KOOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES
4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
352/377-5822 • FAX/377-7158

KA 124-00-05

January 30, 2001

Mr. Al Linero, P.E.
Florida Department of
Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Subject: IMC Phosphates MP, Inc. (New Wales)
Multifos Plant - Kiln C Permit Revision
No. 1050059-024-AC, PSD-FL-244

Dear Mr. Linero:

This is a follow up to our conversations last year with Mr. John Reynolds, and more recently with Mr. Syed Arif, regarding a request for permit revision for the above referenced unit.

Enclosed are six copies of a permit application for the proposed project.

It is our understanding that there is no applicable fee associated with this request.

If you have any questions, please call Pradeep Raval or me.

Very truly yours,

KOOGLER & ASSOCIATES

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

Par.
encl.

c: C. Dave Turley, IMC
S. Arif
Jr Kissel, SWD

Department of Environmental Protection

Division of Air Resources Management

APPLICATION FOR AIR PERMIT - TITLE V SOURCE

See Instructions for Form No. 62-210.900(1)

I. APPLICATION INFORMATION

Identification of Facility

1. Facility Owner/Company Name: **IMC Phosphates MP Inc.**	
2. Site Name: **IMC New Wales**	
3. Facility Identification Number: **1050059**	[ ] Unknown
4. Facility Location: Street Address or Other Locator: **3095 Highway 640** City: **Mulberry** County: **Polk** Zip Code: **33860**	
5. Relocatable Facility? [ ] Yes [X] No	6. Existing Permitted Facility? [X] Yes [ ] No

Application Contact

1. Name and Title of Application Contact: **Pradeep Raval, Consultant**
2. Application Contact Mailing Address: Organization/Firm: **Koogler & Associates** Street Address: **4014 NW 13th Street** City: **Gainesville** State: **FL** Zip Code: **32609**
3. Application Contact Telephone Numbers: Telephone: **(352) 377-5822** Fax: **(352) 377-7158**

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	1-31-01
2. Permit Number:	1050059-133-AC
3. PSD Number (if applicable):	PSD-FL-244A
4. Siting Number (if applicable):	

Owner/Authorized Representative or Responsible Official

1. Name and Title of Owner/Authorized Representative or Responsible Official:
Mike Daigle, General Manager

2. Owner/Authorized Representative or Responsible Official Mailing Address:
Organization/Firm: **IMC Phosphates MP Inc.**
Street Address: **P.O. Box 2000**
City: **Mulberry** State: **FL** Zip Code: **33860**

3. Owner/Authorized Representative or Responsible Official Telephone Numbers:
Telephone: **(863) 428-2500** Fax: ( ) -

4. Owner/Authorized Representative or Responsible Official Statement:

I, the undersigned, am the owner or authorized representative(check here [ ], if so) or the responsible official (check here [X], if so) of the Title V source addressed in this application, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.*

Michael Daigle — Signature

1/30/01 — Date

* Attach letter of authorization if not currently on file.

Professional Engineer Certification

1. Professional Engineer Name: **John B. Koogler, Ph.D., P.E.**
Registration Number: **12925**

2. Professional Engineer Mailing Address:
Organization/Firm: **Koogler & Associates**
Street Address: **4014 NW 13th Street**
City: **Gainesville** State: **FL** Zip Code: **32609**

3. Professional Engineer Telephone Numbers:
Telephone: **(352) 377 - 5822** Fax: **(352) 377 - 7158**

4. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

If the purpose of this application is to obtain a Title V source air operation permit (check here [ ], if so), I further certify that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application.

If the purpose of this application is to obtain an air construction permit for one or more proposed new or modified emissions units (check here [X], if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [ ], if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.

Signature

1/30/01
Date

(seal)

* Attach any exception to certification statement.

Scope of Application

Emissions Unit ID	Description of Emissions Unit	Permit Type	Processing Fee
036	Multifos A&B Kilns, Dryer and Blending Operation	AC1F	0
074	Multifos C Kiln	AC1F	0

Application Processing Fee

Check one: [ ] Attached - Amount: $_____ [X] Not Applicable

Construction/Modification Information

1. Description of Proposed Project or Alterations:
It is requested that the construction permit expiration date be extended for a period of 12 months in order to provide time for the review of the application for this permit revision.

