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APR 21 1989

CERTIFIED MAIL RETURN RECEIPT REQUESTED DER-BAQM

April 19, 1989

Mr. C. H. Fancy, Assistant Director Department of Air Resources Management FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION Twin Towers Office Building 2600 Blair Stone Road Tallahassee, Florida 32399-2400

Dear Sir:

Enclosed please find four copies of a permit application for the IMC Fertilizer, Inc., New Wales Operations molten sulfur system. As you review this information, we would appreciate it if you would consider issuing a single permit to cover the entire molten sulfur system.

If there are any questions regarding the application, please contact me at (813) 428-2531 or John Koogler at (904) 377-5822.

Sincerely,

J. M. Baretincic,

Director

Environmental Services

Enclosures dws 028/jmb#6

CC: J. A. Brafford A. L. Girardin

Pradeep Ravel - DER Tallahassee Copied: B. Homas - SW Out



440 137 737

RETURN RECEIPT REQUESTED



IMC Fertilizer, Inc. o New Wales Operations P. O. Box 1035 O Hwy. 640 West At County Line Mulberry, Florida 33860

TO: Mr. C. H. Fancy, Assistant Director Department of Air Resources Management FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION Twin Towers Office Building 2600 Blair Stone Road Tallahassee, Florida 32399-2400

#200 pd. 4-21-89 AC 53-163774 leept. 117608

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION



RECEIVED APR 21 1989

DER - BAOM

APPLICATION TO MARKAGE / CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Molten Sulfur System [] New ¹ [X] Existing ¹
APPLICATION TYPE: [X] Construction [] Operation [] Modification
COMPANY NAME: IMC Fertilizer, Inc 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; Peaking Unit No. 2, Gas Fired) (See attached sections)
SOURCE LOCATION: Street SR 640 at Hillsborough/Polk Cty line City -
UTM: East (17) 396.50 Km North 3078.9 Km
Latitude 27 ° 49 ' 56 "N Longitude 82 ° 03 ' 04 "W
APPLICANT NAME AND TITLE: John A. Brafford, Vice President and General Manager
APPLICANT ADDRESS: P.O. Box 1035, Mulberry, Florida 33860
SECTION I: STATEMENTS BY APPLICANT AND ENGINEER
A. APPLICANT
I am the undersigned owner or authorized representative* of IMC Fertilizer, Inc.
I certify that the statements made in this application for a Construction permit are true, correct and complete to the best of my knowledge and belief. Further I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florid Statutes, and all the rules and regulations of the department and revisions thereof. also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permittent establishment. *Attach letter of authorization Signed: John A. Brafford, V.P. and General Manager Name and Title (Please Type) Date: 4189 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 attending mental 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

DER Form 17-1.202(1) Effective October 31, 1982

¹ See Florida Administrative Code Rule 17-2.100(57) and (104)

Registration No. 12925 SECTION II	John B. Koogler, Ph.D., Name (Please Type Koogler & Associates, Environment Company Name (Please 4014 N.W. 13th Street, Gainesvill Mailing Address (Please Date: 4 / 14 / Solephone No. 9	Type) e, Fl 32609 ase Type) 004/377-5822
SECTION I	John B. Koogler, Ph.D., Name (Please Type Koogler & Associates, Environment Company Name (Please 4014 N.W. 13th Street, Gainesvill Mailing Address (Please Date: 4/14/89Telephone No. 9	Type) e, Fl 32609 ase Type) 004/377-5822
SECTION I	Name (Please Type Koogler & Associates, Environment Company Name (Please 4014 N.W. 13th Street, Gainesvill Mailing Address (Please Date: 4 / 14 / STelephone No. 9	Type) e, Fl 32609 ase Type) 004/377-5822
SECTION I	Koogler & Associates, Environment Company Name (Please 4014 N.W. 13th Street, Gainesvill Mailing Address (Please Date: 4/14/89Telephone No. 9	Type) e, Fl 32609 ase Type) 04/377-5822
SECTION I	Company Name (Please 4014 N.W. 13th Street, Gainesvill Mailing Address (Please Date: 4/14/89Telephone No. 9	Type) e, Fl 32609 ase Type) 04/377-5822
SECTION I	4014 N.W. 13th Street, Gainesvill Mailing Address (Plead Date: 4/14/89Telephone No. 9 Compared to the second street of the second st	e, Fl 32609 ase Type) 004/377-5822
SECTION I	Mailing Address (Plean Date: 4/14/89Telephone No. 9	04/377-5822
SECTION I	Date: 4/14/89Telephone No. 9	04/377-5822
SECTION I	s GENERAL PROJECT INFORMATION	
SECTION I		
cribe the nature and extent		
ther the project will result assary. See Attached	in full compliance. Attach additions	ıl sheet if
,		
edule of project covered in	this application (Construction Permit	Application Only)
rt of ConstructionNA	Completion of Construction	NA
individual components/units	of the project serving pollution conf	trol purposes.
No control		
		·
·		
		ı the emission
None		
	See Attached sedule of project covered in the of Construction NA ts of pollution control system individual components/units ormation on actual costs shamit.) No control	See Attached edule of project covered in this application (Construction Permit nt of Construction NA Completion of Construction ts of pollution control system(s): (Note: Show breakdown of esti individual components/units of the project serving pollution cont formation on actual costs shall be furnished with the application f mit.) No control icate any previous DER permits, orders and notices associated with it, including permit issuance and expiration dates.

