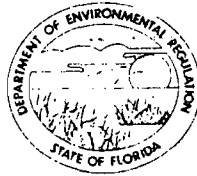


AC 53-099108



DER

FEB 4 1985

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

BAQM

APPLICATION TO OPERATE/CONSTRUCT
AIR POLLUTION SOURCES

SOURCE TYPE: Air Pollution [] New¹ [x] Existing¹

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

COMPANY NAME: IMCC, New Wales Operations COUNTY: Polk

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Third Phosphoric Plant with Crossflow Scrubber

SOURCE LOCATION: Street Highway 640 & County Line Rd. City Mulberry

UTM: East 17-396.7 North 3079.4

Latitude ° ' "N Longitude ° ' "W

APPLICANT NAME AND TITLE: J. A. Brafford, Vice-President & General Manager

APPLICANT ADDRESS: P. O. Box 1035, Mulberry, FL 33860

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of IMCC, New Wales Operations

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

*Attach letter of authorization

Signed: J. A. Brafford
J. A. Brafford, Vice-President & General Mgr.
Name and Title (Please Type)

Date: Feb. 1, 1985 Telephone No. (813) 428-2531

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

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed: Craig A. Pflaum PE
Craig A. Pflaum
Name (Please Type)

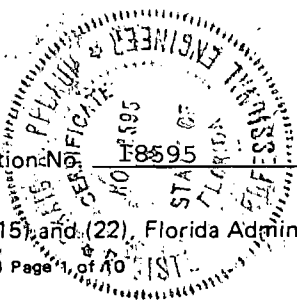
IMCC, New Wales Operations
Company Name (Please Type)

P. O. Box 1035, Mulberry, FL 33860
Mailing Address (Please Type)

Date: 1-31-85 Telephone No. (813) 428-2531

(Affix Seal)

Florida Registration No. 18595



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

SECTION II: GENERAL PROJECT INFORMATION

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

Increase permitted capacity of 1500 TPD to 2000 TPD production capacity.

No construction will be involved; this permitted rate increase reflects actual current plant capacity.

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

Start of Construction NA Completion of Construction NA

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.)

NA

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

A053-92685 issued 1/21/85 (see attached copy of permit).

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

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr ; if seasonal, describe:

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

- | | |
|---|-----------------|
| 1. Is this source in a non-attainment area for a particular pollutant? | <u> </u> No |
| a. If yes, has "offset" been applied? | <u> </u> |
| b. If yes, has "Lowest Achievable Emission Rate" been applied? | <u> </u> |
| c. If yes, list non-attainment pollutants. | |
| <u> </u> | |
| 2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. | <u> </u> No |
| 3. Does the State "Prevention of Significant Deterioration" (PSD) requirements apply to this source? If yes, see Sections VI and VII. | <u> </u> No |
| 4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? | <u> </u> Yes |
| 5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? | <u> </u> No |

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

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

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

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Phosphate Rock	F	3.5	6935 TPD	Attack Tank
Sulfuric Acid	---	---	5380 TPD	

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

1. Total Process Input Rate (lbs/hr): 12,315 2151 TPD (As P₂O₅), 5380 TPD H₂SO₄

2. Product Weight (lbs/hr): 13,000 2000 TPD (As P₂O₅), 11,000 TPD gypsum

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission ¹		Allowed Emission ² Rate per Ch. 17-2, F.A.C.	Allowable ³ Emission lbs/hr	Potential Emission ⁴		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Fluoride	1.79	7.85	0.02 lbs F/ton P ₂ O ₅ Input	1.79	1.79	7.85	stack

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles ⁵ Size Collected (in microns)	Basis for Efficiency (Sec. V, It ⁵)
Davy Design	F ⁻	≥ 99%	NA	design
Crossflow Scrubber with cyclonic entrainment separator.				

¹See Section V, Item 2.

²Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. – 0.1 pounds per million BTU heat input)

³Calculated from operating rate and applicable standard

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

⁵If Applicable

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	

*Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, lbs/hr

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____
 Density: _____ lbs/gal Typical Percent Nitrogen: _____
 Heat Capacity: _____ BTU/lb _____ BTU/gal
 Other Fuel Contaminants (which may cause air pollution): _____

F. If applicable, indicate the percent of fuel used for space heating. Annual Average _____ Maximum _____

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

Liquid and solid waste to gypsum stack/cooling pond.

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

Stack Height: 120 ft. Stack Diameter: 4' 6" ft.
 Gas Flow Rate: 24,000 ACFM Gas Exit Temperature: 104 °F.
 Water Vapor Content: 4.0 % Velocity: 25 FPS

SECTION IV: INCINERATOR INFORMATION

NA

Type of Waste	Type O (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste _____

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

Approximate Number of Hours of Operation per day _____ days/week _____

Manufacturer _____

Date Constructed _____ Model No. _____

NOT APPLICABLE

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

Stack Height: _____ ft. Stack Diameter _____ Stack Temp. _____

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

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

Type of pollution control device: Cyclone Wet Scrubber Afterburner Other (specify) _____

Brief description of operating characteristics of control devices: _____

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

SECTION V: SUPPLEMENTAL REQUIREMENTS

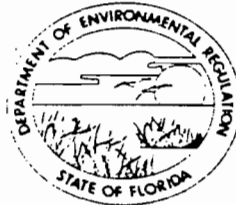
Please provide the following supplements where required for this application.

1. Total process input rate and product weight — show derivation.
2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, etc.).
5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3, and 5 should be consistent: actual emissions = potential (1-efficiency).
6. An 8½" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.
7. An 8½" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).
8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

SOUTHWEST DISTRICT

7601 HIGHWAY 301 NORTH
TAMPA, FLORIDA 33610-9544



BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

RICHARD D. GARRITY, PH.D.
DISTRICT MANAGER

January 21, 1985

Mr. John A. Brafford, Vice President and General Manager
IMCC, New Wales Operation
P.O. Box 1035
Mulberry, Florida 33860

RECEIVED BY
JOHN A. BRAFFORD

Dear Mr. Brafford:

Re: Polk County - AP
No. 3 Phosphoric Acid Plant

JAN 23 1985

COPIES CAP REG. OKL
ROUTE TO JWB

Attached is Permit No. A053-92685. Should you object to the issuance of this permit or the specific conditions of the permit, you have a right to petition for a hearing pursuant to the provisions of Section 120.57, Florida Statutes. The petition must be filed within fourteen (14) days from receipt of this letter. The petition must comply with the requirements of Section 17-103.155 and Rule 28-5.201, Florida Administrative Code, (copies 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 an opportunity to respond, to present evidence and argument on all issues involved, to conduct cross-examination of witnesses and submit rebuttal evidence, to submit proposed findings of facts and orders, to file exceptions to any order or hearing officer's recommended order, and to be represented by counsel.