Multifos Kiln C is undergoing initial startup. The new kiln has experienced startup problems and has yet to achieve normal operations. The initial test data indicate that the new scrubber is satisfactorily controlling sulfur dioxide and gaseous fluoride. However, emissions of particulate matter and total fluoride are higher than expected. A revision is requested to the current total fluoride emission limit. This request may be revised to include a change in the particulate matter emission limits and also changes to the Multifos Plant scrubbing systems, if warranted by the on going plant evaluations.

IMC would also like to request, as an alternate method of operation, the use of one of any three kilns at a time as an additional dryer for the kiln feed. This method of operation will result in reduced emissions as less fuel is consumed when a kiln is operated at lower temperatures as a dryer.

The information submitted herein is limited to the requested changes.

2. Projected or Actual Date of Commencement of Construction: **NA**

3. Projected Date of Completion of Construction: **NA**

Application Comment

The application is presented in the format previously discussed with FDEP. The information submitted herein is limited to the requested changes.

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates: Zone: **17** East (km): **396.6** North (km): **3078.9**			
2. Facility Latitude/Longitude: **NA** Latitude (DD/MM/SS): Longitude (DD/MM/SS):			
3. Governmental Facility Code: **0**	4. Facility Status Code: **A**	5. Facility Major Group SIC Code: **28**	6. Facility SIC(s): **2874**
7. Facility Comment (limit to 500 characters):			

Facility Contact

1. Name and Title of Facility Contact: **P.A. Steadham, Manager Environmental Services – Florida Concentrates**
2. Facility Contact Mailing Address: Organization/Firm: **IMC Phosphates MP Inc.** Street Address: **P.O. Box 2000** City: **Mulberry** State: **FL** Zip Code: **33860**
3. Facility Contact Telephone Numbers: Telephone: Telephone: **(863) 428- 2500** Fax: ( ) -

Facility Regulatory Classifications

Check all that apply:

1. [ ] Small Business Stationary Source? [ ] Unknown
2. [X] Major Source of Pollutants Other than Hazardous Air Pollutants (HAPs)?
3. [ ] Synthetic Minor Source of Pollutants Other than HAPs?
4. [X] Major Source of Hazardous Air Pollutants (HAPs)?
5. [ ] Synthetic Minor Source of HAPs?
6. [X] One or More Emissions Units Subject to NSPS?
7. [X] One or More Emission Units Subject to NESHAP?
8. [ ] Title V Source by EPA Designation?
9. Facility Regulatory Classifications Comment (limit to 200 characters):

List of Applicable Regulations

See Attachment 1.	

B. FACILITY POLLUTANTS

List of Pollutants Emitted

1. Pollutant Emitted	2. Pollutant Classif.	3. Requested Emissions Cap lb/hour	tons/year	4. Basis for Emissions Cap	5. Pollutant Comment
PM/PM10	**A**				
SO2	**A**				
NOX	**A**				
SAM	**A**				
FL	**A**				

C. FACILITY SUPPLEMENTAL INFORMATION

Supplemental Requirements

1. Area Map Showing Facility Location: [ ] Attached, Document ID:_____ [ ] Not Applicable [X] Waiver Requested
2. Facility Plot Plan: [ ] Attached, Document ID:_____ [ ] Not Applicable [X] Waiver Requested
3. Process Flow Diagram(s): [ ] Attached, Document ID:_____ [ ] Not Applicable [X] Waiver Requested
4. Precautions to Prevent Emissions of Unconfined Particulate Matter: [ ] Attached, Document ID:_____ [ ] Not Applicable [X] Waiver Requested
5. Fugitive Emissions Identification: [ ] Attached, Document ID:_____ [ ] Not Applicable [X] Waiver Requested
6. Supplemental Information for Construction Permit Application: [X] Attached, Document ID: **Att. 1** [ ] Not Applicable
7. Supplemental Requirements Comment: **There are no changes from the information previously submitted to FDEP as part of the construction permit application.**

Additional Supplemental Requirements for Title V Air Operation Permit Applications