OER Form 17-1.202(1) Effective October 31, 1982

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D.

IMC Fertilizer, Inc. (IMC) operates five sulfuric acid plants at the New Wales Operations in Polk County, Florida. Three of the plants are rated at 2700 tons per day of 100 percent sulfuric acid and two of the plants are rated at 2750 tons per day. The maximum annual sulfur requirement for this sulfuric acid production is 1.615 million tons (short tons) per year. The attached flow diagram of the sulfur handling system is presented to clarify the operation of the system.

All of the sulfur is received at IMC in a molten form. Approximately 60 percent (968,900 tons per year) is received in the No. 1 Truck Pit, approximately 30 percent (484,400 tons per year) is received in the No. 2 Truck Pit and approximately 10 percent (161,700 tons per year) is received by rail in the Rail Pit. This sulfur is either transferred directly to the five sulfuric acid plants, or, if the sulfur is received at a rate greater than that required by the sulfuric acid plants, the sulfur can be stored in one of three molten sulfur storage tanks.

All of the sulfur received in the Rail Pit is transferred directly to molten sulfur storage Tanks 1 and 2. Additionally, approximately 25 percent of the sulfur received in Truck Pit No. 1 is transferred to Tanks 1 and 2. When the demand of the sulfuric acid plants exceeds the delivery, molten sulfur from Tanks 1 and 2 is withdrawn through a transfer pit, returned to Truck Pit No. 1 and distributed to the sulfuric acid plants.

Approximately one-third of the molten sulfur received in Truck Pit No. 2 is transferred to molten sulfur storage Tank 3, while the remaining sulfur is delivered directly to the five sulfuric acid plants. Molten sulfur is withdrawn from Tank 3 when the demand of the acid plants exceeds the delivery, returned to Truck Pit No. 2 and then transferred directly to the acid plants.

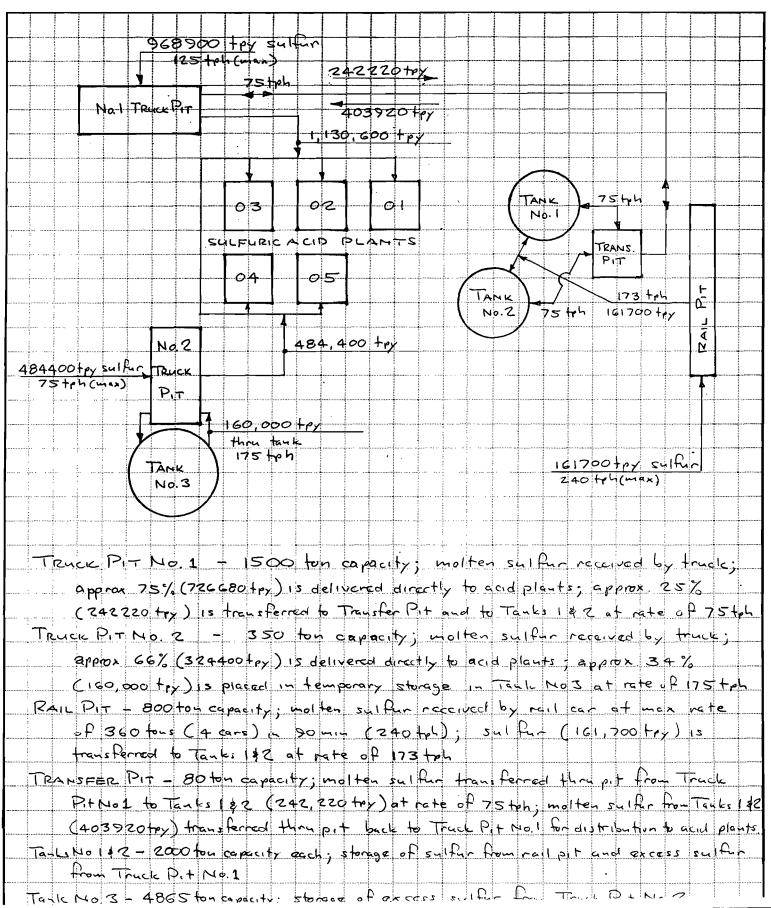
The attached flow diagram schematically shows the layout of the molten sulfur handling system, the capacities of the receiving pits and storage tanks, the annual quantities of sulfur passing through the system and the transfer rates of sulfur within the system.