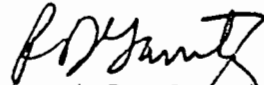
If an informal hearing is requested, the agency, in accordance with its rules of procedure, will provide affected persons or parties or their counsel an opportunity, at a convenient time and place, to present to

Mr. John A. Brafford
Mulberry, Florida

Page Two

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.

Sincerely,



Richard D. Garity, Ph.D.
District Manager

RDG/BG/rw

Attachment: as stated

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

SOUTHWEST DISTRICT

7601 HIGHWAY 301 NORTH
TAMPA, FLORIDA 33610



BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

DR. RICHARD D. GARRITY
DISTRICT MANAGER

PERMITTEE:

Mr. John A. Brafford
IMCC, New Wales Operations
P.O. Box 1035
Mulberry, Florida 33860

PERMIT/CERTIFICATION

Permit No.: A053-92685
County: Polk
Expiration Date: 10/15/89
Project: No. 3 Phosphoric Acid
Plant

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 the 1500 TPD P_2O_5 No. 3 Phosphoric Acid Plant with emissions through a cross flow, cooling pond water, scrubber and a cyclonic entrainment separator.

Location: Highway 640 and County Line Road, Mulberry, Polk County

UTM: 17-396.7E 3079.4N NEDS NO: 0059 Point ID: 39

Replaces Permit No.: AC53-19051

PERMITTEE:
IMCC, New Wales Operations

Permit/Certification No.: A053-92685
Project: No. 3 Phosphoric Acid Plant

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:
IMCC, New Wales Operations

Permit/Certification No.: A053-92685
Project: No. 3 Phosphoric Acid Plant

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:
IMCC, New Wales Operations

Permit/Certification No: A053-92685
Project: No. 3 Phosphoric Acid Plant

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:
IMCC, New Wales Operations

Permit/Certification No.: A053-92685
Project: No. 3 Phosphoric Acid Plant

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 8/9/84 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.)).

- | | |
|---|---|
| <input type="checkbox"/> Particulates | <input type="checkbox"/> Sulfur Oxides |
| <input checked="" type="checkbox"/> Fluorides | <input type="checkbox"/> Nitrogen Oxides |
| <input type="checkbox"/> Opacity | <input type="checkbox"/> Hydrocarbons |
| | <input type="checkbox"/> Total Reduced Sulfur |

PERMITTEE:
IMCC, New Wales Operations

Permit/Certification No.: A053-92685
Project: No. 3 Phosphoric Acid Plant

Specific Conditions (continued)

2. Approved compliance stack testing of emissions must be conducted within approximately 10% of the permitted capacity of 1613 TPD P_2O_5 input. A compliance test submitted at operating levels less than 90% of permitted capacities will automatically constitute an amended permit at the lesser rate plus 10% until another test (showing compliance) at 90% of a higher capacity is submitted. Failure to submit the input rates or operation at conditions during testing which do not reflect actual operating conditions may invalidate the data (Section 403.161(1)(c), Florida Statutes).
3. 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.
4. The maximum permitted operating time is 24 hours per day, 7 days per week, 52 weeks per year.
5. The maximum allowable fluoride emissions from the No. 3 Phosphoric Acid facility shall not exceed 0.02 lb./ton of P_2O_5 input (Section 17-2.600(3)(a)1., F.A.C.) or 32.3 lb./day at 1613 ton/day P_2O_5 input. The permittee has allocated 30.3 lb./day to the plant scrubber stack and 2.0 lb./day to the clarifier scrubber stack. At lesser operating rates, fluoride emissions from the plant stack shall not exceed 0.019 lb./ton P_2O_5 input.
6. This facility is subject to the New Source Performance Standards (NSPS) established for phosphoric acid plants (40 CFR 60, Subpart T) which is adopted by reference in Section 17-2.660(2), F.A.C. and shall comply with all the requirements therein.
7. The applicant shall calibrate, maintain, and operate a monitoring device which can be used to determine the mass flow of phosphorus-bearing feed material to the process. The monitoring device shall have an accuracy of ± 5 percent over its operating range.

PERMITTEE:
IMCC, New Wales Operations

Permit/Certification No.: A053-92685
Project: No. 3 Phosphoric Acid Plant

SPECIFIC CONDITIONS (con't):

8. The applicant shall maintain a daily record of equivalent P_2O_5 feed by first determining the total mass rate in tons/hr. of phosphorus bearing feed using a monitoring device for measuring mass flow rate which meets the requirements of the above paragraph (7) and then by proceeding according to 60.204(d)(2), Subpart T, Standard of Performance of the Phosphate Fertilizer Industry: Wet Process Phosphoric Acid Plant.
9. The applicant shall calibrate, maintain, and operate a monitoring device which continuously measures and permanently records the total pressure drop across the process scrubber system. The monitoring device shall have an accuracy of ± 5 percent over its operating range.
10. The Department of Environmental Regulation shall be notified in writing 15 days prior to any compliance test.
11. 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.

Issued this 21 day of Jan
1985.

STATE OF FLORIDA DEPARTMENT OF
ENVIRONMENTAL REGULATION


Richard D. Garrity, Ph.D.
District Manager

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



INTERNATIONAL MINERALS & CHEMICAL CORPORATION

August 15, 1984

Mr. R. R. Garrett, P.E.
Florida Department of Environmental
Regulation
7601 Highway 301 N.
Tampa, FL 33610-9544

Dear Bob:

Enclosed please find the stack tests for the New Wales
Third Train Phos Acid.

If you have any questions, please notify me.