8. List of Proposed Insignificant Activities:
   [ ] Attached, Document ID:_____ [X] Not Applicable

9. List of Equipment/Activities Regulated under Title VI:
   [ ] Attached, Document ID:_____
   [ ] Equipment/Activities On site but Not Required to be Individually Listed
   [X] Not Applicable

10. Alternative Methods of Operation:
    [ ] Attached, Document ID:_____ [X] Not Applicable

11. Alternative Modes of Operation (Emissions Trading):
    [ ] Attached, Document ID:_____ [X] Not Applicable

12. Identification of Additional Applicable Requirements:
    [ ] Attached, Document ID:_____ [X] Not Applicable

13. Risk Management Plan Verification:
    [ ] Plan previously submitted to Chemical Emergency Preparedness and Prevention Office (CEPPO). Verification of submittal attached (Document ID:_____) or previously submitted to DEP (Date and DEP Office:_____)
    [ ] Plan to be submitted to CEPPO (Date required:_____)
    [X] Not Applicable

14. Compliance Report and Plan:
    [ ] Attached, Document ID:_____ [X] Not Applicable

15. Compliance Certification (Hard-copy Required):
    [ ] Attached, Document ID:_____ [X] Not Applicable

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through J as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application.

A. GENERAL EMISSIONS UNIT INFORMATION
(All Emissions Units)

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in This Section: (Check one)

[X] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Regulated or Unregulated Emissions Unit? (Check one)

[X] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

[ ] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

3. Description of Emissions Unit Addressed in This Section (limit to 60 characters):
Multifos Kiln C

4. Emissions Unit Identification Number:
ID: **074**
[ ] No ID
[ ] ID Unknown

5. Emissions Unit Status Code: **C**	6. Initial Startup Date: **1999**	7. Emissions Unit Major Group SIC Code: **28**	8. Acid Rain Unit? [ ]

9. Emissions Unit Comment: (Limit to 500 Characters)

Emissions Unit Control Equipment

1. Control Equipment/Method Description (Limit to 200 characters per device or method):
Packed scrubbers

2. Control Device or Method Code(s): **013**

Emissions Unit Details

1. Package Unit: **NA**
   Manufacturer:
   Model Number:

2. Generator Nameplate Rating: MW

3. Incinerator Information:
   Dwell Temperature: °F
   Dwell Time: seconds
   Incinerator Afterburner Temperature: °F

B. EMISSIONS UNIT CAPACITY INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Operating Capacity and Schedule

1. Maximum Heat Input Rate:	**56**		mmBtu/hr
2. Maximum Incineration Rate:		lb/hr	tons/day
3. Maximum Process or Throughput Rate: **25 tph feed input (new kiln alone)**			
4. Maximum Production Rate:			
5. Requested Maximum Operating Schedule:			
	24 hours/day		**7** days/week
	52 weeks/year		**8760** hours/year
6. Operating Capacity/Schedule Comment (limit to 200 characters):			

C. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)

List of Applicable Regulations

See Attachment 1.	

D. EMISSION POINT (STACK/VENT) INFORMATION
(Regulated Emissions Units Only)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram?	2. Emission Point Type Code:	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point):		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:		
5. Discharge Type Code:	6. Stack Height: feet	7. Exit Diameter: feet
8. Exit Temperature: °F	9. Actual Volumetric Flow Rate: acfm	10. Water Vapor: %
11. Maximum Dry Standard Flow Rate: dscfm	12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates: Zone:	East (km):	North (km):
14. Emission Point Comment (limit to 200 characters): **No changes proposed.**		

E. SEGMENT (PROCESS/FUEL) INFORMATION
(All Emissions Units)

Segment Description and Rate: Segment _1____ of __1___

1. Segment Description (Process/Fuel Type) (limit to 500 characters):		
Drying - General		
2. Source Classification Code (SCC): **3-05-999-99**	3. SCC Units: **Tons Product**	
4. Maximum Hourly Rate: **40 tph**	5. Maximum Annual Rate: **350,400**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment (limit to 200 characters): **Add alternate method of operation for any one kiln at a time (A or B or C) to operate as a dryer (operation at a lower temperature). The emissions sections are not re-submitted as the heat input would be less than the currently permitted rates.**		

