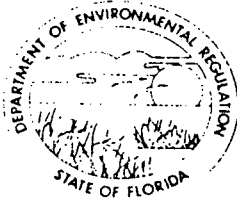


STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION



SOUTHWEST DISTRICT

7601 HIGHWAY 301 NORTH  
TAMPA, FLORIDA 33610-9544

BOB GRAHAM  
GOVERNOR

VICTORIA J. TSCHINKEL  
SECRETARY

WILLIAM K. HENNESSEY  
DISTRICT MANAGER

Mr. T. H. Traylor  
Vice President & General Manager  
International Minerals &  
Chemical Corporation  
New Wales Operations  
Post Office Box 1035  
Mulberry, FL 33860

DER

OCT 10 1983

BAQM

Dear Mr. Traylor:

Re: Polk County - AP  
AFI Granulator Scrubbers

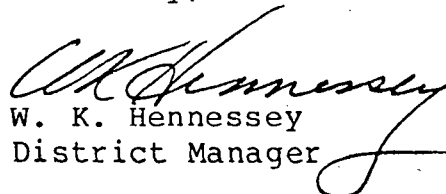
Enclosed is Permit Number A053-68867 dated 7/6/83, to operate the subject pollution source, issued pursuant to Section 403.061(14), Florida Statutes.

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

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

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

Sincerely,

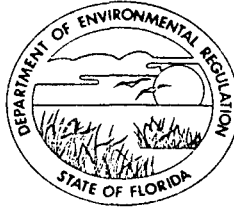
  
W. K. Hennessey  
District Manager

WKH/scm  
Enclosures  
DER Form 17-1.201(7)

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP		ACTION NO.	
		ACTION DUE DATE	
1. TO: (NAME, OFFICE, LOCATION) <i>Ed Svcc - BAQM</i>	INITIAL	DATE	
2. <i>Tallahassee</i>	INITIAL	DATE	
3.	INITIAL	DATE	
4.	INITIAL	DATE	
REMARKS: <i>Copies of AD 53-68867                  AFI - New Water                  DAP Test in same facility</i>		INFORMATION: <input type="checkbox"/> REVIEW & RETURN <input type="checkbox"/> REVIEW & FILE <input type="checkbox"/> INITIAL & FORWARD DISPOSITION: <input type="checkbox"/> REVIEW & RESPOND <input type="checkbox"/> PREPARE RESPONSE <input type="checkbox"/> FOR MY SIGNATURE <input type="checkbox"/> FOR YOUR SIGNATURE <input type="checkbox"/> LET'S DISCUSS <input type="checkbox"/> SET UP MEETING <input type="checkbox"/> INVESTIGATE & REPT <input type="checkbox"/> INITIAL & FORWARD <input type="checkbox"/> DISTRIBUTE <input type="checkbox"/> CONCURRENCE <input type="checkbox"/> FOR PROCESSING <input type="checkbox"/> INITIAL & RETURN	
FROM:		DATE <i>10/7/83</i>	
<i>Bob Garrett</i>		PHONE	
<i>SW Dist.</i>			

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL REGULATION



SOUTHWEST DISTRICT

7601 HIGHWAY 301 NORTH  
TAMPA, FLORIDA 33610-9544

BOB GRAHAM  
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DISTRICT MANAGER

PERMITTEE:

Mr. T. H. Traylor  
Vice President & General Manager  
International Minerals &  
Chemical Corporation  
New Wales Operations  
Post Office Box 1035  
Mulberry, FL 33860

PERMIT/CERTIFICATION

Permit No.: A053-68867  
County: Polk  
Expiration Date: 5/30/88  
Project: AFI Granulator  
Scrubbers

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

For the operation of a 120 TPH granulation animal feed products plant with emissions controlled by three Davy Powergas venturi/crossflow scrubbers manifolded to a common stack.

Location: 1 mile south of S.R. 640, Hillsborough County Line, Polk County

UTM: 17-396.7E 3079.4N NEDS NO: 0059 Point ID: 27

Replaces Permit No.: A053-7025

PERMITTEE:  
International Minerals &  
Chemical Corporation

Permit/Certification No.: A053-68867  
Project: AFI Granulator Scrubbers

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 the 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 403.712(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 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 any order from the department.

