Check Sheet

→ P 5/18

Company Name: Florida Solite Corporation
Permit Number: AC 10-084168
PSD Number:
County:
Permit Engineer:
Others involved:

Application:
- [x] Initial Application
- [x] Incompleteness Letters
- [x] Responses
- [x] Final Application (if applicable)
- [ ] Waiver of Department Action
- [ ] Department Response
- [ ] Other

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

NE District Corr

DEP Letter 6/3/85

7/10/85 from ~~Fl. Solite~~ Koogler

~~to NE District~~

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

Post Permit Correspondence:
- [x] Extensions
- [ ] Amendments/Modifications
- [ ] Response from EPA
- [ ] Response from County
- [ ] Response from Park Services
- [ ] Other

AC 10-84168
Kiln #1A

Department of Environmental Regulation

Routing and Transmittal Slip

To: (Name, Office, Location)

1. ~~Clair Fancy~~
2. Air Quality - Room 306F
3. ~~Barry~~
4. Willard

Remarks:

RECEIVED
NOV 26 1991
Division of Air
Resources Management

From	Date
Chris - OGC	11/25/91
	Phone 8-9730

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

RECEIVED
NOV 20 1991
Division of Air Resources Management

FLORIDA SOLITE COMPANY, INC.,

Petitioner,

vs.

DOAH CASE NO. 91-1329
OGC CASE NO. 90-1565

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION,

Respondent.
_____/

FINAL ORDER

On October 18, 1990, the State of Florida Department of Environmental Regulation ("Department") received a Motion for an Extension of Time, and continued to grant several extension requests thereafter. On February 14, 1991, the Department received a Petition for Administrative Hearing from Petitioner, Florida Solite Company, Inc. The petition challenged the Department's decision to deny Permit No. AO10-133604 to Florida Solite to operate their No. 1A Kiln to produce lightweight aggregate at their plant located near Green Cove Springs in Clay County.

On October 30, 1991, after receiving a Stipulation of Dismissal the assigned Hearing Officer issued an Order which closed the Division of Administrative Hearings file and relinquished jurisdiction back to the Department. (Exhibit 1) There being no further matters to consider,

IT IS ORDERED:

The petition is hereby dismissed and Permit Application No. AO10-133604 is hereby DENIED, without prejudice.

Any party to this Order has the right to seek judicial review of the Order 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 of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this Order is filed with the clerk of the Department.

DONE AND ORDERED this 22 day of November, 1991, in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

Carol M. Browner

CAROL M. BROWNER
Secretary

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400
Telephone: (904) 488-4805

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

Shirley C. Carter 11-26-91
Clerk Date

RECEIVED
NOV 1 1991
Dept. of Environmental Reg.
Office of General Counsel

STATE OF FLORIDA
DIVISION OF ADMINISTRATIVE HEARINGS

FLORIDA SOLITE COMPANY, INC.,

Petitioner,

vs.

STATE OF FLORIDA, DEPARTMENT OF ENVIRONMENTAL REGULATION,

Respondent.

CASE NO. 91-1329

ORDER CLOSING FILE
AND CANCELLING FINAL HEARING

This cause having come before the undersigned on the parties' Stipulation Of Dismissal, the formal hearing scheduled to commence on December 4, 1991, is cancelled; the file of the Division of Administrative Hearings in this case is closed; and jurisdiction of this matter is returned to the referring agency for any further proceedings.

DONE AND ORDERED this 30th day of October, 1991, in Tallahassee, Florida.

DON W. DAVIS
Hearing Officer
Division of Administrative Hearings
The DeSoto Building
1230 Apalachee Parkway
Tallahassee, Florida 32399-1550
(904)488-9675

Filed with the Clerk of the Division of Administrative Hearings this 30th day of October, 1991.

EXHIBIT 1

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing has been furnished by U.S. Mail to:

John Kopelousos, Esq.
Kopelousos, Head, Smith,
Townsend & Metcalf, P.A.
P O Box 855
Orange Park FL 32067-0855

on this 25th day of November, 1991.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

for Carol A. Forthman
WILLIAM H. CONGDON
Assistant General Counsel

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400
Telephone: (904) 488-9730

P 408 533 615

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED--
NOT FOR INTERNATIONAL MAIL

(See Reverse)

Sent to Mr. John Kuiken	
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 9/30/85	

PS Form 3800, Feb. 1982

PS Form 3811, July 1983

SENDER: Complete items 1, 2, 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 service(s) requested.

1. ☐ Show to whom, date and address of delivery.
2. ☐ Restricted Delivery.

3. Article Addressed to:
Mr. John M. Kuiken
Plant Manager
Florida Solite Corporation
Post Office ox 297
Green Cove Springs, FL 32043

4. Type of Service:
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail

Article Number: P 408 533 615

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature – Addressee
X Bn Woodall

6. Signature – Agent
X

7. Date of Delivery
10-2-85

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

GREEN COVE SPRINGS FL 32043 OCT 1985 USPO

DOMESTIC RETURN RECEIPT

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

September 18, 1985

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. John M. Kuiken
Plant Manager
Florida Solite Corporation
Post Office Box 297
Green Cove Springs, Florida 32043

Dear Mr. Kuiken:

Re: Modification of Conditions - Permit No. AC 10-84168

The department is in receipt of John B. Koogler's September 10, 1985, letter requesting the permit to construct kiln No. 1A be extended to allow your company to present proposals to revise the compliance test method for sulfur dioxide as specified in Specific Condition No. 11, and to present alternate means to comply with the sulfur dioxide standard specified in Specific Condition No. 12. The request is acceptable with conditions, and the expiration date is changed as noted below.

Condition

Expiration Date

From

September 30, 1985

To

December 31, 1985

New Specific Condition

24. Kiln 1A shall not be operated commercially when burning coal. Commercial operation means operating the kiln for the primary purpose of producing a marketable product.

Attachment to be Incorporated:

John B. Koogler's letter dated September 10, 1985.

A copy of this letter must be attached to the referenced construction permit and shall become a part of that permit.

Sincerely,

Howard L. Rhodes
for Victoria J. Tschinkel
Secretary

VJT/ks

cc: J. Brown
J. Koogler

attachment: September 10, 1985 letter

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

Interoffice Memorandum

RECEIVED
DER SEP 20 1985

FOR ROUTING TO OTHER THAN THE ADDRESSEE

To: SEP 23 1985 Office of the Secretary
To: ____ LOCTN: ____
To: ____ LOCTN: ____
FROM: BAQM DATE: ____

TO: Victoria J. Tschinkel

FROM: Clair Fancy

DATE: September 19, 1985

SUBJ: Modification of Conditions

Attached for your approval and signature is a letter that will extend the expiration date of a construction permit issued to Florida Solite Corporation. This extension will allow time for the applicant to present a counter proposal on the sulfur dioxide emission restrictions in the permit.

The Bureau recommends this extension be approved.

CHF/ks

attachment: draft letter

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

SKEC 150-84-05

September 10, 1985

Mr. John Brown
Florida Department of
Environmental Regulation
Northeast District Office
3426 Bills Road
Jacksonville, Florida 32207

Subject: Clay County - AP
Florida Solite Corporation
Kiln No. 1A
Permit No. AC10-84168

Dear Mr. Brown:

In response to your letter of June 3, 1985, we are enclosing herewith four copies of the Certificate of Completion of Construction for Kiln No. 1A operated by the Florida Solite Corporation at their facility near Green Cove Springs and a check payable to the Florida Department of Environmental Regulation in the amount of $500.00 to cover the processing fee for an Operating Permit for the subject source.

As you will recall, there has been some question regarding the sulfur dioxide emissions from Kiln No. 1A and an appropriate test method for measuring these emissions. We have completed our test report for the emission measurements conducted on the kiln during the period May 22-24, 1985. This report should be in your office in the very near future if it has not already been received. In this report, we present the results of a sulfur balance across the kiln system resulting in what we consider a reasonable measure of the sulfur dioxide emissions from the kiln stack. The report also compares the results of two EPA test methods for measuring sulfur dioxide emissions and recommends that EPA Method 16 be the permitted method for measuring sulfur dioxide emissions from the kiln during all future tests.

There also appears to be a question regarding the ability of Kiln No. 1A to comply with the sulfur dioxide emission limiting standard

DER
SEP 13 1985
BAQM

contained in the subject permit. In the test report referenced in the previous paragraph, we present data that demonstrate that the kiln can operate within the established sulfur dioxide emission limiting standard if the amount of coal burned in the kiln is restricted. In our opinion, the applicability of the emission limiting standard contained in the subject permit and the restrictions on the amount of coal that can be burned in the kiln deserve further discussion.

In view of the fact that the subject permit expires on September 30, 1985, I would suggest that the enclosed application for an Operating Permit (the Certificate of Completion of Construction) be held in abeyance until the matters referenced in the preceding paragraphs have been discussed. In order to provide the necessary time for these discussions to take place, I would also suggest that the subject air pollution source Construction Permit be extended through December 31, 1985.

If there are any questions regarding this matter, please do not hesitate to contact me.

Very truly yours,

SHOLTES & KOOGLER,
ENVIRONMENTAL CONSULTANTS

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

JBK:ssc
Enclosures

cc: Mr. Ed Martin
Mr. Tom Purvis
Mr. Bill Johnson
Mr. John Kulken
Mr. Clair Fancy
Mr. Willard Hanks

BEST AVAILABLE COPY

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

NORTHEAST DISTRICT

3426 BILLS ROAD
JACKSONVILLE, FLORIDA 32207
(904) 396-6959

DER

JUL 16 1985

BAQM

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

ERNEST E. FREY
DISTRICT MANAGER

EXPIRES SEPT 30, 1985

July 15, 1985

John B. Koogler, Ph.D., P.E.
Sholtes & koogler Environmental Consultants
1213 N.W. 6th Street
Gainesville, Florida 32601

Dear Dr. Koogler:

Clay County - AP
Florida Solite Company
Kiln 1A
SO_2 - 5/21-23/85

In reference to your letter of July 10, 1985, we cannot at this time comment on the May 21-23 test. Please provide the results as soon as possible.

Your use of LBM will require a test using s standard reference method. Please let us know what quality control methods are used on the LBM to insure uniform sulfur content and/or other constituents that might be of environmental concern. It is not acceptable simply to assume the LBM will result in compliance with SO_2 allowable emissions.

Based on the results of your tests, it is again confirmed that the source is out of compliance for SO_2. This will be addressed formally when your results have been carefully reviewed.

Sincerely,

John C Brown Jr.

John Brown, P.E.
Supervisor Air Section

JB:mbk

cc: Rick Vail, BAQM

BEST AVAILABLE COPY

No. 0155577

RECEIPT FOR CERTIFIED MAIL

**NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL**

(See Reverse)

SENT TO Mr. John M. Kuiken				
STREET AND NO.				
P.O., STATE AND ZIP CODE				
POSTAGE				$
CONSULT POSTMASTER FOR FEES	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 6/19/85				

PS Form 3800, Apr. 1976

...n 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 service(s) requested.

1. ☐ Show to whom, date and address of delivery.
2. ☒ Restricted Delivery.

3. Article Addressed to:
Mr. John M. Kuiken
Fla. Solite Corp.
P. O. Box 297
Green Cove Springs, FL 32043

4. Type of Service:	Article Number
☐ Registered ☐ Insured ☒ Certified ☐ COD ☐ Express Mail	0155577

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature – Addressee
X Ben Woodall

6. Signature – Agent
X

7. Date of Delivery
6-21-85

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

JACKSONVILLE FLA JUN 21 1985 4 PM

GREEN COVE SPRINGS FLA

3811, July 1983 DOMESTIC RETURN RECEIPT

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

June 13, 1985

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. John M. Kuiken
Plant Manager
Florida Solite Corporation
Post Office Box 297
Green Cove Springs, Florida 32043

Dear Mr. Kuiken:

Re: Modification of Conditions - Permit No. AC 10-84168

The department is in receipt of your May 20, 1985, letter requesting the permit to construct kiln No. 1A be extended to allow time for test results to be submitted to the Northeast District. The request is acceptable and the expiration date is changed as noted below.

Condition	From	To
Expiration Date	June 30, 1985	September 30, 1985

Attachment to be incorporated:

Florida Solite Corporation's letter dated May 20, 1985.

A copy of this letter must be attached to the referenced construction permit and shall become a part of that permit.

Sincerely,

for Victoria J. Tschinkel
Secretary

VJT/ks

cc: J. Brown

attachment: May 20, 1985 letter

FLORIDA SOLITE® CORPORATION

P. O. BOX 297 • GREEN COVE SPRINGS • FLORIDA 32043 AREA CODE 904 284-9271

DER
MAY 21 1985
BAQM

May 20, 1985

Mr. Clair Fancy
Florida Department of
Environmental Regulation
Twin Tosers Office Building
1600 Blair Stone Road
Tallahassee, Florida 32301

Subj: Florida Solite Company
Kiln No. 1A
Construction Permit AC 10-84168

Dear Mr. Fancy:

I am requesting an extension on the No. 1A kiln construction, permit #AC10-84168 on behalf of Florida Solite Company.

We have scheduled both our kilns to be tested on May 22 and May 23, 1985. Mr. Johnny Cole of the Air Section in Jacksonville has suggested I ask for this extension because he feels they will not have all the results completed by June 30 when the construction permit expires.

If you have any questions regarding our regust, please feel free to contact me.

Very Truly Yours,

John M Kuiken

John M. Kuiken
Plant Manager

DER
JUN 14 1985
BAQM

5/22/85
By phone, John Kuiken requested the extension be for 30 days. Give 90 days to allow time to process application
bwk

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

Interoffice Memorandum

FOR ROUTING TO OTHER THAN THE ADDRESSEE

To: _____ Loctn: _____
To: _____ Loctn: _____
To: _____ Loctn: _____
From: _____ Date: _____

RECEIVED
JUN 13 1985
Office of the Secretary

TO: Victoria J. Tschinkel

FROM: Clair Fancy

DATE: June 12, 1985

SUBJ: Modification of Conditions

Attached for your approval and signature is a letter that will extend the expiration date of a construction permit issued to Florida Solite Corporation for a clay kiln by 90 days. This extension will allow time for the applicant to submit the emissions test report and for the Northeast District to process the application for permit to operate.

The Bureau recommends this extension be approved.

CHF/ks

attachment: draft letter

DER
JUN 14 1985
BAQM

No. 0158655

RECEIPT FOR CERTIFIED MAIL

**NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL**

(See Reverse)

SENT TO Mr. John Kuiken	
STREET AND NO.	
P.O., STATE AND ZIP CODE	
POSTAGE	$
CERTIFIED FEE	¢
SPECIAL DELIVERY	¢
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 2/12/85	

CONSULT POSTMASTER FOR FEES

OPTIONAL SERVICES

PS Form 3800, Apr. 1976

PS Form 3811, July 1983

SENDER: Complete items 1, 2, 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 service(s) requested.

1. ☐ Show to whom, date and address of delivery.
2. ☐ Restricted Delivery.

3. Article Addressed to:
Mr. John Kuiken
Florida Solite Company
P. O. Box 297
Green Cove Springs, FL 32043

4. Type of Service:
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail

Article Number
0158655

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature – Addressee
X J Reed

6. Signature – Agent
X

7. Date of Delivery

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

GREEN COVE SPRINGS FEB 14 1985 USPS

DOMESTIC RETURN RECEIPT

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 5, 1985

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. John Kuiken
Plant Manager
Florida Solite Company
P.O. Box 297
Green Cove Springs, Florida

Dear Mr. Kuiken:

RE: Modification of Conditions - Permit No. AC10-84168

The department has received Dr. John B. Koogler's letter, dated January 8, 1985, requesting the expiration date of the construction permit issued for your No. 1 clay aggregate kiln be extented to allow time for additional compliance testing for sulfur dioxide emissions. This request is acceptable, provided the compliance test program you plan to use is approved by the department. The expiration date of the construction permit and the compliance test requirements for sulfur dioxide are changed as noted below.

Present Conditions:

Expiration Date: January 31, 1985

Specific Condition:

11. Sulfur dioxide emissions shall not exceed 33.0 lb/hr as determined by EPA method 6 which is described in 40 CFR 60, Appendix A. Tests will be conducted while the kiln is operating at 90 to 100 percent of permitted capacity and burning 0.34 TPH of coal in the fuel mix. Test data shall include the quantity and percent sulfur of each fuel as burned during the test.

Revised Conditions:

Expiration Date: June 30, 1985

Specific Condition:

11. Sulfur dioxide emissions shall not exceed 33.0 lb/hr as determined by EPA Method 6, which is described in 40 CFR 60, Appendix A, or other test methods as approved by the department. Tests will be conducted while the kiln is operating at 90 to 100 percent of permitted capacity and burning 0.34 TPH of coal in the fuel mix. Initial test data shall include the quantity and percent sulfur in each fuel, the raw material, the product, and the scrubber water. All test data and results shall be submitted to the Northeast District office and the Bureau of Air Quality Management within 30 days of completion of each test. Any permit to operate issued for this kiln will require annual reports which include, as a minimum, the test data, including the quantity and percent sulfur of each fuel as burned during the test.

Attachments to be Incorporated:

Dr. John B. Koogler's letter, dated January 8, 1985.

A copy of this letter must be attached to the referenced construction permit and shall become a part of that permit.

Sincerely,

for Victoria J. Tschinkel
Secretary

VJT/rw

Attachment: Letter, dated 1/8/85

cc: Johnny Cole
John Koogler

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: _____	

RECEIVED
FEB 5 1985
Office of the Secretary

TO: Victoria J. Tschinkel

FROM: Clair Fancy

DATE: February 5, 1985

SUBJ: Modification of Air Construction Permits

Attached is a letter drafted for your signature that will extend the expiration date and modify the compliance test procedures in the Permit to Construct Air Pollution Source, AC 10-84168, that was issued to Florida Solite Company of Green Cove Springs, Clay County, Florida.

The bureau recommends that the modifications be approved.

CHF/WH/s

attachment

DER
FEB 6 1985
BAQM

BEST AVAILABLE COPY

DER
JAN 9 1985
BAQM

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

SKEC 150-84-01

January 8, 1985

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

Subj: Florida Solite Corporation
Kiln No. 1A
Construction Permit AC 10-84168

Dear Mr. Fancy:

On October 26, 1984, Sholtes & Koogler, Environmental Consultants (SKEC) conducted emission measurements on Kiln No. 1A operated by the Florida Solite Corporation in Green Cove Springs, Florida to demonstrate compliance with the emission limiting standards imposed by the subject Air Pollution Source Construction Permit. Copies of the report describing the emission measurements were submitted to the St. Johns River Subdistrict office of the Department in Jacksonville. The results of the emission measurements demonstrated that the Kiln operated in compliance with all of the permit conditions with apparent exception of the sulfur dioxide emission limiting standard.

The subject permit limits sulfur dioxide emissions from the Kiln to a maximum of 33.0 pounds per hour and further specifies that compliance with this sulfur dioxide emission limiting standard will be determined with EPA Method 6 as described in 40 CFR 60, Appendix A. During the test period on October 26, 1984, SKEC measured the sulfur dioxide emissions from Kiln No. 1A using EPA Method 6 and obtained an emission rate of 159.5 pounds per hour.

In addition to this emission rate being in excess of the emission limiting standard established for the Kiln, the emission rate is also in excess of the maximum sulfur dioxide emission rate that could be expected from the Kiln based on the sulfur content of the fuel and the fuel feed rate. The maximum potential sulfur dioxide emissions from the Kiln, based on the sulfur content of the fuel, was calculated to be 65.0 pounds per hour; only 41 percent of the "measured" sulfur dioxide emission rate. This problem was pointed out in the emission

test report and a statement was made that additional testing would be required to determine the true sulfur dioxide emission rate from the kiln.

While looking into this problem, SKEC reviewed other sulfur dioxide emission measurements made on various calciners using EPA Method 6 and discovered that in all cases for which SKEC has data, the "measured" sulfur dioxide emission exceeded the maximum potential sulfur dioxide emission rate calculated from the sulfur content of the fuel. The attached table summarizes the "measured" and calculated sulfur dioxide emission data from three kilns operated by Solite and from one phosphate rock calciner.

These data, especially when considered in light of the emission measurement made on the phosphate rock calciner with a continuous monitoring instrument specific for sulfur dioxide, indicate there is an apparent interference to EPA Method 6 when the Method is used on various calciners. SKEC plans to conduct some preliminary tests on Kiln No. 1A in the near future and will contact the Department to observe a test program once the preliminary tests are completed.

In the meantime, and on behalf of the Florida Solite Corporation I would like to request an extension of construction permit AC10-84168 which is due to expire on January 31, 1985. It is requested that the permit be extended to June 30, 1985. This extention will give Solite the time to conduct emission measurements to determine the actual sulfur dioxide emission rate from the kiln, to report the test data to the Department and to have an operating permit issued.

If there are any questions regarding the information contained herein or on the requested extension to the subject construction permit, please feel free to contact me.

Very truly yours,

SHOLTES & KOOGLER,
ENVIRONMENTAL CONSULTANTS

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

JBK:net
cc: John Brown
Ed Martin
Bill Johnson
John Kulken

SUMMARY OF CALCULATED AND MEASURED
SULFUR DIOXIDE EMISSION RATES FROM VARIOUS CALCINERS

SOURCE	FUEL	SULFUR DIOXIDE EMISSIONS (LB/HR)[1] CALCULATED[2]	MEASURED[3]
Solite-Green Cove Springs, FL Kiln 1A Tested 10/26/84 SKEC	Coal/LBM	65.0	159.5
Solite-Green Cove Springs, FL Kiln 5 Tested February 1983 U.S. EPA Contractor	Coal/LBM	119.0	181.4
Solite-Outside Florida Tested November 1984 U.S. EPA Contractor	Coal LBM	93.0 9.9	140.0 71.2
Phosphate Rock Calciner Florida Tested 1978-1980 SKEC	Natural Gas	0.0	84.3 <5.0[4]

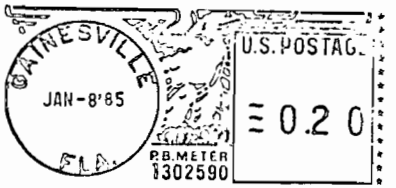
(1) Both the calculated and measured sulfur dioxide emission rates are the average of several test conditions.

(2) Sulfur dioxide emission rate calculated on the basis of fuel sulfur content and fuel use rate.

(3) Measured sulfur dioxide emission rate by EPA Method 6; 40 CFR 60, Appendix A, unless noated otherwise.

(4) Measured with a DuPont Model 460 sulfur dioxide analyzer. The 5.0 lbs/hour corresponds to the limit of sensitivity of the instrument.

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



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

No. 0156562

RECEIPT FOR CERTIFIED MAIL

**NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL**

(See Reverse)

SENT TO
Mr. John Kuiken
STREET AND NO.

P.O., STATE AND ZIP CODE

POSTAGE		$
CONSULT POSTMASTER FOR FEES — CERTIFIED FEE		¢
OPTIONAL SERVICES — SPECIAL DELIVERY		¢
OPTIONAL SERVICES — RESTRICTED DELIVERY		¢
OPTIONAL SERVICES — 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

9/10/46

PS Form 3800, Apr. 1976

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.)
- ☒ 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. John Kuiken
P. O. Box 297
Green Cove Springs, FL 32403

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.
	0156562	

(Always obtain signature of addressee or agent)

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

M Reed

4. DATE OF DELIVERY
9-12-84

POSTMARK
GREEN COVE SPRINGS, FL
SEP 12 1984

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE:

CLERK'S INITIALS

GPO : 1979-300-458

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

September 10, 1984

CERTIFIED Mail - RETURN RECEIPT REQUESTED

Mr. John Kuiken
Plant Manager
Florida Solite Company
P. O. Box 297
Green Cove Springs, Florida 32403

Dear Mr. Kuiken:

Enclosed is permit number AC 10-84168 which authorizes the construction of a 10 TPH clay aggregate kiln and scrubber at your plant in Clay County, Florida. This permit is 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 Chief
Bureau of Air Quality
Management

CHF/WH/s

cc: John Koogler
Doug Dutton

enclosure

Final Determination

Florida Solite Company
Green Cove Springs, Clay County, Florida

Clay Aggregate Kiln
State Permit Number
AC 10-84168

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

September 4, 1984

Final Determination

Florida Solite Company's application for permit to construct a 10 TPH clay aggregate kiln at their existing facility located in Clay County, north of Green Cove Springs on State Road 200A, has been reviewed by the Bureau of Air Quality Management.

"Notice of Proposed Agency Action on Permit Application" was published in the The Florida Times-Union on July 30, 1984. No public comments were received on our intent to issue the permit. The company did request a proposed restriction requiring them to cease operation of an existing kiln be modified to allow use of the existing kiln when the new kiln, authorized by this construction permit, was not in operation. This is not a significant change and the Bureau of Air Quality Management has approved their request by modifing specific condition No. 20 of the permit in the Final Determination. The expiration date of the construction permit was also extended to allow more time for the company to submit an application for permit to operate.

The final action of the department will be to issue the permit to construct as proposed in the July 5, 1984, Technical Evaluation and Preliminary Determination, except for 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:
Florida Solite Company
P. O. Box 297
Green Cove Springs, Fl 32403

Permit Number: AC 10-84168
Date of Issue:
Expiration Date: January 31, 1985
County: Clay
Latitude/Longitude: 30° 4' 9"N/
81° 45' 11"W
Project: Clay Aggregate Kiln

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 drawings, plans, and other documents attached hereto or on file with the department and made a part hereof and specifically described as follows:

Construction of a 35 million Btu/hr, 10 TPH (product) clay aggregate kiln, cooler, and Ducon Dynamic Scrubber, Type UW4, Model 111, Size 108 that will use the existing wet clay feed system, coal and liquid burnable material fuel systems, and product transfer system that presently served the 7 TPH No. 1 kiln. This equipment is located in Clay County at the existing facility north of Green Cove Springs on State Road 200 A North. The UTM coordinates are 427.4 E and 3326.5 N.

Construction shall be in accordance with the application for a permit to construct No. 1 kiln that was signed by Mr John Kuiken on March 14, 1984, and the additional information supplied by Dr. John Koogler with his letters dated May 16, 1984, and June 19, 1984, except for the changes mentioned in the Technical Evaluation and Preliminary Determination and listed as specific conditions of this construction permit.

PERMITTEE:
Fla. Solite Company

I. D. Number:
Permit Number:AC 10-84168
Date of Issue:
Expiration Date: January 31, 1985

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:
Fla. Solite Company

I. D. Number:
Permit Number: AC 10-84168
Date of Issue:
Expiration Date: January 31, 1985

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:
Fla. Solite Company

I. D. Number:
Permit Number:AC 10-84168
Date of Issue:
Expiration Date: January 31, 1985

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:
Fla. Solite Company

I. D. Number:
Permit Number: AC 10-84168
Date of Issue:
Expiration Date: January 31, 1985

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. The wet clay feed area shall be paved and cleaned periodically to minimize fugitive dust emissions from this area.

2. Clay feed to the kiln shall not exceed 43,550 lb/hr (wet).

3. Clay aggregate produced by this kiln shall not exceed 20,000 lb/hr (dry).

PERMITTEE:
Fla. Solite Company

I. D. Number:
Permit Number: AC 10-84168
Date of Issue:
Expiration Date: January 31, 1985

SPECIFIC CONDITIONS:

4. Front end loaders used to transport the product from the cooler to the sizing and storage area shall be equipped with a scale which can be used to measure the production from the kiln.

5. Visible emissions from the coal handling equipment and product cooler shall not exceed 10 percent opacity as determined by DER Method 9 described in Chapter 17-2, FAC.

6. Visible emissions from transporting the product to the sizing and storage area shall not exceed 20 percent opacity as determined by DER Method 9 described in Chapter 17-2, FAC.

7. Reasonable precautions, which may include planting shrubs around the perimeter of the plant and wetting the plant area, shall be taken to minimize fugitive dust emissions from the facility.

8. The sulfur content of the coal shall not exceed 3 percent. A certified analysis by the latest applicable ASTM method shall be used to determine the percent sulfur in each shipment of coal received at the plant. Results of the analysis shall be kept by the Company for a minimum of 2 years for department inspection.

9. The average sulfur content of the liquid burnable material (LBM) shall not exceed 0.4 percent during any 1 month period as determined by the latest applicable ASTM method. Certified test results of the sulfur content of the LBM used shall be obtained for each batch received at the plant site or, at the Company's option, a composite sample of the fuel burned during each month. Results of the analysis shall be kept by the Company for a minimum of 2 years for department inspection.

10. Maximum coal usage by the new kiln shall not exeed 0.34 TPH. Total coal consumption during any calendar year shall not exceed 2,600 tons. Maximum LBM for the new kiln shall not exceed 383 GPH. Total LBM consumption during any calendar year shall not exceed 2,240,000 gallons. Maximum combined (coal and LBM) fuel input to the kiln shall not exceed a heat input of 35 million Btu/hr.

11. Sulfur dioxide emissions shall not exceed 33.0 lb/hr as determined by EPA Method 6 which is described in 40 CFR 60 Appendix A. Test will be conducted while the kiln is operating at 90 to 100 percent of permitted capacity and burning 0.34 TPH of coal in the fuel mix. Test data shall include the quantity and percent sulfur of each fuel as burned during the test.