BEST AVAILABLE COPY



4014 NW THIRTEENTH STREET GAINESVILLE, FLORIDA 32609 904/377-5822 - FAX 377-7158

JOB IMC	entilize	r - Sulfar	- System
		KOOGLER. P.E.	
SHEET NO.		<u> </u>	OF



If this is a new source or major modification, answer the following quest (Yes or No) Existing facility	ions.
Existing facility. 1. Is this source in a non-attainment area for a particular pollutant?	NA
a. If yes, has "offset" been applied?	NA
b. If yes, has "Lowest Achievable Emission Rate" been applied?	NA
c. If yes, list non-attainment pollutants.	_
 Does best available control technology (BACT) apply to this source? If yes, see Section VI. 	NA
 Does the State "Prevention of Significant Deterioriation" (PSD) requirement apply to this source? If yes, see Sections VI and VII. 	NA
4. Do "Standarda of Performance for New Stationary Sources" (NSPS) apply to this source?	NA
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source?	NA
Do "Reasonably Available Control Technology" (RACT) requirements apply to this source?	NA
a. If yes, for what pollutants?	-

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

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



STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION



APPLICATION TO MERCEASE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Molten Sulfur System [] New ¹ [XX] Existing	ngl
APPLICATION TYPE: [X] Construction [] Operati	on [] Modification	n
COMPANY NAME:	Co	POIK
Identify the specific emission point source(s) a	idressed in this app	olication (i.e. Lime
Kiln No. 4 with Venturi Scrubber; Peaking Unit No	o. 2, Gas Fired) <u>N</u>	o. 1 Truck Pit

The No. 1 Truck Pit is a 1500 ton capacity pit used to receive molten sulfur from trucks, as a transfer pit to transfer excess sulfur (sulfur received at a rate greater than the acid plants demand) to storage Tanks 1 and 2, and as a receiving pit to receive molten sulfur from Tanks 1 and 2. The sulfur from the pit is delivered to the five sulfuric acid plants.

The pit is 100 feet long, 36 feet wide and nominally 9 feet deep with a center partition along the 100 foot dimension. The pit is covered with steel plates. There are five six-inch diameter vents in the top of the pit, exhausting at a height of 10 feet above grade. Ventilation is natural (no forced draft). There is always molten sulfur in the pit during normal operations.

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

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

	Contaminants		Utilization		
Description	Туре	% Wt	Rate - Mariar	Relate to Flow Diagram	
Molten sulfur	none	: -	1130600 TPY Annu	al Thru-put	
	•		125 TPH (max)	from Truck to Pit	
			75 TPH from Tr	ansfer Pit	
			187 TPH (max)	to H2SO4 Plants	
		·	,		

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

1.	Total Process Input Rate (lbs/hr):	NA	
2	Product Weight (lhs/hr).	NA	

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

Name of	Emission ^l		Allowed ² Emission Rate per	Allowable ³ Emission	Potential ⁴ Emission		Relate to Flow
Contaminant	Maximum lbs/hr	Actual T/yr	Rule 17-2	Rule lbs/hr	lbs/yr	T/yr	Diagram
Part. Matter	0.17	0.75	17-2.600(11)	NA	0.17	0.75	<u>.</u>
				· · · · · · · · · · · · · · · · · · ·			
			`		-		

¹See Section V, Item 2.

Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

³Calculated from operating rate and applicable standard.

 $^{^{4}}$ Emission, if source operated without control (See Section V, Item 3).