PERMITTEE: Permit/Certification Number: AO53-68867  
International Minerals & Project: AFI Granulator Scrubbers  
Chemical Corporation

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 maybe required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purposes 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 non-compliance, including exact dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

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

PERMITTEE: Permit/Certification No: A053-68867  
International Minerals & Project: AFI Granulator Scrubbers  
Chemical Corporation

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 Section 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)
- ( ) Certification of Compliance with State Water Quality Standards (Section 401. PL 92-500)
- ( ) Compliance with New Source Performance Standards

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

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

PERMITTEE:  
International Minerals &  
Chemical Corporation

Permit/Certification No.: A053-68867  
Project: AFI Granulator Scrubbers

14. (con't)

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. Test the emissions for the following pollutant(s) at intervals of 6 months from the date February 23, 1983 and submit a copy of test data to the Air Section of the Southwest District Office within forty-five days of such testing (Section 17-2.700 (2), Florida Administrative Code (F.A.C.)).

Particulates  
 Fluorides  
 Opacity

Sulfur Oxides  
 Nitrogen Oxides  
 Hydrocarbons  
 Total Reduced Sulfur

\*Fuel analysis may be submitted for required sulfur dioxide emission test.

PERMITTING:

Permit/Certification No : A053-68867  
International Minerals & Project: AFI Granulator Scrubbers  
Chemical Corporation

SPECIFIC CONDITIONS (con't):

2. Testing of emissions must be accomplished at approximately the rates as stated in the application. Failure to submit the input rates or operation at conditions which do not reflect actual operating conditions may invalidate the data (Section 403.161(1)(c), Florida Statutes).

3. Maximum allowable emissions from the scrubber shall be 36.8 lbs/hr. of particulates or at lesser rates the process weight regulation shall apply, (F.A.C. 17-2.610(1)(b)).

This emission limit is requested by IMC to exempt the facility from F.A.C. 17-2.650(2).

4. The Department will be given 30 days prior notice for all compliance tests.

5. Submit for this facility, each calendar year, on or before March 1, an emission report for the preceding calendar year containing the following information as per Section 17-4.14, F.A.C.

- (A) Annual amount of materials and/or fuels utilized.
- (B) Annual emissions (note calculation basis).
- (C) Any changes in the information contained in the permit application.

7. All reasonable precautions shall be taken to prevent and control generation of unconfined emissions of particulate matter in accordance with the provision in Section 17-2.610 (3), F.A.C.. These provisions are applicable to any source, including, but not limited to, vehicular movement, transportation of materials, construction, alteration, demolition or wrecking, or industrial related activities such as loading, unloading, storing and handling.

8. This emission control equipment shall be operated and maintained by qualified personnel in accordance with standards established by the Department. This includes bi-weekly inspections, replacement or repair of faulty equipment when necessary. (Chapter 17-4.23(4)(b), F.A.C.).

9. Visible emissions shall not exceed 20% opacity.



PERMITTEE:  
International Minerals &  
Chemical Corporation

Permit/Certification No.: A053-68867  
Project: AFI Granulator Scrubbers

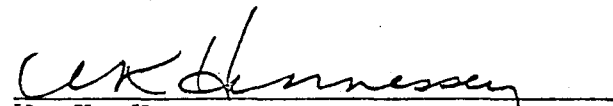
SPECIFIC CONDITIONS (con't):

10. Records of inspection, maintenance and performance parameter data shall be retained for a minimum of two years and shall be made available to the Department upon request.

11. Current compliance test submitted restrict production rate of this plant to 75 TPH. Should a higher production rate be required advise the Department of the increased rate and submit a compliance test at the new rate within 30 days to remove this restriction.

Issued this <sup>th</sup> 6 day of July  
1983

STATE OF FLORIDA DEPARTMENT OF  
ENVIRONMENTAL REGULATION

  
W. K. Hennessey  
District Manager

NEW WALES OPERATIONS  
P.O. Box 1035 • Mulberry, Florida 33860  
Telephone: (813) 428-2531

*Garrett*  
*WJ*



INTERNATIONAL MINERALS & CHEMICAL CORPORATION

August 17, 1983

**D.E.R.**

W. C. Thomas, P.E.  
Florida Department of Environmental Regulations  
7601 Hwy 301 N  
Tampa, FL 33610

AUG 19 1983

**SOUTHWEST DISTRICT**  
**TAMPA**

Dear Bill:

Enclosed please find results of the compliance test on the AFI plant. As I explained to you this morning by phone, the stack tests, with respect to particulate and Fluoride emissions, were well within permit limits. Unfortunately as I also explained, the visible emissions observed during Monday's stack tests were higher than permitted due to the presence of soot in the stack gas. Compliance tests on Tuesday showed lower levels of pollutants and acceptable levels of visible emissions.

Stack tests will be performed at AFI today for Nitrogen emissions. Per our agreement with our department, we will repeat the entire series of tests next week.