PERMITTEE:
Fla. Solite Company

Permit Number: AC 10-84168
Date of Issue:
Expiration Date: January 31, 1985

SPECIFIC CONDITIONS:

12. If test results show lower than 45 percent removal and the sulfur dioxide emissions can exceed 125.7 TPY, the company shall revise the application for permit to construct and propose lower limits on the percent sulfur in the coal or alternate means to assure the annual allowable emissions of sulfur dioxide will not be exceeded.

13. Particulate matter emissions shall not exceed the amount allowed by the process weight table, Rule 17-2.610(1), FAC, or 11.8 lb/hr, whichever is more restrictive. Test shall be by EPA Method 5 as described in 40 CFR 60, Appendix A, while the kiln is operating within 90 percent of it permitted capacity and burning 0.34 TPH of coal. Scrubber parameters will be recorded during the compliance test.

14. The scrubber shall be equipped with instrumentation to measure the pressure drop of the gas flowing through the scrubber, the pressure of the scrubber water, and the flow (GPH) of scrubber water. The company shall log these readings each day the kiln operates and keep these records for a minimum of 2 years for department inspection.

15. The kiln shall not be operated without the scrubber working properly or with the damper open.

16. The liquid burnable waste shall not contain any organic cyanides, sulfide, mercaptans, PCB's, insecticides, pesticides, herbicides, electroplating waste or radioactive materials. Florida Solite Company shall retain the manifest of each load for 2 years for department inspection.

17. The 10 TPH kiln shall be equipped with a recording radiant pyrometer and the kiln shall be operated at temperatures above 1800° F when LBM is used as fuel. The temperatures records will be retained by the Company for 2 years for department inspection.

18. The stack shall be equipped with straightening vanes and test facilities that meet the specifications listed in Chapter 17-2.700(4)(c), FAC.

PERMITTEE:
Fla. Solite Company

Permit Number: AC 10-84168
Date of Issue:
Expiration Date: January 31, 1984

SPECIFIC CONDITIONS:

19. Compliance tests specified in this permit shall be conducted within 30 days of placing the new kiln in operation. The Northeast District shall be notified at least 15 days prior to the compliance test.

20. The existing 7 TPH kiln No. 1 (AO 10-72240) shall not be operated when the new 10 TPH kiln is in operation unless prior approval, in writing, has been obtained from the Bureau of Air Quality Management. Operation permit AO 10-72240 shall be revised to reflect the restriction prior to the expiration of this construction permit.

21. A complete application for a permit to operate this source shall be submitted to the Northeast District 90 days prior to the expiration of this permit to construct.

22. Any permit to operate issued for this system shall require routine compliance tests and annual operation reports and limit the kiln to 7,620 hr/yr operation.

23. The kiln and its accessory equipment shall be constructed, maintained, and operated in such a manner that the unit will not cause, suffer, allow, or permit the discharge of air pollutants which cause or contribute to an objectionable odor.

Issued this 6 day of Sept. 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: _____

RECEIVED
SEP 6 1984
Office of the Secretary

TO: Victoria J. Tschinkel

FROM: Clair Fancy

DATE: September 4, 1984

SUBJ: Approval of a Permit to Construct

Attached for your review is a permit to construct a clay aggregate kiln. The applicant is Florida Solite Company. "Notice of Proposed Agency Action on Permit Application" was published in The Florida Times-Union on July 30, 1984. No public comments were received on our intent to issue the permit. At the request of the Company, a condition of the permit was modified to allow an existing kiln, that was scheduled to be shut down, to operate only when the new kiln was out of service. This is not a significant change.

The Bureau recommends your approval and signature for the attached permit to construct.

WH/ks

attachment

FLORIDA SOLITE® CORPORATION

P. O. BOX 297 • GREEN COVE SPRINGS • FLORIDA 32043 AREA CODE 904 284-9271

DER

AUG 01 1984

BAQM

July 31, 1984

Mr. Clair Fancy
Department of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32301

Dear Mr. Fancy:

Enclosed is a copy of Certification of Publication of Public Notice from the Florida Publishing Company. This is on the new #1 kiln at Florida Solite Company plant, Green Cove Springs, Fl.

Sincerely,

John M. Kuiken
Plant Manager

The Florida Times-Union | Jacksonville Journal

FLORIDA PUBLISHING COMPANY

Publishers

JACKSONVILLE, DUVAL COUNTY, FLORIDA

STATE OF FLORIDA
COUNTY OF DUVAL

Before the undersigned authority personally appeared Bill Champion

who on oath says that he is Retail Advertising Supervisor of The Florida Times-Union, and Jacksonville Journal, daily newspapers published at Jacksonville in Duval County, Florida; that the attached copy of advertisement, being a Legal Notice

in the matter of Notice of Proposed Agency Action

in the _____ Court,

was published in The Florida Times Union

in the issues of July 30

Affiant further says that the said The Florida Times-Union and Jacksonville Journal are each newspapers published at Jacksonville, in said Duval County, Florida, and that the said newspapers have each heretofore been continuously published in said Duval County, Florida, The Florida Times-Union each day, and Jacksonville Journal each day except Sundays, and each has been entered as second class mail matter at the postoffice in Jacksonville, in said Duval 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 corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in said newspaper.

Sworn to and subscribed before me this 30th day of July A.D. 19 84

Lynne P. Richard
Notary Public,
State of Florida at Large.

Bill Champion

My Commission Expires Notary Public, State of Florida
My Commission Expires Oct. 2, 1987
Bonded Thru Troy Fain - Insurance, Inc.

DA 444

State of Florida
Department of Environmental Regulation
Notice of Proposed Agency Action
on Permit Application

The Department gives notice of its intent to issue a permit to Florida Solite Company to construct a 10 TPH clay aggregate kiln that will use coal and liquid burnable material for fuel at their existing facility in Clay County. An existing kiln will be shut down when the new kiln is placed in operation. This plant is located north of Green Cove Springs on State Road 200A.

This project will increase particulate matter emissions by 24.7 TPY and sulfur dioxide emissions by 37.7 TPY. A determination of best available control technology was not required. The increased emissions will not cause significant deterioration to the air quality in the vicinity of the plant.

Persons 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 conform to the requirements of Chapters 17-103 and 28-5, Florida Administrative Code, and 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 any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

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 preliminary statement. Therefore, persons who may not object to the proposed agency action may wish to intervene in the proceeding. A petition for intervention must be filed pursuant to Model Rule 28-5.207 at least five (5) days before the final hearing and be filed with the hearing officer if one has been assigned at the Division of Administrative Hearings, Department of Administrative, 2009 Apalachee Parkway, Tallahassee, Florida 32301. If no hearing officer has been assigned, the petition is to be filed with the Department's Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32301. Failure to petition to intervene within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, Florida Statutes.

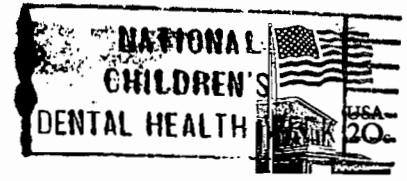
The application, technical evaluation, and Department's intent for the proposed project are available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at the following locations:

Dept. of Environmental Regulation
NE District
3426 Bills Road
Jacksonville, Florida 32207

Dept. of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32301

Any person may send written comments on the proposed action to Mr. Clair Fancy at the Department's Tallahassee address. All comments mailed within 30 days of the publication of this notice will be considered in the Department's final determination.

FLORIDA SOLITE COMPANY
P. O. BOX 297
GREEN COVE SPRINGS, FLORIDA 32043



Mr. Clair Fancy
Department of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32301

FORM 13F

No. 0156531

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED— NOT FOR INTERNATIONAL MAIL

(See Reverse)

SENT TO Mr. John Kuiken	
STREET AND NO.	
P.O. STATE AND ZIP CODE	
POSTAGE	$
CERTIFIED FEE	¢
SPECIAL DELIVERY	¢
RESTRICTED DELIVERY	¢
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 7/20/84	

CONSULT POSTMASTER FOR FEES / OPTIONAL SERVICES / RETURN RECEIPT SERVICE

PS Form 3800, Apr. 1976

PS Form 3811, Jan. 1979

● 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. John Kuiken
   P. O. Box 297
   Green Cove Springs, FL 32043

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.
	0156531	

(Always obtain signature of addressee or agent)

I have received the article described above.

SIGNATURE ☐Addressee ☐Authorized agent

M. J. Reed

4. DATE OF DELIVERY — POSTMARK: GREEN COVE SPRINGS, FL JUL 23 1984 USPO

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: — CLERK'S INITIALS

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

☆GPO : 1979-300-459

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

July 16, 1984

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. John Kuiken
Plant Manager
Florida Solite Company
Post Office Box 297
Green Cove Springs, Florida 32043

Dear Mr. Kuiken:

Attached is one copy of the Technical Evaluation and Preliminary Determination, and proposed permit to construct a 10 TPH clay aggregate kiln at your existing facility in Clay County, Florida.

Before final action can be taken on your draft permit, you are required by Florida Administrative Code Rule 17-103.150 to publish the attached Notice of Proposed Agency Action in the legal advertising section of a newspaper of general circulation in Clay 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.

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/pa

Attachments

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

In the Matter on an Application for Permit by:	)	
Florida Solite Company Post Office Box 297 Green Cove Springs, Florida	)	DER File No. AC 10-84168

INTENT TO ISSUE

The Department of Environmental Regulation hereby gives notice of its Intent to Issue, and proposed order of issuance for, a permit pursuant to Chapter 403, Florida Statutes 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, Florida Solite Company, applied on March 16, 1984, to the Department of Environmental Regulation for a permit to construct a 10 TPH clay aggregate kiln that will use coal and liquid burnable material for fuel at their existing facility in Clay County, Florida.

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 applicant was officially notified by the Department that an air construction permit was required for the proposed work.

This intent to issue shall be placed before the Secretary for final action unless an appropriate petition for a hearing pursuant to the provisions of Section 120.57, Florida Statutes, is filed within fourteen (14) days from receipt of this letter or

publication of the public notice (copy attached) required pursuant to Rule 17-103.150, Florida Administrative Code, whichever occurs first. The petition must comply with the requirements of Section 17-103.155 and Rule 28-5.201, Florida Administrative Code (copy attached) and be filed pursuant to Rule 17-103.155(1) in the Office of General Counsel of the Department of Environmental Regulation at 2600 Blair Stone Road, Tallahassee, Florida 32301.

Petitions which are not filed in accordance with the above provisions are subject to dismissal by the Department. In the event a formal hearing is conducted pursuant to Section 120.57(1), all parties shall have opportunity to respond, to present evidence and argument on all issues involved, to conduct cross-examination of witness and submit rebuttal evidence, to submit proposed findings of facts and orders, to file exception to any order or hearing officer's recommended order, and to be represented by counsel. If an informal hearing is requested, the agency, in accordance with its rules of procedure, will provide affected persons or parties or their counsel an opportunity, at a convenient time and place, to present to the agency or hearing officer, written or oral evidence in opposition to the agency's action or refusal to act, or a written statement challenging the grounds upon which the agency has chosen to justify its action or inaction, pursuant to Section 120.57(2), Florida Statutes.

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 proposed agency action. Therefore, persons who may not wish to file a petition, may wish to intervene in the proceeding. A petition for intervention must be filed pursuant to Model Rule 28-5.207 at least five (5) days before the final hearing and be filed with the hearing officer if one has been assigned at the Division of

Administrative Hearings, 2009 Apalachee Parkway, Tallahassee, Florida 32301. If no hearing officer has been assigned, the petition is to be filed with the Department's Office of General Counsel, 2600 Blair Stone Road, Tallahase, Florida 32301. Failure to petition to intervene within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, Florida Statues.

Executed the 17 day of July, 1984, in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

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

Copies furnished to:

John Kuiken
John B. Koogler
Doug Dutton

State of Florida
Department of Environmental Regulation
Notice of Proposed Agency Action
on Permit Application

The Department gives notice of its intent to issue a permit to Florida Solite Company to construct a 10 TPH clay aggregate kiln that will use coal and liquid burnable material for fuel at their existing facility in Clay County. An existing kiln will be shut down when the new kiln is placed in operation. This plant is located north of Green Cove Springs on State Road 200A.

This project will increase particulate matter emissions by 24.7 TPY and sulfur dioxide emissions by 37.7 TPY. A determination of best available control technology was not required. The increased emissions will not cause significant deterioration to the air quality in the vicinity of the plant.

Persons 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 conform to the requirements of Chapters 17-103 and 28-5, Florida Administrative Code, and 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 constitutes a waiver any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

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 preliminary statement. Therefore, persons who may not object to the proposed agency action may wish to intervene in the proceeding. A petition for intervention must be filed pursuant to Model Rule 28-5.207 at least five (5) days before the final hearing and be filed with the hearing officer if one has been assigned at the Division of Administrative Hearings, Department of Administrative, 2009 Apalachee Parkway, Tallahassee, Florida 32301. If no hearing officer has been assigned, the petition is to be filed with the Department's Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida, 32301. Failure to petition to intervene within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, Florida Statutes.

The application, technical evaluation, and Department's intent for the proposed project 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:

Dept. of Environmental Regulation
NE District
3426 Bills Road
Jacksonville, Florida 32207

Dept. of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32301

Any person may send written comments on the proposed action to Mr. Clair Fancy at the Department's Tallahassee address. All comments mailed within 30 days of the publication of this notice will be considered in the Department's final determination.

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.

Technical Evaluation
and
Preliminary Determination

Florida Solite Company
Green Cove Springs, Clay County, Florida

Clay Aggregate Kiln
Proposed State Permit Number
AC 10-84168

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

July 5, 1984

Table of Contents

I. Project Description

A. Applicant

Florida Solite Company
P. O. Box 297
Green Cove Springs, Florida 32043

B. Project and Location

Florida Solite Company proposes to replace an existing 7 TPH clay aggregate kiln, which uses coal and liquid burnable material (LBM) as fuel, scrubber, and stack with a new 10 TPH kiln, cooler, scrubber, and stack at their existing plant located in Clay County, north of Green Cove Springs on State Road 200 A. The new kiln will use the existing fuel, raw material and product handling systems. The UTM coordinates of the plant are 17-427.4 E and 3326.5N.

C. Process and Controls

Approximately 22 TPH of wet clay (38 percent water) will be fed to the new kiln with the existing raw material handling system. Front-end loaders take clay from a covered clay storage area and place it into a feeder that cuts the clay into small pieces and discharges it on to a conveyor belt that carries and discharges it into the kiln.

The clay will be heated to 1900-2100 °F in the 35 million Btu/hr kiln by coal, LBM (waste oils) or, generally, a mixture of the two fuels. The heat drives off the water and carbonate materials to produce a lightweight aggregate. A recording radiant pyrometer will be used by the kiln operator to adjust the LBM input to maintain the proper temperature.

The light weight aggregrate will be discharged from the kiln into a new cooler consisting of metal sides on a concrete foundation. Heated air from the product will be captured by a fan and used as combustion air in the kiln.

The product will be removed from the bottom of the cooler by the existing product handling equipment, which is a front end loader that will be equipped with a loader scale. The front end loader places the product in the existing sizing and storage area. The data that will be obtained from the loader scales will be used to adjust the clay input rate to the kiln.

The hot gases from the kiln will be treated in a Ducon Type UW4, model 111, Size 108, scrubber. The manufacturer estimates the particulate matter removal efficiency of this scrubber at greater than 99 percent in the 1-2 micron range. The scrubber water will be recycled through a 10 acre pond. The sulfur

dioxide emissions will be controlled by limiting the rate coal is burned in the kiln.

After the new kiln begins operation, an existing 7 TPH kiln equipped with a company constructed scrubber will be permanently shut down.

II. Rule Applicability

A. State Regulations

The proposed project, construction of a new 10 TPH clay aggregate kiln and scrubber to replace an existing 7 TPH kiln and scrubber, is subject to preconstruction review under the provisions of Chapter 403, FS, and Chapter 17-2, FAC.

The plant site is in an area designated attainment for all criteria pollutants (Rule 17-2.420, FAC).

This facility is a major source of particulate matter and sulfur dioxide (Rule 17-2.100(99), FAC) because the emissions of each of these criteria pollutants exceeds 100 TPY. The proposed project will increase particulate matter emissions by 24.7 TPY and sulfur dioxide emissions by 37.7 TPY. The increased emission rates of these criteria pollutants are less than the significant emission rates listed in Table 500-2 of Chapter 17-2, FAC. Therefore, the project is not subject to the Prevention of Significant Deterioration regulations (PSD), Rule 17-2.500, FAC because it is a minor modification to a major source (Rule 17-2.500(2)(d)4.a.(ii), FAC).

The project is subject to Rule 17-2.520, FAC, Sources Not Subject to PSD or Nonattainment Requirements. Emission standards shall be set at the rates requested by the applicant which are more restrictive than those authorized by Chapter 17-2, FAC. Any higher particulate matter or sulfur dioxide emissions will subject the facility to review under Rule 17-2.500, FAC, PSD regulations.

B. Federal Regulations

This project is not subject to federal PSD regulations, Section 52.21 of Title 40 of the Code of Federal Regulations (40 CFR 52.21), because it does not cause a significant net emission increase of any criteria pollutant.

III. Technical Evaluation

The existing clay feed system, the coal and LBM systems, and the product handling system will be used with the new 10 TPH kiln. When the new kiln and scrubber begin commercial operations, the existing 7 TPH No. 1 kiln and company constructed scrubber will cease operations permanently.

The existing feed, fuel, and product systems for the new kiln will handle 43 percent more material. The unconfined and fugitive emissions associated with these operations will increase by an estimated 0.7 TPY for particulate matter and 0.08 TPY for VOC.

The manufacturer of the Ducon scrubber expects a removal efficiency of greater than 99 percent on particulate matter. This source could be subject to the allowable particulate matter emissions specified in the process weight table (Rule 17-2.610(1),FAC) which would allow 18 lb/hr emission at the maximum production rate listed in the application. However, the applicant has volunteered to meet a particulate matter emission standard of 11.8 lb/hr and limit kiln operations to 7,620 hr/yr to avoid being subject to PSD regulations (Rule 17-2.500, FAC) for increasing particulate matter emissions above the significant emission rate.

The applicant proposes to burn up to 1.46 TPH coal with 3 percent sulfur and 383 gph of LBM with 0.4 percent sulfur to obtain the 35 million Btu/hr needed for the kiln. To assure that the increase in sulfur dioxide emission will not exceed the significant emission rate, the applicant will be limited to using 0.34 TPH of coal in the new kiln. The company's professional engineer has provided test data on similar sources showing that 47 percent of the potential (uncontrolled) sulfur dioxide emissions are retained in the product and scrubber liquid. With the quantity of coal and sulfur limits of the fuel, limits on the hours of operation, and sulfur dioxide removal efficiency estimated by the engineer, the sulfur dioxide emissions will not increase above the significant emission rate listed in Table 500-2 of Chapter 17-2, FAC.

Another source of air pollution at this facility is kiln No. 5. The proposed permit allowing the replacement of the existing kiln No. 1 with a new, larger kiln will not affect the allowable emissions from kiln No. 5.

However, an increase of approximately 1 TPY of either particulate matter or sulfur dioxide emissions from any source at the plant will subject the facility to the PSD regulations.

A summary of the emissions from the facility, before and after the new kiln is placed in service, is shown in Table 1.

IV. Conclusion

At the particulate matter emission limits requested by the applicant and the restrictions on the amount and sulfur content of the coal set by the department, the emissions from the new kiln and scrubber will be in compliance with the state air pollution control regulations.

To assure these emission limits are not exceeded, the department will require close monitoring of the emissions and fuels used in the new kiln. The department will also establish visible emission standards to regulate the material transfer operations.

The General and Specific Conditions in the proposed permit (attached) will be used to monitor the compliance of the source with the state regulations.

Table 1

Emissions *1 from Air Pollution Sources at Florida Solite Company

Pollutant / Source	PM		SO_2		NOx		CO		VOC		F		Pb		Hg		HCL	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
Existing No. 1 Kiln *2	9.3	21.0	39.0	88.0	12.1	27.4	0	0	0	0	0.25	0.24	0.33	0.74	0	0	0.036	0.08
Ex. Fugitive Emissions		1.4		0		T*6		T*6		0.09		0		0		0		0
Proposed Kiln *3	11.8	45.0	33.0	125.7	16.1	61.3	0	0	0	0	0.08	0.29	0.34	1.29	0	0	0.051	0.19
Est. Fugitive Emissions		*5 2.1		0		T*6		T*6		*5 0.17		0		0		0		0
Increase in Emissions(TPY)		24.7		37.7		33.9		0		0.08		0.05		0.55		0		0.11
Significant Net Increase		25.0		40.0		40.0		100		40.0		3.0		0.6		0.1		*4

*1 Kiln No. 5 not included. Permitted emissions for kiln No. 5 are 18.1 lb/hr (78.9 TPY) particulate matter; 44.6 lb/hr (194.5 TPY) SO_2 and no limit on other pollutants.

*2 Actual Emissions with 4,514 hr/yr operation.

*3 Proposed permitted emissions with 7,620 hr/yr operation.

*4 No limit

*5 Includes fuel storage, material handling and mobile sources operations.

*6 Traces from mobil sources.

APPENDIX D

DRAFT

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:
Florida Solite Company
P. O. Box 297
Green Cove Springs, Fl 32403

Permit Number: AC 10-84168
Date of Issue:
Expiration Date: December 3, 1984
County: Clay
Latitude/Longitude: 30° 4' 9"N/ 81° 45' 11"W
Project: Clay Aggregate Kiln

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 drawings, plans, and other documents attached hereto or on file with the department and made a part hereof and specifically described as follows:

Construction of a 35 million Btu/hr, 10 TPH (product) clay aggregate kiln, cooler, and Ducon Dynamic Scrubber, Type UW4, Model 111, Size 108 that will use the existing wet clay feed system, coal and liquid burnable material fuel systems, and product transfer system that presently served the 7 TPH No. 1 kiln. This equipment is located in Clay County at the existing facility north of Green Cove Springs on State Road 200 A North. The UTM coordinates are 427.4 E and 3326.5 N.

Construction shall be in accordance with the application for a permit to construct No. 1 kiln that was signed by Mr John Kuiken on March 14, 1984, and the additional information supplied by Dr. John Koogler with his letters dated May 16, 1984, and June 19, 1984, except for the changes mentioned in the Technical Evaluation and Preliminary Determination and listed as specific conditions of this construction permit.

DRAFT

PERMITTEE:
Fla. Solite Company

I. D. Number:
Permit Number:AC 10-84168
Date of Issue:
Expiration Date:December 3, 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.

DRAFT

PERMITTEE:
Fla. Solite Company

I. D. Number:
Permit Number: AC 10-84168
Date of Issue:
Expiration Date: December 3, 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.

DRAFT

PERMITTEE:
Fla. Solite Company

I. D. Number:
Permit Number:AC 10-84168
Date of Issue:
Expiration Date:December 3, 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:
Fla. Solite Company

I. D. Number:
Permit Number: AC 10-84168
Date of Issue:
Expiration Date:December 3, 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. The wet clay feed area shall be paved and cleaned periodically to minimize fugitive dust emissions from this area.

2. Clay feed to the kiln shall not exceed 43,550 lb/hr (wet).

3. Clay aggregate produced by this kiln shall not exceed 20,000 lb/hr (dry).

DRAFT

ERMITTEE:
Fla. Solite Company

I. D. Number:
Permit Number: AC 10-84168
Date of Issue:
Expiration Date:December 3, 1984

SPECIFIC CONDITIONS:

4. Front end loaders used to transport the product from the cooler to the sizing and storage area shall be equipped with a scale which can be used to measure the production from the kiln.

5. Visible emissions from the coal handling equipment and product cooler shall not exceed 10 percent opacity as determined by DER Method 9 described in Chapter 17-2, FAC.

6. Visible emissions from transporting the product to the sizing and storage area shall not exceed 20 percent opacity as determined by DER Method 9 described in Chapter 17-2, FAC.

7. Reasonable precautions, which may include planting shrubs around the perimeter of the plant and wetting the plant area, shall be taken to minimize fugitive dust emissions from the facility.

8. The sulfur content of the coal shall not exceed 3 percent. A certified analysis by the latest applicable ASTM method shall be used to determine the percent sulfur in each shipment of coal received at the plant. Results of the analysis shall be kept by the Company for a minimum of 2 years for department inspection.

9. The average sulfur content of the liquid burnable material (LBM) shall not exceed 0.4 percent during any 1 month period as determined by the latest applicable ASTM method. Certified test results of the sulfur content of the LBM used shall be obtained for each batch received at the plant site or, at the Company's option, a composite sample of the fuel burned during each month. Results of the analysis shall be kept by the Company for a minimum of 2 years for department inspection.

10. Maximum coal usage by the new kiln shall not exeed 0.34 TPH. Total coal consumption during any calendar year shall not exceed 2,600 tons. Maximum LBM for the new kiln shall not exceed 383 GPH. Total LBM consumption during any calendar year shall not exceed 2,240,000 gallons. Maximum combined (coal and LBM) fuel input to the kiln shall not exceed a heat input of 35 million Btu/hr.

11. Sulfur dioxide emissions shall not exceed 33.0 lb/hr as determined by EPA Method 6 which is described in 40 CFR 60 Appendix A. Test will be conducted while the kiln is operating at 90 to 100 percent of permitted capacity and burning 0.34 TPH of coal in the fuel mix. Test data shall include the quantity and percent sulfur of each fuel as burned during the test.

DRAFT

PERMITTEE:
Fla. Solite Company

Permit Number: AC 10-84168
Date of Issue:
Expiration Date:December 3, 1984

SPECIFIC CONDITIONS:

12. If test results show lower than 45 percent removal and the sulfur dioxide emissions can exceed 125.7 TPY, the company shall revise the application for permit to construct and propose lower limits on the percent sulfur in the coal or alternate means to assure the annual allowable emissions of sulfur dioxide will not be exceeded.

13. Particulate matter emissions shall not exceed the amount allowed by the process weight table, Rule 17-2.610(1), FAC, or 11.8 lb/hr, whichever is more restrictive. Test shall be by EPA Method 5 as described in 40 CFR 60, Appendix A, while the kiln is operating within 90 percent of it permitted capacity and burning 0.34 TPH of coal. Scrubber parameters will be recorded during the compliance test.

14. The scrubber shall be equipped with instrumentation to measure the pressure drop of the gas flowing through the scrubber, the pressure of the scrubber water, and the flow (GPH) of scrubber water. The company shall log these readings each day the kiln operates and keep these records for a minimum of 2 years for department inspection.

15. The kiln shall not be operated without the scrubber working properly or with the damper open.

16. The liquid burnable waste shall not contain any organic cyanides, sulfide, mercaptans, PCB's, insecticides, pesticides, herbicides, electroplating waste or radioactive materials. Florida Solite Company shall retain the manifest of each load for 2 years for department inspection.

17. The 10 TPH kiln shall be equipped with a recording radiant pyrometer and the kiln shall be operated at temperatures above 1800° F when LBM is used as fuel. The temperatures records will be retained by the Company for 2 years for department inspection.

18. The stack shall be equipped with straightening vanes and test facilities that meet the specifications listed in Chapter 17-2.700(4)(c), FAC.

DRAFT

PERMITTEE:
Fla. Solite Company

Permit Number: AC 10-84168
Date of Issue:
Expiration Date:December 3, 1984

SPECIFIC CONDITIONS:

19. Compliance tests specified in this permit shall be conducted within 30 days of placing the new kiln in operation. The Northeast District shall be notified at least 15 day prior to the compliance test.

20. The existing 7 TPH kiln No. 1 (AO 10-72240) shall be permanently shut down and its permit to operate returned to the Northeast District office prior to beginning commercial operation with the new 10 TPH kiln. It shall be made inoperative by removing electrical power from the equipment or by other measures as approved by the department.

21. A complete application for a permit to operate this source shall be submitted to the Northeast District 90 days prior to the expiration of this permit to construct.

22. Any permit to operate issued for this system shall require routine compliance tests and annual operation reports and limit the kiln to 7,620 hr/yr operation.

23. The kiln and its accessory equipment shall be constructed, maintained, and operated in such a manner that the unit will not cause, suffer, allow, or permit the discharge of air pollutants which cause or contribute to an objectionable odor.

Issued this_____day of_____, 19__

STATE OF FLORIDA DEPARTMENT OF
ENVIRONMENTAL REGULATION

_____
VICTORIA J. TSCHINKEL, Secretary

____ pages attached.

APPENDIX C

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

SKEC 150-84-01

June 19, 1984

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

Subject: Florida Solite Company
Green Cove Springs, Florida
Kiln #1 Reconstruction

Dear Mr. Fancy:

Subsequent to our May 25, 1984 meeting in your offices to discuss the information transmitted to you under cover of our letter dated May 16, 1984, I was requested by Solite to look into ways to increase the permitted hours of operation of the reconstructed No. 1 kiln proposed for the Florida Solite Company, Green Cove Springs plant.

In the materials forwarded to you under cover letter dated May 16, 1984, the operating time of the reconstructed No. 1 kiln was limited to 5205 hours per year. This limit was imposed by us in our permit application so that a PSD review would not be triggered by increased sulfur dioxide emissions. In calculating the projected sulfur dioxide emissions from the reconstructed No. 1 kiln, it was assumed (in material submitted on May 16, 1984) that 42.6 percent of the heat input to the kiln would be provided by coal with a maximum sulfur content of 3.0 percent and 57.4 percent of the heat input would be provided with liquid burnable material with a sulfur content of 0.4 percent. This heat input distribution was based upon historic fuel use records.