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
None				

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

E. Fuels

	Consum			
Type (Be Specific)	avg/hr	max./hr	Maximum Heat Inpu (MMBTU/hr)	
None				

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

Fuel Analysis:			
Percent Sulfur:		Percent Ash:	
Density:	lbs/gal	Typical Percent Nitrogen:	· · · · · · · · · · · · · · · · · · ·
Heat Capacity:	8TU/1b		8TU/gal
Other Fuel Contaminants (which may of the fuel Contaminants (which may of the fuel for the fuel fuel fuel fuel fuel fuel fuel fue			
Annual Average NA		_	
G. Indicate liquid or solid wastes None	generated	and method of disposal.	·
			

Stack Heig	ht:	10		ft.	Stack Di	amete	r:	0.5	ft.
Gas Flow R	ate: 10 ((each)	<u>-</u>	_DSCFM	Gas Exit	Темр	erature:	200	°F.
Water Vapo	r Content:	2-3	·	%	Velocity	·:	0.85		FPS
			•		•				
		SECT	ION IV:	Applica		RMATI	ON		
		<u> </u>	(1101	Прртте					
Type of Waste	Type 0 (Plastics)		Type II (Refuse)		ge) (Path			Type V S (Solid By-	
Actual lb/hr Inciner- ated	·								
Uncon- trolled (lbs/hr)			·						
Description	n of Waste	-			•			1	•
Total Weigl	ht Incinera	ited (lbs/h	r)		Desig	n Capa	acity (lbs/	/hr)	
Approximat	e Number of	Hours of	Operation	per da	y	day/	rk	wks/yr	
	•								
Date Const	ructed			Mod	el No				
		Volume (ft) ³	Heat R		Туре	Fuel	BTU/hr	Temperatu (°F)	re
				, ,					
Primary C	hamber		1						
	Chamber								
Secondary		ft. :	Stack Diam	mter: _			Stack T	emp	
	nt:								

DER Form 17-1.202(1) Effective November 30, 1982 [] Other (specify)__

NO. 2 TRUCK PIT



4014 NW THIRTEENTH STREET GAINESVILLE, FLORIDA 32609 904/377-5822 • FAX 377-7158

JOB	Ruck	PIT	#=	(
CALCULATED BY	JOHN B.	KOOGLE	R. P.E.	DATE	-
SHEET NO	•			OF	

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Brief description	of operati	ng charact	eristics	of control	l devices:			
								
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Ultimate disposal ash, etc.):					i from the	stack	(ac rubber	water,
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NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

- Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]
- (See Sections IIA and IIIA)

 2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made. (See Page 7a)
- 3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
- (See Page 7a)
 4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.)
- 5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).
- 6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.
- (See Section IIA)

 7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).
- See Attached
 8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

See Attached
DER Form 17-1.202(1)
Effective November 30, 1982

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION



APPLICATION TO CENTRAL / CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE:	Molten Sulfur System	[] New ^l [X] Exis	stingl
APPLICATION TY	PE: $[\chi]$ Construction [] Operation	eration [] Modificat	ion
COMPANY NAME:_	IMC Fertilizer, Inc.	· · · · · · · · · · · · · · · · · · ·	COUNTY: Polk
Identify the s	pecific emission point source	(s) addressed in this	application (i.e. Lime
Kiln No. 4 wit	h Venturi Scrubber; Peaking U	nit No. 2, Gas Fired)	No. 2 Truck Pit

The No. 2 Truck Pit is a 350 ton capacity pit used to receive molten sulfur from trucks and as a transfer pit to transfer sulfur to and receive sulfur from the No. 3 Storage Tank. The sulfur from the pit is delivered to the five sulfuric acid plants.

The pit is 51 feet long, 21 feet wide and 7-8 feet deep. The pit is covered with steel plates and is vented through two six-inch diameter vents exhausting eight feet above grade. The ventilation of the tank is natural (no forced draft). There is always molten sulfur in the pit under normal operating conditions.