Sincerely yours,

A. L. GIRARDIN, III

ALG/dw

cc: D. K. Larsen  
J. M. Baretincic

BEST AVAILABLE COPY

COMPLIANCE REPORT

PLANT: AFI

PERMIT NO.: A053-68867

TEST DATE: AUGUST 15, 1983

PLANT RATE: PROCESS WEIGHT: 75 TONS/HOUR  
P2O5 FEED RATE: 36.7 TONS/HOUR

TEST AVERAGE, LBS.\HR. (WHERE APPLICABLE)

ACTUAL - ALLOWABLE

FLUORIDE:

.497 - 2.20

PARTICULATE:

15.54 - 34.54

SO2:

-

ACID MIST:

-

OPACITY:

19.42% - 20.00%

REPORT DATE:

08-17-83

D.E.R.

AUG 19 1983

SOUTHWEST DISTRICT  
TAMPA

INTERNATIONAL MINERALS & CHEMICAL CORPORATION  
SOURCE SAMPLING CALCULATION REPORT

TEST ON STACK AFI STACK

AT NEW WALES PLANT, FLA.

CONDUCTED ON 081583

DATA SUMMATIONS

PARAMETER	UNITS	RUN 1	RUN 2	RUN 3
BAROMETER PRESSURE	IN OF HG	29.95	29.98	29.98
STATIC PRESSURE	IN OF HOH	.45	.31	.31
STACK PRESSURE	IN OF HG	29.9831	30.0028	30.0028
AVERAGE SQR. DELTA P	IN HOH <sup>1/2</sup>	.804141	.809764	.807571
AVERAGE DELTA H	IN OF HOH	1.5125	1.60938	1.60125
METER TEMP.	DEGREES R	570.5	557.25	568.75
AVERAGE STACK TEMP.	DEGREES R	600	596	596
METERED SAMPLE VOL.	CUBIC FT.	45.41	47.73	47.75
PITOT COEFFICIENT	UNITY	.83	.83	.83
NOZZLE DIAMETER	IN	.235	.235	.235
STACK AREA	SQUARE FT	50.2654	50.2654	50.2654
TRAVERSE POINTS	UNITY	16	16	16
SAMPLING TIME	MINUTES	64	64	64
MOLE WT. OF GAS	LB/LB-MOLE	29.0	29.0	29.0
ACT. STK. VELOCITY	FT/SEC	48.585	48.5773	48.4457
ACT. STK. GAS FLOW	CU-FT/MIN	146529	146506	146109
STD. GAS FLOW	CU-FT/MIN.	112660	115734	115421
STD. STK. VELOCITY	FT/SEC	42.2218	45.476	44.5743
PART. EMISSION	LB/DAY	503.597	337.434	277.619
SO2 EMISSION	LB/DAY	0	0	0
H2SO4 EMISSION	LB/DAY	0	0	0
FLUORIDE EMISSION	LB/DAY	21.1595	8.07259	6.57087
AMMONIA EMISSION	LB/DAY	0	0	0
ISOKINETIC RATE	%	97.1543	101.863	100.114

## BEST AVAILABLE COPY

Stack AFI

Date 081583

Time 1430

RUN # 1

ORSAT            %CO2  
                  %CO  
                  %O2  
                  %N2

$$MD = 0.44 (\%CO_2) + 0.32 (\%O_2) + 0.28 (\%N_2 + \%CO) = 29.0$$

$$D = 8 \text{ FT. Diameter, } A = 3.14159 D^2 / 4 = 50.2654 \text{ FT.}^2 \text{ AREA}$$

DRY BULB TEMP. = 140 F

WET BULB TEMP. = 128 F

M = .1012 #H2O/#Dry air from Psychrometer Chart

BWO =  $M / (M + (18/MD)) = .140188$ 

Actual: BWO = .127787

MS =  $18(BWO) + MD(1 - BWO) = 27.4579$ 

MS = 27.5943

PB = 29.95 HG

PV = .45 H2O

PS =  $PB + (-)(PV/13.6) = 29.9831 \text{ HG}$ 

DELTA H = 1.5125 H2O

PM =  $PB + (DELTA H/13.6) = 30.0706 \text{ HG}$ 

TS = 600 R

TM = 570.5 R

SQR. DELTA P = .804141

VM = 45.41 CF

CP = .83

W1 .0595 G. PARTICULATES

W2 0 G. SO2

W3 0 G. H2SO4

W4 .0025 G. F

W5 0 G. NH3

$$VS = 85.48 (CP) (AVG. SQR. DELTA P) / (SQR. (TS/PS * MS)) = 48.585 \text{ FPS}$$
QA =  $60 (A) (VS) = 146529 \text{ ACFM}$ QS =  $17.64 (QA) (PS/TS) (1 - BWO) = 112660 \text{ DSCFM}$ VMS =  $17.64 (VM) (PM/TM) = 42.2218 \text{ SCF}$ E =  $3.172 (QS/VMS) = 8463.81$ 