Very truly yours,

A. L. Girardin, III

ALG:rc
(018:RRG/DER1)

Enclosure:

cc: J. M. Baretincic - New Wales
D. K. Larsen - Mundelein
C. A. Pflaum - New Wales

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



INTERNATIONAL MINERALS & CHEMICAL CORPORATION

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

A. L. Girardin, III

Signature, Owner or Authorized Representative

A.L. Girardin, III - Environmental Serv. Supv.
Name and Title

P. O. Box 1035

Address

Mulberry,
City

FL 33860
State Zip

8-15-84

Date

(813) 428-2531

Telephone No.

**SUMMARY OF EMISSION MEASUREMENTS
THIRD TRAIN PHOS ACID
INTERNATIONAL MINERALS and CHEMICAL CORPORATION
NEW WALES OPERATIONS
POLK COUNTY, FLORIDA**

August 9, 1984

INTRODUCTION

The New Wales Operation of IMC is a phosphate fertilizer facility located in western Polk County, FL. At this facility phos acid is produced as an intermediate product in the production of phosphate fertilizer products. This report details the water soluble fluoride emission measurements conducted on the #3 Phos Acid Scrubber on August 9, 1984. The purpose of the measurements was to show compliance with FDER standards.

During the period of testing, the plant was operating at a production rate of 1625 tons of P_2O_5 per day and a P_2O_5 feed rate of 1710 tons per day. This production rate was determined from flow totalizers and from analyses. The permitted production rate of the #3 Phos Acid Plant is $(1500 \pm 10\%)$ tons of P_2O_5 per day.

The allowable emission rate of water soluble fluoride on the #3 Phos Acid Scrubber is 1.42 lbs/hr. (Construction Permit #AC53-19051). During the period of testing on August 9, 1984, the emission rate for water soluble fluoride was 1.12 lbs/hr.

It can be concluded from the emission measurements made on August 9, 1984 that the Third Train Phos Acid Plant Scrubber meets the emission limiting requirements set forth in Construction Permit #AC53-19051.

LOCATION of SAMPLING PORTS

Two sampling ports for emission measurements are located in the 54 inch diameter stack 24 feet below the top of the stack and 82 feet 4 inches above the point where the tail gases enter the stack. The ports are located in the stack wall 90° to one another.

Using criteria established by EPA Test Method 1 (40 CFR 60, Appendix A) it was determined that a total of 12 sampling points would be required; six sampling points on each of the two perpendicular diameters. A diagram of the stack and table listing the distance from the stack wall to each sampling point is included in this report.

FIELD and ANALYTICAL PROCEDURES

Emission measurements for gaseous and water soluble fluoride were conducted in accordance with EPA Test Method 13B. The only modification was that 5 feet of flexible tygon tubing was used between the probe and the first impinger. Nutech stack sampling Model No. 201 was the type of sampling equipment used.

Prior to performing the actual emission measurements, preliminary stack and stack gas measurements were made. These measurements included the average velocity head, wet and dry bulb stack gas temperatures, and the dimensions of the stack at the point where the tests were to be made. The moisture content of the stack gas was, using lbs. of dry air from the psychometric chart, assumed to be 4%.

Each of the three replicate test runs consisted of sampling for a specific time at each traverse point. An "S" type pitot tube was connected to the sampling probe so that the velocity head could be measured at each traverse point and the sampling rate adjusted to assure isokinetic sampling.

The field and laboratory data sheets for the three test runs are included in this report.

INTERNATIONAL MINERAL and CHEMICAL CORPORATION
NEW WALES OPERATIONS
3RD TRAIN PHOS ACID
PERMIT #AC53-19051

PLANT RATE CALCULATION SHEET
AUGUST 9, 1984

WET ROCK SLURRY RATE 760 GPM

SpG 1.811

% P205 30.86

% SOLIDS IN SLURRY 67.1

$$\text{SLURRY RATE} \times 8.334 \times \text{SpG} \times \frac{\% \text{ P205}}{100} \times \frac{\% \text{ SOLIDS}}{100} = \text{TPM P205 FEED}$$
$$760 \times 8.334 \times 1.811 \times \frac{.3086}{100} \times \frac{.671}{100} = 1.1876$$

$$760 \times 8.334 \times 1.811 \times \frac{.3086}{2000} \times \frac{0.671}{100} = 1.1876$$

$$\text{TPM P205 FEED} \times \% \text{ RECOVERY} \times 1440 = \text{PRODUCTION RATE}$$
$$1.1876 \times 0.95 \times 1440 = 1625 \text{ TONS / DAY}$$

$$\text{FLUORIDE ALLOWABLE} = 1.1876 \text{ TPM FEED} \times 0.02 \times 1440$$

$$\text{FLUORIDE ALLOWABLE} = 34.20$$

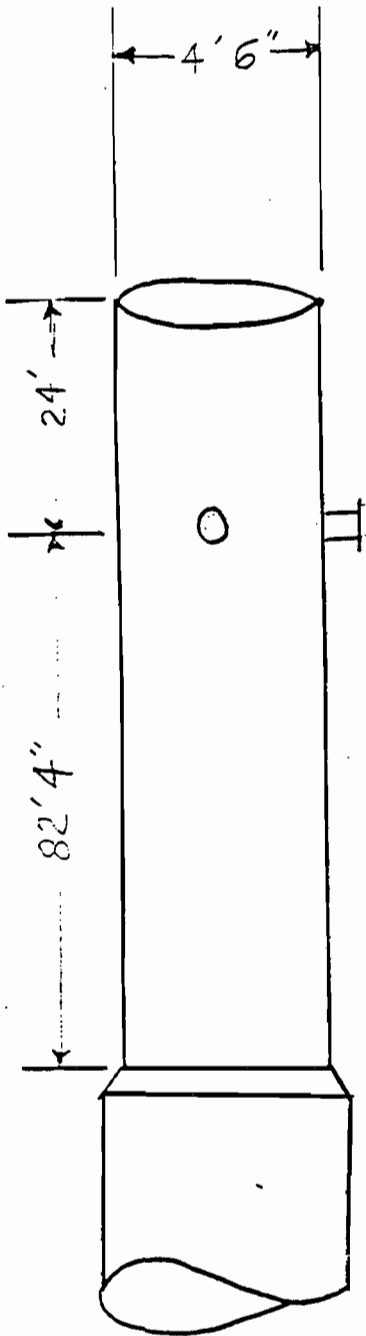
$$\text{P205 FEED RATE} = 1710 \text{ P205}$$

$$\text{P205 PRODUCTION RATE} = 1625 \text{ TONS / DAY}$$

$$\text{PLANT RATE BY PERMIT} = 1500 \text{ TONS / DAY} \pm 10 \%$$

BEST AVAILABLE COPY

SAMPLE PORT LOCATION - #3 PHOS. ACID
IMC NEW WALES OPERATION



POINT NO.	INCHES INSID STACK WALL
1	2.4
2	7.9
3	15.9
4	30.1
5	40.1
6	51.6

(B:STKRPT4.ENV)

