2.3	1.8	1.5	1.3	1.14	1.01	0.91
Hexachlorobutadiene	41000	14000	8200	4100	2700	2100	1600	1400	1200	1000	910	820
Lead	6000	2100	1300	600	400	310	250	210	180	160	140	130
Lindane	293500	97800	58700	29350	19570	14680	11740	9780	8390	7340	6500	5870
Mercury	1990	660	400	199	133	99	80	66	57	50	44	40
Nickel	3900	1300	780	390	260	200	160	130	110	98	87	78
Polychlorinated biphenyls	49	49	30	15	10	7	6	5	4	4	3	3
Selenium	8106	2702.1	1600	810	540	410	320	270	230	200	160	160
Toxaphene	117	39	23	12	7.8	5.8	4.7	3.9	3.3	2.9	2.6	2.3
Zinc	8600	2900	1700	860	570	430	340	290	250	220	190	170

* DDT - 1,1-(4-Chlorophenyl)-2,2,2-trichloroethane
DDE - 1,1-(4-Chlorophenyl)-2,2-dichloroethylene
DDD - 1,1-(4-Chlorophenyl)-2,2-dichloroethane

BILLING CODE 6560-50-C

APPENDIX C—Procedure To Determine the Number of Applications (Years) That Sewage Sludge May Be Applied to Agricultural Land

Section 503.13(c) requires that sewage sludge not be applied to agricultural land in amounts that do not exceed the cumulative pollutant loading rates in Table 2. This appendix contains a procedure to be used in determining the number of sewage sludge applications that can be made without exceeding those rates. The number of applications is dependent on the pollutant concentrations in the sewage sludge and the annual whole sludge application rate (AWSAR).

Procedure:

1. Determine the concentration of arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, and zinc in the sewage sludge. For the purpose of this example, assume the following pollutant concentrations (dry weight basis):

arsenic = 37 mg/kg
cadmium = 30 mg/kg
chromium = 2500 mg/kg
copper = 1000 mg/kg
lead = 1000 mg/kg
mercury = 17 mg/kg
molybdenum = 75 mg/kg
nickel = 400 mg/kg
selenium = 14 mg/kg
zinc = 4000 mg/kg

2. Determine the AWSAR for the sewage sludge. The AWSAR is the AWSAR from the land application procedure in Appendix B that does not cause the annual pollutant loading rates in Table 1 to be exceeded. For this example, the AWSAR is 10 MT/ha/365-consecutive-day period.

3. Calculate an annual pollutant loading rate (APLR), for each inorganic pollutant using equation (1).

$$APLR = C \times 0.001 \times AWSAR \qquad (1)$$

Where:
APLR = Annual pollutant loading rate, in kilograms per hectare, per 365-consecutive-day period.
C = Pollutant concentration in sewage sludge in milligrams per kilograms (dry weight basis).
AWSAR = Annual whole sludge application rate, in metric tons per hectare, per 365-consecutive-day period (dry weight basis).

For this example, the APLRs are:

Pollutant	Concentration (mg/kg)	APLR (kg/ha)
Arsenic	37	0.37
Cadmium	30	0.30
Chromium	2500	25.0
Copper	1000	10.0
Lead	1000	10.0
Mercury	17	0.17
Molybdenum	75	0.75
Nickel	400	4.0
Selenium	14	0.14
Zinc	4000	40.0

4. Calculate the years a pollutant can be applied to the land by dividing the cumulative pollutant loading rates from Table 2 in § 503.13 by the APLRs from Step 3 of this procedure.

Pollutant	CPLR (kg/ha)	APLR (kg/ha/yr)	Years (CPLR/APLR)
Arsenic	14.0	0.37	37.8
Cadmium	18.0	0.30	60.0
Chromium	530.0	25.0	21.2
Copper	46.0	10.0	4.6
Lead	125.0	10.0	12.5
Mercury	15.0	0.17	88.2
Molybdenum	5.0	0.75	6.7
Nickel	78.0	4.0	19.5
Selenium	32.0	0.14	299.0
Zinc	170.0	40.0	4.3

5. Select the lowest number of years calculated in Step 4. For this example, the lowest number of years is 4.3.

6. Sewage sludge with the pollutant concentrations given in Step 1 could be applied to agricultural land at an AWSAR of 10 MT/ha/365-consecutive-day period for a maximum of 4.3 years. After 4.3 years, the amount of zinc applied to the land exceeds the cumulative amount that can be applied to the land.

Appendix D—Procedure To Calculate Maximum Combustion Gas Flow Rate

Equation (5) in § 503.63(f) is used to calculate the pollutant limit for total hydrocarbons for a sewage sludge incinerator. This appendix contains the procedure used to determine the maximum combustion gas flow rate (GF) used in that equation.

Procedure:

1. Calculate the maximum combustion gas flow rate for the sewage sludge incinerator attributable to the combustible portion of the sewage sludge using equation (1):

$$SGF = SF \times VF \times VEHC \times 70.100 \qquad (1)$$

Where:
SGF = Maximum combustion gas flow rate attributable to the combustible portion of the sewage sludge, in gram moles per day.
SF = Annual average daily sewage sludge feed rate, in metric tons per day (dry weight basis).
VF = Annual average volatile solids fraction of the sewage sludge solids (dimensionless, less than 1.0).
VEHC = Annual average heat value of the volatile solids in sewage sludge, in kilocalories per gram of volatile solids in sewage sludge.

2. Calculate the gas flow rates from the combustion of all auxiliary fuels in the sewage sludge incinerator using equation (2).

$$FGF = FR \times FC \qquad (2)$$

Where:
FGF = Fuel combustion gas flow rate, in gram moles per day.
FR = Annual average daily fuel usage rate, in either pounds per day or cubic feet per day.
FC = Fuel constant: natural gas—17.09, #2 fuel oil—324.8, #6 fuel oil—309.7

3. The maximum combustion gas flow rate (GF) used in equation (5) in § 503.63(f) is the sum of the maximum combustion flow rate attributable to the combustible portion of the sewage sludge (SGF) and the fuel combustion gas flow-rate (FGF).

$$GF = SGF + FGF \qquad (3)$$

[FR Doc. 89-2018 Filed 2-3-89; 8:45 am]

BILLING CODE 6560-50-M

Attachment B

PART 257—CRITERIA FOR CLASSIFICATION OF SOLID WASTE DISPOSAL FACILITIES AND PRACTICES

AUTHORITY: Sec. 1008(a)(3) and sec. 4004(a), Pub. L. 94-580, 90 Stat. 2803 and 2815 (42 U.S.C. 6907(a)(3) and 6944(a)); sec. 405(d), Pub. L. 95-217, 91 Stat. 1606 (33 U.S.C. 1345(d)).

SOURCE: 44 FR 53460, Sept. 13, 1979, unless otherwise noted.

§ 257.1 Scope and purpose.

(a) These criteria are for use under the Resource Conservation and Recovery Act (the Act) in determining which solid waste disposal facilities and practices pose a reasonable probability of adverse effects on health or the environment. Unless otherwise provided, these criteria are adopted for purposes of both Section 1008(a)(3) and Section 4004(a) of the Act.

(1) Facilities failing to satisfy criteria adopted for purposes of Section 4004(a) will be considered open dumps for purposes of State solid waste management planning under the Act.

(2) Practices failing to satisfy criteria adopted for purposes of Section 1008(a)(3) constitute open dumping, which is prohibited under Section 4005 of the Act.

(b) These criteria also provide guidelines for sludge utilization and disposal under Section 405(d) of the Clean Water Act, as amended. To comply with Section 405(e) the owner or operator of any publicly owned treatment works must not violate these criteria in the disposal of sludge on the land.

(c) These criteria apply to all solid waste disposal facilities and practices with the following exceptions:

(1) The criteria do not apply to agricultural wastes, including manures and crop residues, returned to the soil as fertilizers or soil conditioners.

(2) The criteria do not apply to overburden resulting from mining operations intended for return to the mine site.

(3) The criteria do not apply to the land application of domestic sewage or treated domestic sewage. The criteria do apply to disposal of sludges generated by treatment of domestic sewage.

(4) The criteria do not apply to the location and operation of septic tanks. The criteria do, however, apply to the disposal of septic tank pumpings.

(5) The criteria do not apply to solid or dissolved materials in irrigation return flows.

(6) The criteria do not apply to industrial discharges which are point sources subject to permits under Section 402 of the Clean Water Act, as amended.

(7) The criteria do not apply to source, special nuclear or byproduct material as defined by the Atomic Energy Act, as amended (68 Stat. 923).

(8) The criteria do not apply to hazardous waste disposal facilities which are subject to regulation under Subtitle C of the Act.

(9) The criteria do not apply to disposal of solid waste by underground well injection subject to the regulations (40 CFR Part 146) for the Underground Injection Control Program (UICP) under the Safe Drinking Water Act, as amended, 42 U.S.C. 3007 et seq.