E1 = 503.597 #/DAY PARTICULATES

E2 = 0 #/DAY SO2

E3 = 0 #/DAY H2SO4

E4 = 21.1595 #/DAY F

E5 = 0 #/DAY NH3

PLANT RATE PROCESS WEIGHT: 75 TONS/HOUR

%ISOKENTIC = 97.1543

COMMENTS

INTERNATIONAL MINERALS & CHEMICAL CORPORATION  
 SOURCE SAMPLING DATA VERIFICATION REPORT

TEST ON STACK AFI STACK

AT NEW WALES PLANT, FLA.

CONDUCTED ON 081583

-----RUN #1-----								
ELAP TIME (MIN)	METER VOLUME	DEL P	DEL H	STK T	METER T IN OUT	STK VELOCITY (FT/SEC)	ISOKINETIC RATE (PERCENT)	
0	802.93	0	0	600	0 0	0	0	
4	805.82	.66	1.54	600	98 98	49.0842	99.493	
8	808.68	.65	1.52	600	100 100	48.711	98.8545	
12	811.48	.62	1.45	600	102 102	47.5736	98.725	
16	814.3	.63	1.47	600	104 104	47.9557	98.2936	
20	817.16	.65	1.52	600	105 105	48.711	97.9818	
24	819.91	.6	1.4	600	107 107	46.8	97.6819	
28	822.77	.65	1.52	600	109 109	48.711	97.293	
32	825.74	.7	1.52	600	111 111	50.5498	97.0182	
36	828.6	.65	1.52	600	111 111	48.711	96.9481	
40	831.44	.64	1.5	600	113 113	48.3348	96.6815	
44	834.26	.63	1.47	600	115 115	47.9557	96.409	
48	837.08	.63	1.47	600	116 116	47.9557	96.2458	
52	839.92	.64	1.5	600	117 117	48.3348	96.0112	
56	842.78	.65	1.52	600	119 119	48.711	95.6085	
60	845.64	.65	1.52	600	120 120	48.711	95.4477	
64	848.61	.7	1.64	600	121 121	50.5498	95.3744	

## BEST AVAILABLE COPY

Stack AFI

Date 081683

RUN # 2

Time 1100

ORSAT            %CO2  
                  %CO  
                  %O2  
                  %N2

$$MD = 0.44 (\%CO2) + 0.32 (\%O2) + 0.28 (\%N2 + \%CO) = 29.0$$

$$D = 8 \text{ FT. Diameter, } A = 3.14159 D^2 / 4 = 50.2654 \text{ FT.}^2 \text{ AREA}$$

DRY BULB TEMP. = 136 F

WET BULB TEMP. = 120 F

M = .07703 #H2O/#Dry air from Psychrometer Chart

BWO =  $M / (M + (18/MD)) = .110403$ 

Actual: BWO = 0

MS =  $18(BWO) + MD(1 - BWO) = 27.7856$ 

MS = 0

PB = 29.98 HG

PV = .31 H2O

PS =  $PB + (-)(PV/13.6) = 30.0028 \text{ HG}$ 

DELTA H = 1.60938 H2O

PM =  $PB + (DELTA H/13.6) = 30.0983 \text{ HG}$ 

TS = 596 R

TM = 557.25 R

SQR. DELTA P = .809764

VM = 47.73 CF

CP = .83

W1 .0418 G. PARTICULATES

W2 0 G. SO2

W3 0 G. H2SO4

W4 .001 G. F

W5 0 G. NH3

$$VS = 85.48 (CP) (AVG. SQR. DELTA P) (SQR. (TS/PS * MS)) = 48.5773 \text{ FPS}$$
QA =  $60(A)(VS) = 146506 \text{ ACFM}$ QS =  $17.64(QA)(PS/TS)(1 - BWO) = 115734 \text{ DSCFM}$ VMS =  $17.64(VM)(PM/TM) = 45.476 \text{ SCF}$ E =  $3.172(QS/VMS) = 8072.59$ 

E1 = 337.434 #/DAY PARTICULATES

E2 = 0 #/DAY SO2

E3 = 0 #/DAY H2SO4

E4 = 8.07259 #/DAY F

E5 = 0 #/DAY NH3

PLANT RATE PROCESS WEIGHT: 75 TONS/HOUR; P2O5 FEED RATE: 36.7 TONS/HOUR

%ISOKENTIC = 101.863

COMMENTS

INTERNATIONAL MINERALS & CHEMICAL CORPORATION  
 SOURCE SAMPLING DATA VERIFICATION REPORT

TEST ON STACK AFI STACK

AT NEW WALES PLANT, FLA.