Segment Description and Rate: Segment _____ of _____

1. Segment Description (Process/Fuel Type) (limit to 500 characters):		
2. Source Classification Code (SCC):	3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment (limit to 200 characters):		

F. EMISSIONS UNIT POLLUTANTS
(All Emissions Units)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
FL	**013**		**EL**

Emissions Unit Information Section ___1___ **of** ___1___

Pollutant Detail Information Page __1____ **of** ___1___

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units -
Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: **FL**	2. Total Percent Efficiency of Control: **NA**
3. Potential Emissions: **1.0** lb/hour **4.4** tons/year	4. Synthetically Limited? [ ]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year	
6. Emission Factor: **1.0 lb/hr** Reference: **Test**	7. Emissions Method Code: **1**
8. Calculation of Emissions (limit to 600 characters): **FL = 1.0 lb/hr x 8760 hrs/yr x 1/2000 lb/ton = 4.4 tpy**	
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):	

Allowable Emissions Allowable Emissions ___1___ of ___1___

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: **1.0 lb/hr**	4. Equivalent Allowable Emissions: **1.0** lb/hour **4.4** tons/year
5. Method of Compliance (limit to 60 characters): **EPA Method 13A, 13B**	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): **Based on test data.**	

H. VISIBLE EMISSIONS INFORMATION
(Only Regulated Emissions Units Subject to a VE Limitation)

Visible Emissions Limitation: Visible Emissions Limitation _____ of _____

1. Visible Emissions Subtype: **VE**	2. Basis for Allowable Opacity: [X] Rule [ ] Other
3. Requested Allowable Opacity: Normal Conditions: **15** % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: **EPA Method 9**	
5. Visible Emissions Comment (limit to 200 characters): **BACT**	

I. CONTINUOUS MONITOR INFORMATION
(Only Regulated Emissions Units Subject to Continuous Monitoring)

Continuous Monitoring System: Continuous Monitor _____ of _____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	[ ] Rule [ ] Other
4. Monitor Information: Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment (limit to 200 characters): **No changes proposed.**	

J. EMISSIONS UNIT SUPPLEMENTAL INFORMATION
(Regulated Emissions Units Only)

Supplemental Requirements

1. Process Flow Diagram [ ] Attached, Document ID:_____ [ ] Not Applicable [X] Waiver Requested
2. Fuel Analysis or Specification [ ] Attached, Document ID:_____ [ ] Not Applicable [X] Waiver Requested
3. Detailed Description of Control Equipment [ ] Attached, Document ID:_____ [ ] Not Applicable [X] Waiver Requested
4. Description of Stack Sampling Facilities [ ] Attached, Document ID:_____ [ ] Not Applicable [X] Waiver Requested
5. Compliance Test Report [ ] Attached, Document ID:_____ [ ] Previously submitted, Date:_____ [ ] Not Applicable
6. Procedures for Startup and Shutdown [ ] Attached, Document ID:_____ [ ] Not Applicable [ ] Waiver Requested
7. Operation and Maintenance Plan [ ] Attached, Document ID:_____ [ ] Not Applicable [ ] Waiver Requested
8. Supplemental Information for Construction Permit Application [X] Attached, Document ID: **Att. 1.** [ ] Not Applicable
9. Other Information Required by Rule or Statute [X] Attached, Document ID: **Att. 1.** [ ] Not Applicable
10. Supplemental Requirements Comment: **See Attachment 1.**

Additional Supplemental Requirements for Title V Air Operation Permit Applications

11. Alternative Methods of Operation
[ ] Attached, Document ID:_____ [X] Not Applicable

12. Alternative Modes of Operation (Emissions Trading)
[ ] Attached, Document ID:_____ [X] Not Applicable

13. Identification of Additional Applicable Requirements
[ ] Attached, Document ID:_____ [X] Not Applicable

14. Compliance Assurance Monitoring Plan
[ ] Attached, Document ID:_____ [X] Not Applicable

15. Acid Rain Part Application (Hard-copy Required)

[ ] Acid Rain Part - Phase II (Form No. 62-210.900(1)(a))
Attached, Document ID:_____

[ ] Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)
Attached, Document ID:_____

[ ] New Unit Exemption (Form No. 62-210.900(1)(a)2.)
Attached, Document ID:_____

[ ] Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)
Attached, Document ID:_____

[ ] Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.)
Attached, Document ID:_____

[ ] Phase NOx Averaging Plan (Form No. 62-210.900(1)(a)5.)
Attached, Document ID:_____

[X] Not Applicable

ATTACHMENT 1

REVISION OF MULTIFOS KILN C FLUORIDE EMISSION LIMIT

As previously discussed with FDEP, the Multifos Kiln C has been constructed and is undergoing initial testing and plant operation evaluation.