COMPLIANCE REPORT

PLANT: #3 PHOS. ACID PLANT

PERMIT NO.: AC53-19051

TEST DATE: AUGUST 9, 1984

PLANT RATE: 1625 TONS / DAY ; P2O5 FEED RATE = 1710 P2O5

TEST AVERAGE, LBS.\HR (WHERE APPLICABLE) ACTUAL - ALLOWABLE

FLUORIDE:

1.12 - 1.42

PARTICULATE:

-

SO2

-

ACID MIST:

-

OPACITY:

-

REPORT DATE:

08-09-84

BEST AVAILABLE COPY

Stack #3PAP

Date 080984

Time 1055

RUN # 1

ORSAT %CO2
 %CO
 %O2
 %N2

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

$$D = 4.5 \text{ FT. Diameter, } A = 3.14159 D^2 / 4 = 15.9043 \text{ FT.}^2 \text{ AREA}$$

DRY BULB TEMP. = 104 F

WET BULB TEMP. = 99 F

M = .04052 #H2O/#Dry air from Psychrometer Chart

BWO = $M / (M + (18/MD)) = .0612816$

Actual: BWO = .0615035

MS = $18 (BWO) + MD (1 - BWO) = 28.3259$

MS = 28.3235

PB = 29.92 HG

PV = .17 H2O

PS = $PB + (-) (PV / 13.6) = 29.9325 \text{ HG}$

DELTA H = 1.58917 H2O

PM = $PB + (DELTA H / 13.6) = 30.0369 \text{ HG}$

TS = 564 R

W1 0 G. PARTICULATES

TM = 551.917 R

W2 0 G. SO2

SQR. DELTA P = .451056

W3 0 G. H2SO4

VM = 43.24 CF

W4 .0145 G. F

CP = .84

W5 0 G. NH3

$$VS = 85.48 (CP) (AVG. SQR. DELTA P) (SQR. (TS/PS * MS)) = 26.4161 \text{ FPS}$$

$$QA = 60 (A) (VS) = 25207.8 \text{ ACFM}$$

$$QS = 17.64 (QA) (PS/TS) (1 - BWO) = 22147.8 \text{ DSCFM}$$

$$VMS = 17.64 (VM) (PM/TM) = 41.5224 \text{ SCF}$$

$$E = 3.172 (QS/VMS) = 1691.92$$

E1 = 0 #/DAY PARTICULATES

E2 = 0 #/DAY SO2

E3 = 0 #/DAY H2SO4

E4 = 24.5328 #/DAY F

E5 = 0 #/DAY NH3

PLANT RATE 1625 TONS/ DAY : P205 FEED RATE = 1710 P205

%ISOKINETIC = 100.65

COMMENTS NONE

INTERNATIONAL MINERALS & CHEMICAL CORPORATION
 SOURCE SAMPLING DATA VERIFICATION REPORT

TEST ON STACK #3PAP STACK

AT NEW WALES PLANT, FLA.

CONDUCTED ON 080984

-----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	538.5	0	0	564	0 0	0	0	
5	541.2	.11	.85	564	82 82	19.4238	103.602	
10	544.6	.18	1.39	564	84 84	24.8471	101.744	
15	548.3	.22	1.7	564	86 86	27.4695	99.8619	
20	552.36	.25	1.93	564	88 88	29.2825	102.476	
25	556.3	.24	1.85	564	90 90	28.6909	101.109	
30	560	.21	1.62	564	92 92	26.8379	101.081	
35	563.1	.15	1.16	564	94 94	22.6822	99.7307	
40	566.5	.18	1.39	564	96 96	24.8471	99.5501	
45	570.3	.22	1.7	564	97 97	27.4695	100.535	
50	574.3	.25	1.93	564	97 97	29.2825	99.3298	
55	578.2	.24	1.85	564	98 98	28.6909	98.6478	
60	582	.22	1.7	564	99 99	27.4695	100.175	

BEST AVAILABLE COPY

Stack #3PAP

Date 080984

Time 1250

RUN # 2

ORSAT %CO2
%CO
%O2
%N2

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

D 4.5 FT. Diameter, A=3.14159D2/4= 15.9043 FT.^2 AREA

DRY BULB TEMP.= 104 F

WET BULB TEMP.= 99 F

M= .04052 #H2O/#Dry air from Psychrometer Chart

BWO=M/(M+(18/MD))= .0612816

Actual:BWO= .0620401

MS=18 (BWO)+MD(1-BWO)= 28.3259

MS= 28.3176

PB= 29.92 HG

PV= .17 H2O

PS=PB+(-)(PV/13.6)= 29.9325 HG

DELTA H= 1.60917 H2O

PM=PB+(DELTA H/13.6)= 30.0383 HG

TS= 564 R

W1 0 G. PARTICULATES

TM= 560.833 R

W2 0 G. SO2

SQR. DELTA P= .453925

W3 0 G. H2SO4

VM= 43.54 CF

W4 .0166 G. F

CP= .84

W5 0 G. NH3

VS=85.48 (CP) (AVG. SQR. DELTA P) (SQR. (TS/PS*MS))= 26.5869 FPS

QA=60 (A) (VS)= 25370.8 ACFM

QS=17.64 (QA) (PS/TS) (1-BWO)= 22278.2 DSCFM

VMS=17.64 (VM) (PM/TM)= 41.1458 SCF

E=3.172 (QS/VMS)= 1717.47

E1= 0 #/DAY PARTICULATES

E2= 0 #/DAY SO2

E3= 0 #/DAY H2SO4

E4= 28.5099 #/DAY F

E5= 0 #/DAY NH3

PLANT RATE 1625 TONS/DAY : P205 FEED RATE = 1710 P205

%ISOKINETIC= 99.1532

COMMENTS NONE

BEST AVAILABLE COPY

INTERNATIONAL MINERALS & CHEMICAL CORPORATION
SOURCE SAMPLING DATA VERIFICATION REPORT

EST ON STACK #3PAP STACK

AT NEW WALES PLANT, FLA.