[44 FR 53460, Sept. 13, 1979, as amended at 46 FR 47052, Sept. 23, 1981]

§ 257.2 Definitions.

The definitions set forth in Section 1004 of the Act apply to this part. Special definitions of general concern to this part are provided below, and definitions especially pertinent to particular sections of this part are provided in those sections.

"Disposal" means the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground waters.

"Facility" means any land and appurtenances thereto used for the disposal of solid wastes.

"Leachate" means liquid that has passed through or emerged from solid waste and contains soluble, suspended or miscible materials removed from such wastes.

"Open dump" means a facility for the disposal of solid waste which does not comply with this part.

"Practice" means the act of disposal of solid waste.

"Sanitary landfill" means a facility for the disposal of solid waste which complies with this part.

"Sludge" means any solid, semisolid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility or any other such waste having similar characteristics and effect.

"Solid waste" means any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved materials in domestic sewage, or solid or dissolved material in irrigation return flows or industrial discharges which are point sources subject to permits under Section 402 of the Federal Water Pollution Control Act, as amended (86 Stat. 880), or source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954, as amended (68 Stat. 923).

"State" means any of the several States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands.

[44 FR 53460, Sept. 13, 1979; 44 FR 58910, Oct. 12, 1979]

§ 257.3 Criteria for classification of solid waste disposal facilities and practices.

Solid waste disposal facilities or practices which violate any of the following criteria pose a reasonable probability of adverse effects on health or the environment:

§ 257.3-1 Floodplains.

(a) Facilities or practices in floodplains shall not restrict the flow of the base flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste, so as to pose a hazard to human life, wildlife, or land or water resources.

(b) As used in this section:

(1) "Based flood" means a flood that has a 1 percent or greater chance of recurring in any year or a flood of a magnitude equalled or exceeded once in 100 years on the average over a significantly long period.

(2) "Floodplain" means the lowland and relatively flat areas adjoining inland and coastal waters, including flood-prone areas of offshore islands, which are inundated by the base flood.

(3) "Washout" means the carrying away of solid waste by waters of the base flood.

[44 FR 53460, Sept. 13, 1979; 44 FR 54708, Sept. 21, 1979]

§ 257.3-2 Endangered species.

(a) Facilities or practices shall not cause or contribute to the taking of any endangered or threatened species of plants, fish, or wildlife.

(b) The facility or practice shall not result in the destruction or adverse modification of the critical habitat of endangered or threatened species as identified in 50 CFR Part 17.

(c) As used in this section:

(1) "Endangered or threatened species" means any species listed as such pursuant to Section 4 of the Endangered Species Act.

(2) "Destruction or adverse modification" means a direct or indirect alteration of critical habitat which appreciably diminishes the likelihood of the survival and recovery of threatened or endangered species using that habitat.

(3) "Taking" means harassing, harming, pursuing, hunting, wounding, killing, trapping, capturing, or collecting or attempting to engage in such conduct.

§ 257.3-3 Surface water.

(a) For purposes of Section 4004(a) of the Act, a facility shall not cause a discharge of pollutants into waters of the United States that is in violation of the requirements of the National Pollutant Discharge Elimination System (NPDES) under Section 402 of the Clean Water Act, as amended.

(b) For purposes of Section 4004(a) of the Act, a facility shall not cause a discharge of dredged material or fill material to waters of the United States that is in violation of the requirements under Section 404 of the Clean Water Act, as amended.

(c) A facility or practice shall not cause non-point source pollution of waters of the United States that violates applicable legal requirements implementing an areawide or Statewide water quality management plan that has been approved by the Administrator under Section 208 of the Clean Water Act, as amended.

(d) Definitions of the terms "Discharge of dredged material", "Point source", "Pollutant", "Waters of the United States", and "Wetlands" can be found in the Clean Water Act, as amended, 33 U.S.C. 1251 et seq., and implementing regulations, specifically 33 CFR Part 323 (42 FR 37122, July 19, 1977).

[44 FR 53460, Sept. 13, 1979, as amended at 46 FR 47052, Sept. 23, 1981]

§ 257.3-4 Ground water.

(a) A facility or practice shall not contaminate an underground drinking water source beyond the solid waste boundary or beyond an alternative boundary specified in accordance with paragraph (b) of this section.

(b)(1) For purposes of Section 1008(a)(3) of the Act or Section 405(d) of the CWA, a party charged with open dumping or a violation of Section 405(e) may demonstrate that compliance should be determined at an alternative boundary in lieu of the solid waste boundary. The court shall establish such an alternative boundary only if it finds that such a change would not result in contamination of ground water which may be needed or used for human consumption. This finding shall be based on analysis and consideration of all of the following factors that are relevant:

(i) The hydrogeological characteristics of the facility and surrounding land, including any natural attenuation and dilution characteristics of the aquifer;

(ii) The volume and physical and chemical characteristics of the leachate;

(iii) The quantity, quality, and direction of flow of ground water underlying the facility;

(iv) The proximity and withdrawal rates of ground-water users;

(v) The availability of alternative drinking water supplies;

(vi) The existing quality of the ground water, including other sources of contamination and their cumulative impacts on the ground water;

(vii) Public health, safety, and welfare effects.

(2) For purposes of Sections 4004(a) and 1008(a)(3), the State may establish an alternative boundary for a facility to be used in lieu of the solid waste boundary only if it finds that such a change would not result in the contamination of ground water which may be needed or used for human consumption. Such a finding shall be based on an analysis and consideration of all of the factors identified in paragraph (b)(1) of this section that are relevant.

(c) As used in this section:

(1) "Aquifer" means a geologic formation, group of formations, or portion of a formation capable of yielding usable quantities of ground water to wells or springs.

(2) "Contaminate" means introduce a substance that would cause:

(i) The concentration of that substance in the ground water to exceed the maximum contaminant level specified in Appendix I, or

(ii) An increase in the concentration of that substance in the ground water where the existing concentration of that substance exceeds the maximum contaminant level specified in Appendix I.

(3) "Ground water" means water below the land surface in the zone of saturation.

(4) "Underground drinking water source" means:

(i) An aquifer supplying drinking water for human consumption, or

(ii) An aquifer in which the ground water contains less than 10,000 mg/1 total dissolved solids.

(5) "Solid waste boundary" means the outermost perimeter of the solid waste (projected in the horizontal plane) as it would exist at completion of the disposal activity.

[44 FR 53460, Sept. 13, 1979, as amended at 46 FR 47052, Sept. 23, 1981]

§ 257.3-5 Application to land used for the production of food-chain crops (interim final).

(a) *Cadmium*. A facility or practice concerning application of solid waste to within one meter (three feet) of the surface of land used for the production of food-chain crops shall not exist or occur, unless in compliance with all requirements of paragraph (a)(1) (i) through (iii) of this section or all requirements of paragraph (a)(2) (i) through (iv) of this section.

(1)(i) The pH of the solid waste and soil mixture is 6.5 or greater at the time of each solid waste application, except for solid waste containing cadmium at concentrations of 2 mg/kg (dry weight) or less.

(ii) The annual application of cadmium from solid waste does not exceed 0.5 kilograms per hectare (kg/ha) on land used for production of tobacco, leafy vegetables or root crops grown for human consumption. For other food-chain crops, the annual cadmium application rate does not exceed:

Time period	Annual Cd application rate (kg/ha)
Present to June 30, 1984	2.0
July 1, 1984 to Dec. 31, 1986	1.25
Beginning Jan. 1, 1987	0.5

(iii) The cumulative application of cadmium from solid waste does not exceed the levels in either paragraph (a)(1)(iii)(A) of this section or paragraph (a)(1)(iii)(B) of this section.

(A)

Soil cation exchange capacity (meq/100g)	Maximum cumulative application (kg/ha)	
	Background soil pH less than 6.5	Background soil pH more than 6.5
Less than 5	5	5
5 to 15	5	10
More than 15	5	20

(B) For soils with a background pH of less than 6.5, the cumulative cadmium application rate does not exceed the levels below: *Provided*, That the pH of the solid waste and soil mixture is adjusted to and maintained at 6.5 or greater whenever food-chain crops are grown.

Soil cation exchange capacity (meq/100g)	Maximum cumulative application (kg/ha)
Less than 5	5
5 to 15	10
More than 15	20

(2)(i) The only food-chain crop produced is animal feed.

(ii) The pH of the solid waste and soil mixture is 6.5 or greater at the time of solid waste application or at the time the crop is planted, whichever occurs later, and this pH level is maintained whenever food-chain crops are grown.

(iii) There is a facility operating plan which demonstrates how the animal feed will be distributed to preclude ingestion by humans. The facility operating plan describes the measures to be taken to safeguard against possible health hazards from cadmium entering the food chain, which may result from alternative land uses.

(iv) Future property owners are notified by a stipulation in the land record or property deed which states that the property has received solid waste at high cadmium application rates and that food-chain crops should not be grown, due to a possible health hazard.