CONDUCTED ON 081683

-----RUN #2-----								
ELAP TIME (MIN)	METER VOLUME	DEL P	DEL H	STK T	METER T IN OUT	STK VELOCITY (FT/SEC)	ISOKINETIC RATE (PERCENT)	
0	848.71	0	0	596	0 0	0	0	
4	851.6	.54	1.32	596	87 87	44.0831	110.039	
8	854.28	.64	1.57	596	88 88	47.9916	93.6181	
12	857.5	.7	1.7	596	89 89	50.1908	107.392	
16	860.49	.65	1.59	596	91 91	48.3651	103.083	
20	863.41	.62	1.52	596	92 92	47.2358	102.868	
24	866.42	.66	1.62	596	94 94	48.7357	102.434	
28	869.61	.74	1.82	596	96 96	51.6049	102.201	
32	872.69	.69	1.69	596	97 97	49.831	101.978	
36	875.44	.55	1.35	596	98 98	44.4894	101.714	
40	878.33	.61	1.5	596	100 100	46.8533	101.17	
44	881.47	.72	1.77	596	101 101	50.9028	101.069	
48	884.5	.69	1.7	596	102 102	49.831	99.4288	
52	887.56	.66	1.6	596	103 103	48.7357	102.462	
56	890.66	.7	1.7	596	105 105	50.1908	100.463	
60	893.74	.69	1.7	596	106 106	49.831	100.359	
64	896.73	.65	1.6	596	107 107	48.3651	100.173	



BEST AVAILABLE COPY

Stack AFI

Date 081683

Time 1230

RUN # 3

ORSAT %CO2  
%CO  
%O2  
%N2

MD=0.44 (%CO2)+0.32 (%O2)+0.28 (%N2+%CO)=29.0

D 8 FT. Diameter, A=3.14159D<sup>2</sup>/4= 50.2654 FT.<sup>2</sup> AREA

DRY BULB TEMP.= 136 F

WET BULB TEMP.= 120 F

M= .07703 #H2O/#Dry air from Psychrometer Chart

BWO=M/(M+(18/MD))= .110403 Actual:BWO= 0

MS=18 (BWO)+MD (1-BWO)= 27.7856 MS= 0

PB= 29.98 HG

PV= .31 H2O

PS=PB+(-) (PV/13.6)= 30.0028 HG

DELTA H= 1.60125 H2O

PM=PB+(DELTA H/13.6)= 30.0977 HG

TS= 596 R

W1 .0338 G. PARTICULATES

TM= 568.75 R

W2 0 G. SO2

SQR. DELTA P= .807571

W3 0 G. H2SO4

VM= 47.75 CF

W4 .0008 G. F

CP= .83

W5 0 G. NH3

VS=85.48 (CP) (AVG. SQR. DELTA P) (SQR. (TS/PS\*MS))= 48.4457 FPS

QA=60 (A) (VS)= 146109 ACFM

QS=17.64 (QA) (PS/TS) (1-BWO)= 115421 DSCFM

VMS=17.64 (VM) (PM/TM)= 44.5743 SCF

E=3.172 (QS/VMS)= 8213.58

E1= 277.619 #/DAY PARTICULATES

E2= 0 #/DAY SO2

E3= 0 #/DAY H2SO4

E4= 6.57087 #/DAY F

E5= 0 #/DAY NH3

PLANT RATE PROCESS WEIGHT: 75 TONS/HOUR; P2O5 FEED RATE: 36.7 TONS/HOUR

%ISOKENTIC= 100.114

COMMENTS

INTERNATIONAL MINERALS & CHEMICAL CORPORATION  
SOURCE SAMPLING DATA VERIFICATION REPORT

TEST ON STACK AFI STACK

AT NEW WALES PLANT, FLA.