CONDUCTED ON 080984

-----RUN #2-----								
LAP TIME (MIN)	METER VOLUME	DEL P	DEL H	STK T	METER T IN	METER T OUT	STK VELOCITY (FT/SEC)	ISOKINETIC RATE (PERCENT)
0	582.7	0	0	564	0	0	0	0
5	585.4	.11	.85	564	96	96	19.4259	101.04
10	588.8	.18	1.39	564	96	96	24.8496	99.5949
15	592.4	.21	1.62	564	97	97	26.8407	97.5126
20	596.5	.25	1.93	564	98	98	29.2856	101.678
25	600.5	.25	1.93	564	100	100	29.2856	98.8439
30	604.25	.22	1.7	564	100	100	27.4723	98.7269
35	607.5	.16	1.24	564	102	102	23.4285	99.8623
40	611	.19	1.47	564	103	103	25.5306	98.5693
45	614.7	.22	1.7	564	103	103	27.4723	96.8918
50	618.76	.25	1.93	564	104	104	29.2856	99.615
55	622	.24	1.85	564	105	105	28.6939	80.9753
60	626.5	.22	1.7	564	106	106	27.4723	117.216

STACK CALCULATION - DATA SHEET

Stack #3PAP

Date 080984

Time 1455

RUN # 3

ORSAT %CO2
 %CO
 %O2
 %N2

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

D 4.5 FT. Diameter, A=3.14159D²/4= 15.9043 FT.² AREA

DRY BULB TEMP.= 104 F

WET BULB TEMP.= 99 F

M= .04052 #H2O/#Dry air from Psychrometer Chart

BWO=M/(M+(18/MD))= .0612816

Actual:BWO= .0658233

MS=18 (BWO)+MD(1-BWO)= 28.3259

MS= 28.2759

PB= 29.92 HG

PV= .17 H2O

PS=PB+(-)(PV/13.6)= 29.9325 HG

DELTA H= 1.45167 H2O

PM=PB+(DELTA H/13.6)= 30.0267 HG

TS= 564 R

TM= 565.583 R

SQR. DELTA P= .430392

VM= 41.25 CF

CP= .84

W1 0 G. PARTICULATES

W2 0 G. SO2

W3 0 G. H2SO4

W4 .0162 G. F

W5 0 G. NH3

VS=85.48 (CP) (AVG. SQR. DELTA P) (SQR. (TS/PS*MS))= 25.2271 FPS

QA=60 (A) (VS)= 24073.2 ACFM

QS=17.64 (QA) (PS/TS) (1-BWO)= 21053.5 DSCFM

VMS=17.64 (VM) (PM/TM)= 38.6543 SCF

E=3.172 (QS/VMS)= 1727.67

E1= 0 #/DAY PARTICULATES

E2= 0 #/DAY SO2

E3= 0 #/DAY H2SO4

E4= 27.9882 #/DAY F

E5= 0 #/DAY NH3

PLANT RATE 1625 TONS/DAY : P205 FEED RATE = 1710 P205

%ISOKINETIC= 98.5678

COMMENTS NONE

INTERNATIONAL MINERALS & CHEMICAL CORPORATION
 SOURCE SAMPLING DATA VERIFICATION REPORT

TEST ON STACK #3PAP STACK

AT NEW WALES PLANT, FLA.

CONDUCTED ON 080984

-----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	626.5	0	0	564	0	0	0	0
5	629.51	.14	1.08	564	102	102	21.9314	99.1625
10	632.62	.15	1.16	564	102	102	22.7012	99.0014
15	636.12	.19	1.47	564	103	103	25.5494	98.8958
20	639.9	.22	1.7	564	104	104	27.4925	99.1389
25	643.8	.24	1.86	564	105	105	28.715	97.7948
30	647.3	.19	1.47	564	105	105	25.5494	98.5457
35	650	.11	.85	564	106	106	19.4401	99.5836
40	653.1	.15	1.16	564	107	107	22.7012	97.8126
45	656.6	.19	1.47	564	108	108	25.5494	98.0252
50	660.4	.22	1.7	564	108	108	27.4925	98.9621
55	664.2	.23	1.8	564	108	108	28.1104	96.809
60	668	.22	1.7	564	109	109	27.4925	98.7866

SOURCE SAMPLING FIELD DATA SHEET

PLANT #3 Phos Acid

FINAL GAS METER READING 582.00 ft3

SAMPLE LOCATION Stack

INITIAL GAS METER READING 533.5 ft3

TYPE OF CONTROL Wet Scrubber

CONDENSATE INCREASE IN IMP. 50 ml

TYPE OF SAMPLES Fluoride

MOISTURE IN SILICA GEL 7.8 gm

DATE 5/9/84 RUN # 1

MOISTURE IN STACK GAS .0592 %

TIME START 1055 END 1100

METER DELTA H@ 1.797 C FACTOR .994

SAMPLING TIME 5 min/pt.

PITOT TUBE COEFFICIENT, Cp .84

TOTAL SAMPLING TIME 60 min.

D/B TEMP 104 F, W/B TEMP 99 F

LEAK CHECKS:

BAROMETRIC PRESS. 29.92 "Hg

METER BOX INITIAL .315 cfm @ 9 in.Hg

STACK PRESSURE 29.93 "Hg

FINAL .011 cfm @ 9 in.Hg

WEATHER H.T

TEMP. 92 F, W/D NW W/S 0-5 mph

PITOT TUBES

NOZZLE DIAMETER .300 IN.