Based upon the fractional heat input rates for coal and liquid burnable material, a production rate of 10 tons per hour of lightweight aggregate (requiring 35 million BTU per hour total heat input) and sulfur contents for coal of 3.0 percent and liquid burnable material of 0.4 percent, it was determined that a total operating time of 5205 hours per year would result in a sulfur dioxide emission rate

Increase of 39.0 tons per year. This increase was less than the 40 tons per year de minimus emission rate increase which, if exceeded, would subject the source to a PSD review.

In order to increase the hours of operation of the reconstructed No. 1 kiln to 7620 hours per year, Solite will restrict the fractional heat input provided to the kiln by coal to 23.4 percent. This limit can be assured by limiting coal combustion in the reconstructed No. 1 kiln to not more than 2600 tons per year. The heat input to the kiln provided by liquid burnable material will account for 76.6 percent of the total heat input and will be provided by burning 2.24 million gallons per year of liquid burnable material.

Based upon these fuel consumption rates and an operating time of 7620 hours per year, the annual sulfur dioxide emission rate increase will be 37.7 tons per year; an emission rate increase less than the 40 tons per year de minimus emission rate increase.

Also, in order to increase the operating time of the reconstructed No. 1 kiln to 7620 hours per year, the allowable particulate matter emission rate had to be reduced from the 17.3 pounds per hour previously proposed to 11.8 pounds per hour. An emission rate of 11.8 pounds per hour will require a scrubber efficiency of 98.8 percent; an scrubber efficiency achievable based upon information provided by Ducon and provided to the Department as Attachment 8 to the material submitted under cover letter dated May 16, 1984.

Emission rate increases for all pollutants expected to be emitted from the reconstructed No. 1 kiln are summarized in Table 1. This table is a revision to the Table 1 submitted under cover letter dated May 16, 1984. The data presented in this table demonstrate that the emission rate increases of all pollutants are less than the de minimus emission rate increases defined in Chapter 17-2 of the Florida Administrative Code which, if exceeded, will trigger a PSD review.

We are also submitted revised pages 3, 4 and 5 of 12 of the construction permit application reflecting the requested increase in hours of operation, changes in air pollutant emission rates and changes in fuel consumption rates. The calculations documenting the revised operating time, fuel consumption rates and air pollutant emission rates are attached as a revision to pages 6-14 of 16 of Attachment 1 which was included under our cover letter dated May 16,

1984. I have also enclosed a complete copy of the EPA emission test report which was conducted at the Florida Solite, Green Cove Springs plant in February 1983, as requested by Mr. Willard Hanks.

If there are any questions regarding this information, or if additional information is required, please contact us immediately so that the information can be provided to you and the review of the application can continue as expeditiously as possible. Again, I would like to stress that Solite would appreciate whatever effort the Department can make to expedite the review and approval of this permit application.

Very truly yours,

SHOLTES & KOOGLER,
ENVIRONMENTAL CONSULTANTS

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

JBK:ssc
Enclosures

cc: Mr. Ed Martin
Mr. Tom Purvis
Mr. John Kulken
Mr. Willard Hanks

E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ;
if power plant, hrs/yr _____ ; if seasonal, describe: Annual hours of operation
will not exceed 7620 hours per year.

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

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

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

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

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

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

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

4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? NO

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

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

   a. If yes, for what pollutants? _____

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

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

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		
Clay w/38% moisture	Particulate	5	43,550	1

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

1. Total Process Input Rate (lbs/hr): 43,550 @ 38% moisture

2. Product Weight (lbs/hr): 20,000, dry (moisture loss plus a 25.9% weight loss due to CO2 evolution)

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

Name of Contaminant	Emission[1]		Allowed[2] Emission[a] Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr (max)	T/yr (avg)	
Part. Matter	11.8	45.0	17-2.610(1)	11.8	960[(1)]	3658	7
Sulfur Dioxide	96.3[(2)]	125.9	NA	96.3[(2)]	175	228	7
NOx	16.1	61.3	NA	16.1	16.1	61.3	7

(1) At 96 lbs per ton of product.
(2) - At 100% Coal.

[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)
Ducon Type UW4, Mod. III, Size 108	Particulate Matter	98.8% (1)	>2	Estimate
(1) From Section III C E = [(960-11.8)/960] x 100 = 98.8%				

E. Fuels

Type (Be Specific)	Consumption* avg/hr	Consumption* max./hr	Maximum Heat Input (MMBTU/hr)
Liquid Burnable Material	294 gph	383 gph	35.0
Coal	0.34 tph	1.46 tph	35.0
(NOTE: Annual coal consumption in No. 1 kiln will not exceed 2600 tons and LBM consumption will not exceed 2.24 x 10^6 gallons.)			

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

Fuel Analysis: LBM/Coal

Percent Sulfur: 0.4/3.0 max. Percent Ash: 8/12 Max.

Density: 7.5/--- lbs/gal Typical Percent Nitrogen: Nil/1.4

Heat Capacity: 12,800/12,000 BTU/lb 96,000/----- BTU/gal

Other Fuel Contaminants (which may cause air pollution): Chloride content of LBM averages 1.5% (See fuel analysis of LBM - Attachment 5 and coal - Attachment 6)

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.

Scrubber water is recirculated through existing settling ponds.

TABLE 1

SUMMARY OF PERMITTED, ACTUAL AND PROPOSED
EMISSIONS FROM NO. 1 KILN

FLORIDA SOLITE COMPANY
GREEN COVE SPRINGS, FLORIDA

Pollutant	Annual Emissions (tons/year)				
	Permitted	Actual	Proposed	Increase	De Minimus Increase
Particulate Matter	55.6	21.0	45.0	24.0	25.0
Sulfur Dioxide	366.9	88.0	125.7	37.7	40.0
Nitric Oxides	*	27.4	61.3	33.9	40.0
Carbon Monoxide	*	0	0	0	100.0
Volatile Organic Compound	*	0	0	0	40.0
Fluoride	*	0.24	0.29	0.05	3.0
Lead	*	0.74	1.29	0.55	0.6
Mercury	*	0	0	0	0.1
Hydrogen Chloride	*	0.08	0.19	0.11	*

* No Limit

REVISED 6/18/ 84

SCHOLES KOOGLER

ATTACHMENT 1

(Revised Pages 6-14 of 16)

EMISSION RATES OF PRODUCTION RATES

FLORIDA SOLITE COMPANY

REVISED 6/18/84

SHOLTES & KOOGLER

Proposed Production & Emissions

Production Rate - 10 tons/hr

Heat Input - 3.5×10^6 BTU / ton of product
$\times$ 10 tph
$= 35.0 \times 10^6$ BTU / hr

Hours of Operation - 7620 hours/year

Fuel Consumption

Coal = 0.34 ton/hr (avg) $\times$ 7620 hr/yr
$\approx$ **2600 tons/year**

$\times 24 \times 10^6$ BTU / ton
$= 6.24 \times 10^{10}$ BTU/yr

LBM = $(35 \times 10^6$ BTU/hr $\times$ 7620 hr/yr$) - 6.24 \times 10^{10}$
$= 20.43 \times 10^{10}$ BTU/yr

$\times$ 1/91280 BTU/gal
$= \boxed{2.24 \times 10^6 \text{ gal/yr}}$

SO_2 Emissions

Annual = 2600 tons coal/yr $\times$ (0.03x2) ton SO_2/ton coal
+[2.24x10^6 gal/yr x 8.1 lb/gal x (0.004x2) lb SO_2/lb LBM
x 1/2000 ton/lb]

= 156.0 + 72.6
= 228.6 tpy with no sorption

$\times$ (1-0.45) Absorption

= 125.7 tpy actual proposed emissions

Hourly (max w/ 100% coal)

= 35x10^6 BTU/hr x 1/24x10^6 BTU/ton x 2000 lb/ton
x (0.03x2) lb SO_2/lb coal x (1-0.45)

= 96.3 lb/hr @ 45% sorption

Revised 6/18/84

Particulate Matter Emissions

Annual

Present actual	- 21.0 tpy	
Increase	- 24.0 tpy	< 25.0 tpy
Total (proposed)	- 45.0 tpy	

Hourly

= 45.0 ton/yr x 2000 / 7620

= 11.8 lb/hr

42-381 50 SHEETS 5 SQUARE
42-382 100 SHEETS 5 SQUARE
42-389 200 SHEETS 5 SQUARE
NATIONAL

Revised 6/10/84

Nitrogen Oxides @ 0.46 lb/10^6 BTU (EPA test - Attach 4)

NO_x = 35 x 10^6 BTU/hr x 0.46 lb/10^6 BTU
= 16.1 lb/hr
x 7620 /2000
= 61.3 tpy

Increase
= 61.3 - 27.4 tpy (actual)
= 33.9 tpy < 40 tpy

Carbon Monoxide - Emissions are expected to be near zero

VOC - Emissions are expected to be near zero

Fluoride @ 0.0093 lb F/10^6 BTU from coal (EPA 450/2-80-076 - Attachment 5)

F = 35x10^6 BTU/hr (coal) x 0.0093/10^6 BTU
= 0.33 lb/hr (max w/ 100% Coal)
and
= 2600 ton coal/yr x 24x10^6 BTU/ton x 0.0093 lb F/10^6 BTU /2000
= 0.29 ton/yr

Increase
= [0.29 tpy - 0.24 tpy (actual)]
= 0.05 ton/yr < 3.0 ton/yr

Lead

Measured emissions

Kiln #1 - 0.33 lb/hr @ 7 tph production measured by SKEC on 9/2/82 (Attach 6)
x 10/7 = 0.47 lb/hr @ 10 tph production

Kiln #5 - 0.43 lb/hr @ 10 tph production measured by EPA in Feb 1983

Avg = 0.45 lb/hr @ 10 tph production for system with 92% efficiency for lead removal from stack gas (This efficiency is based on efficiencies measured in runs 1, 3 & 5 of EPA tests - See Attached copy of complete EPA report)

Revised 6/10/84

Projected Emissions

Because of the installation of the Ducon scrubber on the new #1 kiln; a scrubber that will be more efficient than the scrubbers presently on the #1 and #5 kilns (see pages 6 & 7 of EPA report for existing scrubber description), the efficiency for lead removal is expected to increase to at least 94%.

Emissions = 0.45 lb/hr @ 92% efficiency
= 0.34 lb/hr @ 94% efficiency

× 7620 / 2000
= 1.29 tons/yr

Increase = (1.29 tpy − 0.74 tpy (actual)] × 2000

= 1092 lb/yr < 1200 lb/yr (o.k.)

Mercury - Emissions are expected to be near zero (see Attach 6)

Chloride - Based on emissions from kiln No 5 measured by EPA in Feb 1983 at a production rate of 10 tph (Attach 4)

HCl = 0.051 lb/hr

× 7620 / 2000
= 0.19 tpy

Revised 6/18/84

Fugitive Particulate Matter Emissions (Kiln # 1)

* Clay Stg to kiln

Emissions = 0 (clay moisture = 38%)

* Kiln

Emissions = 0 (seals on both ends of kiln will eliminate fugitive emissions from kiln)

* Product Cooler

Emissions = 0 (cooler will contain product; air passing thru cooler will be captured and used as combustion air in the kiln)

* Transfer from Cooler to Sizing & Storage

- Load-out from Cooler

Emissions = 0 (draft thru cooler collects emissions)

- Front-end Loader Travel on Unpaved Roadway (AP-42, Sup 14)

$$\text{Factor} = 5.9\left(\frac{s}{12}\right)\left(\frac{S_p}{30}\right)\left(\frac{w}{3}\right)^{0.7}\left(\frac{n}{4}\right)^{0.5}\left(\frac{d}{365}\right) \text{ lb/VMT}$$

s = Silt content of traveled surface (%)
= 6% (estimated)
S_p = Vehicle speed (mph)
= 10 mph
W = Weight of front-end loader (tons)
= 18 tons (average empty/loaded)
n = Number of tires on loader
= 4
d = Number of days without rainfall
= 250 (Jax)

$$= 5.9\left(\frac{6}{12}\right)\left(\frac{10}{30}\right)\left(\frac{18}{3}\right)^{0.7}\left(\frac{4}{4}\right)^{0.5}\left(\frac{250}{365}\right)$$
$$= 2.36 \text{ lb/VMT}$$

Travel distance/year estimated to be 1200 miles

$$\text{Emissions} = 2.36 \text{ lb/VMT} \times 1200 \text{ VMT/yr} \times 1/2000$$
$$= 1.42 \text{ tons/year}$$

Revised 6/18/84

- Front-end Loader Dump (AP-42, Sup 14 - batch drop)

$$\text{Factor} = k(0.0018)\left(\frac{s}{5}\right)\left(\frac{u}{5}\right)\left(\frac{H}{5}\right)/\left(\frac{M}{2}\right)^2\left(\frac{Y}{6}\right)^{0.33} \quad \text{lb/ton}$$

s = silt content of product (%)
= 0.2% (estimate)
u = mean wind speed at drop point (mph)
= 4 mph (estimate based on 3ax 30 ft wind)
H = drop ht. (ft)
= 4 ft
M = moisture content of product (%)
= 0.1 %
Y = bucket capacity (yd^3)
= 8 yds^3
k = particle size multiplier
= 1.0 (all particles < 47 μm)

$$= 1.0(0.0018)\left(\frac{0.2}{5}\right)\left(\frac{4}{5}\right)\left(\frac{4}{5}\right)/\left(\frac{0.1}{2}\right)^2\left(\frac{8}{6}\right)^{0.33}$$

$$= 0.017 \text{ lb/ton}$$

Emissions = 0.017 lb/ton x 10 ton/hr x 7620 hr/yr x 1/2000
= 0.64 tons/year

* Coal Rail Car Dump (AP-42, Sup 14 - continuous drop)

$$\text{Factor} = k(0.0018)\left(\frac{s}{5}\right)\left(\frac{u}{5}\right)\left(\frac{H}{10}\right)/\left(\frac{M}{2}\right)^2 \quad \text{lb/ton}$$

Variables same as above

$$= 1.0(0.0018)(2/5)(4/5)(4/10)/(10/2)^2 \text{ lb/ton}$$

$$= 0.00001 \text{ lb/ton}$$

Emissions = 0.00001 lb/ton x 0.34 ton/hr coal (avg)
x 7620 hr/yr x 1/2000
= < 0.01 tpy

* Coal to Storage (AP-42, Sup 14 - continuous drop)

$$\text{Factor} = 1.0(0.0018)(2/5)(4/5)(10/10)/(10/2)^2$$

$$= 0.00002 \text{ lb/ton}$$

Emissions = 0.00002 x 0.34 x 7620 / 2000

= < 0.01 ton/yr

Revised 6/18/84

* Reclaim Coal from Storage (by front-end loader) and feed conveyor (AP-42, Sup 14 - batch drop)

$$\text{Factor} = k(0.0018)\left(\frac{s}{5}\right)\left(\frac{u}{5}\right)\left(\frac{H}{5}\right)/\left(\frac{M}{2}\right)^2\left(\frac{Y}{6}\right)^{0.33} \text{ lb/ton}$$

$$= 1.0(0.0018)\left(\frac{2}{5}\right)\left(\frac{4}{5}\right)\left(\frac{4}{5}\right)/\left(\frac{6}{2}\right)^2\left(\frac{8}{6}\right)^{0.33}$$

$$= 0.00005 \text{ lb/ton}$$

Emissions = 0.00005 x 0.34 x 7620 / 2000

= < 0.01 ton/yr

* Front-end Loader Travel on Unpaved Surface

$$\text{Factor} = 5.9\left(\frac{6}{12}\right)\left(\frac{5}{30}\right)\left(\frac{18}{3}\right)^{0.7}\left(\frac{4}{4}\right)\left(\frac{250}{365}\right) \text{ lb/VMT}$$

= 1.18 lb/VMT

Travel distance /year estimated to be miles

Emissions = 1.18 x 60 x 1/2000

= 0.03 tons/year

* Coal dump to Coal Bin (AP-42, Sup 14 - cont. drop)

Same as coal to Storage

Emissions = < 0.01 ton/yr

* Coal Bin to Coal Pulverizer (continuous drop)

Less than Coal to Storage

Emissions = < 0.01 ton/yr

* General - Area between clay storage and the kiln will be paved to improve housekeeping

Total Fugitive Particulate Matter Emissions

Emissions = Sum of All Activities

= 2.14 tons/year

Revised 6/18/84

Fugitive VOC Emissions from LBM Storage (Kiln # 1)

Tank capacities

1 @	300,000 gal
1 @	150,000 gal
3 @	20,000 gal
3 @	10,000 gal
Total	540,000 gal

Annual Throughput (proposed max for kiln # 1 & # 5)

Kiln 1 = 7620 hr/yr x 294 gal/hr (avg) = 2,240,000 gal/yr
Kiln 5 = 8760 hr/yr x 95 gal/hr (avg) = 832,300
Total = 3,072,300 gal/yr

Turnovers = Throughput/Capacity
= ~ 6

Mean Annual Temp (Jax) - 68°F

Diurnal Temp Change (Jax) - 20°F

Tank Dimensions (assume 100,000 gal tank x 5.4)
Ht = 23 ft. (assume 3/4 full)
Dia = 27 ft.

Fuel Characteristics (assume similar to No 2 fuel oil even though the still bottoms will have higher mol. wt and lower vapor on average)
Vapor Mol Wt. = 130
Density = 7.1 lb/gal
True Vapor Pressure = 0.0075 (psia @ 60°F)

Breathing Losses (AP-42, Sup 12)

$$L_B = 2.26 \times 10^{-2} M \left(\frac{P}{14.7-P}\right)^{0.68} D^{1.73} H^{0.51} \Delta T^{0.5} F_P C K_C \ (lb/yr)$$

M = Vapor Mol wt
P = True Vapor Pressure
D = Tank Dia
H = Avg Vapor Space ht. in tank
ΔT = Diurnal Temp Change
F_P = Paint Factor = 1.3
C = Small tank adjustment = 1.0
K_C = Product Factor = 1.0

$= 2.26 \times 10^{-2} (130) (0.0075/[14.7-0.0075])^{0.68} (27)^{1.73} (5.7)^{0.51} (20)^{0.5} (1.3)$
= 71.7 lb/yr
x 5.4 equivalent tanks
= 387.2 lb/yr

Revised 6/18/84

Working Losses (AP-42, Sup 12)

$L_w = 2.40 \times 10^{-2} M P K_n K_c (T/1000)$ lb/yr

M = Vapor Mol wt.
P = True Vapor Pressure
K_n = Turnover factor = 1.0
K_c = Product factor = 1.0
T = Annual LBM throughput (gal)

$= 2.40 \times 10^{-2}(130)(0.0075)(1.0)(1.0)(3072300/1000)$
$= 71.9$ lb/yr (for all LBM)

Total VOC Losses

$= L_B + L_w$
$= 459.1$ lb/yr
$= 0.23$ ton/yr both kilns
$\times 2{,}240{,}000/3{,}072{,}300$ (kiln #1 fraction)
$= 0.17$ tons/yr attributable to kiln #1

Revised 6/18/84

APPENDIX B

BEST AVAILABLE COPY

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

SKEC 150-84-01

May 16, 1984

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

Subject: Florida Solite Company
Green Cove Springs, Florida
Kiln No. 1 Reconstruction

Dear Mr. Fancy:

In response to your letter of incompleteness dated April 11, 1984, I have developed the information presented in the following paragraphs to complete the construction permit application for the subject source. I have also revised the appropriate pages of the construction permit application to conform to the information provided herein. The responses to the issues addressed in your letter use the same system of enumeration as used in your April 11, 1984 letter.

We would appreciate your expeditious review of this information and preparation of the construction permit for the No. 1 kiln since Solite was initially told by the Department that a construction permit would not be necessary for the reconstruction of the kiln. Based upon this information, Solite made product delivery commitments to clients which will be very difficult to meet without the use of the reconstructed No. 1 kiln.

1. Permit Application Fee - A construction permit processing fee of $1,000 has been forwarded to your office by the Solite Corporation of Richmond, Virginia. This fee covers the processing of the construction permit application for a source with potential emissions of any one pollutant in excess of 100 tons per year.

2. Kiln No. 1 Production and Air Pollutant Emission Rates - The baseline period for establishing actual production and emission rates from the No. 1 kiln was Solite fiscal year April 1, 1983 through March 31, 1984. This one year period was selected since it represents a recent period of record with the plant operating at a rate considered normal production capacity. A one year period of record only was used for the baseline period since the plant production during several years proceeding the selected baseline period was depressed due to the condition of the overall economy of the country.

   The actual plant production rate and air pollutant emission rates are based upon plant records and calculations presented in Attachment 1. During the baseline period the actual production rate of kiln No. 1 was 33,775 tons of lightweight aggregate per year. This represents 55.1 percent of the maximum rated kiln capacity. This material was produced during a 4514 hour period of operation during the baseline year.

   Actual emission rates of particulate matter, sulfur dioxides, nitrogen oxides, carbon monoxides, volatile organic compounds, fluorides, lead, mercury and chlorides were calculated for the baseline year. The calculations are detailed on Pages 3-5 of Attachment 1 and are summarized in Table 1. These emission rates were based upon production data and fuel use data summarized in plant records which are provided on Page 1 of Attachment 1 and/or upon measured emission data or EPA emission factors as referenced on Pages 3-5 of Attachment 1.

   The existing No. 1 kiln is still in operation and will be operated at the production rate of 7 tons per hour until the reconstructed No. 1 kiln, rated at 10 tons per hour, can be put on-line.

3. Potential Emissions from Kiln No. 5 - The permitted air pollutant emission rates from Kiln No. 5 (A010-44991) are summarized on Page 15 of Attachment 1. Kiln No. 5 is the only source operated by Solite at Green Cove Springs other than kiln No. 1. For particulate matter, the permitted emission rate is 78.9 tons per year and for sulfur dioxide the annual emission rate is 194.5 tons per year. The permitted emission rate of 194.5 tons per year of sulfur dioxide from the No. 5 kiln plus the actual emission rate of 88.0 tons per year of sulfur dioxide from the No. 1 kiln totals 282.5 tons per year. This emission rate exceeds 250 tons per year, making the Solite facility a major emitting facility.

4. Clay Input Rate - The lightweight aggregate produced by Solite is produced by heating clay containing a carbonate material to a temperature of 1900-2100°F. During the production process, the clay loses approximately 25.9 percent of its weight as a result of the evolution of carbon dioxide from the carbonate material.

   The clay, containing 38 percent moisture, is transferred from a covered clay storage area to a feeder which cuts the clay into small pieces and discharges it into a conveyor belt feeding the kiln. As stated previously, the clay contains approximately 38 percent moisture as it enters the kiln. This makes the material quite sticky. In the past, Solite has tried belt scales on the conveyor feeding the kiln as a means of monitoring the input to the kiln. These scales were abandoned because of the problems caused by the clay sticking to the conveyor belt.

   A second means to monitor the clay input to the kiln that has been considered by Solite is with a scale attached to the front-end loader which transfers clay from the clay storage area to the clay feeder. This alternative does not appear feasible, again because of the fact that clay will stick to the front-end loader bucket and attempts to dislodge the clay will undoubtedly cause mechanical damage to the loader scale in a relatively short period of time.

   The most plausible means of monitoring the clay input rate to the kiln, and the method proposed by Solite, is by the installation of a loader scale on the front-end loader that transfers the lightweight aggregate discharged from the kiln to the product storage area. Such a scale can measure the weight of each load of product transferred with an accuracy of approximately 10 percent. The weight of the product can then be related to the clay feed rate by accounting for moisture loses and carbon dioxide loses.

5. Kiln No. 1 Process Flow Diagram - A process flow diagram for the No. 1 kiln is shown on Page 16 of Attachment 1. The flow diagram shows the storage areas and each piece of equipment associated with Kiln No. 1 and shows the method of material transfer between each operation.

   Solite will incorporate several measures during the reconstruction of kiln No. 1 to minimize fugitive particulate matter emissions. Fugitive particulate matter emissions from the clay storage area, from the transfer of clay from the storage area to the clay feeder, from the clay feeder and from the conveyor transferring clay from the feeder to the kiln are

non-existent since the clay contains approximately 38 percent moisture. The area in which all of these activities occur is being paved to improve housekeeping.

Fugitive emissions from the kiln itself are minimized by increasing the negative pressure in the kiln and by installing seals at both ends of the kiln. A product cooler will also be installed on the reconstructed kiln No. 1. The cooler will consist of a hopper constructed of concrete and 3/4 inch steel plate that the hot lightweight aggregate from the kiln will discharge into. The purpose of the cooler is two-fold. First, the air that passes through the cooler will be captured and fed to the kiln as heated combustion air. Secondly, the cooler will contain the lightweight aggregate thus, eliminating an open source of fugitive emissions. From the product cooler, the lightweight aggregate is transferred by front-end loader for sizing and storage.

Fugitive particulate matter and volatile organic compound emissions associated with the operation of the No. 1 kiln have been estimated. Calculations used to derive at these estimates are presented on Pages 10-14 of Attachment 1. Fugitive particulate matter emissions attributable to Kiln No. 1 total 1.4 tons per year and fugitive volatile organic compound emissions total 0.09 tons per year.

The fugitive particulate matter emission rate attributable to the reconstructed kiln No. 1 represents a decrease in fugitive emissions that have existed during the operation of the existing kiln No. 1. Volatile organic compound emissions attributable to the reconstructed kiln No. 1 are approximately equal to volatile organic compound emissions from the existing No. 1 kiln.

6. Kiln Operating Temperature - The clay which is used to produce the lightweight aggregate must be heated to a temperature of 1900-2100°F so that it will expand and impart the desired properties to the lightweight aggregate. At temperatures below this temperature range, the expansion will not take place. At temperatures above this range, the clay will form a massive clinker in the kiln which creates two problems. First, the clinker must be mechanically removed from the kiln and secondly, the resulting clinker is a useless product.

Since the temperature is critical to the production of lightweight aggregate, the production of this product provides assurance that the clay temperatures in the kiln were maintained in the range of 1900-2100°F. Investigations conducted by Solite

on lightweight aggregate kilns operated by that company in New York State indicated that maximum gas temperatures in the kiln exceeded the material temperatures by approximately 200°F. This would indicate that the gas temperatures in the Florida Solite kilns reach a peak temperature of 2100-2300°F.

On the existing kiln No. 1, the temperature in the kiln is maintained by the kiln operator by visually observing the characteristics of the product. In the reconstructed kiln No. 1, a radiant pyrometer with a continuous chart recorder will be installed to measure the material temperature at the burning zone (the zone of peak temperatures) in the kiln.

7. Kiln Fuel - The existing No. 1 and No. 5 kilns and the reconstructed No. 1 kiln are fired approximately 75 percent of the time with a fuel consisting of two-thirds liquid burnable material and one-third coal, and approximately 25 percent of the time with a fuel consisting of 100 percent liquid burnable material. On rare occasions, the kilns are fired with 100 percent coal but this occurs only if production requirements demand that the kilns be operated and liquid burnable material is not available.

The coal feed rate to the kiln is monitored by timers on the coal conveyor belts, the conveyor belt speed and the amount of coal transfered per lineal foot of conveyor belt. When coal is used as a fuel, the coal feed rate is set at a constant rate (supplying approximately one-third of the heat input) and the quantity of liquid burnable material is varied to maintain the required temperature in the kiln.

The feed rate of liquid burnable material to the kiln is controlled by the operator to maintain the kiln temperature in the proper range. With the existing kilns, the maintenance of this temperature is based on operator experience. With the reconstructed No. 1 kiln, a radiant pyrometer will be used to monitor kiln temperature and provide the operator with a quantitative guide for controlling the fuel.

The quantity of liquid burnable material consumed is determined by measuring liquid levels in the liquid burnable material storage tanks daily. The consumption of liquid burnable material during a day is proportioned to the two operating kilns based on kiln production rates.

8. Kiln Heat Input - The heat input to the reconstructed No. 1 kiln is expected to be approximately 3.5 million BTU per ton of product. At this heat input rate, the total heat input to the kiln will be 35 million BTU per hour, regardless of the fuel mixture used.

9. Source of Liquid Burnable Material - The Florida Solite Company obtains the majority of the liquid burnable material from four solvent recyclers in southeastern United States. The liquid burnable material consists of still bottoms which remain after the distillation of used solvents. Solite has received liquid burnable material from these four sources for several years and is confident of the quality of material received.

   A small amount of liquid burnable material is received from miscellaneous sources during the course of a year. Solite requires a manifest from the supplier of each load of fuel setting forth the source of the material and the content of the material.

   The liquid burnable material consumed by the Florida Solite Company is defined as a "hazardous waste fuel" under 40 CFR 266.

10. Content of Liquid Burnable Material - The liquid burnable material that has been consumed by the Florida Solite Company for years, and will be consumed in the future, contains no pesticides, no PCB's, no cyanides, no sulfides, no mercaptans, no electroplating wastes, nor no metal finishing wastes. None of these materials have a significant heating value and in addition, some of the materials could be very corrosive to the Solite production system. The specifications set by Solite for liquid burnable material are included as Attachment 7.

    The Department should refer to the test report prepared by EPA dated July 15, 1983 if further questions arise regarding the destruction and removal efficiency of organic compounds in the kiln.

11. Quantity of Liquid Burnable Material Consumed - The maximum quantity of liquid burnable material that will be consumed in both kilns is approximately 3.1 million gallons per year (See Page 13 of Attachment 1). Approximately 1.15 million gallons per year of this fuel will be consumed in kiln No. 1 and approximately 1.95 million gallons will be consumed in kiln No. 5.