CONDUCTED ON 081683

-----RUN #3-----								
ELAP TIME (MIN)	METER VOLUME	DEL P	DEL H	STK T	METER T IN	METER T OUT	STK VELOCITY (FT/SEC)	ISOKINETIC RATE (PERCENT)
0	896.94	0	0	596	0	0	0	0
4	899.69	.55	1.35	596	103	103	44.4894	100.811
8	902.61	.62	1.52	596	104	104	47.2358	100.679
12	905.71	.7	1.7	596	105	105	50.1908	100.461
16	908.69	.65	1.59	596	106	106	48.3651	100.018
20	911.63	.63	1.55	596	107	107	47.6152	100.037
24	914.59	.64	1.57	596	108	108	47.9916	99.7593
28	917.73	.72	1.77	596	109	109	50.9028	99.6446
32	920.79	.68	1.67	596	110	110	49.4686	99.7248
36	923.54	.55	1.35	596	110	110	44.4894	99.5726
40	926.46	.62	1.52	596	110	110	47.2358	99.6195
44	929.56	.7	1.7	596	110	110	50.1908	99.5793
48	932.57	.66	1.62	596	110	110	48.7357	99.5588
52	935.63	.68	1.67	596	111	111	49.4686	99.5482
56	938.75	.71	1.75	596	112	112	50.5481	99.1783
60	941.97	.68	1.67	596	112	112	49.4686	104.571
64	944.98	.66	1.62	596	113	113	48.7357	99.0336

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OPACITY OBSERVATION DATA EPA METHOD 9

n	sec				m	s			
	0	15	30	45		0	15	30	45
0	20	20	20	20	30	20	20	20	20
1	20	20	20	20	31	20	20	20	20
2	20	20	20	20	32	20	20	20	20
3	20	20	20	20	33	20	20	20	20
4	20	20	20	20	34	20	20	20	20
5	20	20	20	20	35	20	20	20	20
6	20	20	20	20	36	20	20	20	20
7	20	20	20	20	37	20	20	20	20
8	20	20	20	20	38	20	20	20	20
9	20	20	20	20	39	20	20	20	20
10	20	20	20	20	40	20	20	20	20
11	15	15	15	15	41	20	20	20	20
12	15	15	15	15	42	20	20	20	20
13	15	15	15	15	43	20	20	20	20
14	15	15	15	15	44	20	20	20	20
15	15	15	15	15	45	20	20	20	20
16	15	15	15	15	46	20	20	20	20
17	15	15	15	15	47	20	20	20	20
18	20	20	20	20	48	20	20	20	20
19	20	20	20	20	49	20	20	20	20
20	20	20	20	20	50	20	20	20	20
21	20	20	20	20	51	20	20	20	20
22	20	20	20	20	52	20	20	20	20
23	20	20	20	20	53	20	20	20	20
24	20	20	20	20	54	20	20	20	20
25	20	20	20	20	55	20	20	20	20
26	20	20	20	20	56	20	20	20	20
27	20	20	20	20	57	20	20	20	20
28	20	20	20	20	58	20	20	20	20
29	20	20	20	20	59	20	20	20	20

Plant AFI  
 Stack# A053-68867  
 Location New WALES  
 Technician John BAUCCUM  
 Certification# 212217  
 Date 8/16/83  
 Time Start 11:00  
 Time Finish 12:00  
 Distance to Stack .120 Meter  
 Wind Direction SW  
 Wind Velocity 0-5 mph  
 Sum of Numbers Recorded 4660  
 Total Number of Readers 240  
 Opacity =  $\frac{\text{Sum of nos. Recorded}}{\text{Total no.}}$   
 Reading = 19.42



THIS IS TO CERTIFY THAT

John R. Baucum has completed the STATE OF FLORIDA visible emissions evaluation training and is a qualified observer of visible emissions as specified by EPA reference method 9. This certificate expires Sept. 15, 1983

Judi Sears Certification Officer      Bearer's Signature  
 DER Form PERM 5-9 (Jun 79)

File IMC New Works

DAP

COMPLIANCE REPORT

PLANT: AFI

PERMIT NO.: A053-68867

TEST DATE: AUGUST 19, 1983

PLANT RATE: PROCESS WEIGHT: 75 TONS/HOUR  
P205 FEED RATE: 36.7 TONS/HOUR

D.E.R.

AUG 31 1983

SOUTHWEST DISTRICT  
TAMPA

TEST AVERAGE, LBS.\HR. (WHERE APPLICABLE)

ACTUAL - ALLOWABLE

FLUORIDE:

-

PARTICULATE:

-

NITROGEN

58.05 - N/A

ACID MIST:

-

OPACITY:

20.00% - 20.00%

REPORT DATE:

08-19-83

INTERNATIONAL MINERALS & CHEMICAL CORPORATION  
SOURCE SAMPLING CALCULATION REPORT

TEST ON STACK AFI STACK

AT NEW WALES PLANT, FLA.