Based on the preliminary testing information available on the kiln, using EPA Method 13B, it appears that the current emission limitation will not be met for total fluorides. The gaseous fluoride emissions, however, seem to be adequately controlled.

It is our understanding that the BACT determination for this project aimed at a high degree of HF emission control from the process. The emission limitation was prescribed for fluorides, typically regulated as a surrogate for HF. Based on the test information to date, it appears that the scrubbing system is effective in control of gaseous fluorides.

To address the particulate matter carryover issue, it is requested that the total fluoride emission limitation be revised to reflect the scrubber performance level. It should be noted that the low emission limitations imposed on IMC's kiln were based on similar limitations imposed on a PCS kiln located in Saltville, Virginia. Based on discussions with the Virginia DEQ staff, the plant was not able to operate in compliance with those emission limitations and has since been shut down along with the entire chemical complex.

FDEP staff suggested that installation of a venturi scrubber be considered in order to resolve the fluoride emissions issue. The information summarized below indicates that such a measure would not be economically feasible. Instead, it is suggested that the fluorides emission limitation be revised to reflect the operation of the current scrubber, previously determined by FDEP to reflect BACT. It should be noted that there is no change in rule applicability as a result of this request.

OPTION 1: Install new venturi scrubber after the packed scrubber.

The costs associated with installation and operation of such a venturi scrubber are well above BACT criteria, as indicated below.

Equipment Cost	
Medium Energy Venturi	= 80,000
Fan	= 50,000
Instrumentation	= 65,000
Total Equipment Cost	= 195,000
Concrete, duct, piping, etc.	= 115,000
Engineering	= 52,000
Tax & Contingency	= 85,000
Total Installed Cost	=447,000

Operation & Maintenance Costs	
Electricity	= 150 BHP x 0.746 kw/hp x 8760 hrs x $0.08/kw
	= $78,400
Water	= 32 gpm x 60 min x 8760 hrs x $0.20/1000 gals
	= $3,400

Operating Labor	= 2 hrs/shift x shift/8 hr x 8760 hrs x $15/hr = $33,000
Supervisory Labor (0.15OL)	= 0.15 x $33,000 = $5,000
Maintenance Labor	= 1 hrs/shift x shift/8 hr x 8760 hrs x $15/hr = $16,000
Maintenance Materials (1.0ML)	= $16,000
TOTAL O&M Costs	= $151,800
Indirect Costs	
Overhead (0.6Maint.Cost)	= 0.6 x (33,000 + 5,000 + 16,000 + 16,000) = $42,000
Administrative (1.91PEC x 0.02)	= 1.91 x 195,000 x 0.02 = $7,400
Insurance (1.91PEC x 0.01)	= 1.91 x 195,000 x 0.01 = $3,700
Taxes (1.91PEC x 0.01)	= 1.91 x 195,000 x 0.01 = $3,700
Cap. Recovery (1.91PEC x 0.1628)	= 1.91 x 195,000 x 0.1628 = $60,600
TOTAL (Indirect)	= 42,000 + 7,400 + 3,700 + 3,700 + 60,600 = $117,400
TOTAL Annual	= 117,400 + 151,800 = $269,200
TOTAL Cost of Control	= $ 269,200 / (4.4 - 1.58) tpy = $ 95,500 per ton fluoride removed

OPTION 2: Install a new venturi nozzle in the quench tower.

As the temperatures and pollutant concentrations in this section of the system are higher than those encountered in the above arrangement, custom construction materials would have to be used, resulting in costs that would be even higher than those estimated above. Also, the structural integrity of the packed scrubber may be compromised with the additional pressure drop resulting from operating a venturi scrubber upstream. Consequently, this option is not evaluated in greater detail.