12. Scrubber - The scrubber proposed for the reconstructed No. 1 kiln is a Ducon Model UW4 scrubber. The scrubber was obtained by Ducon from a previous installation.

13. Scrubber Efficiency - Attachment 8 is a letter from the Ducon Company regarding the efficiency of the Ducon Model UW4 scrubber that will be installed on the reconstructed No. 1 Solite kiln. The letter states that the efficiency of the Ducon scrubber is in the range of 99 percent with particles down to the size range of 1-2 micrometers. The letter further states that this range of efficiency can be maintained over a range of gas flow rates varying from 60 percent to 100 percent of design.

    The efficiency of the scrubber is adequate to meet the 98.2 percent efficiency estimated in the construction permit application.

14. Annual Emission Rates - The annual emission rates of fluoride, lead, hydrogen chloride and mercury from the reconstructed No. 1 kiln have been estimated. Calculations used to derive at these estimates are presented on Pages 8 and 9 of Attachment 1. The emission rates of each of these pollutants are summarized in Table 1 and all are less than established de minimus emission rates.

15. Sulfur Dioxide Absorption - The test report cited in the original construction permit application as the basis for sulfur dioxide absorption in the kiln has been obtained by SKEC. The actual date of the report was December 11, 1974 and the actual measured sulfur dioxide absorption was 47 percent rather than the 65 percent reported in the original construction permit application.

    Sections of the referenced report are included as Attachment 3. Modifications to the original construction permit for the No. 1 kiln reflecting the reduced absorption rate are attached.

16. Scrubber Water - Scrubber water for the Ducon scrubber that will serve the reconstructed No. 1 kiln will be supplied from a settling pond which is approximately 10 acres in size. The water for the scrubber will be recirculated through this pond.

    An alternative water supply, should a problem develop with the water supply from the settling pond, is a fresh water pond. Water from this pond is used only for stand-by purposes, however the plant (and scrubber) are connected to this alternative source of water.

17. Scrubber Protection - The rubber lined Ducon scrubber must be protected from the high temperatures of the gases exiting the kiln if the scrubber water supply is disrupted. This is accomplished by providing audible temperature controlled alarms in the system and a damper which will be activated to permit the inflow of large quantities of ambient air to the scrubber if the gas temperature entering the scrubber system exceeds a predetermined value.

    The introduction of the ambient air will reduce the draft, through the kiln and, hence the quantity of hot air exhausted from the kiln. The air will also cool the kiln gases that continue to be exhausted through the scrubber.

    With this proposed operation, the reconstructed No. 1 kiln cannot continue to operate if the scrubber is not functioning properly.

18. Stack Testing Facilities - Sampling ports and access to the sampling port will be installed on the stack of the reconstructed No. 1 kiln in accordance with the specifications of Chapter 17-2.700(4)(c) of the Florida Administrative Code.

19. Cyclonic Flow - Straightening vanes have been designed and will be installed in the stack of the reconstructed No. 1 kiln to prevent cyclonic flow.

If there are any questions regarding this information, or if additional information is needed, please contact us immediately so that the information can be provided to you and the review of the application can continue as expeditiously as possible. Again, we would appreciate whatever effort the Department can assign to the review of the permit application for this source so that Solite can meet the production schedule it has committed to.

Very truly yours,

SHOLTES & KOOGLER,
ENVIRONMENTAL CONSULTANTS

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

JBK:ldh
Enclosures

cc: Mr. John Roberts
Mr. Ed Martin
Mr. Tom Purvis
Mr. John Kulken

REVISED PAGES FOR
CONSTRUCTION PERMIT APPLICATION

FLORIDA SOLITE COMPANY

SHOLTES & KOOGLER

SECTION II: GENERAL PROJECT INFORMATION

A. A new rotary kiln is being constructed to replace an existing kiln of similar capacity. The kiln, which will be fired with coal or spent solvents, will be used to produce an expanded light-weight aggregate for the construction industry. The production rate of aggregate will be 10.0 tons per hour.

Particulate matter emissions from the kiln will be controlled with a Ducon UW4, Model III, Size 108 Scrubber. The system will be in full compliance with all applicable emission regulations.

SECTION V: SUPPLEMENTAL INFORMATION

1. Process Input Weight Rate

Clay	27,000 lbs/hr
Moisture in Clay (38%)	16,550 lbs/hr
Total	43,550 lbs/hr

Production Rate

Expanded light-weight aggregate	20,000 lbs/hr
Moisture in stack gas	16,550 lbs/hr
Carbon Dioxide	7,000 lbs/hr
Total	43,550 lbs/hr

2&3. Potential and Actual Emissions

Particulate Matter

Potential @ 96 lbs/ton of product (AP-42, Sect. 8.3.1; Clay drying & Grinding)

10 tons/hr x 96 lbs/ton
= 960 lbs/hr (x 5205 hrs/yr x 1/2000)
= 2498 tons/year.

Actual - 17.3 lbs/hr See Attachment 1 to SKEC letter dated 5/16/84.

Sulfur Dioxide

See Attachment 1 to SKEC letter dated 5/16/84.

Nitrogen Oxides

See Attachment 1 to SKEC letter dated 5/16/84.

4. Scrubber Specifications - See Attachment 1.

E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr _____ ; if seasonal, describe: Annual hours of operation will not exceed 5,205 hours per year.

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

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

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

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

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

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

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

4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? NO

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

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

   a. If yes, for what pollutants? _____

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

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

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		
Clay w/38% moisture	Particulate	5	43,550	1

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

1. Total Process Input Rate (lbs/hr): 43,550 @ 38% moisture

2. Product Weight (lbs/hr): 20,000, dry (moisture loss plus a 25.9% weight loss due to CO2 evolution)

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

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr (max)	T/yr (avg)	
Part. Matter	17.3	45.0	17-2.610(1)	17.3	960 (1)	2498	7
Sulfur Dioxide	96.4	127.0	NA	96.4	175	231	7
NOx	16.1	41.9	NA	16.1	16.1	42	7
(1) At 96 lbs per ton of product.							

[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)
Ducon Type UW4, Mod.	Particulate	98.2%(1)	2	Estimate
III, Size 108	Matter			
(1) From Section IIIC E = [(960-17.3)/960] x 100 = 98.2%				

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
Liquid Burnable Material	220 gph	383 gph	35.0
Coal	0.62 tph	1.46 tph	35.0

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

Fuel Analysis: LBM/Coal

Percent Sulfur: 0.4/3.0 max. Percent Ash: 8/12 Max.

Density: 7.5/--- lbs/gal Typical Percent Nitrogen: Nil/1.4

Heat Capacity: 12,800/12,000 BTU/lb 96,000/----- BTU/gal

Other Fuel Contaminants (which may cause air pollution): Chloride content of LBM averages 1.5% (See fuel analysis of LBM - Attachment 5 and coal - Attachment 6)

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.

Scrubber water is recirculated through existing settling ponds.

TABLE 1

SUMMARY OF PERMITTED, ACTUAL AND PROPOSED
EMISSIONS FROM NO. 1 KILN

FLORIDA SOLITE COMPANY
GREEN COVE SPRINGS, FLORIDA

Pollutant	Annual Emissions (tons/year)				
	Permitted	Actual	Proposed	Increase	De Minimus Increase
Particulate Matter	55.6	21.0	45.0	24.0	25.0
Sulfur Dioxide	366.9	88.0	127.0	39.0	40.0
Nitric Oxides	*	27.4	41.9	14.5	40.0
Carbon Monoxide	*	0	0	0	100.0
Volatile Organic Compound	*	0	0	0	40.0
Fluoride	*	0.24	0.36	0.12	3.0
Lead	*	0.74	1.23	0.49	0.6
Mercury	*	0	0	0	0.1
Hydrogen Chloride	*	0.08	0.13	0.05	*

* No Limit

SHOLTES & KOOGLER

ATTACHMENT 1

EMISSION RATES AND PRODUCTION RATES

FLORIDA SOLITE COMPANY

BEST AVAILABLE COPY

Solite Corp
Green Cove Springs, Fl
4/1/83 - 3/31/84

CC: PLT. MGR., WTJ(SO. REG.), EEM(JWR,RBM) FORM 342-11 (REV. 9/79)

Florida Solite	3-31 1984 TONS/MCF GALLONS	COST	CUMULATIVE TONS
FUEL USED:			
COAL	6340	22,386	
COKE			
OIL			
GAS			
SOLVENT-WASTE			
OLDOVER	2,213,330	10,129	
TOTAL ALL FUELS USED		32,515	
FUEL COST PER TON OF SOLITE			3.60
BTU'S BURNED (MILLIONS):		% of Total	
COAL 24x10⁶ BTU/ton	149760x10⁶	43 %	
COKE			
OIL			
GAS			
SOLVENT			
OLDOVER 11,580 BTU/Gal	201,030x10⁶	57 %	
TOTAL BTU'S BURNED	351,790x10⁶	100%	
BTU'S BURNED PER TON OF SOLITE			
SOLITE PRODUCED			
INVENTORY-END OF PERIOD	64,572		64,572
SALES TO CUSTOMERS	11,855		102,899
INTER-COMPANY SHIPMENTS TO:			
From Louisville	< 0 >		< 8090 >
AFCO	< 3430 >		< 12615 >
	< 1005 >		< 451 >
	71,992		146,315
INVENTORY-BEGINNING OF PERIOD	62,455		46,386
SOLITE PRODUCED	9037		99,929

KILN NO. 1

PERMITTED PRODUCTION & EMISSIONS

Permit A010 - 72240

Production Rate = 7.0 ton/hr

× 8760

= 61320 tons/yr

Emission Rates

	(lb/hr)	(tons/year)
Part Matter	12.73	55.6
SO_2	84.0	366.9
NOx	No limit	
CO	No limit	
VOC	No limit	
F	No limit	
Pb	No limit	
Hg	No limit	

ACTUAL PRODUCTION & EMISSIONS

Production Rate (4/1/83 - 3/31/84)

Total Production (kilns 1 & 5) = 99,929 tons/yr

Kiln #1 @ 7 tph and 26.87 weeks
= 33.8 %
= 33775 tons/yr

Kiln #6 @ 10 tph and 36.84 weeks
= 66.2 %
= 66154 tons/yr

Hours of Operation

Kiln #1 = 26.87 weeks/yr

= 4514 hours/yr

Emission Rates

Particulate Matter @ 9.31 lb/hr from 9/20/83 SKEC stack test report (Attachment 2)

PM = 9.31 lb/hr
x 4514/2000
= 21.0 tpy

Sulfur Dioxide - Based on fuel consumption and Measured SO_2 sorption rate (12/75 - see Attachment 3)

Total Coal Consumption (kilns 1 & 5)
= 6240 tons/year

assume distribution based on production

Kiln 1 - (33775/99929) x 6240
= 2109 tons/yr @ 3.36% Sulfur

Total LBM Consumption (kilns 1 & 5)
= 2,213,330 gal/yr
x (33775/99929)
Kiln 1 = 748,083 gal/yr @ 0.4% Sulfur & 8.1 lb/gal

SO_2 = (2109 x 0.0336 x 2) + (748,083 x 8.1 x 0.004 x 2/2000)
= 141.7 + 24.2
= 166.0 tpy with no sorption
x (1 - 0.47)
= 88.0 tpy @ 47% Sorption (See Attachment 3)
x 2000/4514
= 39.0 lb/hr, average
(78.2 lb/hr, max with 100% Coal firing)

Nitrogen Oxides - Based on 0.46 lb/10^6 BTU heat input from 2/20-25/83 EPA test on Kiln 5 (Attachment 4)

Heat Input Kiln 1

Coal = 2109 tons/yr x 2000 lb/ton x 12000 BTU/lb = 0.051×10^{12} BTU/yr

LBM = 748,083 gal/yr x 91280 BTU/gal = 0.068×10^{12}

Total = 0.119×10^{12} BTU/yr

÷ 4514 hr/yr

= 26.34×10^6 BTU/hr

$NO_x = (0.46 \times 0.119 \times 10^{12} / 2000) \times 10^{-6}$

= 27.4 tpy

x 2000/4514

= 12.1 lb/hr

Carbon Monoxide - Because of excess oxygen, kiln temperature and residence time, carbon monoxide emissions are expected to be near zero

VOC - Emissions are expected to be near zero

Fluoride - Emission factor from EPA 450/2-80-074, June 1980 (Attachment 5)

F = 0.00931bF/10^6BTU x 0.051×10^{12} BTU/yr /2000

= 0.24 tons/year (emissions all from coal firing)

or

x 2000 lb/ton / (4514 x 0.051/0.119×10^{12} BTU/yr) hr/year on coal

= 0.25 lb/hour, max with coal combustion

Lead - Based on emission rate of 0.33 lb/hr measured by SKEC on kiln 1 on 9/2/82 (Attach 6)

Pb = 0.33 lb/hr

x 4514/2000

= 0.74 tons/yr

Mercury - Based on emission rate of Zero measured by SKEC on kiln 1 on 9/2/82 (Attach 6)

Hg = 0 lb/hr

= 0 tons/yr

Chloride – Based on emission rate of 0.051 lb/hr HCl from Kiln No. 5 as measured by EPA in Feb 1983 with production rate of 10 tph (Attachment 4)

HCl = 0.051 lb/hr @ 10 tph × 7 tph/10 tph

= 0.036 lb/hr @ 7 tph

× 4514/2000

= 0.08 tpy

42.381 50 SHEETS 5 SQUARE
42.382 100 SHEETS 5 SQUARE
42.389 200 SHEETS 5 SQUARE
NATIONAL

PROPOSED PRODUCTION & EMISSIONS

Production Rate - 10 tons/hour

Heat Input - 3.5×10^6 BTU/ton of product

Historic heat input (see page 3)

Coal - 42.6%
LBM - 57.4%
} assume same distribution for future operation

Proposed heat input

$= 10$ tons/hr $\times (3.5 \times 10^6)$ BTU/ton

$= 35 \times 10^6$ BTU/hr

$\times 0.426 = 14.91 \times 10^6$ BTU/hr coal

$\times 0.574 = 20.09 \times 10^6$ BTU/hr LBM

Coal Consumption

$= 14.91 \times 10^6 / 24 \times 10^6$ BTU/ton

$= 0.62$ tons/hr (average @ 42.6%)

or

$= 1.46$ tons/hr (max @ 100%)

LBM Consumption

$= 20.09 \times 10^6 / 91280$ BTU/gal

$= 220$ gal/hr @ 8.1 lb/gal. (average @ 57.4%)

or

$= 383$ gal/hr (max @ 100%)

SO_2 Emissions

Annual = Present + Increase

$= 88.0$ tpy + 39.0 tpy

$= 127.0$ tpy

Hourly (average)

$= 0.62$ tph $\times 2000$ lb/ton $\times (0.03 \times 2) \frac{\text{lb SO}_2}{\text{lb Coal}}$

$+ 220$ gal/hr $\times 8.1$ lb/gal $\times (0.004 \times 2)$ lb SO_2/lb LBM

$= 88.7$ lb/hr

Actual @ 45% Sorption (Attachment 3)

$= 88.7 (1 - 0.45)$

$= 48.8$ lb/hr (average)

Actual SO_2 (cont)

= 1.46 ton/hr x 2000 x(0.03x2) lb SO_2 / lb Coal (1-0.45)
= 96.4 lb/hr (max @ 100% Coal)

Hours of Operation

= 127.0 ton/yr $\times \frac{2000}{48.8}$ lb/hr
= 5205 hr/yr

Particulate Matter Emissions

Process input (average)
= 13.5 ton/hr clay + 0.62 ton/hr Coal
= 14.12 tph

PM = $3.59(14.12)^{0.62}$
= 18.5 lb/hr

x 5205/2000
= 48.1 tpy

Increase
= 48.1 - 21.0
= 27.1 tpy > 25

Limit increase to < 25 tpy (to 24 tpy)

PM (annual)
= 21.0 + 24.0
= 45.0 tpy

PM (hourly)

= 45.0 tpy x 2000 / 5205 hr/yr
= 17.3 lb/hr

42-381 50 SHEETS 5 SQUARE
42-382 100 SHEETS 5 SQUARE
42-389 200 SHEETS 5 SQUARE
NATIONAL

Nitrogen Oxides @ 0.46 lb/10^6 BTu (EPA test - Attach 4)

NO_x = 35 x 10^6 BTu/hr x 0.46 lb/10^6 BTu
= 16.1 lb/hr
x 5205/2000
= 41.9 tpy

Increase
= 41.9 - 27.4 tpy (actual)
= 14.5 tpy < 40 tpy

Carbon Monoxide - Emissions are expected to be near zero

VOC - Emissions are expected to be near zero

Fluoride @ 0.0093 lb F/10^6 BTu from coal (EPA 450/2-80-074 - Attachment 5)

F = 35 x 10^6 BTu/hr (coal) x 0.0093/10^6 BTu
= 0.33 lb/hr
x (5205 x 0.426)/2000
= 0.36 ton/yr

Increase
= [0.36 tpy - 0.24 tpy (actual)] -
= 0.12 ton/yr < 3.0 ton/yr

Lead - Based on 0.33 lb/hr measured on kiln 1 on 9/2/82 (Attach 6.
x 10/7 for increased production = 0.47 lb/hr

Pb = 0.47 lb/hr
x 5205/2000
= 1.23 tpy

Increase
= [1.23 tpy - 0.74 tpy (actual)] x 2000
= 974 lb/yr < 1200 lb/yr

Mercury - Emissions are expected to be near zero (Attach 6)

Chloride - Based on emissions from Kiln No. 5 measured by EPA in Feb 1983 at a production rate of 10 tph (Attach. 4)

HCl = 0.051 lb/hr
× 5205/2000
= 0.13 tpy

42-381 50 SHEETS 5 SQUARE
42-382 100 SHEETS 5 SQUARE
42-389 200 SHEETS 5 SQUARE
NATIONAL

Fugitive Particulate Matter Emissions (Kiln # 1)

* Clay Stg to kiln

Emissions = 0 (clay moisture = 38%)

* Kiln

Emissions = 0 (seals on both ends of kiln will eliminate fugitive emissions from kiln)

* Product Cooler

Emissions = 0 (cooler will contain product; air passing thru cooler will be captured and used as combustion air in the kiln)

* Transfer from Cooler to Sizing & Storage

- Load-out from Cooler

Emissions = 0 (draft thru cooler collects emissions)

- Front-end Loader Travel on Unpaved Roadway (AP-42, Sup 14)

$$\text{Factor} = 5.9 \left(\frac{s}{12}\right)\left(\frac{S_p}{30}\right)\left(\frac{w}{3}\right)^{0.7}\left(\frac{n}{4}\right)^{0.5}\left(\frac{d}{365}\right) \quad \text{lb/VMT}$$

s = Silt content of traveled surface (%)
= 6% (estimated)

S_p = Vehicle speed (mph)
= 10 mph

W = Weight of front-end loader (tons)
= 18 tons (average empty/loaded)

n = Number of tires on loader
= 4

d = Number of days without rainfall
= 250 (Jax)

$$= 5.9 \left(\frac{6}{12}\right)\left(\frac{10}{30}\right)\left(\frac{18}{3}\right)^{0.7}\left(\frac{4}{4}\right)^{0.5}\left(\frac{250}{365}\right)$$
$$= 2.36 \text{ lb/VMT}$$

Travel distance/year estimated to be 800 miles

Emissions = 2.36 lb/VMT x 800 VMT/yr x 1/2000
= 0.94 tons/year

- Front-end Loader Dump (AP-42, Sup 14 - batch drop)

$$\text{Factor} = k(0.0018)\left(\frac{s}{5}\right)\left(\frac{u}{5}\right)\left(\frac{H}{5}\right)/\left(\frac{M}{2}\right)^2\left(\frac{Y}{6}\right)^{0.33} \quad \text{lb/ton}$$

s = silt content of product (%)
= 0.2% (estimate)
u = mean wind speed at drop point (mph)
= 4 mph (estimate based on Jax 30 ft wind)
H = drop ht. (ft)
= 4 ft
M = moisture content of product (%)
= 0.1 %
Y = bucket capacity (yd^3)
= 8 yds^3
k = particle size multiplier
= 1.0 (all particles < 47 μm)

$$= 1.0(0.0018)\left(\frac{0.2}{5}\right)\left(\frac{4}{5}\right)\left(\frac{4}{5}\right)/\left(\frac{0.1}{2}\right)^2\left(\frac{8}{6}\right)^{0.33}$$

$$= 0.017 \text{ lb/ton}$$

$$\text{Emissions} = 0.017 \text{ lb/ton} \times 10 \text{ ton/hr} \times 5205 \text{ hr/yr} \times 1/2000$$
$$= 0.44 \text{ tons/year}$$

* Coal Rail Car Dump (AP-42, Sup 14 - continuous drop)

$$\text{Factor} = k(0.0018)\left(\frac{s}{5}\right)\left(\frac{u}{5}\right)\left(\frac{H}{10}\right)/\left(\frac{H}{2}\right)^2 \quad \text{lb/ton}$$

Variables same as above

$$= 1.0(0.0018)(2/5)(4/5)(4/10)/\left(\frac{10}{2}\right)^2 \text{ lb/ton}$$

$$= 0.00001 \text{ lb/ton}$$

$$\text{Emissions} = 0.00001 \text{ lb/ton} \times 0.62 \text{ ton/hr coal (avg)} \times 5205 \text{ hr/yr} \times 1/2000$$
$$= < 0.01 \text{ tpy}$$

* Coal to Storage (AP-42, Sup 14 - continuous drop)

$$\text{Factor} = 1.0(0.0018)(2/5)(4/5)(10/10)/\left(\frac{10}{2}\right)^2$$

$$= 0.00002 \text{ lb/ton}$$

$$\text{Emissions} = 0.00002 \times 0.62 \times 5205/2000$$

$$= < 0.01 \text{ ton/yr}$$

BEST AVAILABLE COPY

* Reclaim Coal from Storage (by front-end loader) and feed conveyor (AP-42, Sup 14 - batch drop)

$$\text{Factor} = k(0.0018)\left(\frac{s}{5}\right)\left(\frac{M}{5}\right)\left(\frac{H}{5}\right)/\left(\frac{M}{2}\right)^2\left(\frac{Y}{6}\right)^{0.33} \text{ lb/ton}$$

$$= 1.0(0.0018)\left(\frac{2}{5}\right)\left(\frac{4}{5}\right)\left(\frac{4}{5}\right)/\left(\frac{6}{2}\right)^2\left(\frac{8}{6}\right)^{0.33}$$

$$= 0.00005 \text{ lb/ton}$$

Emissions = 0.00005 × 0.62 × 5205 / 2000

= < 0.01 ton/yr

* Front-end Loader Travel on Unpaved Surface

$$\text{Factor} = 5.9\left(\frac{6}{12}\right)\left(\frac{5}{30}\right)\left(\frac{18}{3}\right)^{0.7}\left(\frac{4}{4}\right)\left(\frac{250}{365}\right) \text{ lb/VMT}$$

$$= 1.18 \text{ lb/VMT}$$

Travel distance /year estimated to be 40 miles

Emissions = 1.18 × 40 × 1/2000

= 0.02 tons/year

* Coal dump to Coal Bin (AP-42, Sup 14 - cont. drop)

Same as coal to Storage

Emissions = < 0.01 ton/yr

* Coal Bin to Coal Pulverizer (continuous drop)

Less than Coal to Storage

Emissions = < 0.01 ton/yr

* General - Area between clay storage and the kiln will be paved to improve housekeeping

Total Fugitive Particulate Matter Emissions

Emissions = Sum of All Activities

= 1.40 tons/year

Fugitive VOC Emissions from LBM Storage (Kiln # 1)

Tank capacities

1 @	300,000 gal
1 @	150,000 gal
3 @	20,000 gal
3 @	10,000 gal
Total	540,000 gal

Annual Throughput (proposed max for kiln # 1 & # 5)

Kiln 1 = 5205 hr/yr x 220 gal/hr (avg) = 1,145,100 gal/yr
Kiln 5 = 8760 hr/yr x 220 gal/hr (avg) = 1,927,200
Total = 3,072,300 gal/yr

Turnovers = Throughput / Capacity
= ~ 6

Mean Annual Temp (Jax) - 68°F

Diurnal Temp Change (Jax) - 20°F

Tank Dimensions (assume 100,000 gal tank x 5.4)
Ht = 23 ft. (assume 3/4 full)
Dia = 27 ft.

Fuel Characteristics (assume similar to No 2 fuel oil even though the still bottoms will have higher mol. wt and lower vapor on average)
Vapor Mol Wt. = 130
Density = 7.1 lb/gal
True Vapor Pressure = 0.0075 (psia @ 60°F)

Breathing Losses (AP-42, Sup 12)

$$L_B = 2.26 \times 10^{-2} M \left(\frac{P}{14.7 - P}\right)^{0.68} D^{1.73} H^{0.51} \Delta T^{0.5} F_P C K_c \ (lb/yr)$$

M = Vapor Mol wt
P = True Vapor Pressure
D = Tank Dia
H = Avg Vapor Space ht. in tank
ΔT = Diurnal Temp Change
F_P = Paint Factor = 1.3
C = Small tank adjustment = 1.0
K_c = Product Factor = 1.0

$= 2.26 \times 10^{-2} (130) (0.0075/[14.7 - 0.0075])^{0.68} (27)^{1.73} (5.7)^{0.51} (20)^{0.5} (1.3)$
$= 71.7$ lb/yr
x 5.4 equivalent tanks
$= 387.2$ lb/yr

Working Losses (AP-42, Sup 12)

$L_w = 2.40 \times 10^{-2} M P K_n K_c (T/1000)$ lb/yr

M = Vapor Mol wt.
P = True Vapor Pressure
K_n = Turnover factor = 1.0
K_c = Product factor = 1.0
T = Annual LBM throughput (gal)

$= 2.40 \times 10^{-2} (130)(0.0075)(1.0)(1.0)(3072300/1000)$
$= 71.9$ lb/yr (for all LBM)

Total VOC Losses

$= L_B + L_w$
$= 459.1$ lb/yr
$= 0.23$ ton/yr both kilns
$\times 1{,}145{,}100 / 3{,}072{,}300$ (kiln #1 fraction)
$= 0.09$ tons/yr attributable to kiln #1

42-381 50 SHEETS 5 SQUARE
42-382 100 SHEETS 5 SQUARE
42-389 200 SHEETS 5 SQUARE
NATIONAL

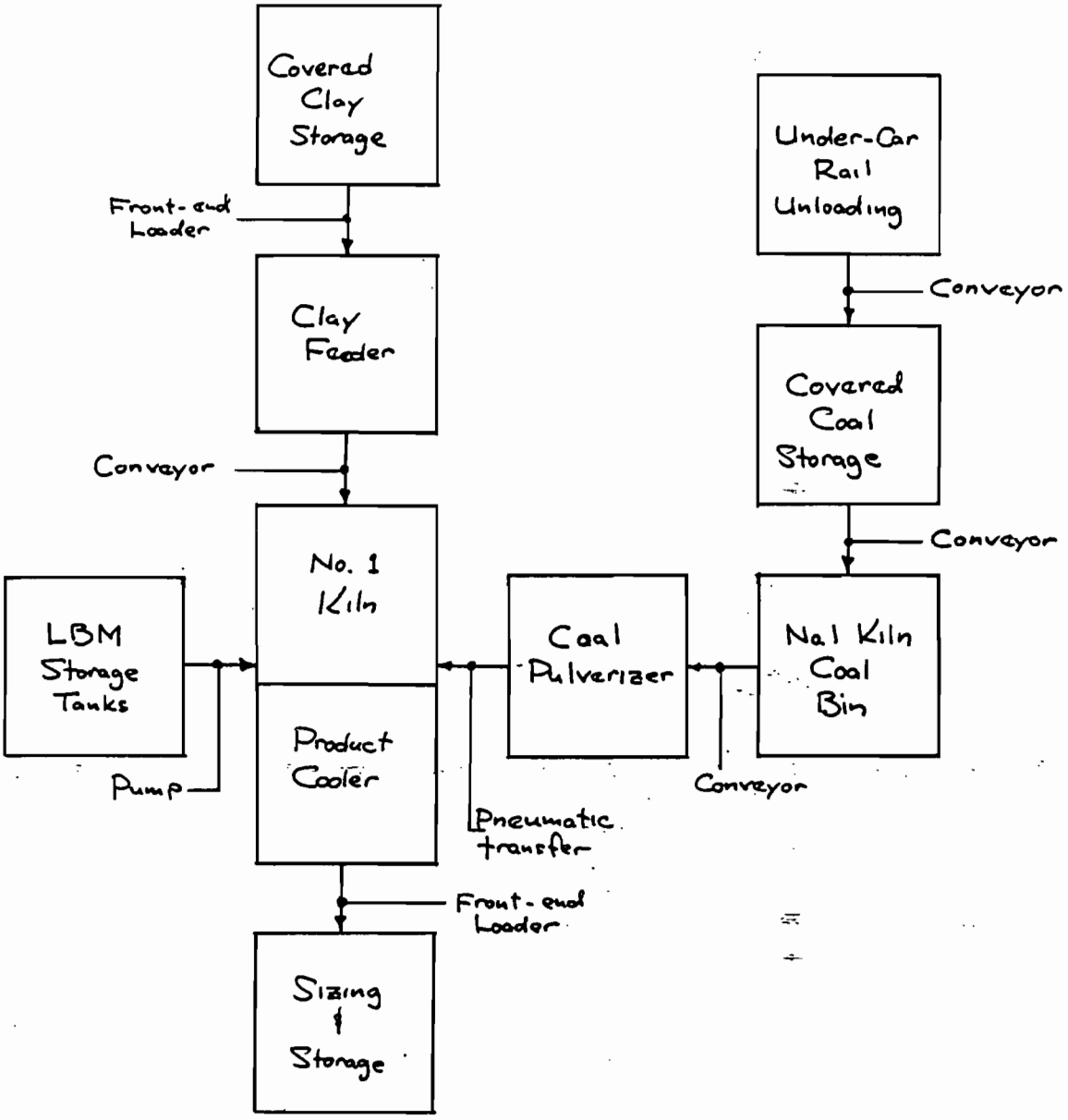
KILN NO. 5

Kiln Nos 1 & 5 are the only air pollutant sources at the Solite Green Cove Springs plant

Permitted Kiln 5 emissions (AO10-44991)

Pollutant	Emissions (lb/hr)	Emissions (tons/yr)
Part. Matter	18.1	78.9
Sulfur Dioxide	44.6	194.5
Nitrogen Oxides	No limit	
Carbon Monoxide	No limit	
VOC	No limit	
Others	No limit	

42-381 50 SHEETS 5 SQUARE
42-382 100 SHEETS 5 SQUARE
42-389 200 SHEETS 5 SQUARE
NATIONAL



PROCESS FLOW DIAGRAM
KILN NO. 1

FLORIDA SOLITE COMPANY
GREEN COVE SPRINGS
FLORIDA

SUMMARY OF PARTICULATE MATTER EMISSION MEASUREMENTS

NO. 1 KILN

FLORIDA SOLITE CORPORATION
GREEN COVE SPRINGS, FLORIDA

SEPTEMBER 20, 1983

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

SHOLTES & KOOGLER

TABLE 1

SUMMARY OF
PARTICULATE MATTER EMISSION MEASUREMENTS

NO. 1 KILN SCRUBBER OUTLET

FLORIDA SOLITE CORPORATION
GREEN COVE SPRINGS, FLORIDA

SEPTEMBER 20, 1983

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	7.0	15112	158	12.7	0.0632	8.21
2	7.0	14987	168	14.2	0.0807	10.40
Average	7.0	15050	163	13.5	0.0720	9.31

Allowable particulate matter emission rate (Chapter 17-2, Florida Administrative Code) = 12.0 lbs/hr.