IMPACT 3in.H2O FOR 15 sec. (STABLE/LEAK)

PROBE LENGTH 60 IN.

STATIC 3in.H2O FOR 15 sec. (STABLE/LEAK)

STACK DIMENSIONS 54 IN.

STACK AREA 15.90 FT2

TEST CONDUCTED BY: K. Roberts / E. Taylor
T. Moran / J. E. ...

PRODUCTION RATE 1625 Tons/DAY

BEST AVAILABLE COPY

ANTI-HEX MALES CHEMICALS, INC. STACK #3 FWP DATE: 8/4/84 SAMPLE # _____ TECHNICIAN: _____
 AMBIENT TEMP: 88 °F BAROMETRIC PRESSURE, IN. HG 29.92 ASSUMED MOISTURE, % 7.1 HEATER BOX SETTING _____ °F
 CONTROL UNIT # 994 PROBE TIP DIAMETER, IN. 3.00 PROBE LENGTH, FT. 34 PROBE HEATER SETTING _____ °F
 -17

TIME	CLOCK TIME	DRY GAS METER, FT ³	PISTON, IN. H ₂ O Δ P		ORIFICE AIR IN. H ₂ O		DRY GAS TEMPERATURE °F		PUMP VACUUM IN. HG GAUGE	BOX TEMPERATURE °F	IMPINGER TEMPERATURE °F	STACK PRESSURE IN. HG	STACK TEMPERATURE °F
			DESIRED	ACTUAL	INLET	OUTLET							
01	05	538.50	.11	.11	.85	.9		82	2.5"		60	29.93	97
02	5-10	541.2	.18	.18	1.39	1.4		84	3.0"		64	29.93	101
03	10-15	544.6	.22	.22	1.70	1.7		86	4.0"		66	29.93	101
04	15-20	548.3	.25	.25	1.93	1.9		88	5"		66	29.93	101
05	20-25	552.36	.24	.24	1.85	1.9		90	5"		67	29.93	102
06	25-30	556.3	.21	.21	1.62	1.6		92	5"		68	29.93	102
07	30-35	560.0	.15	.15	1.16	1.2		94	5"		56	29.93	101
08	35-40	563.1	.18	.18	1.39	1.40		96	5"		56	29.93	101
09	40-45	566.5	.22	.22	1.70	1.7		97			59	29.93	102
10	45-50	570.3	.25	.25	1.93	1.9		99	4"			29.93	102
11	50-55	574.3	.24	.24	1.85	1.9		98	4"		60	29.93	102
12	55-60	578.2	.22	.22	1.70	1.7		99	4"		60	29.93	102
13	Final	582.00	.451			1.59		92					
14		43.24											
15													
16													
17													
18													
19													
20													

9.73
 R

SOURCE SAMPLING FIELD DATA SHEET

PLANT #3 Phos Acid
 SAMPLE LOCATION Stack
 TYPE OF CONTROL Wet scrubber
 TYPE OF SAMPLES Fluoride
 DATE 8/9/84 RUN # 2
 TIME START 12:50 END 14:00
 SAMPLING TIME 5 min/pt.
 TOTAL SAMPLING TIME 60 min.
 D/B TEMP 104 F, W/B TEMP 99 F
 BAROMETRIC PRESS. 29.92 "Hg
 STACK PRESSURE 29.93 "Hg
 WEATHER Hot
 TEMP. 92 F, W/D NW W/S 0-5 mph
 NOZZLE DIAMETER .300 IN.
 PROBE LENGTH 60 IN.
 STACK DIMENSIONS 54 IN.
 STACK AREA 15.90 FT²
 PRODUCTION RATE 1625 Tons/Day

FINAL GAS METER READING 626.50 ft³
 INITIAL GAS METER READING 582.70 ft³
 CONDENSATE INCREASE IN IMP. — ml
 MOISTURE IN SILICA GEL — gm
 MOISTURE IN STACK GAS — %
 METER DELTA H@ 1.797 C FACTOR .994
 PITOT TUBE COEFFICIENT, Cp .84

LEAK CHECKS:

METER BOX INITIAL .01 cfm @ 8 in.Hg
 FINAL .01 cfm @ 8 in.Hg

PITOT TUBES

IMPACT 3in.H₂O FOR 15 sec. (STABLE/LEAK)
 STATIC 3in.H₂O FOR 15 sec. (STABLE/LEAK)

TEST CONDUCTED BY:

A Baerum
E Taylor

BEST AVAILABLE COPY

ANT: NEW WALES CHEMICALS, INC. STACK # #3 PAP DATE: 8/9/84 SAMPLE # 2 TECHNICIAN: JJ/2/84

BIENT TEMP: 94 °F BAROMETRIC PRESSURE, IN. HG 29.92 ASSUMED MOISTURE, % .929 HEATER BOX SETTING _____ °F

CONTROL UNIT # .994 PROBE TIP DIAMETER, IN. .300 PROBE LENGTH, FT. .84 PROBE HEATER SETTING: _____ °F

MIN	CLOCK TIME	DRY GAS MEIER, FT ³	PITOT, IN. H ₂ O Δ P		ORIFICE AN IN. H ₂ O		DRY GAS TEMPERATURE °F		PUMP VACUUM IN. HG GAUGE	BOX TEMP-ERATURE °F	IMPIINGER TEMPERA-TURE °F	STACK PRESSURE IN. HG	STACK TEMP-ERATURE °F
			DESIRED	ACTUAL	INLET	OUTLET							
1	0-5	582.70	.11	.11	.85	.9		96	5"		67	29.93	105
2	5-10	585.4	.18	.19	1.39	1.4		96	5"		65	29.93	105
3	10-15	588.8	.21	.20	1.62	1.6		97	5"		65	29.93	106
4	15-20	592.4	.25	.24	1.93	1.9		98	5"		65	29.93	106
5	20-25	596.5	.25	.25	1.93	1.9		100	5"		67	29.93	107
6	25-30	600.5	.22	.22	1.70	1.7		100	5"		65	29.93	107
7	30-35	604.25	.16	.15	1.24	1.25		102	5"		66	29.93	103
8	35-40	607.5	.19	.20	1.47	1.5		103	5"		70	29.93	106
9	40-45	611.00	.22	.22	1.70	1.7		103	7"		70	29.93	106
10	45-50	614.70	.25	.25	1.93	1.9		104	7"		70	29.93	105
11	50-55	618.76	.24	.25	1.85	1.8		105	7"		70	29.93	106
12	55-60	621.	.22	.22	1.70	1.7		106	7"		70	29.93	106
13	6:00	626.50	.4539			.60		101					
14													
15													
16													
17													
18													
19													
20													