(b) *Polychlorinated Biphenyls (PCBs)*. Solid waste containing concentrations of PCBs equal to or greater than 10 mg/kg (dry weight) is incorporated into the soil when applied to land used for producing animal feed, including pasture crops for animals raised for milk. Incorporation of the solid waste into the soil is not required if it is assured that the PCB content is less than 0.2 mg/kg (actual weight) in animal feed or less than 1.5 mg/kg (fat basis) in milk.

(c) As used in this section:

(1) "Animal feed" means any crop grown for consumption by animals, such as pasture crops, forage, and grain.

(2) "Background soil pH" means the pH of the soil prior to the addition of substances that alter the hydrogen ion concentration.

(3) "Cation exchange capacity" means the sum of exchangeable cations a soil can absorb expressed in milli-equivalents per 100 grams of soil as determined by sampling the soil to the depth of cultivation or solid waste placement, whichever is greater, and analyzing by the summation method for distinctly acid soils or the sodium acetate method for neutral, calcareous or saline soils ("Methods of Soil Analysis, Agronomy Monograph No. 9," C. A. Black, ed., American Society of Agronomy, Madison, Wisconsin, pp 891-901, 1965).

(4) "Food-chain crops" means tobacco, crops grown for human consumption, and animal feed for animals whose products are consumed by humans.

(5) "Incorporated into the soil" means the injection of solid waste beneath the surface of the soil or the mixing of solid waste with the surface soil.

(6) "Pasture crops" means crops such as legumes, grasses, grain stubble and stover which are consumed by animals while grazing.

(7) "pH" means the logarithm of the reciprocal of hydrogen ion concentration.

(8) "Root crops" means plants whose edible parts are grown below the surface of the soil.

(9) "Soil pH" is the value obtained by sampling the soil to the depth of cultivation or solid waste placement, whichever is greater, and analyzing by the electrometric method. ("Methods of Soil Analysis, Agronomy Monograph No. 9," C.A. Black, ed., American Society of Agronomy, Madison, Wisconsin, pp. 914-926, 1965.)

[44 FR 53460, Sept. 13, 1979; 44 FR 54708, Sept. 21, 1979]

§ 257.3-6 Disease.

(a) *Disease Vectors.* The facility or practice shall not exist or occur unless the on-site population of disease vectors is minimized through the periodic application of cover material or other techniques as appropriate so as to protect public health.

(b) *Sewage sludge and septic tank pumpings (Interim Final).* A facility or practice involving disposal of sewage sludge or septic tank pumpings shall not exist or occur unless in compliance with paragraphs (b) (1), (2) or (3) of this section.

(1) Sewage sludge that is applied to the land surface or is incorporated into the soil is treated by a Process to Significantly Reduce Pathogens prior to application or incorporation. Public access to the facility is controlled for at least 12 months, and grazing by animals whose products are consumed by humans is prevented for at least one month. Processes to Significantly Reduce Pathogens are listed in Appendix II, Section A. (These provisions do not apply to sewage sludge disposed of by a trenching or burial operation.)

(2) Septic tank pumpings that are applied to the land surface or incorporated into the soil are treated by a Process to Significantly Reduce Pathogens (as listed in Appendix II, Section A), prior to application or incorporation, unless public access to the facility is controlled for at least 12 months and unless grazing by animals whose products are consumed by humans is prevented for at least one month. (These provisions do not apply to septic tank pumpings disposed of by a trenching or burial operation.)

(3) Sewage sludge or septic tank pumpings that are applied to the land surface or are incorporated into the soil are treated by a Process to Further Reduce Pathogens, prior to application or incorporation, if crops for direct human consumption are grown within 18 months subsequent to application or incorporation. Such treatment is not required if there is no contact between the solid waste and the edible portion of the crop; however, in this case the solid waste is treated by a Process to Significantly Reduce Pathogens, prior to application; public access to the facility is controlled for at least 12 months; and grazing by animals whose products are consumed by humans is prevented for at least one month. If crops for direct human consumption are not grown within 18 months of application or incorporation, the requirements of paragraphs (b) (1) and (2) of this section apply. Processes to Further Reduce Pathogens are listed in Appendix II, Section B.

(c) As used in this section:

(1) "Crops for direct human consumption" means crops that are consumed by humans without processing to minimize pathogens prior to distribution to the consumer.

(2) "Disease vector" means rodents, flies, and mosquitoes capable of transmitting disease to humans.

(3) "Incorporated into the soil" means the injection of solid waste beneath the surface of the soil or the mixing of solid waste with the surface soil.

(4) "Periodic application of cover material" means the application and

compaction of soil or other suitable material over disposed solid waste at the end of each operating day or at such frequencies and in such a manner as to reduce the risk of fire and to impede vectors access to the waste.

(5) "Trenching or burial operation" means the placement of sewage sludge or septic tank pumpings in a trench or other natural or man-made depression and the covering with soil or other suitable material at the end of each operating day such that the wastes do not migrate to the surface.

[44 FR 53460, Sept. 13, 1979; 44 FR 54708, Sept. 21, 1979]

§ 257.3-7 Air.

(a) The facility or practice shall not engage in open burning of residential, commercial, institutional or industrial solid waste. This requirement does not apply to infrequent burning of agricultural wastes in the field, silvicultural wastes for forest management purposes, land-clearing debris, diseased trees, debris from emergency clean-up operations, and ordnance.

(b) For purposes of Section 4004(a) of the Act, the facility shall not violate applicable requirements developed under a State Implementation Plan (SIP) approved or promulgated by the Administrator pursuant to Section 110 of the Clean Air Act, as amended.

(c) As used in this section "open burning" means the combustion of solid waste without (1) control of combustion air to maintain adequate temperature for efficient combustion, (2) containment of the combustion reaction in an enclosed device to provide sufficient residence time and mixing for complete combustion, and (3) control of the emission of the combustion products.

[44 FR 53460, Sept. 13, 1979; 44 FR 54708, Sept. 21, 1979, as amended at 46 FR 47052, Sept. 23, 1981]

§ 257.3-8 Safety.

(a) *Explosive gases.* The concentration of explosive gases generated by the facility or practice shall not exceed:

(1) Twenty-five percent (25%) of the lower explosive limit for the gases in facility structures (excluding gas control or recovery system components); and

(2) The lower explosive limit for the gases at the property boundary.

(b) *Fires.* A facility or practice shall not pose a hazard to the safety of persons or property from fires. This may be accomplished through compliance with § 257.3-7 and through the periodic application of cover material or other techniques as appropriate.

(c) *Bird hazards to aircraft.* A facility or practice disposing of putrescible wastes that may attract birds and which occurs within 10,000 feet (3,048 meters) of any airport runway used by turbojet aircraft or within 5,000 feet (1,524 meters) of any airport runway used by only piston-type aircraft shall not pose a bird hazard to aircraft.

(d) *Access.* A facility or practice shall not allow uncontrolled public access so as to expose the public to potential health and safety hazards at the disposal site.

(e) As used in this section:

(1) "Airport" means public-use airport open to the public without prior permission and without restrictions within the physical capacities of available facilities.

(2) "Bird hazard" means an increase in the likelihood of bird/aircraft collisions that may cause damage to the aircraft or injury to its occupants.

(3) "Explosive gas" means methane (CH_4).

(4) "Facility structures" means any buildings and sheds or utility or drainage lines on the facility.

(5) "Lower explosive limit" means the lowest percent by volume of a mixture of explosive gases which will propagate a flame in air at 25°C and atmospheric pressure.

(6) "Periodic application of cover material" means the application and compaction of soil or other suitable material over disposed solid waste at the end of each operating day or at such frequencies and in such a manner as to reduce the risk of fire and to impede disease vectors' access to the waste.

(7) "Putrescible wastes" means solid waste which contains organic matter capable of being decomposed by microorganisms and of such a character and

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: Alex Alexander, Deputy Assistant Secretary
Central District

FROM: Clair H. Fancy, Chief
Bureau of Air Regulation

DATE: October 3, 1990

SUBJ: Mid-Florida Mining Company (MFM) - Operation Permits

This memorandum has been prepared to assist you in deciding what action to take concerning Mid-Florida Mining Company's application to convert construction permit AC 42-113787 into an operation permit, and what fuels MFM should be allowed to burn when manufacturing clay products.

APPLICATION TO CONVERT AC 42-113787 TO AN OPERATION PERMIT

Mid-Florida Mining Company's application to convert construction permit AC 42-113787 to an operation permit should be denied for the following reasons: (1) The clay dryer was not physically modified to burn coal as authorized by the publicly noticed construction permit which has expired; and, (2) The carbon monoxide emissions that were measured during soil decontamination exceeded the permitted limit.

FUELS TO BE BURNED WHEN MANUFACTURING CLAY PRODUCTS

MFM should be required to use only No. 2 thru 5 virgin fuel oil and/or "on-spec" used oil containing not more than 1.0 percent sulfur by weight. If you decide to allow MFM to burn "on-spec" used oil, then the company should be required to obtain all fuels from a reputable supplier who performs fuel testing and provides copies of the test results.