NOTE: Run 3 was voided because the filter was destroyed during analysis. The average emission rate from Runs 1 and 2 is less than 80 percent of the allowable emission rate; less than 0.8 x 12 = 9.60 lb/hr.

ATTACHMENT 2

SEPTEMBER 1983 PARTICULATE MATTER EMISSION
TEST REPORT FOR KILN NO. 1

FLORIDA SOLITE COMPANY

(Complete Report Is In FDER Files)

ATTACHMENT 3

SULFUR DIOXIDE ABSORPTION TEST DATA

FLORIDA SOLITE COMPANY

AN ANALYSIS OF THE POTENTIAL INTERACTIONS OF SULFUR DIOXIDE DURING COMPLIANCE TESTING AND THE SUBSEQUENT EFFECT ON RESULTS REPORTED

FLORIDA SOLITE CORPORATION

DECEMBER 11, 1974

Supplement to Report Prepared by
Environmental Science and Engineering, Inc.
Submitted on November 15, 1974

Report Prepared by:

H. S. Oglesby, Associate

SHOLTES & KOOGLER
ENVIRONMENTAL CONSULTANTS
1511 N. W. 6th STREET
GAINESVILLE, FLORIDA 32601

SHOLTES & KOOGLER

3.0 DISCUSSION

A comparative analysis of the results of the particulate emissions tests for kiln No. 5 and kilns No. 1 and No. 2 revealed no significant differences, discounting the particulate emission rates, except for the moisture content of the stack gases. During the test on kiln No. 5, the moisture content of the stack gases was much higher than during the tests on kilns No. 1 and No. 2.

The stack gases leaving the Solite kilns also contain a significant amount of sulfur dioxide (SO_2). Table 3 lists the results of an SO_2 emissions test on the No. 2 kiln. This table shows that a major fraction of the total gaseous SO_2 in the stack gas is being removed by a process not designed to remove SO_2, since the control device is only designed for particulate removal. There is evidence to support the phenomena that SO_2, in the presence of particulate matter, can be absorbed on the particulate to form a complex. High moisture content enhances the interaction. Further, studies on various filter media have shown that glass fiber filters possess the ability to absorb significant amounts of SO_2 and the degree of absorption is directly related to the moisture content of the gas. Reference is made to the articles and excerpts contained in the appendix. The alkaline nature of the particulate in the gas stream and lodged on the particulate filter might also influence SO_2-particulate matter interactions.

Due to the SO_2 and particulate matter content of the stack gases, and in consideration of varying moisture content (and gas temperature) for the different emission tests, an interference or conversion reaction occurred in the filter (or thimble), on the miniature filter bed (formed by impaction of particulate matter on the filter), or between the kiln gases and entrained particulate as they pass through the multiple tube collector system.

In consideration of the above phenomena, an attempt was made to correlate mass emission rate and filter catch weight with percent moisture in the stack gas. A linear regression analysis was performed on the available data. Figures 1 and 2 and Tables 1 and 2 show the results of the regression analyses. The analyses indicate good correlation in both cases.

In conclusion, it appears several SO_2 scavenging mechanisms are active in the gas stream and within the control device. This, in turn, leads to the apparent excessive particulate emission rates obtained during the testing of Solite kiln No. 5.

TABLE 3

SUMMARY OF SULFUR DIOXIDE EMISSIONS

Stack Designation	Inlet	Inlet	Outlet	Outlet
Run Number	1	2	1	2
Date	3/29/73	3/29/73	3/29/73	3/29/73
Gas Flow Rate, S.T.P.*, SCFM	11642	11119	11642	11119
Sulfur Dioxide Emissions, lbs/hr	120.6	121.1	61.0	67.0
Removal Efficiency, %	NA	NA	49.4	44.7

S.T.P. - dry, 70°F, 29.92 in. Hg

ATTACHMENT 4

EPA TEST REPORT ON NO. 5 KILN

FLORIDA SOLITE COMPANY

(Complete Report is in FDER Files)

EVALUATION OF HAZARDOUS WASTE INCINERATION IN AGGREGATE KILNS AT FLORIDA SOLITE CORPORATION

Authors

D. R. Day
L. A. Cox

EPA Technical Project Monitor

R. E. Mournighan

Prepared for

Incineration Research Branch
Industrial Environmental Research Laboratory
U.S. Environmental Protection Agency
Cincinnati, Ohio 45268

Technical Services Contract 68-03-3025
Work Directive SDM-06

Date Prepared: July 15, 1983

MONSANTO RESEARCH CORPORATION
DAYTON LABORATORY
Dayton, Ohio 45407

TABLE 4-2. PARTICULATE AND HCl STACK GAS CONCENTRATIONS

Run number	Sample duration, min	Sample volume		Particulate concentration		Particulate emissions rate		HCl concentration, ppm	HCl emissions rate		Percent isokinetic
		dncm	dscf	mg dncm	grams dscf	kg/hr	lb/hr		kg/hr	lb/hr	
1	70	1.41	49.0	162.6	0.071	4.4	9.7	0.45[a]	0.024[a]	0.052[a]	93.6
2	NA[b]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3	60	1.05	37.1	233.6	0.102	5.8	12.7	0.15	0.008	0.017	91.6
4	60	1.06	37.5	272.5	0.119	6.5	14.4	0.68	0.034	0.076	94.5
5	60	1.04	36.7	190.1	0.083	4.5	10.0	0.54	0.027	0.060	93.0

[a]Average of two values.

[b]NA - data not available; EPA Method 5 run was not made.

BEST AVAILABLE COPY

WORK/E-9

TABLE 4-5. SULFUR DIOXIDE AND NITROGEN OXIDES STACK GAS CONCENTRATIONS

Run number	SO_2 emissions rate kg/hr	SO_2 emissions rate lb/hr	SO_2 concentration mg/m^3	SO_2 concentration ppm	NO_x emissions rate kg/hr	NO_x emissions rate lb/hr	NO_x concentration mg/m^3	NO_x concentration ppm
1A	19.2	42.3	717	269.6	8.5	18.7	312.6	164.2
1B	73.2	161.2	2,731	1,026	11.7	25.8	431.2	227.0
2A	99.6	219.4	3,924	1,474	10.9	24.1	426.4	224.6
2B	88.0	193.8	3,466	1,302	3.5	7.8	136.3	72.2
3A	-[a]	-[a]	-[a]	-[a]	1.9[b]	4.1[b]	75.3[b]	39.5[b]
3B	-[a]	-[a]	-[a]	-[a]	-[b]	-[b]	-[b]	-[b]
4A	75.3	165.8	3,173	1,192	6.5	14.4	272.5	143.7
4B	77.8	171.4	3,290	1,236	7.7	17.0	322.2	169.6
5A	90.4	199.0	3,831	1,439	9.0	19.9	378.3	199.3
5B	72.2	159.1	3,008	1,130	9.7	21.4	405.6	213.6

[a] Plant down; no SO_2 runs made on Day 3.

[b] Plant down in morning; only 1 NO_x run made on Day 3.

TABLE 4-14. CLAY FEED, AGGREGATE PRODUCT AND SCRUBBER INFLUENT CONDITIONS

Run number	Chlorine			Flow rate		
	Clay feed, µg/g	Aggregate product, µg/g	Scrubber influent, mg/L	Clay feed,[b] ton/hr	Aggregate product,[b] ton/hr	Scrubber influent, gal/min
1	ND[a]	ND	56.8	13.5	10	143
2	ND	ND	101	13.5	10	143
3	ND	ND	54.8	13.5	10	143
4	ND	ND	58.4	13.5	10	143
5	ND	ND	86.3	13.5	10	143

[a]ND - not detected; detection limit = 50 µg/g.

[b]Values supplied by Florida Solite Corp.

ATTACHMENT 5

EPA DOCUMENT ON EMISSIONS OF NON-CRITERIA POLLUTANTS

(Complete Report is in FDER Library)

CCEA SPECIAL REPORT

EPA-450/2-80-074

Health Impacts, Emissions, and Emission Factors for Noncriteria Pollutants Subject to De Minimis Guidelines and Emitted from Stationary Conventional Combustion Processes

by

D.G. Ackerman, M.T. Haro, G. Richard,
A.M. Takata, P.J. Weller, D.J. Bean,
B.W. Cornaby, G.J. Mihlan, and S.E. Rogers

TRW Environmental Engineering Division
Redondo Beach, California

and

Battelle
Columbus Laboratories
Columbus, Ohio

Contract No 68-02-3138

EPA Project Officer: Wade Ponder

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Air, Noise, and Radiation
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

June 1980

TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

ATTACHMENT 6

TEST REPORT ON EMISSIONS OF HEAVY METALS
FROM KILN NO. 1

FLORIDA SOLITE COMPANY

SUMMARY OF PARTICULATE MATTER HYDROCARBONS, HEAVY METALS AND CHLORIDE EMISSION MEASUREMENTS

KILN NO. 1 AND NO. 5

FLORIDA SOLITE CORPORATION
GREEN COVE SPRINGS, FLORIDA

SEPTEMBER 2 AND 3, 1982

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

TABLE 2

EMISSION MEASUREMENTS
NO. 1 KILN

FLORIDA SOLITE CORPORATION
GREEN COVE SPRINGS, FLORIDA

SEPTEMBER 2, 1982

	Run 1			Run 2			Run 3			AVERAGE
	MG	GR/SCF	LBS/HR	MG	GR/SCF	LBS/HR	MG	GR/SCF	LBS/HR	LBS/HR
Particulate	431.7	0.1748	18.51	389.3	0.1831	18.69	371.1	0.1779	18.08	18.43
Arsenic	0.099	0.0001	0.01	0.010	0.0000	0.00	0.276	0.0001	0.01	0.01
Barium	0.316	0.0001	0.01	0.278	0.0001	0.01	0.263	0.0001	0.01	0.01
Cadmium	0.098	0.0001	0.01	0.080	0.0000	0.00	0.071	0.0000	0.00	0.003
Chromium	1.68	0.0007	0.07	0.444	0.0002	0.02	0.845	0.0004	0.04	0.04
Copper	3.64	0.0015	0.16	3.09	0.0015	0.15	2.91	0.0014	0.14	0.15
Lead	8.04	0.0033	0.34	7.09	0.0033	0.34	6.18	0.0030	0.30	0.33
Mercury	0.0016	0.0000	0.00	0.0015	0.0000	0.00	0.0017	0.0000	0.00	0.0
Zinc	4.31	0.0017	0.18	3.82	0.0018	0.18	3.48	0.0017	0.17	0.18
Chlorides	270.0	0.1093	11.58	221.9	0.1044	10.65	282.7	0.1355	13.77	12.0

MG - Milligrams
GR/SCF - Grains Per Standard Cubic Foot

ATTACHMENT 7

SOLITE SPECIFICATION FOR LIQUID BURNABLE MATERIAL

SOLITE CORPORATION

L.B.M. SPECIFICATIONS

TYPICAL WASTE MATERIALS WHICH MAY BE CONSIDERED FOR ENERGY RECOVERY

1. Natural or synthetic liquid flammable/ignitable organic compounds including dissolved resins and suspended solids and still bottoms from chemical recycling operations.

2. Flammable solids which can be melted or crushed.

3. Paint, ink or dye residues or dirty wash solvents including organic and inorganic pigments and dissolved resins.

4. Petroleum products such as gasoline, mineral spirits, waste oil or lubricants.

Unacceptable materials include inorganic compounds, organic cyanides, sulfides, lachramates or mercaptans. No PCB's, insecticides, pesticides, herbicides or poisonous, explosive, corrosive, reactive or radioactive materials will be considered.

A waste data sheet and representative sample must be submitted to our laboratory for testing.

Materials will be tested by American Society for Testing Materials (ASTM) or EPA methods at our EPA permitted facilities.

ATTACHMENT 8

DUCON SCRUBBER PERFORMANCE SPECIFICATION

FLORIDA SOLITE COMPANY

DUCON ENVIRONMENTAL TECHNOLOGY

A DIVISION OF THE DUCON COMPANY INCORPORATED

April 23, 1984

Mr. Thomas Purvis
Solite Corporation
P.O. Box 7211
Richmond, VA 23261

Subject: UW4 Scrubber
(Carter-Waters' Former Equipment)

Dear Mr. Purvis:

Although we do not have any actual operating data from the defunct Carter-Waters plant, we are fully confident that the equipment now in Solite's possession will perform as follows.

The Ducon Dynamic Scrubber Type UW4 normally operates at an efficiency in excess of 99%, with particulate in the 1-2 micron range. That efficiency can be maintained over a wide range of gas handling capacity, from 60 to 100% of design.

Very truly yours,

DUCON ENVIRONMENTAL TECHNOLOGY

Paul Hubbard

PH:CG

147 EAST SECOND STREET MINEOLA, NEW YORK 11501 TEL: 516 741-6100 TWX 510 222-9861

ATTACHMENT 1

THE DUCON COMPANY, INC.

147 EAST SECOND STREET

MINEOLA, NEW YORK

INSTALLATION, OPERATING & MAINTENANCE INSTRUCTIONS FOR DYNAMIC SCRUBBER TYPE UW-4, MODEL III

NUMBER OF UNITS One SIZE 108

CUSTOMER NAME Carters-Waters Corp.
Kansas City, Mo.

ULTIMATE CUSTOMER NAME Same As Above
Centerville, Iowa

CUSTOMER ORDER NO. 4898

DUCON CONTRACT NO. C74-074

DATE March 13, 1974

DESIGN DATA

DYNAMIC SCRUBBER TYPE UW-4, MODEL III

UNIT SIZE 108 NUMBER OF UNITS One

APPLICATION Clay Products

PLANT ELEVATION Sea Level ft. MSL

INLET GAS FLOW 55,000 ACFM, TEMPERATURE 875 °F

HUMIDITY .11 LBS. WATER/LB. DRY AIR

DENSITY .028 LBS./CU. FT.

INLET SUCTION 3.2 "WG @ Cond.

OUTLET GAS FLOW 32,022 ACFM, TEMPERATURE 160 °F

DENSITY .056 LBS./CU. FT.

FAN AND DRIVE SPECIFICATIONS:

FAN BHP 147.1 @ Std. / 109.8 @ Cond. FAN SPEED 626 RPM

MOTOR HP 150 MOTOR SPEED _____ RPM

SCRUBBING LIQUID REQUIREMENTS:

FAN INLET 64 GPM @ 18 PSIG

* FAN WHEEL 32 GPM @ 5 PSIG

HUMIDIFICATION SECTION INLET 100 GPM 30 PSIG

** MINIMUM SLUDGE OUTLET PIPE DIAMETER 8 INCHES

MINIMUM OUTLET STACK DIAMETER 54 1/4 I.D. INCHES

Note: Outlet stack diameter and side outlet manifold connecting ducts to be designed to suit a maximum outlet gas flow velocity of 2000 FPM.

*For type UW-4 units only.

**See Item (7) of Installation Section. Pipe diameter based on .07 PSI resistance per 100 ft. of pipe. For certain slurries prone to settling, plant experience should dictate minimum slurry velocity needed and pipe size.

REFERENCE DRAWINGS K-74074-1, W75-25-1, W75-25-2, W75-3, W75-4

S-3764

INSTALLATION

For the purpose of these instructions, the scrubbing liquid will be referred to as water. However, it should be noted that liquids other than water can be used with this unit.

FOUNDATION:

In designing the foundation for this unit, refer to column and/or support bracket loads as shown on certified dimensional drawings.

STRUCTURAL STEEL SUPPORT:

The structural steel support, when supplied, is normally shipped in bundles. Members should be layed out in approximately the order in which they are to be assembled, referring to the assembly drawings. All members should be located and identified before proceeding with erection.

SCRUBBER ASSEMBLY:

All units are assembled at the factory and match marked. Units above size 21 are shipped knocked down. Assemble the sections using the drawings of the scrubber as a guide. Be sure to line up flanges using match marks. Gaskets are to be installed inside bolt circles and not to be snaked between bolts.

INLET DUCT:

The inlet duct should slope downward toward scrubber. (See arrangement of inlet as shown on Drawing W75-3).

STACK:

Unless the outlet gas connection of scrubber is reinforced, the maximum permissible stack height is 12 ft. considering 3/16" thick plate for stack construction.

WATER SUPPLY PIPING:

The internal water supply piping is shipped installed within the scrubber. When designing the supply piping, provisions should be made to insure that it is possible to drain all the piping. A gate valve should be installed in each supply line as a shut-off for the scrubber water. Cock valves in each branch line should be used as regulating valves. 1/4" needle valves should be connected between the gauges and the piping to act as shut-off valves for the removal of gauges. If wide fluctuations in line pressure are anticipated, a pressure regulator should be installed in the supply line.

SLURRY PIPING:

The slurry piping should provide free drainage of the slurry to a settling pond, tailing area thickner or recirculating tank by gravity. If it is necessary to pump the slurry away from the scrubber, it is imperative that a surge tank be placed between the scrubber outlet and the pump suction line. The suction line should be located approximately twelve inches (12") below the normal liquid level. "U" traps are not to be used.

RECIRCULATING TANK (IF APPLICABLE):

Recirculating (or recycle) tanks are necessary and installed in some scrubber applications. The purpose of this tank, whether integral or separate, is to provide a reservoir for recirculating of the scrubbing water. Refer to the attached drawing W75-1 for recommended piping, pumps and controls.

Recycle tanks are usually supplied with a simple float level control and make-up water solenoid valve. The recycle water can be drawn off either continuously or in batches when the required concentration is reached. Recycle water is also continually lost due to evaporation. The level control maintains a constant water level by actuating the solenoid valve on the make-up water supply line when required.

On certain applications a float type level control as described above is not recommended or supplied. The accepted practice has been to

add the required fresh water make-up to the scrubber fan which will equal that which is drawn off continuously to the process plus the evaporative loss.

The maximum allowable suspended solids content is varied depending upon the application of the unit. This value is shown on the assembly drawing.

FAN INSTALLATION:

Check bearing alignments and be sure that there is adequate clearance between the shaft and the fan housing. Check drive alignments and belt tension.

When installing the motor, there should be no more than 0.005" clearance between the motor pads and the rails before tightening down on the bolts. This is to prevent frame distortion which can cause excessive motor vibration.

OPERATION

CAPACITY:

This scrubber has been selected for a certain gas capacity or range of capacity based on outlet gas conditions as stipulated on the Design Data Sheet Page 1 of these instructions. Most satisfactory operation is obtained within this range.

Each unit incorporates a heavy paddle wheel fan with a selected speed to give the required gas flow against a specified system resistance. Should the total external static pressure be lower than that stipulated in the Design Data Sheet, it will be necessary to impose resistance by means of a damper in the duct system or to decrease fan speed. It is recommended that a damper be used to impose this required additional resistance. Any well designed duct system should have a damper installed.

If this is not done, the fan motor will be overloaded, and the maximum scrubber gas flow may be exceeded.

If the total external static pressure is higher than that stated in the Design Data Sheet, the required scrubber gas flow will not be reached and it may be necessary to increase the fan speed.

The Dynamic Scrubber can operate at a substantial reduction in gas flow without a marked decrease in efficiency due to its constant speed wet fan. However, peak efficiency is obtained at design flows. Should sustained low gas flow operation be required, it is recommended that provision be made for bleeding atmospheric air into the system at the scrubber inlet. This will allow the scrubber to handle the desired design gas flow while handling a reduced flow in the system.

If it is anticipated that the scrubber will operate above the stated design flow it is required that this be checked with The Ducon Company as there is a definite maximum scrubber capacity.

PRE-START UP:

Do not run the unit prior to the connection of the complete duct work system. This precaution is necessary to prevent overloading of the fan motor.

Remove all spray nozzles and thoroughly flush out all water piping for at least 20 minutes at full line pressure. This precaution is necessary to clean welding slag and thrash from the piping system.

Conduct a thorough inspection of the interior of the unit making sure of the following items:

After Water Piping has been cleared, replace the spray nozzles with proper orientation as per the drawing provided.

That Orifice Plates in the internal cone discharge are in place.

The internal sections of the scrubber are free from debris.

Pump motor to check for proper fan rotation. The lower edge of fan wheel should move toward the scrubber shell.

Fully open main water supply valve. Set spray nozzle pressure to that stated on Design Data Sheet by adjusting the branch line cock valves. Once desired pressure is established, these valves need not be touched since the main supply valve will be used to turn on or turn off the water supply.

If unit has been shut down for a lengthy period, check bearing grease; and renew to proper level.

START-UP PROCEDURE:

Normally, the scrubber water supply and fan motor should be turned on simultaneously or as close together as is practical. On high temperature applications the scrubbing water should be turned on first since this provides the required cooling. Where lined and/or solid plastic or similar scrubber construction is supplied, there is usually a definite temperature limitation. Cooling water should be turned on before high temperature gases are introduced. (See Design Data Sheet for maximum temperature limitations if applicable). Where the start-up gas temperature is not high enough to prevent freeze-up, it is recommended that the water not be introduced until the gases are at a high enough temperature to eliminate this problem. The period of operation without liquid should, of course, be as short as possible.

Partial closure of the damper may be required to prevent overloading the motor during this period.

OPERATING SCRUBBER:

It is important that the required water rate be maintained to the scrubber. This can be assured by maintaining the specified readings on the pressure gauges. In instances where supply line pressure fluctuates to a large degree, a pressure regulator may be required. The Dynamic Wet Fan has been designed to handle a specific water quantity. Additional fan water rates above design specifications will result in higher BHP requirements and could overload the motor. Fan Water rates below design specifications will reduce scrubber performance.

In some cases recirculated water may become acidic. Once this condition is established in the scrubbing water, it should be closely watched and proper control maintained. If necessary, a basic chemical should be added in order to approach a PH of between 7 and 9.

SHUTTING SCRUBBER DOWN:

The scrubbing water and the fan should be turned off simultaneously. When units are exposed to the outside air the unit should immediately be drained.

During any lengthy shut-down, it is recommended that the fan wheel be rotated manually several complete revolutions periodically so as to prolong bearing life.

MAINTENANCE

INSPECTION AND INITIAL MAINTENANCE:

Re-tighten all flange bolts after 48 hours of continuous operation and again after two weeks of continuous operation.

Frequent inspection is recommended, especially during the first week of operation. An inspection and cleaning schedule should be based on actual operating experience and necessity. The inside of the collector must be kept free of accumulation which may impair operation.

An early estimate should be made of corrosive and abrasive wear so that replacement can be provided for worn parts or corrective measures be taken.

Specifically check spray nozzles for plugging or signs of wear, if recirculated water is used. Plugging of nozzles can result in an inadequate water supply even at specified gauge pressures. Worn nozzles can cause excessive water rates and higher BHP requirements.

It is advisable to paint the inside of carbon steel scrubbers at least once a year, or sooner, depending upon condition. Apply one coat of rest-resistant primer and a top coat of high quality paint.

LUBRICATION:

Item	Location	Recommended Lubricant
a	Electric Motors	Follow Manufacturer's Recommendations.
b	Fan Wheel Shaft Bearings	For normal operating temperature a good grade of general purpose grease should be used. All grease shall be free from excessive dirt, abrasive matter, fillers, excessive amount of moisture, free acid or free alkali. The grease should be satisfactory for operating temperatures which may vary from minus 40°F to 250°F. When lubricating the bearings ⅓ to ½ of the volume of the housing should be filled, an over supply would only result in churning and a breakdown of the lubricant. For operating temperatures over 175° consult The Ducon Co. or the bearing manufacturer for lubrication specifications. Practice should dictate the lubricating intervals. In any case bearings should be cleaned of all old grease and repacked at least once a year.
c	Door Hinges, Pins, Eyebolts, Nuts and Inspection Doors, Etc.	Coat lightly with grease for easy opening of doors and maximum protection of threads.
d	*Float Level Control Linkage	Grease or Oil Lightly

*Only on units equipped with a Ducon Liquid Recycle Tank.

RECOMMENDED SPARE PARTS:

Fan wheel with shaft. (This item is custom fabricated. Delivery is approximately 5 to 6 weeks.)

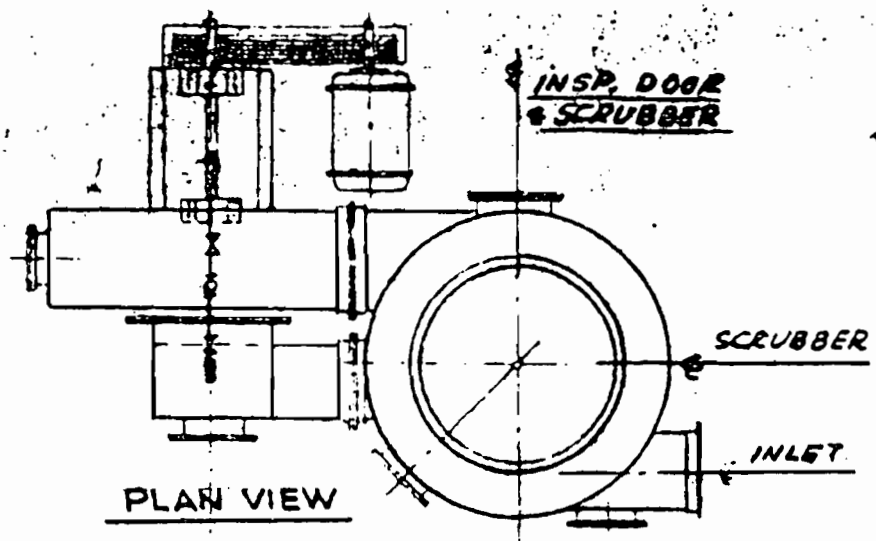
1 set of fan shaft bearings, (one held, one free).

1 full set scrubber spray nozzles.

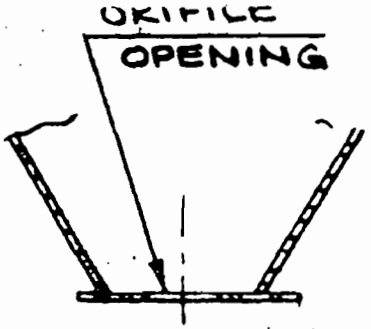
1 set V-belts. (Could be obtained direct from supplier)

When ordering spare parts, specify item number, assembly drawing number and Ducon Contract Serial Number.