K=7.73

SOURCE SAMPLING FIELD DATA SHEET

PLANT #3 Phos Acid
 SAMPLE LOCATION STACK
 TYPE OF CONTROL wet scrubber
 TYPE OF SAMPLES Fluoride
 DATE 8/9/84 RUN # 3
 TIME START 1455 END 1600
 SAMPLING TIME 5 min/pt.
 TOTAL SAMPLING TIME 60 min.
 D/B TEMP 104 F, W/B TEMP 99 F
 BAROMETRIC PRESS. 29.92 "Hg
 STACK PRESSURE 29.93 "Hg
 WEATHER Hot
 TEMP. 92 F, W/D NW W/S 0-5 mph
 NOZZLE DIAMETER .300 IN.
 PROBE LENGTH 120 IN.
 STACK DIMENSIONS 54 IN.
 STACK AREA 15.90 FT²
 PRODUCTION RATE 1675 Tons/Day

FINAL GAS METER READING 668.00 ft³
 INITIAL GAS METER READING 626.5 ft³
 CONDENSATE INCREASE IN IMP. - ml
 MOISTURE IN SILICA GEL - gm
 MOISTURE IN STACK GAS - %
 METER DELTA H@ 1.797 C FACTOR .994
 PITOT TUBE COEFFICIENT, C_p .84

LEAK CHECKS:

METER BOX INITIAL .007 fpm @ 7 in.Hg
 FINAL 0 cfm @ 8 in.Hg

PITOT TUBES

IMPACT 3in.H₂O FOR 15 sec. (STABLE/LEAK)
 STATIC 3in.H₂O FOR 15 sec. (STABLE/LEAK)

TEST CONDUCTED BY: E. Taylor
J. BAWCUM

BEST AVAILABLE COPY

UNIT: NEW WALES CHEMICALS, INC. STACK # 10 DATE: 4/4/41
 AMBIENT TEMP: _____ °F BAROMETRIC PRESSURE, IN. HG 29.92 ASSUMED HUMIDITY, % .929 HEATER BOX SETTING _____ °F
 CONTROL UNIT # .994 PROBE TIP DIAMETER, IN. .30 PROBE LENGTH, FT. .84 PROBE HEATER SETTING _____ °F

MIN	CLOCK TIME	DRY GAS MEASUREMENT, FT ³	PILOT, IN. H ₂ O A.P.	ORIFICE AIR		DRY GAS TEMPERATURE °F		PUMP VACUUM IN. HG GAUGE	BOX TEMPERATURE °F	IMPINGER TEMPERATURE °F	STACK PRESSURE IN. HG	STACK TEMPERATURE °F
				IN. H ₂ O	ACTUAL	INLET	OUTLET					
1	0-5	626.5	.14	1.08	1.1		102	5"		56	29.93	107
2	5-10	629.51	.15	1.16	1.2		102	5"		62	29.93	109
3	10-15	632.62	.19	1.47	1.5		103	5"		64	29.93	109
4	15-20	636.12	.22	1.70	1.7		104	5"		66	29.93	107
5	20-25	639.9	.24	1.86	1.9		105	5"		68	29.93	110
6	25-30	643.8	.19	1.47	1.5		105	5"		68	29.93	109
7	30-35	647.3	.11	.85	.85		106	5"		67	29.93	109
8	35-40	650.00	.15	1.16	1.2		107	5"		67	29.93	110
9	40-45	653.1	.19	1.47	1.5		108	5"		67	29.93	111
10	45-50	656.6	.22	1.7	1.7		108	5"		68	29.93	111
11	50-55	660.4	.23	1.8	1.8		108	5"		68	29.93	111
12	55-60	664.2	.22	1.70	1.70		109	5"		69	29.93	111
13	Final	668.00	.4304		1.47		106					
14		.4125										
15												
16												
17												
18												
19												
20												

122.41

7.73

1.6069

98%

Name _____
 Plant HPF
 Location _____
 Sampling Location STACK
 Operator TAILO / B. AUCUM
 Run No. _____
 Ambient Temperature 92
 Barometric Pressure 79.92
 Probe Length NT, 5'

Use the following equation to find D_n (nozzle diameter) in inches.

$$D_n = \left[\left(\frac{.03375 Q_m P_m}{C_p} \right) \left(\frac{1}{1 - \beta w_o} \right) \sqrt{\frac{15 M_s}{P_s (\Delta P)_{avg}}} \right]^{.935}$$

Where $Q_m = 0.75$ cfm
 $P_m = P_b + (\Delta H / 13.6)$ in "Hg
 $\frac{567(2829)}{2994(-2317)}$

Desired ≈ 276
 ACTUAL = (300)

Use T_m and ΔH from previous stack test. If sampling stack for first time, let $T_m = 580^\circ R$ and $\Delta H = \Delta H @$

Use following equation to find ΔH .

$$\Delta H = K \Delta P$$

$$\Delta H = \left\{ 846 \sqrt{Q_m^4} \Delta H @ C_p^2 (1 - \beta w_o)^2 \frac{M_d}{M_s} \frac{T_m}{15} \frac{P_s}{P_m} \right\} \Delta P$$

$\Delta H = 1.797 \times 7.06 \times 232 \times 1.02$
2.73

Use K value to find ΔH corresponding to each ΔP .