Mid-Florida Mining Company's request to burn "off-spec" used oil as a fuel should be denied. We disagree with two points in Dr. Koogler's August 20 letter about the use of "off-spec" used oil. First, the used oil burning policy (October/November 1987) that Dr. Koogler referenced is a draft that was not implemented; and, the rulemaking EPA proposed in May 1987, has not become final. So, the Department is not under any obligation to implement the provisions of the used oil burning policy that Dr. Koogler

referenced. Second, we disagree with Dr. Koogler's statement that the clay dryer is not one of the industrial furnaces listed in the 1987 memo. The clay dryer qualifies as a light aggregate kiln. Also, Dr. Koogler's modeling failed to account for downwash and pollutant emissions from other sources in the area.

cc: S. Smallwood
D. Schwartz

Check Sheet

Company Name: Mid-Florida Mining Industries, Inc
Permit Number: AC 42-113786, -113787
PSD Number:
Permit Engineer:

Application:

- [x] Initial Application
  - [x] Incompleteness Letters
  - [x] Responses
  - [ ] Waiver of Department Action
  - [ ] Department Response
  - [ ] Other

None

Cross References:

- [ ] AO 42-96009
- [ ]
- [ ]

Intent:

- [ ] Intent to Issue
- [x] Notice of Intent to Issue
- [x] Technical Evaluation
- [ ] BACT Determination
- [x] Unsigned Permit
- Correspondence with:
  - [ ] EPA
  - [ ] Park Services
  - [ ] Other
- [x] Proof of Publication
  - [ ] Petitions - (Related to extensions, hearings, etc.)
  - [ ] Waiver of Department Action
  - [x] Other

Final Determination:

- [x] Final Determination
- [x] Signed Permit
- [ ] BACT Determination
  - [ ] Other

Post Permit Correspondence:

- [x] Extensions/Amendments/Modifications DENIED
- [x] Other

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee	
To: File Copy	Location:
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cc: S. Smallwood
D. Schwartz

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

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cc: S. Smallwood
D. Schwartz

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: Mr. David B. Kibler IV Executive Director Mid-Florida Mining Company P. O. Box 68 Lowell, FL 32663	4. Article Number P 256 396 200
	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 [signature]	
7. Date of Delivery 9/28/90	

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

P 256 396 200

RECEIPT FOR CERTIFIED MAIL

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

★U.S.G.P.O. 1989-234-555

Sent to Mr. David B. Kibler IV	
Street and No. P.O. Box 68 MFM	
P.O., State and ZIP Code Lowell, FL 32663	
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: 9-26-90 Permit: AC 42-113787	

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

September 21, 1990

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. David B. Kibler IV, Executive Director
Mid-Florida Mining Company
P. O. Box 68
Lowell, Florida 32663

SUBJ: Amendments To Expired Construction Permit AC 42-113787
For Mid-Florida Mining Company

We have received a copy of Dr. Koogler's July 19 letter which requested amendments to construction permit No. AC 42-113787. This permit authorized the modification of the rotary kiln clay dryer to burn coal. The referenced construction permit cannot be amended because it has expired and no longer exists.

If you have any questions or wish to meet with us, please call Clair Fancy at 488-1344 or write to Steve Smallwood at the address above.

Sincerely,

Dale Twachtmann
Secretary

DHT/mdh

cc: J. Koogler, P.E.
C. Collins

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: Dale Twachtmann

FROM: Steve Smallwood

DATE: September 21, 1990

SUBJ: Denial of Amendments To Expired Construction Permit AC 42-113787 For Mid-Florida Mining Company

Attached for your approval and signature is a letter prepared by the Bureau of Air Regulation and reviewed by the Office of General Counsel that will deny a request to amend the above permit for Mid-Florida Mining Company. On June 13, 1990, you issued an order that denied an extension of construction permit AC 42-113787. Even though the construction permit has expired and the construction was not performed, Mid-Florida Mining Company asked the Bureau of Air Regulation to amend the expired construction permit.

I recommend your approval and signature.

SS/mdh

attachments

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: Mr. David B. Kibler, IV Executive Director Mid-Florida Mining Company P. O. Box 68 Lowell, FL 32663	4. Article Number P 423 104 513 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	8. Addressee's Address *(ONLY if requested and fee paid)*
6. Signature — Agent X	
7. Date of Delivery 6/14/90	

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

P 423 104 513

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

Sent to Mr. David B. Kibler, IV MFM	
Street and No. P. O. Box 68	
P.O., State and ZIP Code Lowell, FL 32663	
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: 6-13-90 Permit: AC 42-113787 Amendment	

PS Form 3800, June 1985
☆U.S.G.P.O. 1989-234-555

NOTICE OF PERMIT DENIAL

THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

In the matter of a
Request for Permit
Extension By:

Mid-Florida Mining Co.
P. O. Box 68
Lowell, Florida 32663
Marion County

DER File No. AC 42-113787

______________________________/

NOTICE OF PERMIT EXTENSION DENIAL

The Applicant, Mid-Florida Mining Company, P.O. Box 68, Lowell, Florida, 32663, applied on February 26, 1989, to the Department of Environmental Regulation for an extension of a construction permit to modify the existing rotary kiln clay dryer to burn coal.

The Department has permitting jurisdiction under Section 403, Florida Statutes (F.S.), and Chapters 17-2 and 17-4, Florida Administrative Code (F.A.C.). The department has determined that a construction permit is required for the proposed work.

The department hereby denies the extension of the permit for the following reasons:

(a) Permit No. AC 42-113787 was originally issued and publicly noticed for the purpose of modifying the rotary kiln clay dryer to burn coal as a fuel. The emission increases associated with the installation and use of the coal burner were the only activities included in the public notice package for the above referenced permit.

(b) Permit No. AC 42-113787 was amended to allow Mid-Florida Mining Company (MFM) to process gasoline contaminated soils providing an increase in permitted emissions did not result from the activity. The permit amendment was not publicly noticed because an increase in the emissions was not projected.

(c) The construction and associated emissions authorized by permit No. AC 42-113787 have not occurred during the four-year life of the permit and the extension. Mid-Florida Mining Company (MFM) did not construct the coal handling system authorized by a concurrent permit. The permit for the coal handling system expired on February 28, 1990 and an extension was not requested.

(d) It is inappropriate to extend construction permit No. AC 42-113787 for the purpose of performing soil decontamination activities that are the subject of the upcoming administrative hearing.

(e) Since Mid-Florida Mining Company (MFM) has applied for a permit to construct an afterburner, it is no longer appropriate to use the letter amendment to permit No. AC 42-113787 to process creosote contaminated soils for the purpose of obtaining data to be used in the afterburner design.

Based upon the foregoing denial of the extension of construction permit No. AC 42-113787 and all associated amendments, Mid-Florida Mining Company (MFM) is also ordered to cease all soil decontamination activities within 30 days after the date of this order.

A person whose substantial interests are affected by the Department's permit extension 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, 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 of Permit Denial. Persons whose substantial interests will be affected by any decision of the Department with regard to the application 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 of 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

Dale Twachtmann, Secretary

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this NOTICE OF PERMIT DENIAL and all copies were mailed before the close of business on 6-13-90 to the listed persons.

Clerk Stamp

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

[signature] 6-13-90

Clerk Date

Copies furnished to:

- L. Curtin
- D. Kibler IV
- J. Koogler, P.E.
- S. Smallwood
- C. Collins
- D. Schwartz
- B. Swihart
- S. Kastury
- B. Neimes
- D. Ehlenbeck

For Routing To Other Than The Addressee	
To:	Location:
To:	Location:
To:	Location:
From:	Date:

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

Interoffice Memorandum

TO: Dale Twachtmann

FROM: Steve Smallwood

DATE: June 6, 1990

SUBJ: Denial of Requested Extension for Mid-Florida Mining Company (MFM) Construction Permit AC 42-113787

Attached for your approval and signature is an order prepared by the Bureau of Air Regulation and reviewed by the Office of General Counsel that will deny an extension of the permit for Mid-Florida Mining Company (MFM) to modify the existing rotary kiln clay dryer to burn coal. In 1986, permits authorizing Mid-Florida Mining Company (MFM) to construct a coal handling system and modify the kiln to burn coal were issued for a period of two years. Mid-Florida Mining Company (MFM) did not construct these sources during the initial two-year period, but asked for a two-year extension. Since Mid-Florida Mining Company (MFM) provided written assurance of their intent to perform the construction, both permits were extended for two years (until February 28, 1990). On February 26, 1990, Mid-Florida Mining Company (MFM) requested an extension of the permit to modify the kiln to burn coal. Mid-Florida Mining Company (MFM) allowed the permit to construct the coal handling system to expire. The coal handling system has not been built and the company does not intend to modify the system to burn coal.

We believe the reason for the requested extension is to allow the company to continue soil decontamination activities that were not subject to state and federal public notice requirements.