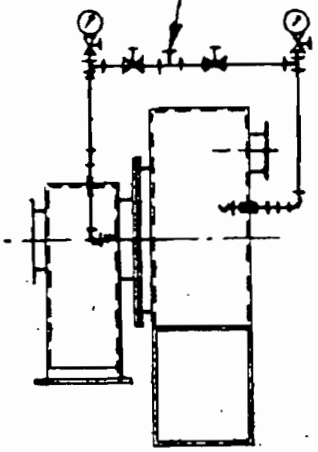
BEST AVAILABLE COPY



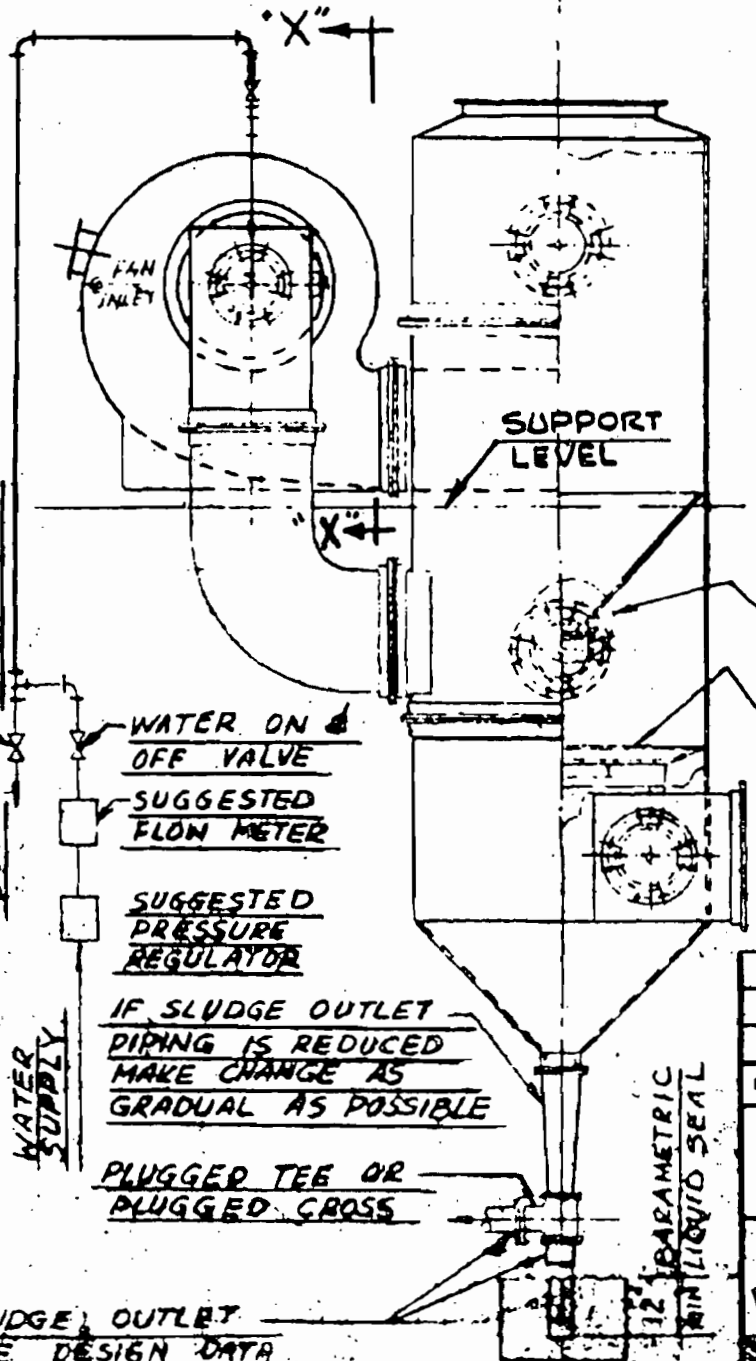
PLAN VIEW



DETAIL "A"



VIEW "X"-"X"



ELEVATION

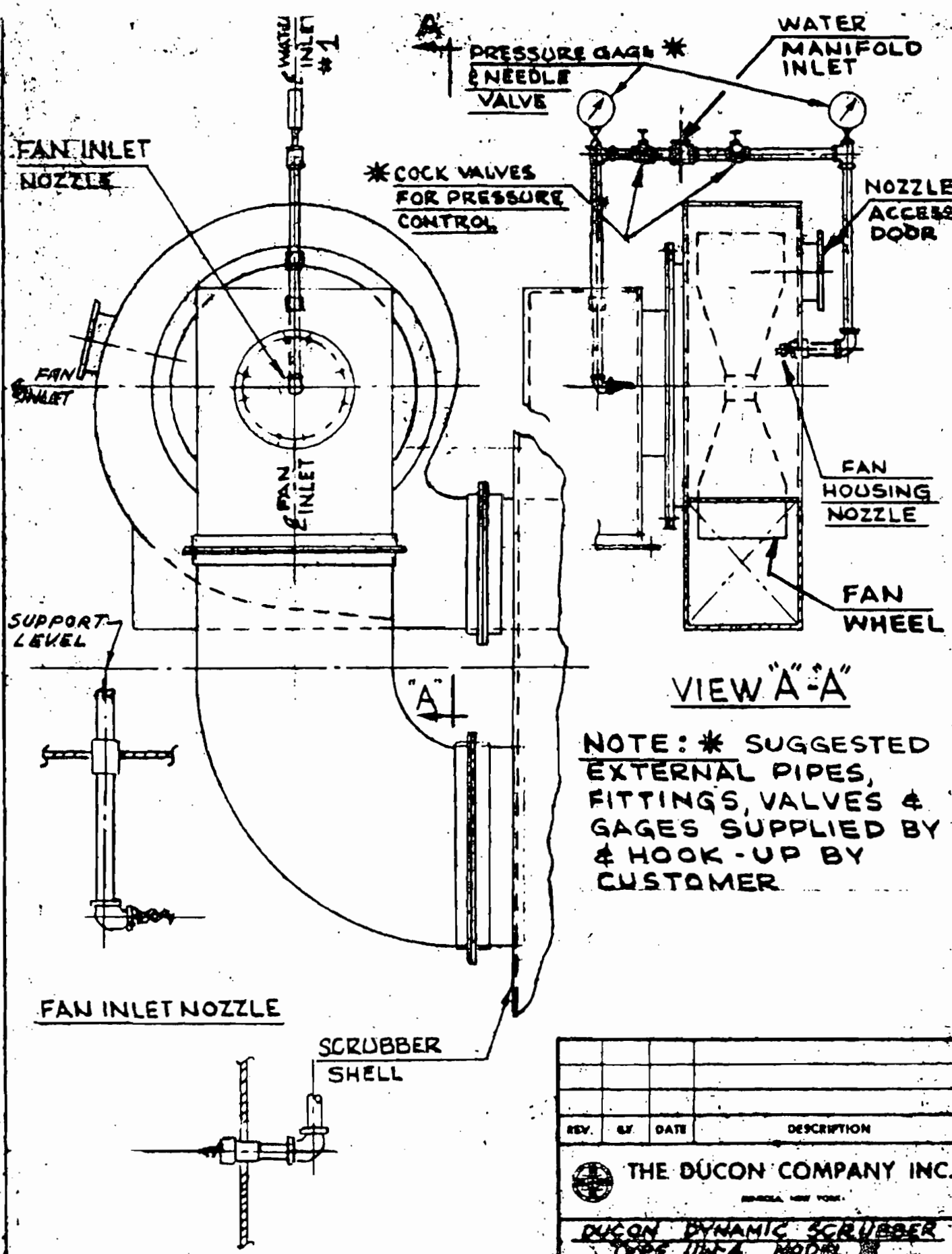
REV.	BY	DATE	DESCRIPTION

THE DUCON COMPANY INC.
BETHPAGE, NEW YORK

DUCON DYNAMIC SCRUBBER
TYPE VM-4 NO. 3
WATER PIPING DIAGRAM FOR FAN INLET AND FAN WHEEL NOZZLES

DRAWN H.R.B 8-18-71	W-75-25-1	REV.
TRACED		

BEST AVAILABLE COPY



REV.	BY	DATE	DESCRIPTION

THE DUCON COMPANY INC.

DUCON DYNAMIC SCRUBBER
TYPE UH-4 MODEL
WATER PIPING DIAGRAM FOR FAN INLET AND FAN WHEEL NOZZLES

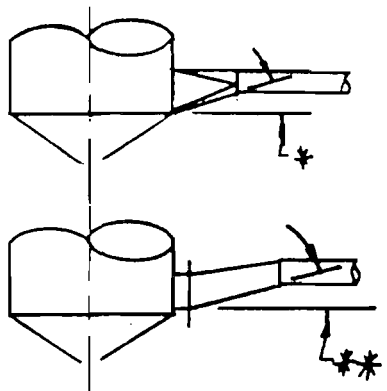
DR. BY H.R. 8-18-71
SCALE NONE

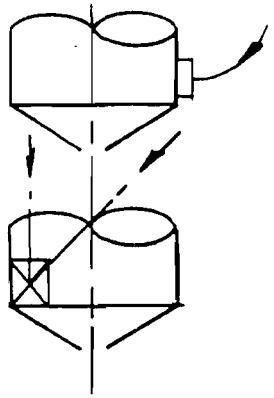
W-75-25-2

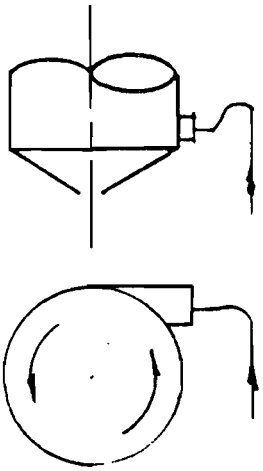
REV.

INLET DUCT INSTALLATION

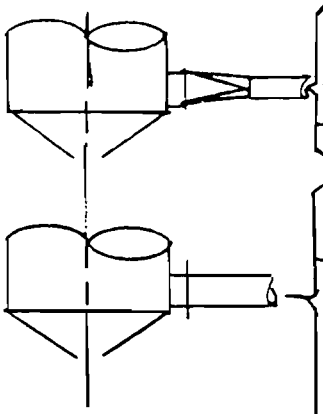
PREFERRED ARRGT.





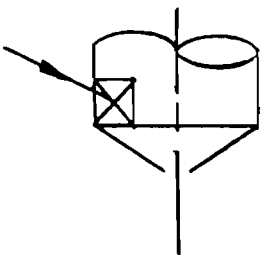


NOT RECOMMENDED

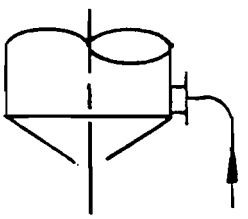


RECTANGULAR TO ROUND TRANSITIONS * 25° MIN. ANGLE

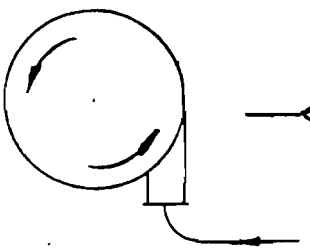
RECTANGULAR TO RECTANGULAR TRANSITION ** 15° MIN. ANGLE SLOPE LENGTH EQUIVALENT TO 1/2 HIGHT OF INLET



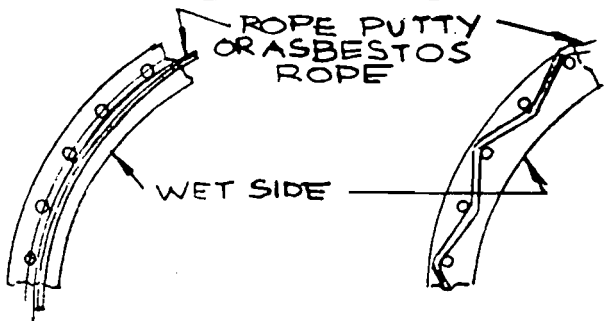
VERTICAL OR INCLINED DOWNCOMER



VERTICAL RISER



IF ELBOW REQUIRED JUST BEFORE SCRUBBER



USE THIS METHOD NOT THIS METHOD

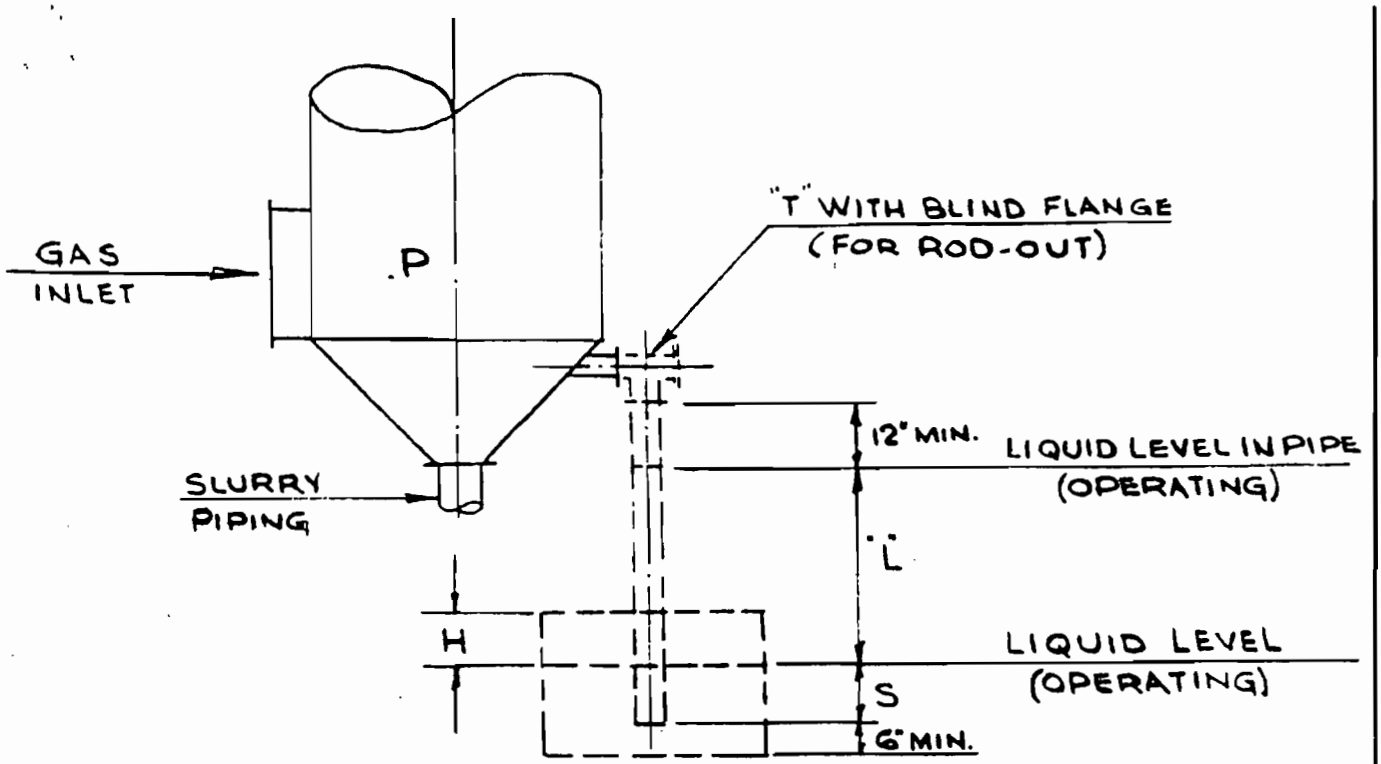
GASKET INSTALLATION

REV.	BY	DATE	DESCRIPTION

THE DUCON COMPANY INC.
MINEOLA, NEW YORK

DUCON DYNAMIC SCRUBBER
INLET DUCT AND GASKET INSTALLATION

DR. BY JD. 8/1/66	W-75-3	REV.
SCALE NONE		



NOTE:

DO NOT ATTACH OVERFLOW TO SLURRY PIPING

NOTE:

* P = PRESSURE AT SCRUBBER INLET

IF "P" IS NEGATIVE

L = P (IN IN. W.G.)

H = HEIGHT REQUIRED SO THAT VOLUME ABOVE LIQUID LEVEL IS EQUAL TO VOLUME IN OVERFLOW PIPE FOR HEIGHT OF "L" PLUS 6"

S = 12"

IF "P" IS POSITIVE

L = 0

S = P (IN IN. W.G.) + 12"

H = HEIGHT REQUIRED SO THAT VOLUME ABOVE LIQUID LEVEL IS EQUAL TO VOLUME IN OVERFLOW PIPE FOR HEIGHT OF "S" PLUS 6"

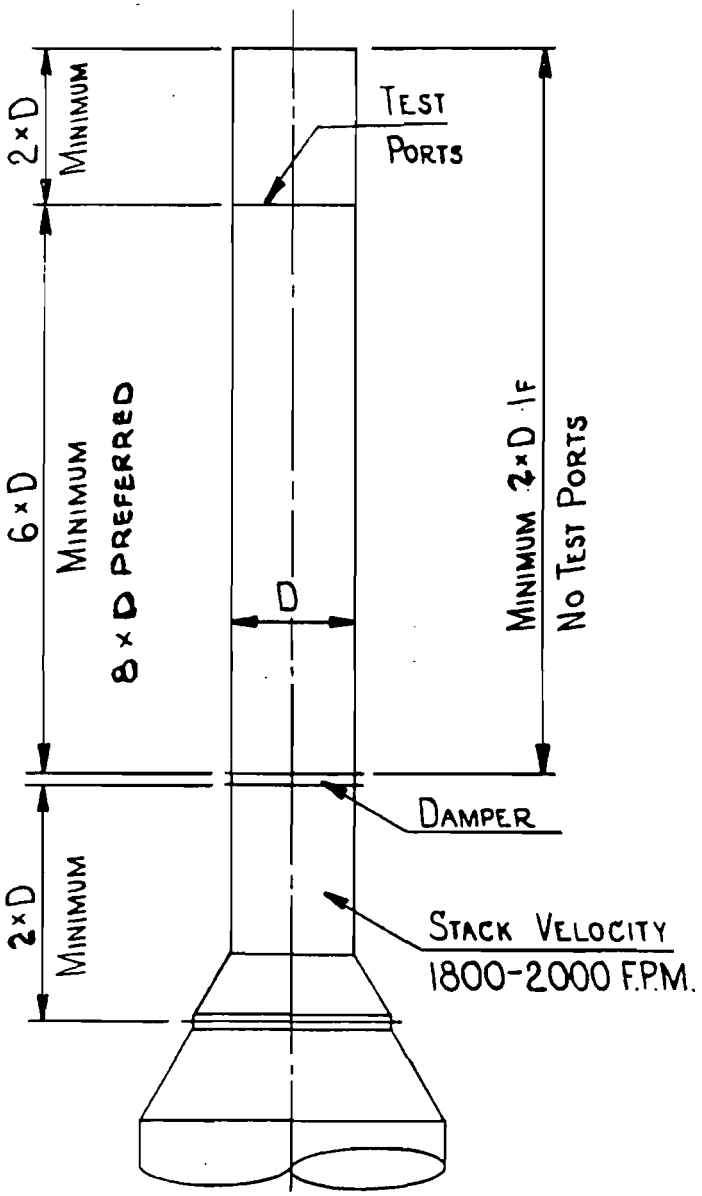
* FOR VENTURI SCRUBBERS P = PRESSURE AT SEPARATOR INLET.

REV.	BY	DATE	DESCRIPTION

THE DUCON COMPANY INC.
MINEOLA, NEW YORK

SUGGESTED ARRANGEMENT
FOR
EMERGENCY OVERFLOW PIPING

DR. BY FWG	W-75-4	REV.
SCALE		



NOTES:

ALTERNATE DAMPER LOCATION UP STREAM OF SCRUBBER INLET, BUT CARE SHOULD BE TAKEN ON ABRASION, DUST BUILDUP AND TEMPERATURE IN THIS AREA.

CONTACT DUCON IF ADDITIONAL INFORMATION IS REQUIRED.

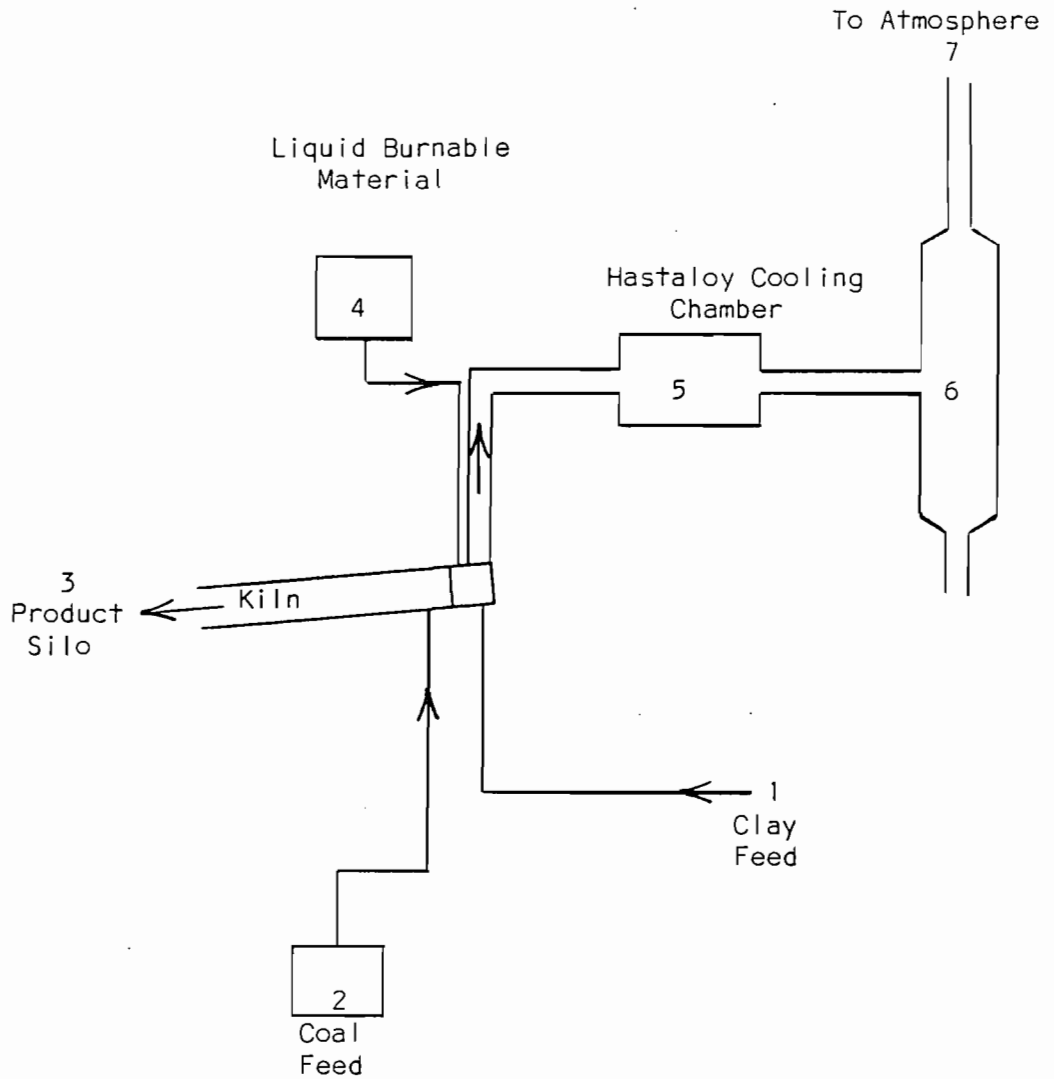
REV.	BY	DATE	DESCRIPTION

THE DUCON COMPANY INC.
MINEOLA, NEW YORK

SUGGESTED STACK DAMPER LOCATION FOR UW-3 & UW-4 DYNAMIC GAS SCRUBBERS

DR. BY M. FITZGERALD	S-3764	REV.
SCALE NONE		

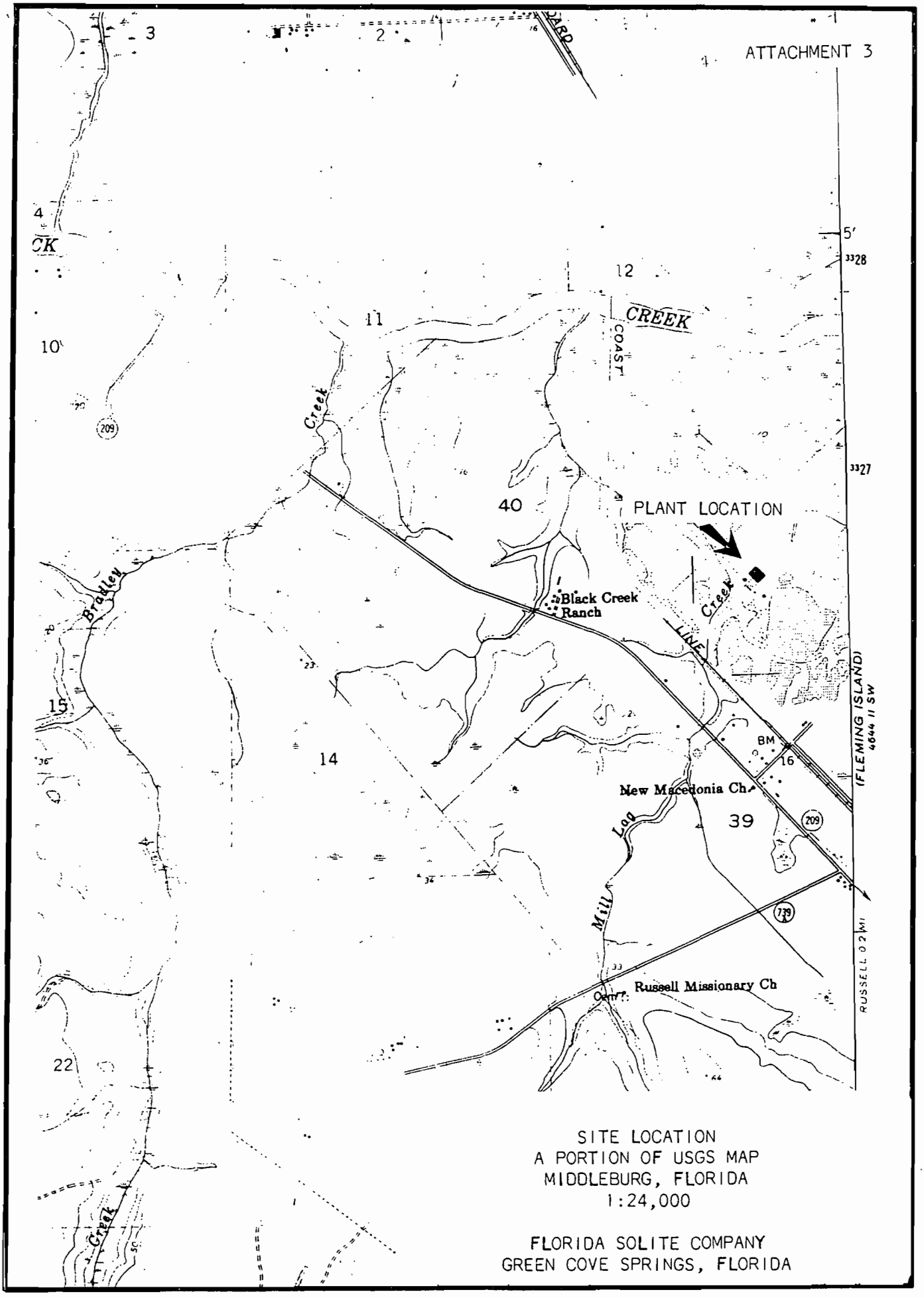
ATTACHMENT 2



PROCESS FLOW DIAGRAM
NO. 1 KILN

FLORIDA SOLITE COMPANY
GREEN COVE SPRINGS, FLORIDA

BEST AVAILABLE COPY

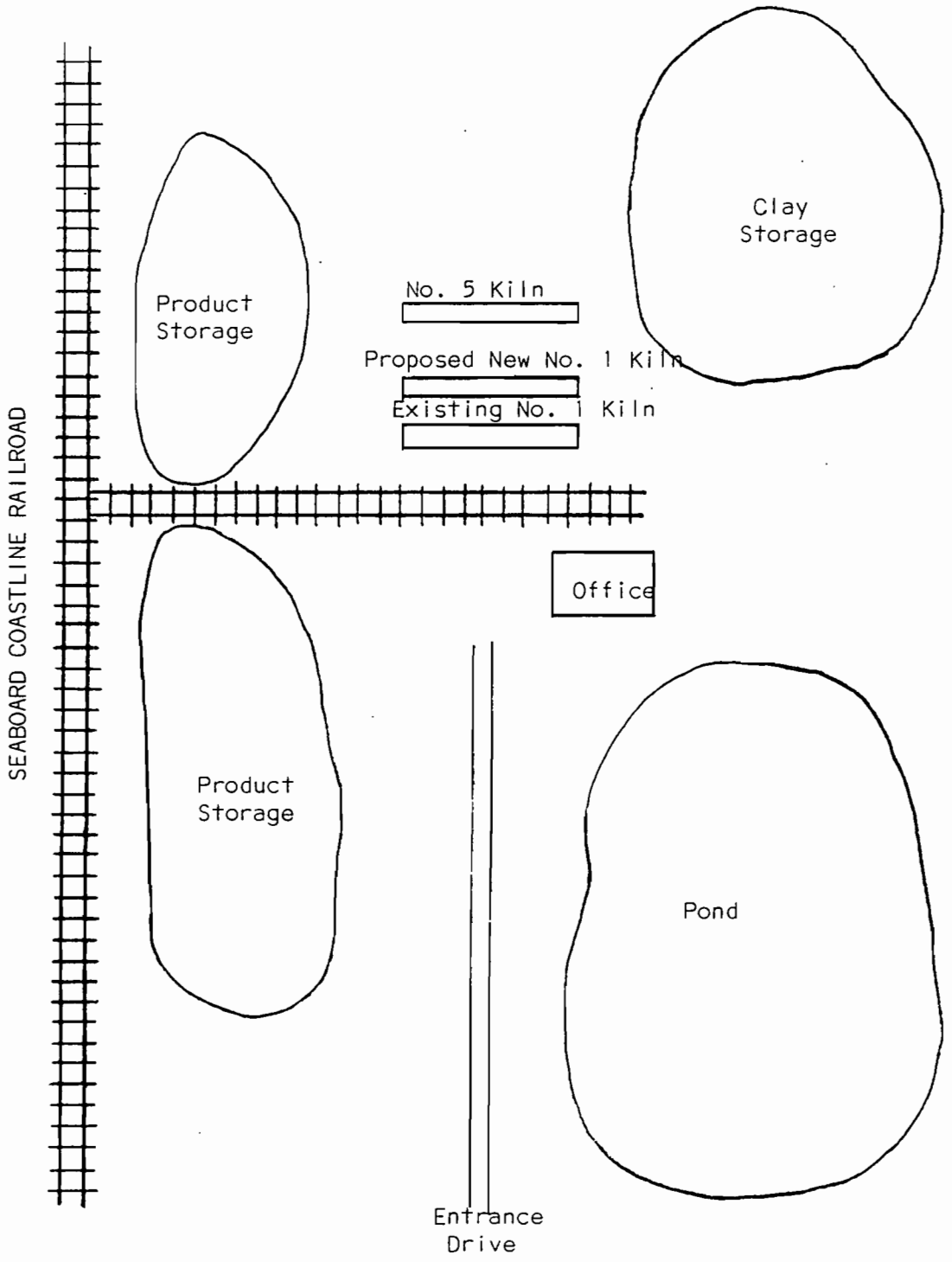


SITE LOCATION
A PORTION OF USGS MAP
MIDDLEBURG, FLORIDA
1:24,000

FLORIDA SOLITE COMPANY
GREEN COVE SPRINGS, FLORIDA

SHOLTES & KOOGLER

ATTACHMENT 4



PLOT PLAN
FLORIDA SOLITE COMPANY
GREEN COVE SPRINGS, FLORIDA

SHOLTES & KOOGLER

ATTACHMENT 5

TYPICAL ANALYSIS OF LIQUID BURNABLE MATERIAL

BTU/gallon - 50,000 - 135,000 - 96,000

Ash	0 - 25% - 8%
Water	0 - 50% - 15%
Cl_2	0 - 10% - 1.5%

Metals (ppm)

Barium	0 - 500 - 150
Chromium	0 - 300 - 150
Lead	0 - 250 - 100

Petroleum Products - 10%

Ketones, alcohols, aromatics & aliphatics - 45%

Organic resins, paint & other coating solids dissolved or suspended - 45%

FLORIDA SOLITE COMPANY
GREEN COVE SPRINGS, FLORIDA

FEBRUARY 28, 1984

ATTACHMENT 6

SOLITE CORPORATION

COAL SPECIFICATIONS

Btu/lb., minimum	12,000
Moisture, maximum	10%
Ash, maximum	12%
Volatile, minimum	32%
Sulfur, Requested Range 2.0 - 2.5% with a Maximum of 3%	
Fusion Temperature, initial, maximum	2200°
Hargrove Grindability Index No., maximum	55

No. 0158264

RECEIPT FOR CERTIFIED MAIL

**NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL**

(See Reverse)

SENT TO
Mr. John Kuiken

STREET AND NO.