Sample Train No. 1

	Ingiger Volume (ml)	Silica Gel (SG) (1 ml H ₂ O = 1 ml H ₂ O)
Final	250	467.6
Initial	200	454.8
Diff.	50	12.8

Standard H₂O collected in the ingiger =

$$V_{WC(Std)} = WC_{H_2O} \times 0.04707 \text{ ml} = 2.3535$$

Standard H₂O collected in Silica Gel =

$$V_{SG(Std)} = SG_{H_2O} \times 0.04707 \text{ ml} = 367.8$$

Volume retained at Standard Conditions =

$$V_{H_2O(Std)} = \left(17.54 \frac{^\circ R}{14.7 \text{ psia}} \right) \left(\frac{V_{WC} P_m}{(T_m - R)} \right) = 41.51$$

$$3w_o = \frac{V_{WC(Std)} - V_{SG(Std)}}{V_{WC(Std)} - V_{SG(Std)} - V_{H_2O(Std)}}$$

$= \frac{2.3535 - 367.8}{2.3535 - 367.8 - 41.51}$
 $= .0592 \text{ H}_2\text{O}$

NOZZLE CALIBRATION

NOZZLE 104

DATE 8/1/84

Measurement No.

Inside Diameter (inches)

1

.300

2

.300

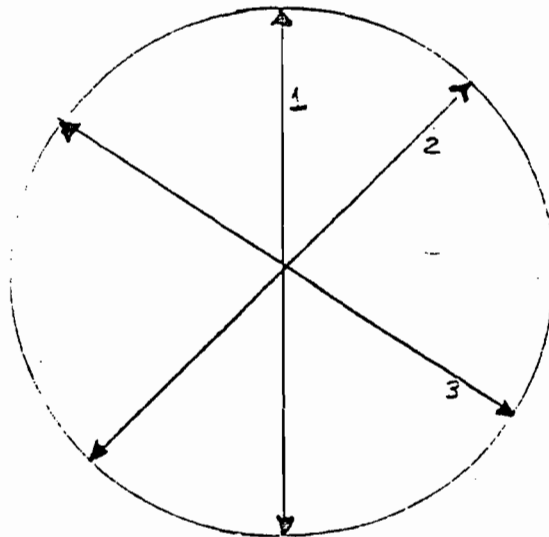
3

.300

AVERAGE

.300

CALIBRATED BY: John Barrum



NOZZLE X-SECTION

PITOT CALIBRATION FORM

DATE: 8/9/84

CALIBRATED BY: J. Bawcum

	#1	#2	#3	#4	Cp	
STANDARD "S" TYPE PITOT TUBE	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	.99
NUTECH 5 FT. SAMPLING PROBE	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>

$$C_p(\text{NUTECH } 5') = C_p(\text{STD}) \sqrt{P(\text{STD}) / P(\text{NUTECH } 5')}$$

* NOTE : THIS PROBE WAS USED FOR THE FIRST TIME ON 8/09/84, SO WE ASSUMED A Cp VALUE OF .84..

(B:STKRPT5.ENV)

FIRST NATIONAL BANK
OF LAKE LAND
LAKE LAND, FLORIDA

BEST AVAILABLE COPY
INTERNATIONAL MINERALS & CHEMICAL CORP.

NEW WALES OPERATIONS

P.O. BOX 1035 • MULBERRY, FLORIDA 33860



62-728
631

CHECK NO.

630816

02	01	85
MONTH	DAY	YEAR

OPERATING ACCOUNT

AMOUNT
*****100.00

PAY TO THE ORDER OF

FLA DEPT. OF ENVIRONMENTAL REG.
7601 HIGHWAY 301 NORTH
TAMPA FL 33610

J. B. Rafford
AUTHORIZED SIGNATURE

⑈630816⑈ ⑆063107283⑆ 430312164⑈

630816 F53567

INTERNATIONAL MINERALS & CHEMICAL CORPORATION
NEW WALES OPERATIONS • P.O. BOX 1035 • MULBERRY, FLORIDA 33860

DETACH
BEFORE DEPOSITING

INVOICE DATE			INVOICE NUMBER	REFERENCE NUMBER	PURCHASE ORDER NO.	INVOICE AMOUNT	DISCOUNT	NET PAYABLE
MONTH	DAY	YEAR						
01	30	85	PERMIT FEE	443-615		100.00		100.00
						100.00	.00	100.00

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

No 76060

RECEIPT FOR APPLICATION FEES AND MISCELLANEOUS REVENUE

Received from IMC New Wales Operations Date Feb. 4, 1985
 Address P.O. Box 1035 Mulberry Florida 33860 Dollars \$ 100.00
 Applicant Name & Address same as above

Source of Revenue

Revenue Code 001031 Application Number AC 53-099108

By Patricia G. Adams

E. Palegyi

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

DER
FEB 4 1985
BAQM



INTERNATIONAL MINERALS & CHEMICAL CORPORATION

January 31, 1985

Mr. C. H. Fancy
B.A.Q.M.
Florida Department of Environmental
Regulation
2600 Blair Stone Road
Tallahassee, FL 32301

Dear Sir:

IMC New Wales Operations currently operates three Phosphoric Acid Plants with permitted rates as follows; East Train 1700 TPD, West Train 1700 TPD, and Third Train 1500 TPD. At this time, IMC is submitting a construction permit request to increase Third Train permitted rates from 1500 TPD to 2000 TPD. The increase represents a 10.2% overall increase in currently permitted phosphoric acid production rates.

With the rate increase, we are also requesting a corresponding increase in the allowable fluoride emissions. The current maximum of 30.3 lbs F/day at 100% of permitted capacity (see A053-92685, Page 6, Condition 5) would increase to a maximum of 41.0 lbs F/day for a net increase of 1.96 TPY of fluoride emissions, which is 65.3% of the Deminimus level for fluoride of 3 TPY. There has been no other increase in fluoride emissions since the last PSD review.

No actual construction will occur in this plant with respect to the requested rate increase. This plant is currently capable of producing at the 2000 TPD rate without further modification, the requested rate increase will reflect the actual production capability as it currently exists.

Thank you for your assistance. If additional information is necessary regarding this request, please contact me.

Sincerely,

A. L. Girardin III

A. L. Girardin, III

ALG:rc
(033)

Attachments: 1. Permit Application
2. Copy of Operating Permit
3. Operating Permit Compliance Tests
4. Application Fee (\$100.00)

cc: J. M. Baretincic - New Wales
D. K. Larsen - Mundelein
C. A. Pflaum - New Wales
W. C. Thomas - DER (Tampa)