I recommend your approval and signature.

SS/mdh

attachments

RECEIVED
JUN 8 1990
Office of the Secretary

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:
Mr. David Kibler, Exec.,Dir.
MFM Environmental Inc.
Suite 152
3300 Southwest 34th Ave.
Ocala, FL 32674

4. Article Number
P 274 010 416

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 Trish Lambert

6. Signature — Agent
X

7. Date of Delivery

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 274 010 416

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

★ U.S.G.P.O. 1985-480-794

Sent to: Mr. David Kibler, Executive Director	
Street and No.: MFM Environmental Inc., ~~Suite 152~~	
P.O., State and ZIP Code: 3300 Southwest 34th Ave., Ocala, FL 32674	
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: 3/31/89 Permit: AC 42-113787 Amendment	

PS Form 3800, June 1985

File Copy

orida 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

March 28, 1989

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. David Kibler, Executive Director
MFM Environmental Inc.
Suite 152
3300 Southwest 34th Avenue
Ocala, Florida 32674

Dear Mr. Kibler:

Re: Change to the "February 15, 1989 Amendment" to Permit No. AC 42-113787 Concerning MFM Environmental's Experimental Decontamination Of Soil Contaminated With Creosote

The Department has reviewed the change to the "February 15, 1989 Amendment" to Permit No. AC 42-113787 that is requested in your letter of March 21, 1989. Based on your letter of March 21 and subsequent discussions, it is the Department's understanding that the full 10,000 tons of contaminated soil authorized for testing is not available at Southern Wood Piedmont's Baldwin site. Since you feel that the decontamination of the full 10,000 tons of soil is essential to the proper design of the proposed tail gas treatment system, the Department will change Specific Condition No. 4 of the "February 15, 1989 Amendment" to Permit No. AC 42-113787. We do not expect the requested change to increase the quantity of excess emissions allowed by the "February 15, 1989 Amendment." The change authorizes MFM Environmental to obtain the balance of the 10,000 tons of contaminated soil authorized by the "February 15, 1989 Amendment" from sites other than Southern Wood Piedmont's Baldwin site.

Specific Condition No. 4 of the "February 15, 1989 Amendment" to Permit No. AC 42-113787 is changed by the addition of the bracketed language. The specific condition shall now be:

> The soil to be decontaminated shall be the remaining tonnage of creosote contaminated soil at Southern Wood Piedmont's Baldwin site [or a comparably contaminated soil from an alternate site]. The soil to be decontaminated shall have the same qualitative and average quantitative analyses as that shown for contaminated (raw) soil in Attachment 3,

Mr. David Kibler
Page Two
March 28, 1989

<u>Emission Measurements For Metals And Semiactive Organic Compounds During The Thermoprocessing Of Soil Contaminated With Creosote</u>. The polynuclear aromatic hydrocarbon constituents and levels are shown in Tables 4 and 5 of Attachment 3. The levels of metallic constituents and arsenic are shown in the August 16, 1988 letter from PPB Environmental Laboratories to Dr. John Koogler which is found in Attachment 3. The soil to be decontaminated shall not be of such a character that it would be classified as a hazardous waste. **[Prior to any soil being accepted from an alternate site, representative samples of the soil shall be collected and analyzed. The results of the analyses shall be presented to the Department to demonstrate that the level of contamination in the soil is comparable to the level of contamination in Southern Wood Piedmont's Baldwin site].**

The "February 15, 1989 Amendment" to Permit No. AC 42-113787 is also changed by the addition of the following attachment:

8. Letter from J. B. Koogler to FDER dated March 21, 1989, and received March 22, 1989.

The FDER has relied upon the information and presentations, both written and verbal, of MFM Environmental, Inc. and its professional engineer registered in Florida in the issuance of this one-time amendment to Permit No. AC 42-113787.

A copy of this letter and its attachments shall be attached to Permit No. AC 42-113787.

Sincerely,

Dale Twachtmann

Dale Twachtmann
Secretary

DT/ss

cc: J. Koogler, P.E.
C. Collins
Mike Horley } 3-31-89
Reading File }
Larry Curtin (request to CHF)

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: Dale Twachtmann

for FROM: Steve Smallwood CHFancy

SUBJ: Approval of an Amendment to Construction Permit
No. AC 42-113787
MFM Environmental, Inc.

DATE: March 28, 1989

Attached for your approval and signature is a change to the February 15, 1989 permit amendment prepared by Central Air Permitting. This change gives the above mentioned company authorization to obtain the balance of the 10,000 tons of soil that they wish to decontaminate from sites other than Southern Wood Piedmont's Baldwin site. MFM Environmental has requested this change because the quantity of contaminated soil at the Baldwin site is presently less than the 10,000 tons authorized by the Department. The company feels the change in the permit amendment is necessary to complete the testing required to demonstrate whether the clay dryer will successfully decontaminate soil and refine the design parameters for a tail gas treatment system.

I recommend your approval and signature.

SS/CH/h

attachments

KOOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES
4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
904/377-5822 ▪ FAX 377-7158

KA 290-88-01

July 19, 1990

RECEIVED
JUL 20 1990
DER - BAQM

Mr. Charles M. Collins
Florida Department of
Environmental Regulation
Central Florida District
Suite 323
3319 Maguire Blvd.
Orlando, FL 32803-3767

Subject: Mid-Florida Mining Company
Marion County, Florida
Certificate of Completion of Construction
to Permit AC42-113787

Dear Mr. Collins:

On May 18, 1990, I hand delivered to your office a Certificate of Completion of Construction for the clay dryer and clay storage silo operated by the Mid-Florida Mining Company (MFM) at Lowell, Florida. This document also serves as an application for an operating permit for the clay dryer and storage silo. On June 13, 1990, your office sent a letter to Mr. David Kibler, President of MFM, tentatively assigning operating permit AO42-180896 to the dryer and storage silo and requesting information related to the Certificate of Completion of Construction. In the following paragraphs, I have provided the information requested in your June 13, 1990, letter.

A. Test results showing compliance with emission limitations and conditions of permit. Clarify the September 12, 1984, test date specified.

The most recent compliance test conducted on the clay dryer, while the dryer was being used to process the contaminated soil, was conducted on April 17, 1990. Copies of this report were mailed from the offices of Koogler & Associates on May 24, 1990, and should have been received by your office. If you have not yet received a copy of this report, please contact this office immediately.

Best Available Copy

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RECIPIENT'S COPY

[redacted]

Date 7/17/90

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Company: GOBLER & ASSOC	Department/Floor No.
Street Address: 2224 NW 13TH ST	
City: GAINSVILLE	State: FL · ZIP Required: 32609

2 To (Recipient's Name) Please Print: Steve Smallwood	Recipient's Phone Number (Very Important)
Company: FDER	Department/Floor No.
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. ® Zip Codes.): 2600 Blair Stone Rd	
City: Tallahassee	State: FL · ZIP Required: 32399-2401

3 YOUR BILLING REFERENCE INFORMATION (First 24 characters will appear on invoice.) 2911-77-01

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City · State · ZIP Required

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11 [ ] YOUR PACKAGING	51 [X] YOUR PACKAGING
16 [X] FEDEX LETTER*	56 [ ] FEDEX LETTER*
12 [ ] FEDEX PAK*	52 [ ] FEDEX PAK*
13 [ ] FEDEX BOX	53 [ ] FEDEX BOX
14 [ ] FEDEX TUBE	54 [ ] FEDEX TUBE
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	80 [ ] DEFERRED HEAVYWEIGHT**

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* Declared Value Limit $100.
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Date/Time: 7/18/90 1348

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Other 2
Total Charges

REVISION DATE 8/89
PART #119501 FXEM 9/89
FORMAT #014
014
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The test date of September 12, 1984, referenced in the Certificate of Completion of Construction, was an erroneous reference. The test date that should have been referenced, and the date referenced in the attached, revised Certificate of Completion of Construction, is April 17, 1990.

In reviewing the results of the compliance test conducted on April 17, 1990, it will be noted that the particulate matter, visible emissions, nitrogen oxides and sulfur dioxide emission rates are all within compliance. The carbon monoxide emission rate, however, is above the permitted emission limit of 0.8 pounds per hour.

In reviewing the permit application submitted to the Department in December 1985, it was found that the carbon monoxide emission limit of 0.8 pounds per hour was derived from an AP-42 emission factor for coal firing, a fuel that will not be used. The emission factor used was 0.6 pounds per ton of coal fired and, at that time, the proposed coal firing rate was 1.4 tons per hour. Converting the mass emission rate of carbon monoxide of 0.8 pounds per hour to a concentration results in a stack gas carbon monoxide concentration of only 7.3 ppm. As a point of comparison, the carbon monoxide emission limit proposed for industrial furnaces burning hazardous waste-derived fuel is in the range of 100 ppm (volume basis).