Based on the cost analysis of the above options, the installation of a venturi scrubber is rejected as a revised BACT.

ATTACHMENT 2

PERFORMANCE TEST DATA
IN SUPPORT OF
REQUEST FOR REVISED FLUORIDES EMISSION LIMIT

TEST SUMMARY TABLE

Source Sampling Summarys for Particulate and Fluoride Testing done on C Kiln										
Test condition or discription:		Initial compliance test					Second Compliance Test			
Parameter	Unit	Run 1	Run 2	Run 3	Avg		Run 1	Run 2	Run 3	Avg
Date:		07/11/00	07/12/00	07/13/00			08/04/00	08/04/00	08/04/00	
Time Start:		844	853	1020			1224	1430	1555	
Time End:		948	1009	1125			1330	1537	1700	
Barometric Pressure:	Inch Hg	30.10	30.10	30.10			30.11	30.11	30.11	
Static Pressure:	Inch H2O	0.32	0.32	0.32			0.31	0.31	0.31	
Stack Pressure:	Inch Hg	30.124	30.124	30.124			30.133	30.133	30.133	
Average Sqrt Delta P:	Inch HOH 1/2	0.747	0.650	0.635			0.646	0.682	0.690	
Average Delta H:	Inch HOH	1.821	1.413	1.358	1.530		1.363	1.517	1.533	1.471
Maximum Run Vacuum:	Inch Hg	10.0	11.0	10.0			15.0	12.0	10.0	
Meter Box Number:	Unity	3187	3187	3187			3187	3187	3187	
Average Meter Temp:	Degrees F	84.8	81.2	91.7			82.9	83.8	82.2	
Average Stack Temp:	Degrees F	113.8	111.5	110.7	112.0		111.8	112.0	112.7	112.2
Metered Sample Volume:	Cubic Feet	46.51	41.03	40.99			40.02	42.61	43.30	
Standard Meter Volume:	Cubic Feet	45.39	40.27	39.46			39.16	41.65	42.44	
Moisture Measured:	%	0.0894	0.0897	0.0787			0.0886	0.0824	0.0808	
Moisture Saturation:	%	0.0962	0.0900	0.0880			0.0908	0.0912	0.0931	
Moisture, for Calculations:	%	0.0894	0.0897	0.0787	0.0860		0.0886	0.0824	0.0808	0.0839
Pitot Coefficient:	Unity	0.84	0.84	0.84			0.84	0.84	0.84	
Nozzle Diameter:	Inch	0.25	0.25	0.25			0.250	0.250	0.250	
Stack Area:	Square Feet	7.07	7.07	7.07			7.07	7.07	7.07	
Traverse Points:	Unity	24	24	24			24	24	24	
Sampling Time:	Minutes	60	60	60			60	60	60	
Stack Gas Molecular Weight:	lb/lb-mol	27.988	27.985	28.106			27.997	28.066	28.083	
Actual Stack Velocity:	Feet/sec	44.285	38.404	37.416	40.035		38.220	40.275	40.786	39.760
Actual Stack Gas Flow:	ACFM	18772	16279	15861	16971		16201	17072	17289	16854
Dry Standard Stack Gas Flow:	DSCFM	15835	13784	13610	14409		13730	14565	14756	14350
Isokinetic Rate:	%	99.10	101.00	100.23			98.61	98.87	99.44	
Feed Rate	tph				5.80					7.50
Input P2O5 rate	P2O5 tph				2.05					2.59
Heat input	mmBtu/hr				32.10					40.00
Fluoride allowable	lb/hr				0.078					0.098
Average Fluoride	lb/hr				0.45					0.58
PM allowable	lb/hr				3.08					3.89
Average PM	lb/hr				2.23					4.50
Fluoride collected	mg probe	1.48	1.33	4.2			0.63	0.51	2.08	
	mg filter		0.45	4.5			15	13	5.8	
	mg impinger	5.52	11.16	0.95			0.15	0.14	0.19	
Fluoride	prb lb/hr	0.07	0.06	0.19	0.11		0.03	0.02	0.10	0.05
	filter lb/hr		0.02	0.21	0.11		0.69	0.60	0.27	0.52
	imp lb/hr	0.25	0.50	0.04	0.27		0.01	0.01	0.01	0.01