CONDUCTED ON 081983

DATA SUMMATIONS

PARAMETER	UNITS	RUN 1	RUN 2	RUN 3
BAROMETER PRESSURE	IN OF HG	30.08	30.08	0
STATIC PRESSURE	IN OF HOH	.36	.36	0
STACK PRESSURE	IN OF HG	30.1065	30.1065	0
AVERAGE SQR. DELTA P	IN HOH1/2	.856111	.858681	0
AVERAGE DELTA H	IN OF HOH	1.77688	1.7875	0
METER TEMP.	DEGREES R	562.063	564.313	0
AVERAGE STACK TEMP.	DEGREES R	595	595	0
METERED SAMPLE VOL.	CUBIC FT.	49.81	50	0
PITOT COEFFICIENT	UNITY	.83	.83	0
NOZZLE DIAMETER	IN	.235	.235	0
STACK AREA	SQUARE FT	50.2654	50.2654	0
TRAVERSE POINTS	UNITY	16	16	16
SAMPLING TIME	MINUTES	64	64	0
MOLE WT. OF GAS	LB/LB-MOLE	29.0	29.0	29.0
ACT. STK. VELOCITY	FT/SEC	51.4285	51.5826	0
ACT. STK. GAS FLOW	CU-FT/MIN	155104	155569	0
STD. GAS FLOW	CU-FT/MIN.	120410	120775	0
STD. STK. VELOCITY	FT/SEC	47.2262	47.2197	0
PART. EMISSION	LB/DAY	0	0	0
SO2 EMISSION	LB/DAY	0	0	0
H2SO4 EMISSION	LB/DAY	0	0	0
FLUORIDE EMISSION	LB/DAY	0	0	0
NITROGEN EMISSION	LB/DAY	1382.96	1403.57	0
ISOKINETIC RATE	%	101.675	101.354	0

Stack AFI

Date 081983

Time 0940

RUN # 1

ORSAT %CO2  
%CO  
%O2  
%N2

$$MD = 0.44 (\%CO2) + 0.32 (\%O2) + 0.28 (\%N2 + \%CO) = 29.0$$

D 8 FT. Diameter,  $A = 3.14159 D^2 / 4 = 50.2654 \text{ FT.}^2$  AREA

DRY BULB TEMP. = 135 F

WET BULB TEMP. = 122 F

M = .08306 #H2O/#Dry air from Psychrometer Chart

$$BWO = M / (M + (18/MD)) = .118025$$

$$\text{Actual: BWO} = .130242$$

$$MS = 18 (BWO) + MD (1 - BWO) = 27.7017$$

$$MS = 27.5673$$

PB = 30.08 HG

PV = .36 H2O

$$PS = PB + (-) (PV / 13.6) = 30.1065 \text{ HG}$$

DELTA H = 1.77688 H2O

$$PM = PB + (DELTA H / 13.6) = 30.2101 \text{ HG}$$

TS = 595 R

W1 0 G. PARTICULATES

TM = 562.063 R

W2 0 G. SO2

SQR. DELTA P = .856111

W3 0 G. H2SO4

VM = 49.81 CF

W4 0 G. F

CP = .83

W5 .171 G. NH3

$$VS = 85.48 (CP) (AVG. SQR. DELTA P) (SQR. (TS/PS * MS)) = 51.4285 \text{ FPS}$$

$$QA = 60 (A) (VS) = 155104 \text{ ACFM}$$

$$QS = 17.64 (QA) (PS/TS) (1 - BWO) = 120410 \text{ DSCFM}$$

$$VMS = 17.64 (VM) (PM/TM) = 47.2262 \text{ SCF}$$

$$E = 3.172 (QS/VMS) = 8087.5$$

E1 = 0 #/DAY PARTICULATES

E2 = 0 #/DAY SO2

E3 = 0 #/DAY H2SO4

E4 = 0 #/DAY F

E5 = 1382.96 #/DAY NH3

PLANT RATE PROCESS WEIGHT: 75 TONS/HOUR; P2O5 FEED RATE: 36.7 TONS/HOUR

%ISOKENTIC = 101.675

COMMENTS

INTERNATIONAL MINERALS & CHEMICAL CORPORATION  
SOURCE SAMPLING DATA VERIFICATION REPORT

TEST ON STACK AFI STACK

AT NEW WALES PLANT, FLA.