MFM has reviewed the dryer operations subsequent to the April 17, 1990 test and has made adjustments in the combustion process. As a result, MFM is confident that it can operate the dryer with a stack gas carbon monoxide concentration not to exceed 100 ppm. By this letter, therefore, MFM is requesting that the carbon monoxide emission limit be revised to a stack gas concentration of 100 ppm (volume basis), or to a mass emission rate of 11.0 pounds per hour. The mass emission rate of 11.0 pounds per hour is based on the stack gas flow characteristics addressed in Response B2. A copy of this letter is being forwarded to the Central Air Permitting section of FDER in Tallahassee for review and consideration of this request.

B. <u>OTHER</u>

1. **In accordance with Subpart E-Used Oil Burned for Energy Recovery, 266.41(b)2 and Part 260.10, the industrial furnace cannot utilize off-specification used oil for the purpose of decontaminating soil. Therefore, clarify whether the applicant will agree to eliminate the off-specification used oil when decontaminating soil and, if so, revise the application accordingly.**

By letter dated July 10, 1990, to Mr. Dale Twachtmann, Secretary of the Department, MFM provided notification that it will no longer be in the business of thermally processing contaminated soils at its Lowell, Florida, facility. A copy of this letter is attached hereto.

As a result of the July 10, 1990, decision by MFM, several of the amendments to Permit AC42-113787 are void and should not be carried forwarded into Permit AO42-180896. The amended specific conditions that should not be carried forward include:

1. Specific Condition 21 which was added June 12, 1987, allowing the use of the clay dryer to decontaminate soils.

2. Specific Condition 22 which was added June 12, 1987, and is related to the processing of contaminated soils.

3. Specific Condition 26 which was added on June 12, 1987, and is related to the control of fugitive emissions resulting from the processing of contaminated soil.

4. Specific Condition 27 which was added on June 12, 1987, and is related to the processing of contaminated soil.

5. Specific Condition 23 which was originally added on June 12, 1987, and was amended March 24, 1988. This condition applies to the fuel firing rate and the throughput rate during the processing of contamination soil and to record keeping required while contaminated soils are being processed.

6. Specific Condition 24 which was added on June 12, 1987, and modified on March 24, 1988. This condition relates to testing requirements for contaminated and processed soil.

7. Specific Condition 25 which was added on June 12, 1987, and amended on March 24, 1988. This condition relates to emission measurements during the processing of contaminated soil.

In addition to the decision to no longer process contaminated soil, I am reiterating, on behalf of MFM, the decisions related to fuel use stated in my letter to you of May 18, 1990. The fuel use decisions made by MFM are:

1. MFM no longer intends to burn spent solvents as a fuel.

2. MFM no longer intends to burn used kerosene as a fuel.

3. MFM no longer intends to burn terpene derived fuels.

4. MFM no longer intends to burn coal as a fuel.

These fuel use decisions all relate to the clay dryer and will affect the following specific conditions that were included in Permit AC42-113787 as issued on April 19, 1986.

1. Specific Condition 3 should be revised to state that the rotary dryer be fired only with on-specification and off-specification used oil fuel and No. 5 fuel oil. Additionally, MFM requests approval to burn virgin No. 2 fuel oil, a No. 6 fuel oil that is equivalent to the permitted No. 5 fuel oil and natural gas should natural gas be supplied to the Lowell area.

2. Specific Condition 4 related to the sulfur content of coal should be eliminated as coal will no longer be considered as a fuel.

3. Specific Condition 5 should be modified to be consistent with my letter to you of July 14, 1990, in which I state the maximum concentration of lead in the off-specification used oil fuel will be 500 ppm. The permitted lead limit presently in Specific Condition 5 is 10,000 ppm.

4. Specific Condition 6 related to terpene derived fuel should be eliminated.

5. Specific Condition 7 related to the use of used kerosene as a fuel should be eliminated.

6. Specific Condition 8 related to the use of non-halogenated spent hydrocarbon solvents as a fuel should be eliminated.

7. Specific Condition 10 related to the use of spent hydrocarbon solvent testing should be eliminated.

2. **Submit the current emission points height above grade, velocity, temperature and flow rate when decontaminating petroleum contaminated soil.**

As stated in response to No. 1, above, MFM will not longer process contaminated soil at the Lowell facility. The information requested when the dryer is used to process clay is as follows:

Stack Height	73 feet above grade
Stack Diameter	43.5 inches
Stack Gas Flow Rate	45,940 ACFM
Stack Gas Velocity	74.2 fps
Stack Gas Temperature	230°F
Stack Gas Moisture	28.5%.

KOOGLER & ASSOCIATES

All of these stack gas parameters listed may vary by approximately 10 percent during normal plant operations.

3. **Submit technical data which addresses whether the Nomex replacement bag material is adequate to maintain the stated baghouse particulate removal efficiency under the current conditions of operation. It is the Department's understanding that the bags were changed without notifying the Central Air Permitting Section (CAPS). The construction permit for this project will need to be changed by CAPS to reflect this modification.**

The information comparing the Nomex bag material with the Dralon acrylic bag material formerly used by MFM was submitted to your office under cover of our letter dated June 4, 1990. To facilitate your review of this matter, a copy of this letter is attached hereto. The information provided demonstrates that Nomex and Dralon bag materials will have comparable particulate matter removal efficiencies. The main difference in the materials is that Nomex will withstand higher temperatures than Dralon. A copy of this letter, accompanied by a copy of our June 4, 1990, letter and your letter of June 13, 1990, is being transmitted to the Central Air Permitting Section of FDER in Tallahassee for their consideration.

4. **Submit design details such as air-to-cloth ratio, temperature, particulate removal efficiency, etc., for the baghouse as it is currently operated. Also, clarify whether the baghouse is equipped with temperature sensors and a by-pass mechanism.**

The design details of the baghouse used to control emissions from the clay dryer and clay storage silo are the same as they have been since the baghouse was installed. In our letter to your office of June 4, 1990, I addressed all maintenance that has been performed on the baghouse since July 1987. The only change to the baghouse is a change in the clean-air plenum; a change that will not affect the particulate matter removal efficiency. Following are the design details of the baghouse:

Air flow rate - 45940 ACFM,
Stack gas temperature - 230^{o}F,
Number of bags - 600,
Bag dimension - 6 inch diameter by 10 feet long,
Cloth area - 9425 square feet,
Air-to-cloth ratio - 4.87/1, and
Particulate matter removal efficiency -
Necessary to meet emission limit of 31.2 pounds per hour - 98.9 percent,
Expected efficiency based on compliance tests - 99.8 percent.

The control efficiencies are based on an uncontrolled emission rate of 70 pounds per ton; an emission factor for clay drying from AP-42, Section 8.7.

The baghouse is equipped with a temperature sensor immediately upstream of the baghouse and a temperature sensor between the baghouse exit and the I.D. fan. The temperature sensors produce a signal which is read in the dryer control room.

There is no bypass mechanism on the baghouse. Our letter of June 4, 1990 describes the Halon fire control system that has been installed on the baghouse.

5. **Submit a list of the petroleum products which will contaminate the soil if you propose to decontaminate. Clarify whether soils containing greater than 1000 ppm total halogens or 0 ppm PCBs are to be decontaminated.**

As addressed in response No. 1, MFM will no longer process contaminated soils at the Lowell facility.

6. **Clarify the parameters, test methods and test frequencies you will conduct on soils before and after processing through the dryer. Clarify the test records to be maintained on site.**

As addressed in response No. 1, MFM will no longer process contaminated soils at the Lowell facility.

7. **Clarify the status of the facility regarding the exemption under 40CFR60.670, Subpart 000. Describe the facility and provide justification for not having to meet the requirements of Subpart 000.**

Correspondence which was previously directed to Mr. Alan Zahm of your office provides documentation that Subpart 000 does not apply to the boxing machine which is covered under the permit for the MFM fugitive dust collection system.

Regarding the clay dryer, there have been no modifications to the clay dryer since August 31, 1983, that would cause the facility to be subject to Subpart 000. As addressed in my letter to you of July 14, 1990, the replacement of the Dralon acrylic bags with an equivalent Nomex bag material cannot be considered "construction, reconstruction, or modification." The bag replacement falls under the category of routine maintenance with one bag material being replaced with another bag material that will withstand higher temperatures and yet, provide the same particulate matter removal efficiency.

8. **It is Department policy to require afterburners on the soil decontamination unit. Provide drawings and information which will show compliance with Department policy of 95% removal of VOCs.**

As addressed in response No. 1, MFM will no longer process contaminated soils at the Lowell facility.

I trust that the information provided herein will adequately respond to the questions raised in your June 13, 1990, letter. If there are any questions regarding the information provided herein or if additional information is required, please do not hesitate to contact me.

As a professional engineer registered in the State of Florida, I hereby certify that the information that I have provided herein is, in my professional judgement, true and correct. Furthermore, I request that the information provided herein be included as part of the revised Certification of Completion of Construction for the attached hereto.