P.O., STATE AND ZIP CODE

POSTAGE			$
CONSULT POSTMASTER FOR FEES — OPTIONAL SERVICES	CERTIFIED FEE		¢
	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

4/12/84

PS Form 3800, Apr. 1976

PS Form 3811, Jan. 1979

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.)
   - ☑ 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. John Kuiken
P.O. Box 297
Green Cove Springs, FL 32043

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.
	0158264	

(Always obtain signature of addressee or agent)

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

4. DATE OF DELIVERY — POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE:

GREEN COVE SPRINGS FL APR 13 1984 CLERK INITIALS USFO

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

☆GPO : 1979-300-459

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 11, 1984

Mr. John Kuiken, Plant Manager
Florida Solite Company
P. O. Box 297
Green Cove Springs, Florida 32043

Dear Mr. Kuiken:

The Department has made a preliminary review of your application for permit to construct an aggregrate kiln at Florida Solite Company's Green Cove Spring plant. Before the application can be processed, the Department will need the items and information listed below.

1. A permit processing fee of $1000 for a source with more than 100 TPY potential emissions of an air pollutant. The check should be made payable to the Department of Environmental Regulation.

2. What were the permitted and actual production rates and the permitted and actual emissions of particulate matter, sulfur dioxide, nitrogen oxides, fluoride, lead, and mercury from the existing kiln that is being replaced? Please provide data or explain the basis used to determine the actual emissions. When was this kiln shut down?

3. What are the potential emissions of criteria and noncriteria pollutants in TPY from kiln No. 5 and any other sources of air pollution that are still in use at this plant site.

4. How will the clay input rate to the kiln be controlled and measured? How accurate are these measurements?

5. Please provide a sketch of all accessory equipment (conveyors, storage, etc.) associated with the proposed kiln. Explain what precautions will be taken to minimize fugitive particulate matter and volatile organic compounds emissions and estimate the quantity of fugitive emissions.

6. What is the operating temperature of the kiln? How is the kiln temperature measured and controlled?

7. Is the kiln ever fired with 100 percent liquid burnable material (LBM) or 100 percent coal? What is the normal ratio of heat inputs of the fuels? How are the rates measured and controlled?

8. When the two fuels are used concurrently, what is the maximum total heat input to the kiln?

9. What are the sources of the LBM? Does this material meet the definition of "Hazardous Waste Fuel" as described in 40 CFR Part 266?

10. Does the LBM contain pesticides, PCB's, cyanides, sulfide, mercaptans, electroplating waste or metal finishing waste?

11. What is the maximum quantity of LBM that will be burned in the proposed kiln during any year?

12. Is the proposed scrubber a new unit designed and built to control the proposed kiln? If so, please provide a guarantee from it manufacturer showing its efficiency and that it will meet the emission standards proposed in the application.

13. If the proposed scrubber is a used unit, please provide a guarantee as requested above or a technical evaluation showing the scrubber can meet the required efficiency (98.2 percent) needed to meet the proposed standards.

14. Please estimate the maximum potential emissions in TPY of fluoride, lead, hydrogen chloride, and mercury from the proposed scrubber.

15. Please furnish a copy of the 1972 test report that concluded that 65 percent of the potential sulfur dioxide emissions were absorbed.

16. What is the source of the scrubber water and will it be recycled or treated?

17. Will a bypass stack be installed around the scrubber?

18. Will the stack testing facilities (platform, access, etc.) meet the minimum specifications listed in Rule 17-2.700(4)(c), FAC?

19. What will be done to prevent cyclonic flow in the stack?

If you have any questions about the information requested, please write me or call Willard Hanks at (904)488-1344. We will resume processing your application as soon as you furnish the requested material.

Sincerely,

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

CHF/WH/s

cc: Johnny Cole
John Koogler

APPENDIX A

FLORIDA SOLITE® CORPORATION

P. O. BOX 297 • GREEN COVE SPRINGS • FLORIDA 32043 AREA CODE 904 284-9271

March 15, 1984

DER
MAR 16 1984
BAQM

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

Attention: Mr. Clair Fancy

Dear Mr. Fancy:

Please find enclosed four (4) copies of the construction permit for the new #1 kiln at Florida Solite in Green Cove Springs, Florida.

If you have any further questions please do not hesitate to call me.

Sincerely,

J. M. Kuiken

John M. Kuiken
Plant Manager

BEST AVAILABLE COPY

P.O. BOX 27211
RICHMOND, VA. 23261

No. 29324

INVOICE NUMBER	GROSS AMOUNT	NET AMOUNT	INVOICE NUMBER	GROSS AMOUNT	NET AMOUNT
7703	1000.00	1,000.00			

FLORIDA SOLITE COMPANY

FORM 335.1

ATTACHED CHECK IS TENDERED IN FULL PAYMENT OF ALL INVOICES AS LISTED
PLEASE DETACH BEFORE DEPOSITING

P.O. BOX 27211
RICHMOND, VA. 23261

No. 29324

FLORIDA SOLITE COMPANY

MO.	DAY	YEAR
5	15	84

PAY $*******1,000 00***

PAY TO ORDER OF
STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FL 32301-8241

[redacted]CHANTS NATIONAL BANK

AUTHORIZED SIGNATURE

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

No 70029

RECEIPT FOR APPLICATION FEES AND MISCELLANEOUS REVENUE

Received from Florida Solite Company Date May 16, 1984

Address P.O. Box 27211, Richmond, VA 23261 Dollars $ 1,000.00

Applicant Name & Address same as above

Source of Revenue

Revenue Code 001001 Application Number AC 10-44168

By Patricia G. Adams

BEST AVAILABLE COPY

AC 10-84168

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

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

DER
MAR 16 1984
3/6/84 BAQM

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

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Aggregate Kiln [X] New[1] [ ] Existing[1]

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

COMPANY NAME: Florida Solite Co. COUNTY: Clay

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) No. 1 Kiln

SOURCE LOCATION: Street SR 200 A North of Green Cove Springs City Green Cove Springs

UTM: East 427,400 North 3326500

Latitude 30 ° 4 ' 9 "N Longitude 81 ° 45 ' 11 "W

APPLICANT NAME AND TITLE: Mr. John Kuiken, Plant Manager

APPLICANT ADDRESS: Post Office Box 297, Green Cove Springs, Florida 32043

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Florida Solite 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 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: John Kuiken

John Kuiken, Plant Manager
Name and Title (Please Type)

Date: 3/14/84 Telephone No. (904)284-9271

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)

Florida Registration No. 12925 Date: 3/8/84 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.

See Attached Page 2a

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

Start of Construction April 1984 Completion of Construction May 15, 1984

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.)

Ducon Scrubber, Fan and Ductwork $100,000.00

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

AO10-72240 Issued 11/1/83; expires 11/1/88

SECTION II: GENERAL PROJECT INFORMATION

A. A new rotary kiln is being constructed to replace an existing kiln of similar capacity. The kiln, which will be fired with coal or spent solvents, will be used to produce an expanded light-weight aggregate for the construction industry. The production rate of aggregate will be 7.0 tons per hour.

Particulate matter emissions from the kiln will be controlled with a Ducon UW4, Model III, Size 108 Scrubber. The system will be in full compliance with all applicable emission regulations.

All emission increases are offset by identical emission decreases resulting from the shut-down of the existing No. 1 kiln.

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)

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

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

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

   c. If yes, list non-attainment pollutants.

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

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

4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? NO

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

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

   a. If yes, for what pollutants?_____

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

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

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		
Clay w/38% moisture	Particulate	5	22,580	1

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

1. Total Process Input Rate (lbs/hr): 22,580 @ 38% moisture

2. Product Weight (lbs/hr): 14,000, dry

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

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	
Part. Matter	12.0	52.6	17-2.610(1)	12.0	672	2943	7
Sulfur Dioxide (1)	29.4	128.8	NA	29.4	84.0	367.9	7
NOx (1)	10.5	46.0	NA	10.5	10.5	46.0	7
(1) Max. Emissions during coal firing.							

[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)
Ducon Type UW4, Mod. III, Size 108	Particulate Matter	98.2%	2	Estimate

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
Liquid Burnable Material	194 gph	194 gph	18.6
Coal	0.7 tph	0.7 tph	17.5

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

Fuel Analysis: LBM/Coal

Percent Sulfur: Nil/3.0 max. Percent Ash: 8/12 Max.

Density: 7.5/--- lbs/gal Typical Percent Nitrogen: Nil/1.4

Heat Capacity: 12,800/12,000 BTU/lb 96,000/----- BTU/gal

Other Fuel Contaminants (which may cause air pollution): Chloride content of LBM averages 1.5% (See fuel analysis of LBM - Attachment 5 and coal - Attachment 6)

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.

Scrubber water is recirculated through existing settling ponds.

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

Stack Height: 58 ft. Stack Diameter: 5.5 ft.

Gas Flow Rate: 32,000 ACFM 18,600 DSCFM Gas Exit Temperature: 160 °F.

Water Vapor Content: 32.0 % Velocity: 22.4 FPS

SECTION IV: INCINERATOR INFORMATION

NOT APPLICABLE

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

Description of Waste _____

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

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

Manufacturer _____

Date Constructed _____ Model No. _____

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

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

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

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

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

[ ] Other (specify) _____

Brief description of operating characteristics of control devices: _____

_____

_____

_____

_____

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

(SEE SUPPLEMENTAL INFORMATION SECTION, Page 7a.)

Please provide the following supplements where required for this application.

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

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

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

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

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

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

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

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

SECTION V: SUPPLEMENTAL INFORMATION

1. Process Input Weight Rate

Clay	14,000 lbs/hr
Moisture in Clay (38%)	8,580 lbs/hr
Total	22,580 lbs/hr

Production Rate

Expanded light-weight aggregate	14,000 lbs/hr
Moisture in stack gas	8,580 lbs/hr
Total	22,580 lbs/hr

2&3. Potential and Actual Emissions

Particulate Matter

Potential @ 96 lbs/ton of product (AP-42, Sect. 8.3.1; Clay drying & Grinding)

7 tons/hr x 96 lbs/ton
= 672 lbs/hr x 8760 hrs/yr x 1/2000
= 2,943 tons/year.

Actual - 12.0 lbs/hr (17-2.610(1), FAC) x 8760/2000
= 52.6 tons/year.

Sulfur Dioxide

Potential - 1400 lbs coal x 0.03 lbs S/lb fuel x 2 lbs SO_2/lb S
= 84.0 lbs/hr
= 367.9 tons/year.

Actual (based on work done in 1972 indicating a 65% SO_2 absorption rate)
= 84.0 (1-0.65)
= 29.4 lbs/hr
= 128.8 tons/year.

Nitrogen Oxides

Potential & actual @ 15 lbs/ton (AP-42, Sect. 1.1; Use value for tang. fired pulverized coal firing).

0.7 tons/hr x 15 lbs NOx/ton
= 10.5 lbs/hr
= 46.0 tons/year.

4. Scrubber Specifications - See Attachment 1.

SECTION V: SUPPLEMENTAL INFORMATION (continued)

5. Control Efficiency

Particulate Matter Scrubber

Inlet	672 lbs/hr
Outlet	12.0 lbs/hr

Efficiency = (672 - 12.0) x 100/672 = 98.2%.

Sulfur Dioxide

Tests conducted on the Solite kiln in 1972 showed approximately 65 percent sulfur dioxide absorption efficiency.

6. Process Flow Diagram - See Attachment 2.

7. Location Map - See Attachment 3.

8. Site Map - See 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

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

A. Company Monitored Data

1. _____no. sites _____ TSP _____( ) SO^{2}* _____ Wind spd/dir

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

Other data recorded _____

Attach all data or statistical summaries to this application.

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

2. Instrumentation, Field and Laboratory

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

b. Was instrumentation calibrated in accordance with Department procedures?

[ ] Yes [ ] No [ ] Unknown

B. Meteorological Data Used for Air Quality Modeling

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

2. Surface data obtained from (location)_____

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

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

C. Computer Models Used

1. _____ Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

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

D. Applicants Maximum Allowable Emission Data

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

E. Emission Data Used in Modeling

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

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

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

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

ATTACHMENT 1

THE DUCON COMPANY, INC.

147 EAST SECOND STREET

MINEOLA, NEW YORK

INSTALLATION, OPERATING & MAINTENANCE INSTRUCTIONS FOR DYNAMIC SCRUBBER TYPE UW-4, MODEL III

NUMBER OF UNITS One SIZE 108

CUSTOMER NAME Carters-Waters Corp.
Kansas City, Mo.

ULTIMATE CUSTOMER NAME Same As Above
Centerville, Iowa

CUSTOMER ORDER NO. 4898

DUCON CONTRACT NO. C74-074

DATE March 13, 1974

DESIGN DATA

DYNAMIC SCRUBBER TYPE UW-4, MODEL III

UNIT SIZE 108 NUMBER OF UNITS One

APPLICATION Clay Products

PLANT ELEVATION Sea Level 1' MSL

INLET GAS FLOW 55,000 ACFM, TEMPERATURE 875 °F 1025°F

HUMIDITY .11 LBS. WATER/LB. DRY AIR

DENSITY .028 LBS./CU. FT.

INLET SUCTION 3.2 "WG @ Cond.

OUTLET GAS FLOW 32,022 ACFM, TEMPERATURE 160 °F

DENSITY .056 LBS./CU. FT.

FAN AND DRIVE SPECIFICATIONS:

FAN BHP 147.1 @ Std. / 109.8 @ Cond. FAN SPEED 626 RPM

MOTOR HP 150 MOTOR SPEED _____ RPM

SCRUBBING LIQUID REQUIREMENTS:

FAN INLET 64 GPM @ 18 PSIG

• FAN WHEEL 32 GPM @ 5 PSIG

HUMIDIFICATION SECTION INLET 100 GPM 30 PSIG

•• MINIMUM SLUDGE OUTLET PIPE DIAMETER 8 INCHES

MINIMUM OUTLET STACK DIAMETER 54 1/4 I.D. INCHES

Note: Outlet stack diameter and side outlet manifold connecting ducts to be designed to suit a maximum outlet gas flow velocity of 2000 FPM.

•For type UW-4 units only.

••See Item (7) of Installation Section. Pipe diameter based on .07 PSI resistance per 100 ft. of pipe. For certain slurries prone to settling, plant experience should dictate minimum slurry velocity needed and pipe size.

REFERENCE DRAWINGS K-74074-1, W75-25-1, W75-25-2, W75-3, W75-4

S-3764

INSTALLATION

For the purpose of these instructions, the scrubbing liquid will be referred to as water. However, it should be noted that liquids other than water can be used with this unit.

FOUNDATION:

In designing the foundation for this unit, refer to column and/or support bracket loads as shown on certified dimensional drawings.

STRUCTURAL STEEL SUPPORT:

The structural steel support, when supplied, is normally shipped in bundles. Members should be layed out in approximately the order in which they are to be assembled, referring to the assembly drawings. All members should be located and identified before proceeding with erection.

SCRUBBER ASSEMBLY:

All units are assembled at the factory and match marked. Units above size 21 are shipped knocked down. Assemble the sections using the drawings of the scrubber as a guide. Be sure to line up flanges using match marks. Gaskets are to be installed inside bolt circles and not to be snaked between bolts.

INLET DUCT:

The inlet duct should slope downward toward scrubber. (See arrangement of inlet as shown on Drawing W75-3).

STACK:

Unless the outlet gas connection of scrubber is reinforced, the maximum permissible stack height is 12 ft. considering 3/16" thick plate for stack construction.

WATER SUPPLY PIPING:

The internal water supply piping is shipped installed within the scrubber. When designing the supply piping, provisions should be made to insure that it is possible to drain all the piping. A gate valve should be installed in each supply line as a shut-off for the scrubber water. Cock valves in each branch line should be used as regulating valves. 1/4" needle valves should be connected between the gauges and the piping to act as shut-off valves for the removal of gauges. If wide fluctuations in line pressure are anticipated, a pressure regulator should be installed in the supply line.

SLURRY PIPING:

The slurry piping should provide free drainage of the slurry to a settling pond, tailing area thickner or recirculating tank by gravity. If it is necessary to pump the slurry away from the scrubber, it is imperative that a surge tank be placed between the scrubber outlet and the pump suction line. The suction line should be located approximately twelve inches (12") below the normal liquid level. "U" traps are not to be used.

RECIRCULATING TANK (IF APPLICABLE):

Recirculating (or recycle) tanks are necessary and installed in some scrubber applications. The purpose of this tank, whether integral or separate, is to provide a reservoir for recirculating of the scrubbing water. Refer to the attached drawing W75-1 for recommended piping, pumps and controls.

Recycle tanks are usually supplied with a simple float level control and make-up water solenoid valve. The recycle water can be drawn off either continuously or in batches when the required concentration is reached. Recycle water is also continually lost due to evaporation. The level control maintains a constant water level by actuating the solenoid valve on the make-up water supply line when required.

On certain applications a float type level control as described above is not recommended or supplied. The accepted practice has been to

add the required fresh water make-up to the scrubber fan which will equal that which is drawn off continuously to the process plus the evaporative loss.

The maximum allowable suspended solids content is varied depending upon the application of the unit. This value is shown on the assembly drawing.

FAN INSTALLATION:

Check bearing alignments and be sure that there is adequate clearance between the shaft and the fan housing. Check drive alignments and belt tension.

When installing the motor, there should be no more than 0.005" clearance between the motor pads and the rails before tightening down on the bolts. This is to prevent frame distortion which can cause excessive motor vibration.

OPERATION

CAPACITY:

This scrubber has been selected for a certain gas capacity or range of capacity based on outlet gas conditions as stipulated on the Design Data Sheet Page 1 of these instructions. Most satisfactory operation is obtained within this range.

Each unit incorporates a heavy paddle wheel fan with a selected speed to give the required gas flow against a specified system resistance. Should the total external static pressure be lower than that stipulated in the Design Data Sheet, it will be necessary to impose resistance by means of a damper in the duct system or to decrease fan speed. It is recommended that a damper be used to impose this required additional resistance. Any well designed duct system should have a damper installed.

If this is not done, the fan motor will be overloaded, and the maximum scrubber gas flow may be exceeded.

If the total external static pressure is higher than that stated in the Design Data Sheet, the required scrubber gas flow will not be reached and it may be necessary to increase the fan speed.

The Dynamic Scrubber can operate at a substantial reduction in gas flow without a marked decrease in efficiency due to its constant speed wet fan. However, peak efficiency is obtained at design flows. Should sustained low gas flow operation be required, it is recommended that provision be made for bleeding atmospheric air into the system at the scrubber inlet. This will allow the scrubber to handle the desired design gas flow while handling a reduced flow in the system.

If it is anticipated that the scrubber will operate above the stated design flow it is required that this be checked with The Ducon Company as there is a definite maximum scrubber capacity.

PRE-START UP:

Do not run the unit prior to the connection of the complete duct work system. This precaution is necessary to prevent overloading of the fan motor.

Remove all spray nozzles and thoroughly flush out all water piping for at least 20 minutes at full line pressure. This precaution is necessary to clean welding slag and thrash from the piping system.

Conduct a thorough inspection of the interior of the unit making sure of the following items:

After Water Piping has been cleared, replace the spray nozzles with proper orientation as per the drawing provided.

That Orifice Plates in the internal cone discharge are in place.

The internal sections of the scrubber are free from debris.

Pump motor to check for proper fan rotation. The lower edge of fan wheel should move toward the scrubber shell.

Fully open main water supply valve. Set spray nozzle pressure to that stated on Design Data Sheet by adjusting the branch line cock valves. Once desired pressure is established, these valves need not be touched since the main supply valve will be used to turn on or turn off the water supply.

If unit has been shut down for a lengthy period, check bearing grease; and renew to proper level.

START-UP PROCEDURE:

Normally, the scrubber water supply and fan motor should be turned on simultaneously or as close together as is practical. On high temperature applications the scrubbing water should be turned on first since this provides the required cooling. Where lined and/or solid plastic or similar scrubber construction is supplied, there is usually a definite temperature limitation. Cooling water should be turned on before high temperature gases are introduced. (See Design Data Sheet for maximum temperature limitations if applicable). Where the start-up gas temperature is not high enough to prevent freeze-up, it is recommended that the water not be introduced until the gases are at a high enough temperature to eliminate this problem. The period of operation without liquid should, of course, be as short as possible.

Partial closure of the damper may be required to prevent overloading the motor during this period.

OPERATING SCRUBBER:

It is important that the required water rate be maintained to the scrubber. This can be assured by maintaining the specified readings on the pressure gauges. In instances where supply line pressure fluctuates to a large degree, a pressure regulator may be required. The Dynamic Wet Fan has been designed to handle a specific water quantity. Additional fan water rates above design specifications will result in higher BHP requirements and could overload the motor. Fan Water rates below design specifications will reduce scrubber performance.

In some cases recirculated water may become acidic. Once this condition is established in the scrubbing water, it should be closely watched and proper control maintained. If necessary, a basic chemical should be added in order to approach a PH of between 7 and 9.

SHUTTING SCRUBBER DOWN:

The scrubbing water and the fan should be turned off simultaneously. When units are exposed to the outside air the unit should immediately be drained.

During any lengthy shut-down, it is recommended that the fan wheel be rotated manually several complete revolutions periodically so as to prolong bearing life.

MAINTENANCE

INSPECTION AND INITIAL MAINTENANCE:

Re-tighten all flange bolts after 48 hours of continuous operation and again after two weeks of continuous operation.

Frequent inspection is recommended, especially during the first week of operation. An inspection and cleaning schedule should be based on actual operating experience and necessity. The inside of the collector must be kept free of accumulation which may impair operation.

An early estimate should be made of corrosive and abrasive wear so that replacement can be provided for worn parts or corrective measures be taken.

Specifically check spray nozzles for plugging or signs of wear, if recirculated water is used. Plugging of nozzles can result in an inadequate water supply even at specified gauge pressures. Worn nozzles can cause excessive water rates and higher BHP requirements.

It is advisable to paint the inside of carbon steel scrubbers at least once a year, or sooner, depending upon condition. Apply one coat of rest-resistant primer and a top coat of high quality paint.

LUBRICATION:

Item	Location	Recommended Lubricant
a	Electric Motors	Follow Manufacturer's Recommendations.
b	Fan Wheel Shaft Bearings	For normal operating temperature a good grade of general purpose grease should be used. All grease shall be free from excessive dirt, abrasive matter, fillers, excessive amount of moisture, free acid or free alkali. The grease should be satisfactory for operating temperatures which may vary from minus 40°F to 250°F. When lubricating the bearings ⅓ to ½ of the volume of the housing should be filled, an over supply would only result in churning and a breakdown of the lubricant. For operating temperatures over 175° consult The Ducon Co. or the bearing manufacturer for lubrication specifications. Practice should dictate the lubricating intervals. In any case bearings should be cleaned of all old grease and repacked at least once a year.
c	Door Hinges, Pins, Eyebolts, Nuts and Inspection Doors, Etc.	Coat lightly with grease for easy opening of doors and maximum protection of threads.
d	*Float Level Control Linkage	Grease or Oil Lightly

*Only on units equipped with a Ducon Liquid Recycle Tank.

RECOMMENDED SPARE PARTS:

Fan wheel with shaft. (This item is custom fabricated. Delivery is approximately 5 to 6 weeks.)

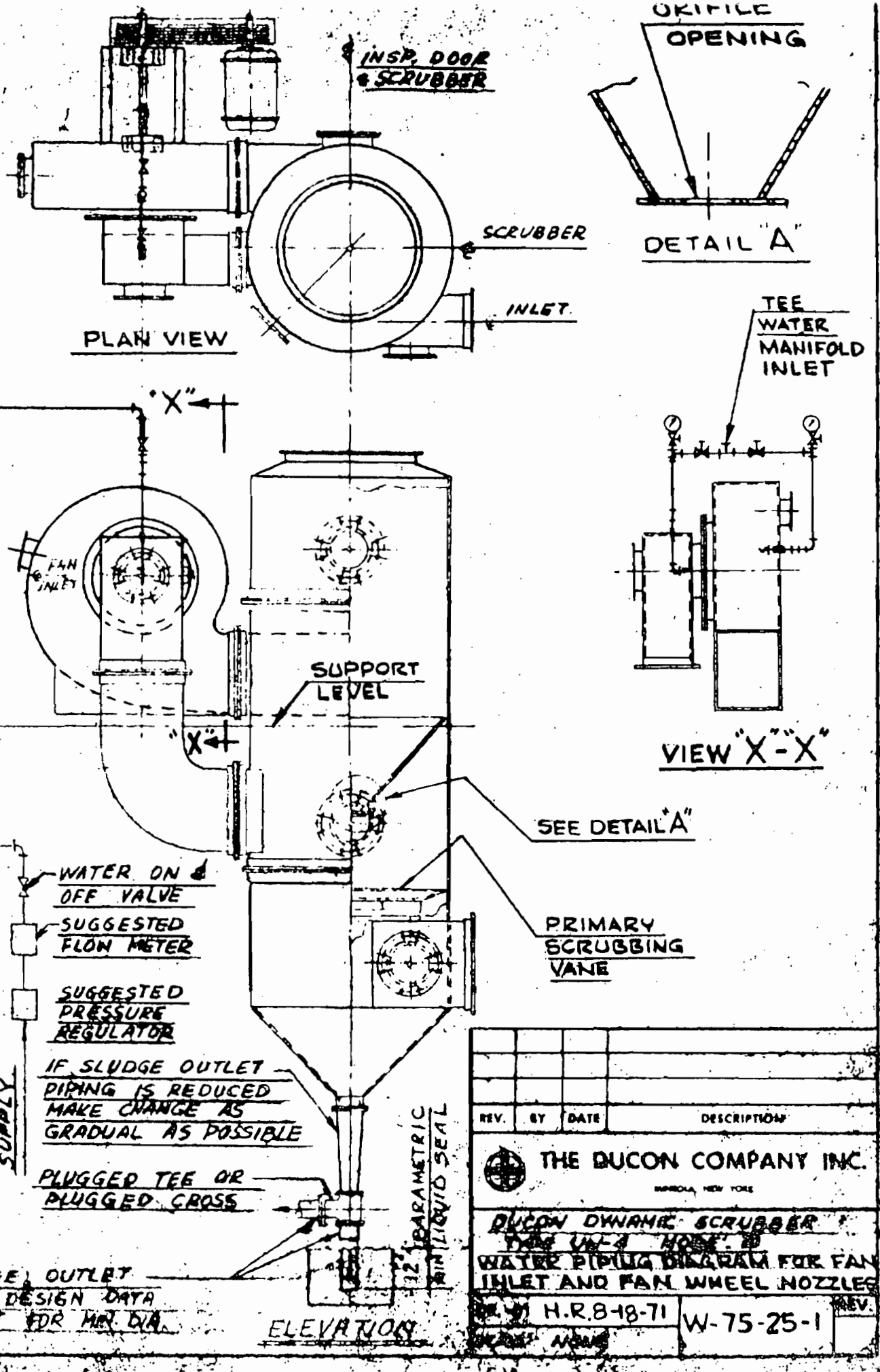
1 set of fan shaft bearings, (one held, one free).