Source Sampling Summarys

Test condition or discription:		Compliance test for authorization for the use of A or B as dryer for mixed feed. C Kiln was using dried feed.					Test for comparison of results with caustic flow on or off in SO2 scrubber. Samples analyzed by Pixe. This test with caustic **ON**.			
Parameter	Unit	Run 1	Run 2	Run 3	Avg		Run 1	Run 2	Run 3	Avg
Date:		10/31/00	10/31/00	10/31/00			11/30/00	11/30/00	11/30/00	
Time Start:		1130	1307	1430			1100	1241	1438	
Time End:		1244	1412	1536			1216	1400	1544	
Barometric Pressure:	Inch Hg	30.13	30.13	30.13			30.21	30.21	30.21	
Static Pressure:	Inch H2O	0.35	0.35	0.35			0.46	0.46	0.46	
Stack Pressure:	Inch Hg	30.156	30.156	30.156			30.244	30.244	30.244	
Average Sqrt Delta P:	Inch HOH 1/2	0.568	0.570	0.582			0.594	0.604	0.605	
Average Delta H:	Inch HOH	1.088	1.126	1.118	1.111		1.213	1.260	1.319	1.264
Maximum Run Vacuum:	Inch Hg	9.0	7.0	7.0			10.0	7.0	10.0	
Meter Box Number:	Unity	3187	3187	3187			3187	3187	3187	
Average Meter Temp:	Degrees F	84.2	88.6	79.6			75.9	81.8	82.0	
Average Stack Temp:	Degrees F	102.5	103.8	102.6	103.0		92.8	94.1	92.2	93.0
Metered Sample Volume:	Cubic Feet	35.84	36.65	37.12			37.80	38.93	39.29	
Standard Meter Volume:	Cubic Feet	34.99	35.49	36.55			37.58	38.29	38.64	
Moisture Measured:	%	0.0717	0.0525	0.0583			0.0570	0.0525	0.0525	
Moisture Saturation:	%	0.0692	0.0717	0.0693			0.0513	0.0534	0.0504	
Moisture, for Calculations:	%	0.0692	0.0525	0.0583	0.0600		0.0513	0.0525	0.0504	0.0514
Pitot Coefficient:	Unity	0.84	0.84	0.84			0.84	0.84	0.84	
Nozzle Diameter:	Inch	0.248	0.248	0.248			0.248	0.248	0.248	
Stack Area:	Square Feet	7.07	7.07	7.07			7.07	7.07	7.07	
Traverse Points:	Unity	24	24	24			24	24	24	
Sampling Time:	Minutes	60	60	60			60	60	60	
Stack Gas Molecular Weight:	lb/lb-mol	28.210	28.393	28.329			28.406	28.393	28.416	
Actual Stack Velocity:	Feet/sec	33.175	33.224	33.931	33.443		34.229	34.822	34.841	34.631
Actual Stack Gas Flow:	ACFM	14063	14084	14383	14177		14510	14761	14769	14680
Dry Standard Stack Gas Flow:	DSCFM	12382	12596	12810	12596		13290	13471	13555	13439
Isokinetic Rate:	%	99.28	99.00	100.23			99.35	99.87	100.14	
Feed Rate	tph				10.50					7.00
Input P2O5 rate	P2O5 tph				3.73					2.43
Heat input	mmBtu/hr				45.20					48.89
Fluoride allowable	lb/hr				0.142					0.092
Average Fluoride	lb/hr				0.62					0.56
PM allowable	lb/hr				5.60					3.65
Average PM	lb/hr				3.04					4.00
Fluoride collected	mg probe	2.92	2.58	1.27			4.08	2.24	2.2	
	mg filter	3	10	15			8.60	1.7	7.2	
	mg impinger	1.89	0.69	2.75			1.82	4.59	3.71	
Fluoride	prb lb/hr	0.14	0.12	0.06	0.11		0.19	0.10	0.10	0.13
	filter lb/hr	0.14	0.47	0.69	0.43		0.40	0.08	0.33	0.27
	imp lb/hr	0.09	0.03	0.13	0.08		0.09	0.21	0.17	0.16