Very truly yours,

KOOGLER & ASSOCIATES

John B. Koogler, Ph.D., P.E.
Florida Registration No. 12925

JOHN B. KOOGLER
CERTIFICATE
No. 12925
STATE OF FLORIDA
REGISTERED ENGINEER

JBK:wa
Enc.

cc: Steve Smallwood, FDER, Tallahassee
David Kibler, MFM Environmental, Inc.

KOOGLER & ASSOCIATES

Revised 7/18/90

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

AIR POLLUTION SOURCES
CERTIFICATE OF COMPLETION OF CONSTRUCTION*

PERMIT NO. AC42-113787 DATE: May 17, 1990

Company Name: Mid-Florida Mining Company County: Marion

Source Identification(s): Rotary clay dryer and dried clay (-40 mesh) storage silo with emissions controlled with a baghouse.

Actual costs of serving pollution control purpose: $ NA - existing control system.

Operating Rates: Design Capacity: 40.8 tph

Expected Normal 40 tph clay During Compliance Test 38.0 tph (clay & soil)

Date of Compliance Test: April 17, 1990 (Attach detailed test report)

Test Results:

Pollutant	Actual Discharge	Allowed Discharge
P.M./V.E.	11.4/4.0	15.0 lb/hr /20%
NOx	4.8	24.9 lb/hr
SO2	7.4	52.5 lb/hr

Date plant placed in operation: NA - existing plant.

This is to certify that, with the exception of deviations noted**, the construction of the project has been completed in accordance with the application to construct and Construction Permit No. AC42-113787 dated April 19, 1986.

A. Applicant:

David B. Kibler, President
Name of Person Signing (Type)

[Original Signed and Dated by Mr. Kibler]
Signature of Owner or Authorized Representative and Title

Date: [Original date 5/18/90] Telephone: (904) 854-0070

B. Professional Engineer:

John B. Koogler, Ph.D., P.E.
Name of Person Signing (Type)

Signature of Professional Engineer

Koogler & Associates, Environmental Services
Company Name

Florida Registration No. 12925

Date: 7/18/90

(Seal)

4014 N.W. 13th Street, Gainesville, Fl 32609
Mailing Address

(904) 377-5822
Telephone Number

*This form, satisfactorily completed, submitted in conjunction with an existing application to construct permit and payment of application processing fee will be accepted in lieu of an application to operate.

**As built, if not built as indicated include process flow sketch, plot plan sketch, and updates of applicable pages of application form.

Specific Conditions are to be changed in accordance with the attached letter dated 7/18/90. All changes will result in a reduction in emissions, with the exception to the requested change in the carbon monoxide emission limit discussed in Response B1 in the attached letter.

Florida Department of Environmental Regulation

Central District • 3319 Maguire Boulevard, Suite 232 • Orlando, Florida 32803-3767 • 407-894-7555

Bob Martinez, Governor | Dale Twachtmann, Secretary | John Shearer, Assistant Secretary
Alex Alexander, Deputy Assistant Secretary

June 13, 1990

COMPLETENESS SUMMARY AIR POLLUTION SOURCES

SOURCE NAME: Thermal Soil Decontamination Dryer (AC42-113787) DATE RECEIVED: 5/21/90

NAME: David B. Kibler, President
Mid Florida Mining Co. DATE REVIEWED: 6/5/90

ADDRESS: 3300 Southwest 34th Avenue, Suite 152
Ocala, Florida 32674 REVIEWED BY: John Turner

(AO42-180896)

Your application for a permit to operate this referenced project has been received, and reviewed for completeness. The following checked item is needed to complete your application.

(X) Test results showing compliance with emission limitations and conditions of the permit. Clarify the September 12, 1984 test date specified.

(X) Other: (Any section of the application which is incomplete or lacks sufficient information to be evaluated).

1. In accordance with Subpart E-Used Oil Burned for Energy Recovery, 266.41(b)(2) and Part 260.10, the industrial furnace can not utilize off-specification used oil for the purpose of decontaminating soil. Therefore, clarify whether the applicant will agree to eliminate the use of off-specification used oil when decontaminating soil and if so, revise the application accordingly.

2. Submit the current emission points height above grade, velocity, temperature, and flow rate when decontaminating petroleum contaminated soil.

3. Submit technical data which addresses whether the Nomex replacement bag material is adequate to maintain the stated baghouse particulate removal efficiency under the current conditions of operation. It is the Department's understanding that the bags were changed without notifying the Central Air Permitting Section (CAPS). The construction permit for this project will need to be changed by CAPS to reflect this modification.

4. Submit design details, such as air to cloth ratio, temperature, particulate removal efficiency, etc., for the baghouse as it is currently operated. Also clarify whether the baghouse is equipped with temperature sensors and a bypass mechanism.

5. Submit a list of petroleum products which will contaminate the soils you propose to decontaminate. Clarify whether soils containing greater than 1000 ppm total halogens or 0 ppm PCB are to be decontaminated.

6. Clarify the parameters, test methods, and test frequencies you will conduct on the soils both before and after processing through the dryer. Clarify the test records to be maintained on site.

7. Clarify the status of the facility regarding the exemption under 40 CFR 60.670, Subpart 000. Describe the facility and provide justification for not having to meet the requirements of Subpart 000.

8. It is department policy to require afterburners on soil decontamination units. Provide design drawings and information which will show compliance with department policy of 95% removal of VOCs.

Pursuant to Section 120.60(2) Florida Statutes, the department may deny an application if the applicant, after receiving timely notice fails to correct errors, omissions or supply additional information within a reasonable period of time.

If there are any questions, please call John Turner at 407/894-7555 or write to me at the above address.

Sincerely,

Alan D Zahm

Alan D. Zahm, P.E.
Supervisor, Permitting
Air Resources Management

ADZ/jtj

cc: Barry Andrews, Tallahassee

KOOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES
4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
904/377-5822 ▪ FAX 377-7158

KA 290-90-01

June 4, 1990

Mr. Charles Collins
Florida Department of
Environmental Regulation
Central Florida District
Suite 323
3319 Maguire Blvd.
Orlando, FL 32803

Subject: Mid-Florida Mining Company
Marion County-AP
Status of Baghouse Controlling Emissions
from Clay Dryer/Silo
Permits A042-96009 and AC42-113787

Dear Mr. Collins:

During our meeting in your office on May 18, 1990, we discussed a fabric filter collector (baghouse) used to control particulate matter emissions from the clay dryer operated by the Mid-Florida Mining Company at Lowell, Florida. You requested that we document, for the record, "changes" to the baghouse that have occurred over the past several years. In the following paragraphs, I have described everything that has been done to the baghouse, with the exception of routine maintenance, since July 1987. The changes described herein do not significantly change any of the baghouse characteristics or performance that existed when the baghouse was originally permitted.

CLEAN-AIR PLENUM

The original baghouse had a clean-air plenum that was large enough for a person to walk into. In July 1987, the walk-in clean-air plenum was replaced with a plenum with a smaller headspace. The reason for changing the clean-air plenum was that the walk-in plenum, because of its large size and, hence, large surface area, resulted in a significant heat loss. This heat loss caused in the clean air leaving the baghouse to be cooled to the point that excess condensation occurred. The condensation exacerbated corrosion problems within the clean-air plenum and significantly increased maintenance on the baghouse. Additionally, the seals on the access doors in the walk-in clean air plenum, because of their large size, were difficult to maintain.

The low headspace clean-air plenum that was placed on the baghouse in July 1987 considerably reduced the heat loss from the clean air stream and, hence, greatly reduced the condensation and corrosion problems that existed with the walk-in plenum. Also, the access doors in the low headspace clean-air plenum are smaller, the seals are much easier to maintain.

During our meeting, you expressed a concern that maintenance and bag inspection might be a problem as an individual could no longer walk into the clean-air plenum to inspect the bags. With the access doors that exist in the low headspace clean-air plenum and the use of a fluorescent dye and a long-wave length ultraviolet light (a black light), the present maintenance is as good as or better than that which existed with the walk-in plenum.

With your knowledge of baghouses, I am sure you recognize that the size of the clean-air plenum in no way affects the performance of the baghouse and, hence, in no way would affect particulate matter emissions from the MFM clay dryer and clay fines storage silo. A review of emission data prior to and subsequent to 1987 will also demonstrate this.

BAGHOUSE FIRE

On April 3, 1989, MFM experienced a fire in the clay dryer/storage silo baghouse. The fire occurred while soil contaminated with a hydrocarbon product (oil) was being processed. The fire was controlled and extinguished by MFM personnel. The fire resulted in a shutdown of the plant for 168 hours (seven days) while repairs were being made to the baghouse. The repairs to the baghouse included:

A. The interior lining of the baghouse was replaced to eliminate warpage caused by the fire and to correct corrosion problems that had developed over time. The original interior lining of the baghouse was 14 gauge (0.078 inch thick) steel plate. The interior lining was renewed by welding 10 gauge (0.140 inch thick) steel plate over the interior surfaces of the original lining. The interior lining of the baghouse now consists of the original 14 gauge steel covered (on the baghouse interior) by the 10 gauge steel. The relining of the baghouse did not significantly change the interior dimensions of the baghouse nor the performance of the baghouse.