CONDUCTED ON 081983

-----RUN #1-----								
ELAP TIME (MIN)	METER VOLUME	DEL P	DEL H	STK T	METER T IN OUT	STK VELOCITY (FT/SEC)	ISOKINETIC RATE (PERCENT)	
0	968.66	0	0	595	0 0	0	0	
4	971.81	.74	1.79	595	88 88	51.6761	104.387	
8	974.98	.75	1.82	595	90 90	52.0241	103.978	
12	978.12	.74	1.79	595	92 92	51.6761	103.304	
16	981.2	.71	1.72	595	95 95	50.6178	102.872	
20	984.24	.69	1.67	595	98 98	49.8998	102.431	
24	987.47	.78	1.89	595	100 100	53.0544	102.049	
28	990.62	.74	1.79	595	102 102	51.6761	101.787	
32	993.7	.71	1.72	595	105 105	50.6178	101.051	
36	996.83	.73	1.77	595	105 105	51.3257	101.285	
40	999.99	.75	1.82	595	106 106	52.0241	100.722	
44	1003.16	.75	1.82	595	107 107	52.0241	100.857	
48	1006.22	.7	1.7	595	108 108	50.26	100.572	
52	1009.28	.7	1.7	595	108 108	50.26	100.568	
56	1012.47	.76	1.84	595	109 109	52.3698	100.478	
60	1015.64	.75	1.82	595	110 110	52.0241	100.328	
64	1018.77	.73	1.77	595	110 110	51.3257	100.398	

Stack AFI

Date 081983

Time 1110

RUN # 2

ORSAT %CO2  
%CO  
%O2  
%N2

$MD = 0.44 (\%CO2) + 0.32 (\%O2) + 0.28 (\%N2 + \%CO) = 29.0$

D 8 FT. Diameter,  $A = 3.14159 D^2 / 4 = 50.2654 \text{ FT.}^2 \text{ AREA}$

DRY BULB TEMP. = 135 F

WET BULB TEMP. = 122 F

M = .08306 #H2O/#Dry air from Psychrometer Chart

$BWO = M / (M + (18/MD)) = .118025$

Actual: BWO = .130213

$MS = 18 (BWO) + MD (1 - BWO) = 27.7017$

MS = 27.5677

PB = 30.08 HG

PV = .36 H2O

$PS = PB + (-) (PV / 13.6) = 30.1065 \text{ HG}$

DELTA H = 1.7875 H2O

$PM = PB + (DELTA H / 13.6) = 30.2116 \text{ HG}$

TS = 595 R

TM = 564.313 R

SQR. DELTA P = .858681

VM = 50 CF

CP = .83

W1 0 G. PARTICULATES

W2 0 G. SO2

W3 0 G. H2SO4

W4 0 G. F

W5 .173 G. NH3

$VS = 85.48 (CP) (AVG. \text{ SQR. DELTA P}) (SQR. (TS / PS * MS)) = 51.5826 \text{ FPS}$

$QA = 60 (A) (VS) = 155569 \text{ ACFM}$

$QS = 17.64 (QA) (PS / TS) (1 - BWO) = 120775 \text{ DSCFM}$

$VMS = 17.64 (VM) (PM / TM) = 47.2197 \text{ SCF}$

$E = 3.172 (QS / VMS) = 8113.13$

E1 = 0 #/DAY PARTICULATES

E2 = 0 #/DAY SO2

E3 = 0 #/DAY H2SO4

E4 = 0 #/DAY F

E5 = 1403.57 #/DAY NH3

PLANT RATE PROCESS WEIGHT: 75 TONS/HOUR; P2O5 FEED RATE: 36.7 TONS/HOUR  
%ISOKENTIC = 101.354

COMMENTS



**BEST AVAILABLE COPY**

TEST ON STACK AFI STACK

AT NEW WALES PLANT, FLA.

CONDUCTED ON 081983

-----RUN #2-----								
ELAP TIME (MIN)	METER VOLUME	DEL P	DEL H	STK T	METER T IN OUT	STK VELOCITY (FT/SEC)	ISOKINETIC RATE (PERCENT)	
0	1019	0	0	595	0 0	0	0	
4	1022.2	.74	1.79	595	93 93	51.6758	105.084	
8	1025	.74	1.79	595	95 95	51.6758	91.6167	
12	1028.12	.75	1.82	595	97 97	52.0238	101.048	
16	1031.6	.73	1.77	595	99 99	51.3254	113.818	
20	1034.79	.7	1.7	595	100 100	50.2598	106.339	
24	1037.85	.79	1.92	595	102 102	53.3931	95.7254	
28	1040	.75	1.82	595	104 104	52.0238	68.769	
32	1044.56	.72	1.74	595	104 104	50.9727	148.829	
36	1047.77	.73	1.77	595	106 106	51.3254	103.692	
40	1050.42	.74	1.79	595	107 107	51.6758	84.8747	
44	1053.55	.76	1.84	595	108 108	52.3695	98.7575	
48	1056.66	.71	1.72	595	109 109	50.6175	101.31	
52	1059.9	.7	1.7	595	110 110	50.2598	106.113	
56	1063	.75	1.82	595	110 110	52.0238	98.1097	
60	1066	.75	1.82	595	112 112	52.0238	94.6136	
64	1069.3	.74	1.79	595	113 113	51.6758	104.587	