Source Sampling Summarys										
Test condition or discription:		Test for comparison of results with caustic flow on or off in SO2 scrubber. Samples analyzed by Pixe. This test with caustic **OFF**.					Test done with fresh water supplied to demist section of packed scrubber before SO2 scrubber.			
Parameter	Unit	Run 1	Run 2	Run 3	Avg		Run 1	Run 2	Run 3	Avg
Date:		12/01/00	12/01/00	12/01/00			12/08/00	12/08/00	12/08/00	
Time Start:		824	1003	1130			905	1037	1155	
Time End:		930	1107	1234			1011	1149	1305	
Barometric Pressure:	Inch Hg	30.11	30.11	30.11			30.15	30.15	30.15	
Static Pressure:	Inch H2O	0.31	0.31	0.31			0.38	0.38	0.38	
Stack Pressure:	Inch Hg	30.133	30.133	30.133			30.178	30.178	30.178	
Average Sqrt Delta P:	Inch HOH 1/2	0.616	0.616	0.607			0.620	0.632	0.615	
Average Delta H:	Inch HOH	1.355	1.378	1.303	1.345		1.273	1.347	1.275	1.298
Maximum Run Vacuum:	Inch Hg	10.0	7.0	6.0			9.0	10.0	9.0	
Meter Box Number:	Unity	3187	3187	3187			3188	3188	3188	
Average Meter Temp:	Degrees F	66.1	77.8	80.1			73.5	80.8	86.5	
Average Stack Temp:	Degrees F	87.4	88.6	89.9	88.6		86.4	87.9	88.4	87.6
Metered Sample Volume:	Cubic Feet	39.58	39.95	39.70			39.04	40.35	39.95	
Standard Meter Volume:	Cubic Feet	39.97	39.47	39.05			39.90	40.69	39.86	
Moisture Measured:	%	0.0504	0.0552	0.0545			0.0541	0.0498	0.0514	
Moisture Saturation:	%	0.0435	0.0451	0.0470			0.0420	0.0441	0.0448	
Moisture, for Calculations:	%	0.0435	0.0451	0.0470	0.0452		0.0420	0.0441	0.0448	0.0436
Pitot Coefficient:	Unity	0.84	0.84	0.84			0.84	0.84	0.84	
Nozzle Diameter:	Inch	0.248	0.248	0.248			0.248	0.248	0.248	
Stack Area:	Square Feet	7.07	7.07	7.07			7.07	7.07	7.07	
Traverse Points:	Unity	24	24	24			24	24	24	
Sampling Time:	Minutes	60	60	60			60	60	60	
Stack Gas Molecular Weight:	lb/lb-mol	28.492	28.474	28.453			28.508	28.486	28.477	
Actual Stack Velocity:	Feet/sec	35.325	35.392	34.935	35.217		35.470	36.213	35.305	35.663
Actual Stack Gas Flow:	ACFM	14974	15003	14809	14929		15036	15351	14966	15118
Dry Standard Stack Gas Flow:	DSCFM	13912	13885	13647	13815		14039	14263	13881	14061
Isokinetic Rate:	%	100.94	99.86	100.52			99.84	100.23	100.88	
Feed Rate	tph				7.00					10.00
Input P2O5 rate	P2O5 tph				2.39					3.45
Heat input	mmBtu/hr				48.89					32.10
Fluoride allowable	lb/hr				0.091					0.131
Average Fluoride	lb/hr				0.50					1.37
PM allowable	lb/hr				3.59					5.18
Average PM	lb/hr				2.47					7.21
Fluoride collected	mg probe	1.92	2	1.84			2.88	2.66	2.94	
	mg filter	11.00	2.6	0.037			7.9	28	33	
	mg impinger	3.72	4.54	4.67			1.65	5.55	4.46	
Fluoride	prb lb/hr	0.09	0.09	0.09	0.09		0.13	0.12	0.14	0.13
	filter lb/hr	0.51	0.12	0.00	0.21		0.37	1.30	1.52	1.06
	imp lb/hr	0.17	0.21	0.22	0.20		0.08	0.26	0.21	0.18