B. The cell plate was straightened as necessary and the seals replaced. The cell plate, as you know, is the plate dividing the clean-air plenum from the dirty air plenum and is the plate to which all of the bags attach. It is imperative that the seals on the cell plate be completely intact to prevent the leakage of dirty air into the clean-air plenum.

C. All bags and bag cages were replaced and the seals between the bag collars and the cell plates were inspected and resealed as necessary. The bags were replaced with the Dralon acrylic bags at that time.

D. The seals on all access doors were replaced to assure that there was no air in-leakage to the baghouse.

TIME FOR REPAIRS

As stated in the preceding section, the clay dryer and clay storage silo were shutdown for 168 hours (seven days) following the April 1989 fire for repair. When repairs were completed, normal plant operations resumed.

FIRE CONTROL SYSTEM

In May and June 1989, a fire control system was installed in the baghouse controlling emissions from the clay dryer and clay fines storage silo. The system consists of temperature monitors, interconnected and electronically activated slam-shut dampers at the inlet and outlet of the baghouse, an interconnect to shut-off the burner fuel and the ID fan and a halon injection system for the baghouse.

A quick response temperature sensor is located in the gas stream near the exit of the dryer drum. If there is a 50°F temperature rise in the gas stream at this sensor in a 10-second period, the fire control system is activated. The two slam-shut dampers are electronically closed to isolate the baghouse, the burner fuel to the dryer is shut-off, and the fan that draws air through the dryer in the baghouse is shut-off. The dryer drum continues to rotate to prevent warpage and to allow the tumbling action of material in the drum to smother any fire that may develop in the drum.

After this system has been activated, the dryer operators visually monitor the baghouse temperature. If there is a rapid rise in the baghouse temperature (indicating a fire), the halon fire extinguisher system is activated and 1500 pounds of halon is injected into the baghouse. This fire control system in no way affects the normal operation of the clay dryer, the clay fines storage silo or the baghouse.

TYPE OF BAGS

The specific conditions of dryer permits issued subsequent to mid-1983 specified that Dralon T homopolymer acrylic bags with the Cros-ible, Inc., stock number HAN1530SST, be used in the clay dryer/storage silo baghouse. This condition was the result of a solution that MFM found for bag failure problems that plagued the company through mid-1983. The information on the Dralon T bags was transmitted to you under cover of my letter dated August 22, 1983. Included as attachments to that letter was correspondence between MFM and Cros-ible, Inc. and information on Dralon T homopolymer acrylic fiber. Included in the correspondence was the requirement that MFM maintain the temperature to which the Dralon T bags were exposed to 284°F or less.

As a result of this correspondence, your office included as a dryer permit condition in all permits issued subsequent to August 22, 1983, the condition that the bags in the baghouse be of the Dralon T acrylic fiber.

MFM has recently replaced the bags in the clay dryer baghouse with Nomex bags having the same general properties as the Dralon acrylic bags. The major difference in the bag materials is that Nomex can withstand temperatures in the 350-370°F range whereas the temperature of the Dralon bags must be maintained below 284°F. Both the Dralon and Nomex bags used by MFM are needle felted bags. The needle felted fabric is manufactured by beginning with a lightweight woven material (approximately 1.4 ounces per square yard) of either Dralon or Nomex. To this lightweight material, referred to as a scrim, the Dralon or Nomex felting is applied. The felt fibers are "poked " through the woven scrim fabric with needles; hence, the term needled felt. In the case of Dralon, the final fabric weight is 15 ounces per square yard and the porosity of the fabric is 25-35 cubic feet per minute of air at 0.5 inches of water pressure drop. The outer surface of the fabric (the surface upon which the dirty air impinges in the baghouse) is singed prior to shipping.

With the Nomex fabric, the manufacturer begins with a 1.4 ounce per square yard Nomex scrim. To this woven scrim, Nomex felt fibers are applied by needling to produce the material with a weight of 14.5 ounces per square yard and a porosity of 25-35 cubic feet per minute at 0.5 inches of water pressure drop. The outer surface of the Nomex material is also singed prior to shipment.

Both the Dralon and Nomex are synthetic fibers with similar properties. The manufacturing process of the felted materials is identical and the porosities of the two materials (a measure of air passage and particle control efficiency) are identical. The only significant difference between the two fabrics is that Nomex will withstand higher temperatures. I have attached a recent FAX of a specification sheet that I have received from Cros-ible, Inc. showing the similarities in the characteristics of the Dralon and Nomex materials from which MFM bags are fabricated. I would also point out that we recently conducted a compliance test on the MFM dryer with the baghouse equipped with Nomex bags. The results of this compliance test showed that the dryer operated well within compliance, as it has done with Dralon bags.

Because the characteristics of the Nomex and Dralon bags are identical from the standpoint of particle control and because of the fact we have submitted test data demonstrating compliance with Nomex bags in the

KOOGLER & ASSOCIATES

baghouse, I am requesting that any permits issued subsequent to this date include the term "or equivalent" along with any bag material specified.

To the best of my knowledge and the knowledge of MFM personnel, the "changes" described above are the only changes that have been made to the dryer baghouse. In my professional opinion, and based on the results of compliance testing, none of the "changes" have resulted in any significant change in baghouse performance. If there are any questions regarding the information provided herein, please do not hesitate to contact me.

Very truly yours,

KOOGLER & ASSOCIATES

John B. Koogler, Ph.D., P.E.

JBK:wa
Enc.

cc: Mr. David Kibler, MFM
Mr. John Chieffalo, MFM

KOOGLER & ASSOCIATES

Date: 5/31/90

CROS-IBLE, INC.
FILTRATION

Fax # 1-315-497-0324

To: Mr. John Koogler

of: Koogler and Associates

FAX# 904-377-7158

From: Patrick J. Quigley

Page 1 of 1 Pages

Message:

Dear Mr. Koogler,

Confirming our telephone conversation we are pleased to submit the following specifications:

Style:	#HAN 1530 SST	#NXN 1430 SST
Fiber:	Dralon Acrylic	Nomex
Construction:	Needled Felt	Needled Felt
Weight:	15 oz./yd.^{2}	14.5 oz./yd.^{2}
Porosity:	25-35 CFM @ $\frac{1}{2}$" H_2O	25-35 CFM @ $\frac{1}{2}$" H_2O
Finish:	Singed	Singed
	Scrim Supported	Scrim Supported.

Please call if we can help further.

Regards -

Patrick J. Quigley

Manufacturing: West Cayuga Street / Moravia, New York 13118 / (315) 497-2960-1

MFM

INDUSTRIES

July 10, 1990

Mr. Dale Twachtmann, Secretary
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Mr. Secretary:

We today notify you of Mid-Florida Mining's decision to withdraw from the afterburner non-hazardous hydrocarbon permit proceedings.

Mid-Florida Mining applied for this permit on March 8, 1989, and on September 28, 1989, the Department of Environmental Regulation issued its intent to issue such a permit. An administrative proceeding concerning the proposed afterburner permitting decision scheduled for August 28 and 29 is no longer necessary.

We also would like you to know that Mid-Florida Mining will no longer be in the business of thermally processing soils at its Lowell, Florida, location.

We inform you of these business decisions so that you may take appropriate action. We appreciate your efforts.

Sincerely,

W. M. Palmer, Jr.
W. M. Palmer, Jr.
Chairman

David B. Kibler, IV
President

cc: Clair Fancy, FDER
Alex Alexander, FDER

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

	ACTION NO
	ACTION DUE DATE

TO: (NAME, OFFICE, LOCATION)	
1. Steve Smallwood, Clair	Initial / Date
2. AIR BAQM	Initial / Date
3. AT	Initial / Date
4. Fall	Initial / Date

REMARKS:

RECEIV

JUL 24 1990

DER - BAQM

INFORMATION	
	Review & Return
	Review & File
	Initial & Forward

DISPOSITION	
	Review & Respond
	Prepare Response
	For My Signature
	For Your Signature
	Let's Discuss
	Set Up Meeting
	Investigate & Report
	Initial & Forward
	Distribute
	Concurrence
	For Processing
	Initial & Return

FROM: C. Shine
Air Resources Mgmt
Central District

DATE 7-23-90

PHONE

FILE

TO: STEVE SMALLWOOD
THRU ALEX ALEXANDER

To: MFM Files 2:10
Through: Charles Collins cmc 7/13/90
From : Caroline Shine

Subject: MFM

Mr. Allen Lawson, Atty at 904-222-2300 received a call from a former employee of MFM who stated that sometime in the 1980's (date unknown) pick up some sludge from a ship in Jacksonville, 6,000 gallons and delivered to MFM when it was decided not to burn, was sent to MFM and dumped.

Employee: Mr. Sarver is willing to testify to this in court.

C Shine

cc Bill B.