1 full set scrubber spray nozzles.

1 set V-belts. (Could be obtained direct from supplier)

When ordering spare parts, specify item number, assembly drawing number and Ducon Contract Serial Number.

BEST AVAILABLE COPY



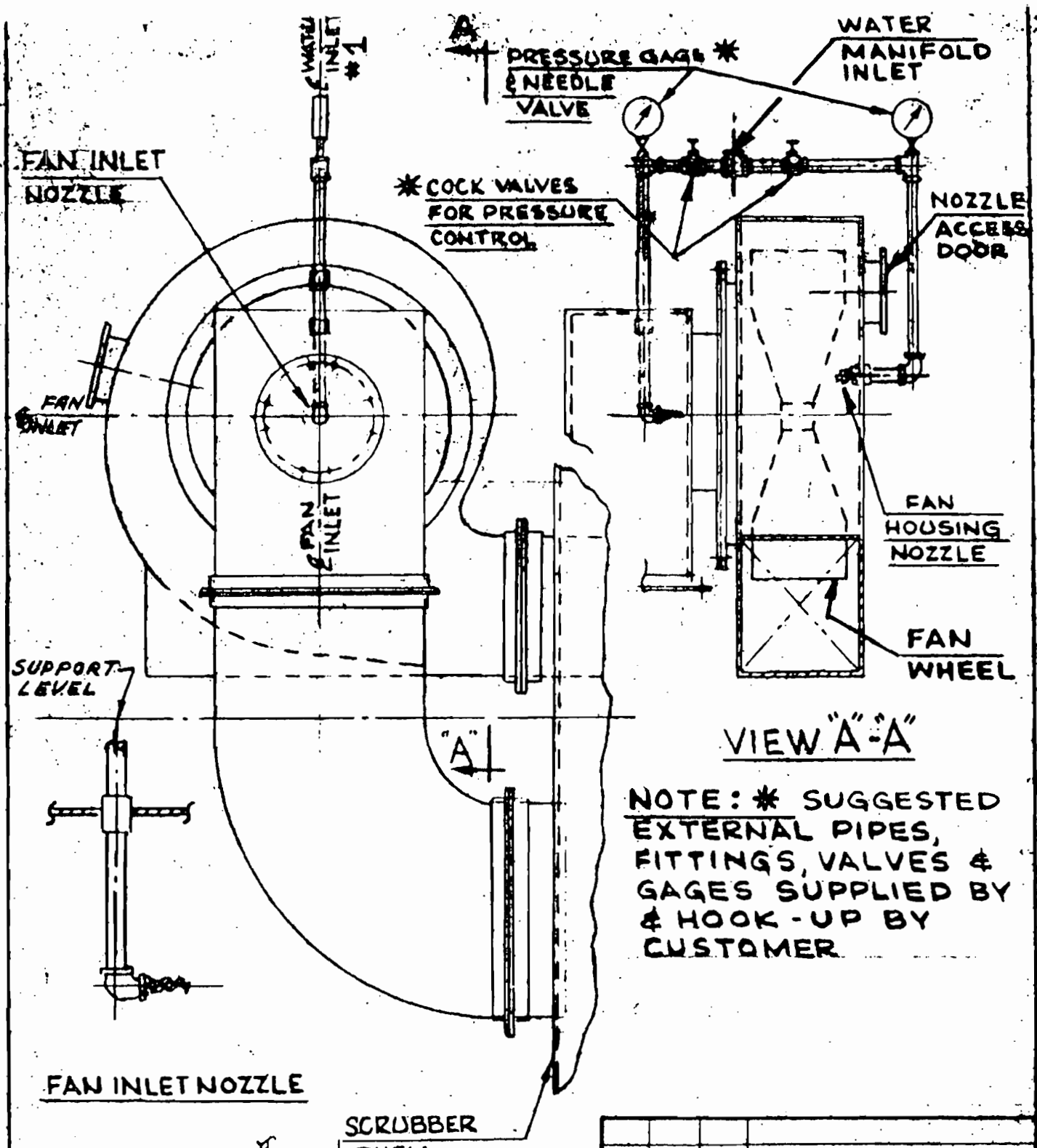
REV.	BY	DATE	DESCRIPTION

THE DUCON COMPANY INC.
MINEOLA, NEW YORK

DUCON DYNAMIC SCRUBBER
TYPE VM-4 MODEL B
WATER PIPING DIAGRAM FOR FAN INLET AND FAN WHEEL NOZZLES

H.R.8-18-71 | W-75-25-1 | REV.

BEST AVAILABLE COPY



REV.	BY	DATE	DESCRIPTION

THE DUCON COMPANY INC.

DUCON DYNAMIC SCRUBBER
TYPE DH-4 MODEL

WATER PIPING DIAGRAM FOR FAN INLET AND FAN WHEEL NOZZLES

DR. BY H.R. 8-18-71

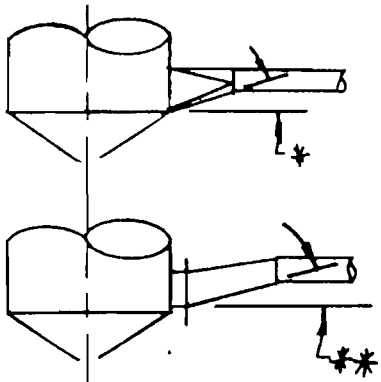
SCALE NONE

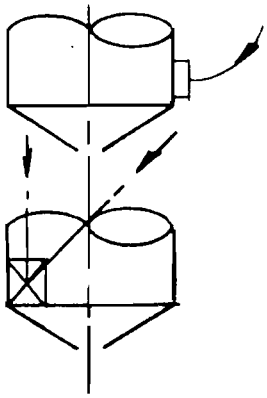
W-75-25-2

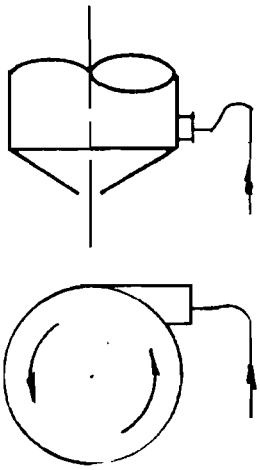
REV.

INLET DUCT INSTALLATION

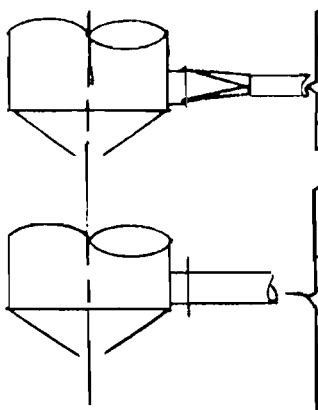
PREFERRED ARRGT.







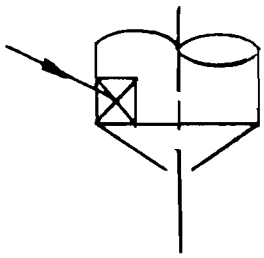
NOT RECOMMENDED

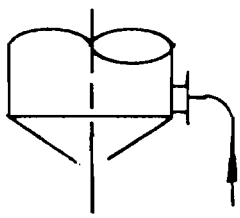


RECTANGULAR TO ROUND TRANSITIONS * 25° MIN. ANGLE

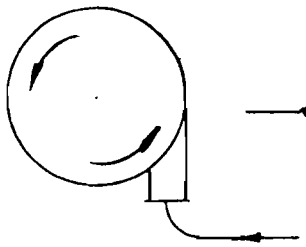
RECTANGULAR TO RECTANGULAR TRANSITION ** 15° MIN. ANGLE SLOPE LENGTH EQUIVALENT TO 1/2 HIGHT OF INLET

VERTICAL OR INCLINED DOWNCOMER

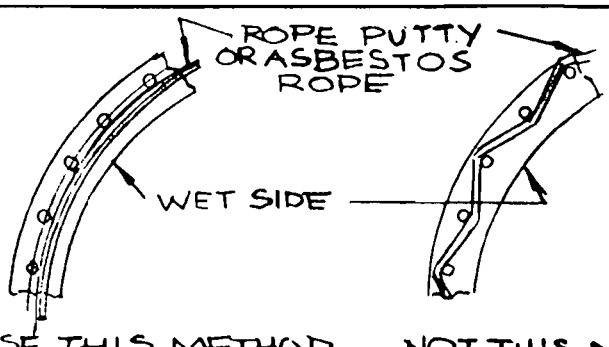




VERTICAL RISER



IF ELBOW REQUIRED JUST BEFORE SCRUBBER



USE THIS METHOD NOT THIS METHOD

GASKET INSTALLATION

REV.	BY	DATE	DESCRIPTION

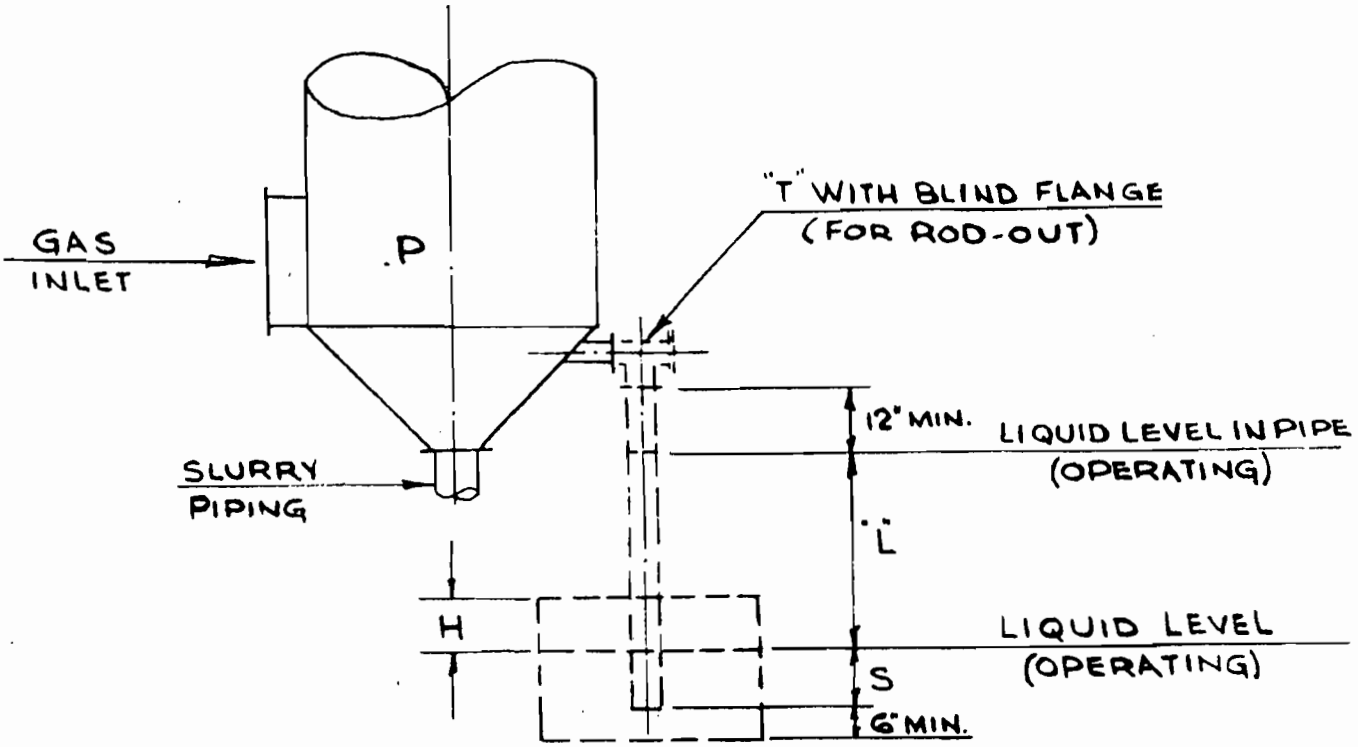
THE DUCON COMPANY INC.
MINEOLA, NEW YORK

DUCON DYNAMIC SCRUBBER
INLET DUCT AND GASKET INSTALLATION

DR. BY JD. 8/1/66
SCALE NONE

W-75-3

REV.



NOTE:
DO NOT ATTACH OVERFLOW TO SLURRY PIPING

NOTE:

* P = PRESSURE AT SCRUBBER INLET

IF "P" IS NEGATIVE

L = P (IN IN. W.G.)

H = HEIGHT REQUIRED SO THAT VOLUME ABOVE LIQUID LEVEL IS EQUAL TO VOLUME IN OVERFLOW PIPE FOR HEIGHT OF "L" PLUS 6"

S = 12"

IF "P" IS POSITIVE

L = 0

S = P (IN IN. W.G) + 12"

H = HEIGHT REQUIRED SO THAT VOLUME ABOVE LIQUID LEVEL IS EQUAL TO VOLUME IN OVERFLOW PIPE FOR HEIGHT OF "S" PLUS 6"

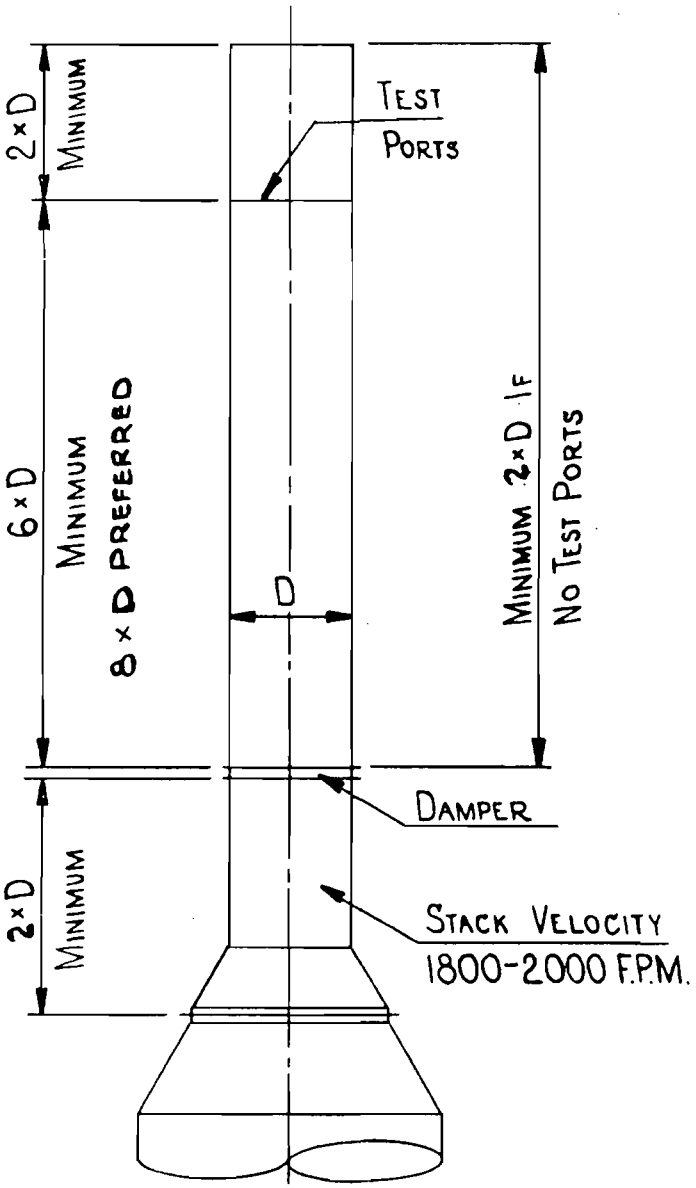
* FOR VENTURI SCRUBBERS P = PRESSURE AT SEPARATOR INLET.

REV.	BY	DATE	DESCRIPTION

THE DUCON COMPANY INC.
MINEOLA, NEW YORK

SUGGESTED ARRANGEMENT FOR EMERGENCY OVERFLOW PIPING

DR. BY FWG	W-75-4	REV.
SCALE		



NOTES:

ALTERNATE DAMPER LOCATION UP STREAM OF SCRUBBER INLET, BUT CARE SHOULD BE TAKEN ON ABRASION, DUST BUILDUP AND TEMPERATURE IN THIS AREA.

CONTACT DUCON IF ADDITIONAL INFORMATION IS REQUIRED.

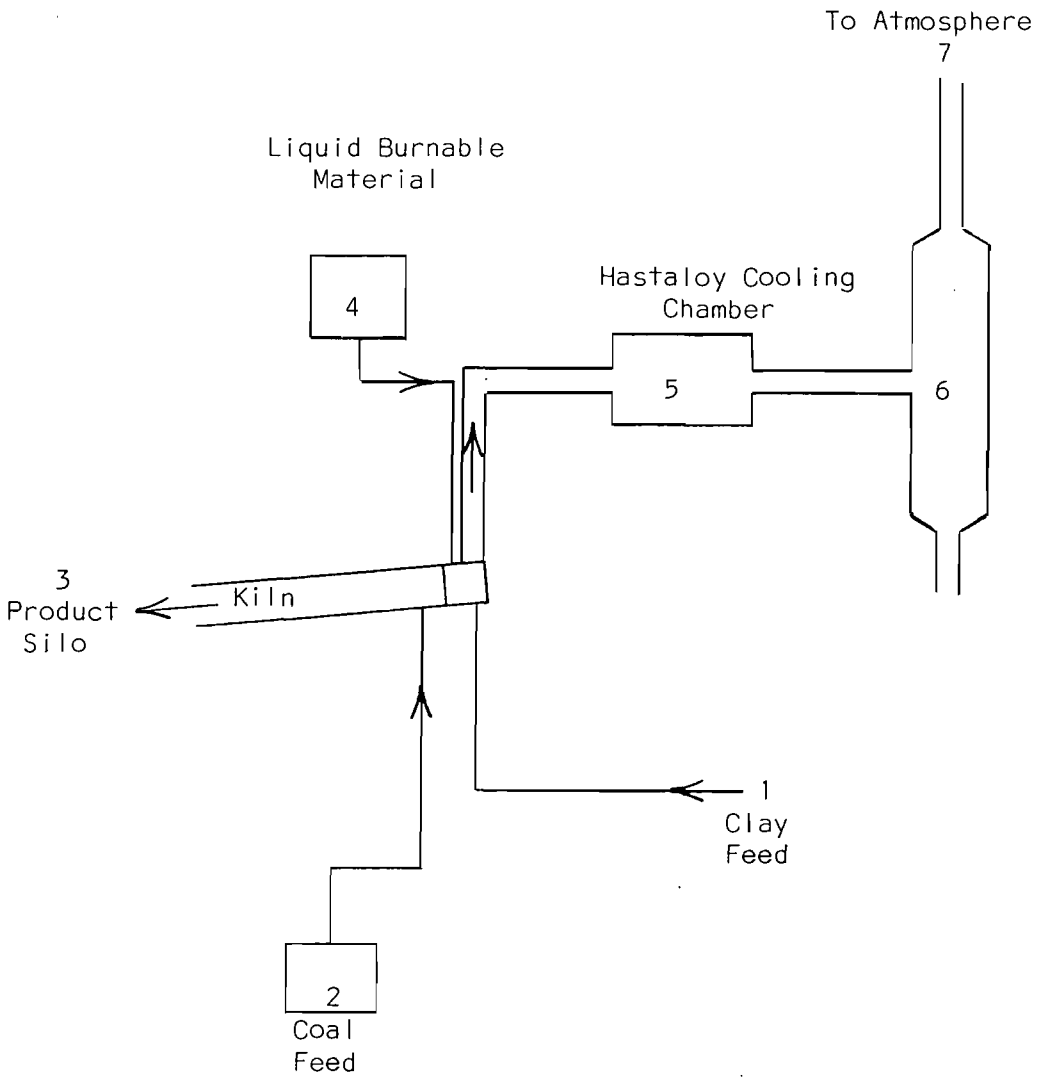
REV.	BY	DATE	DESCRIPTION

THE DUCON COMPANY INC.
MINEOLA, NEW YORK

SUGGESTED STACK DAMPER LOCATION FOR UW-3 & UW-4 DYNAMIC GAS SCRUBBERS

DR. BY M. FITZGERALD	S-3764	REV.
SCALE NONE		

ATTACHMENT 2

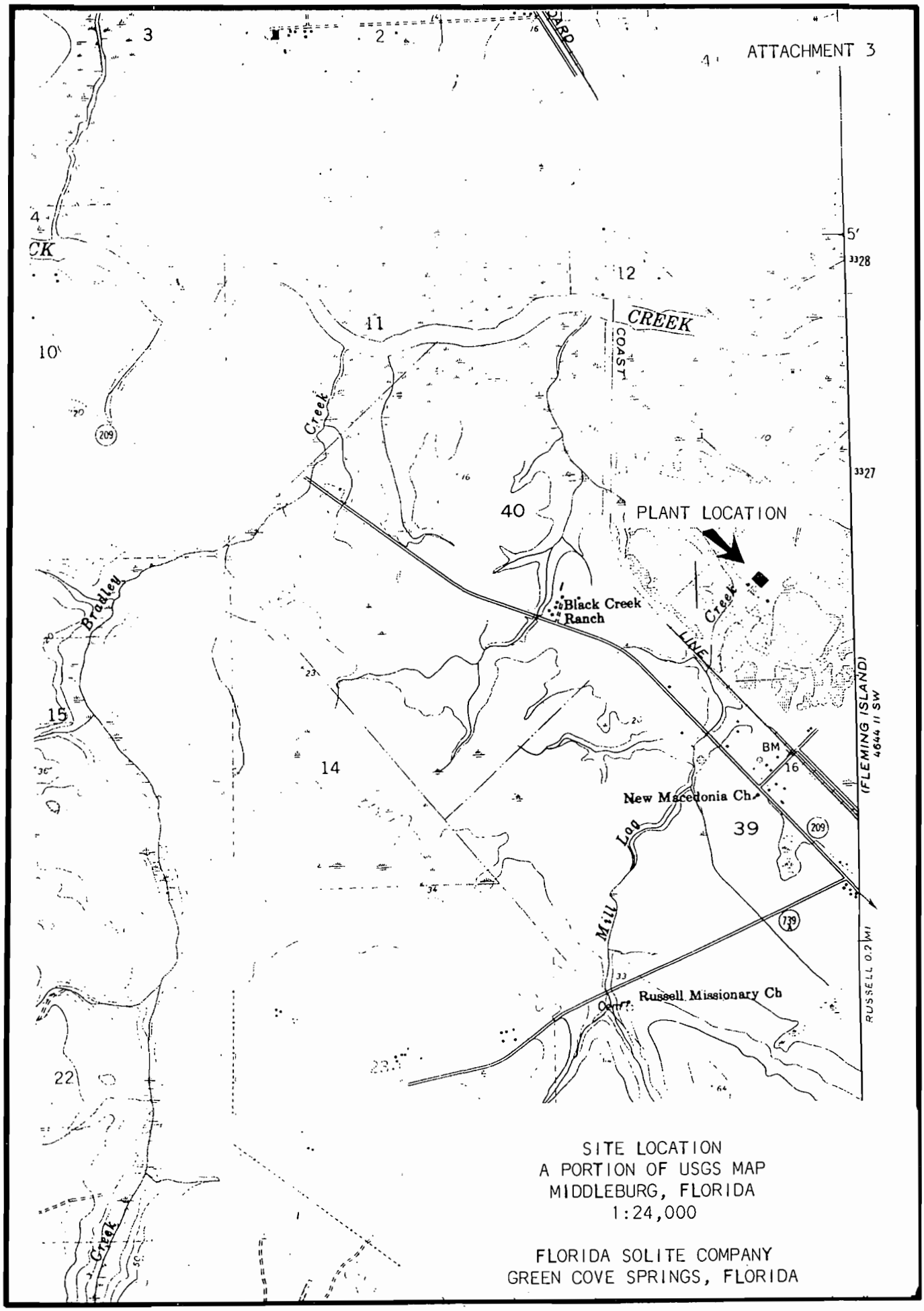


PROCESS FLOW DIAGRAM
NO. 1 KILN

FLORIDA SOLITE COMPANY
GREEN COVE SPRINGS, FLORIDA

SHOLTES & KOOGLER

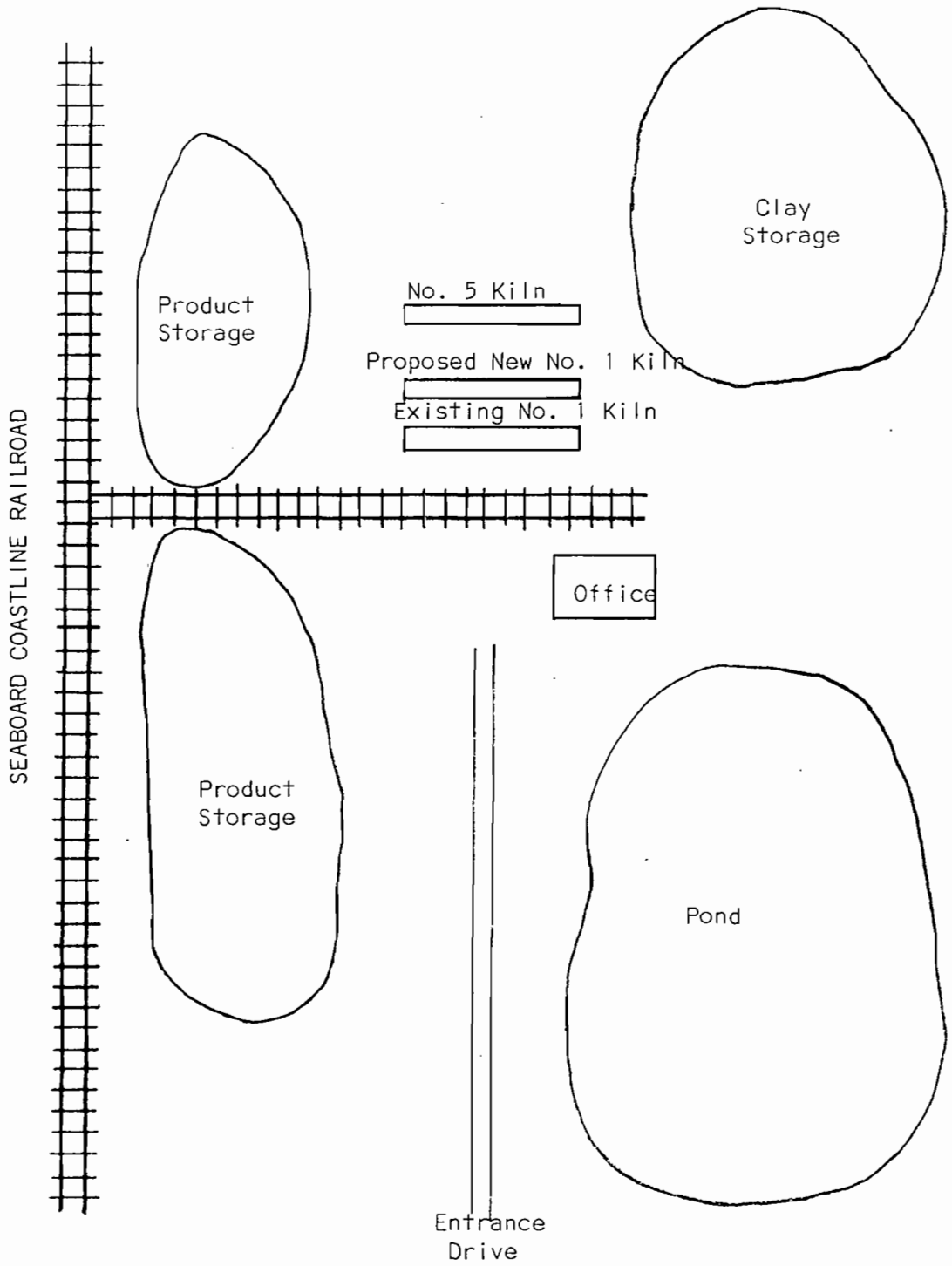
BEST AVAILABLE COPY



SITE LOCATION
A PORTION OF USGS MAP
MIDDLEBURG, FLORIDA
1:24,000

FLORIDA SOLITE COMPANY
GREEN COVE SPRINGS, FLORIDA

ATTACHMENT 4



PLOT PLAN
FLORIDA SOLITE COMPANY
GREEN COVE SPRINGS, FLORIDA

SHOLTES & KOOGLER

ATTACHMENT 5

TYPICAL ANALYSIS OF LIQUID BURNABLE MATERIAL

BTU/gallon - 50,000 - 135,000 - 96,000

Ash	0 - 25% - 8%
Water	0 - 50% - 15%
Cl_2	0 - 10% - 1.5%

Metals (ppm)

Barium	0 - 500 - 150
Chromium	0 - 300 - 150
Lead	0 - 250 - 100

Petroleum Products - 10%

Ketones, alcohols, aromatics & aliphatics - 45%

Organic resins, paint & other coating solids dissolved or suspended - 45%

FLORIDA SOLITE COMPANY
GREEN COVE SPRINGS, FLORIDA

FEBRUARY 28, 1984

SHOLTES & KOOGLER

ATTACHMENT 6

SOLITE CORPORATION

COAL SPECIFICATIONS

Btu/lb., minimum	12,000
Moisture, maximum	10%
Ash, maximum	12%
Volatile, minimum	32%
Sulfur, Requested Range 2.0 - 2.5% with a Maximum of 3%	
Fusion Temperature, initial, maximum	2200°
Hargrove Grindability Index No., maximum	55