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

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

Į	Cont	eminants	Utilization	i ·
Description	Type	% Wt	Rate - lbs/hr	Relate to Flow Diagram
Molten sulfur	None		484400 TPY Annu	al Thru-put
	•		75 TPH (max) f	rom trucks
			175 TPH from Ta	ank No. 3
			187 TPH (max)	o H2SO4 plants

В.	Pro	cess Rate, if applicable: ((See Section V, Item 1)	
	1.	Total Process Input Rate (1	lbs/hr):NA	
	2.	Product Weight (lbs/hr):	NA	

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

Name of	Emise	ionl	Allowed ² Emission Rate per	Allowable ³ Emission	Potent Emiss		Relate to Flow
Contaminant	Maximum lbs/hr	Actual T/yr	Rule 17-2	lbs/hr	lbs/yr	T/yr	Diagram
Part. Matter	0.07	0.30	17-2.600(11)	NA	0.07	0.30	.
	_				1		
			_				
		· · ·	,	<u> </u>			

¹See Section V, Item 2.

²Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

³Calculated from operating rate and applicable standard.

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

D. Control Devices: (See Section V, Item		Control	Devices:	(See	Section	٧,	Item	4
--	--	---------	----------	------	---------	----	------	---

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Baais for Efficiency (Section V Item 5)
None		-		
	:		4	
		.:		

E. Fuels

- • · ·	Consum	otion#	
Type (Be Specific)	avg/hr	max./hr	Maximum Heat Input (MMBTU/hr)
None			

Percent Ash:
l Typical Percent Nitrogen:
BTU/ga:
del used for space heating.
d and method of disposal.
· · · · · · · · · · · · · · · · · · ·
1

	jht:	8		ft. S	tack Diamete	r:).5ft
Gas Flow R	ate: 10 (ea	ch) ACFM	<u>-</u>	_DSCFM G	as Exit Temp	erature:	200 °F
Water Vepo	r Content:	2-	.3	% Ve	olocity:	0.85	FP FP
		SECT		INCINERATO)R INFORMATI	ON 	
Type of Waste					Type IV (Patholog- ical)		(Solid By-prod.)
Actual lb/hr Inciner- ated							
Uncon- trolled (lbs/hr)							
Total Weig	e Number of	ted (lbs/h	r)	per day _	_ Design Cap		hr)
ianu factur							
ianufactur Date Const	ructed					•	
		Volume (ft) ³		elease /hr)	-	BTU/hr	Temperature (°F)
Date Const	ructed	Volume		elease /hr)	•	· T	Temperature
Primary C	ructed	Volume (ft) ³		elease /hr)	•	· T	Temperature
Primary C	ructed	Volume (ft) ³	Heat Re (BTU)	,	Fuel Type	BTU/hr	Temperature
Primary C Secondary	nucted hamber Chamber	Volume (ft) ³	Heat Re (BTU/	iter:	Fuel Type	BTU/hr Stack To	Temperature (°F)
Primary C Secondary Stack Heig Gas Flow R	hamber Chamber ht:	Volume (ft) ³ ft. S	Heat Re (BTU) Stack Diam ACFM	ter:	Fuel Type DSCFM* t the emiss:	BTU/hr Stack To	Temperature (°F)

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ltimate disposal o	f any effluent	other t	han that	emitted	from the	stack	(scrubber	water
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NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

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

 2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made. (See Page 7a)
- 3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
- (See Page 7a)
 4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.)

 NA
- 5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).
- 6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.

(See Section IIA)

- 7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).
- See Attached
 8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

See Attached
DER Form 17-1.202(1)

Effective November 30, 1982



4014 NW THIRTEENTH STREET GAINESVILLE, FLORIDA 32609 904/377-5822 • FAX 377-7158

108	zucie	PIT	# /	2	
CALCULATED BY	JOHN B.	KOOGLE	R. P.E.	DATE	
SHEET NO.	• •			OF	

EMISSION RATE CALCULATIONS
Measurents on moter sulfar storage tanks
have shown the wind induced ventilation rate
to be about 18 cfu per vent. The yents on these
tanks were at clevations of: 30-40 Pt above
grade and on the referenced tanks, there were
maltiple youts. The IMC No Track Pit has
multiple vents (two) exhausting 8 ft above
grade. Because of the elevation of these vents
and the fact that near-by structures provide some
shielding from the wind, it has been estimated that
the wind induced ventilation rate from each of the
Vents on the No 2 Track Pit 15 10 cPm. (Because
of the uncontainty in the extremete and the slight
difference between actual ventilation rates and
standard condition ventuation rates, no differentiation is made
between the two rates.)
Sulfur particle concentration in gases vanted from
molten sulfar storage tunks has been measured to
range Dom 0.3-0.5 grains/Pt3. The higher concentrations
were measured when the tanks were being filled with -
molten sulfur and the lower concentrations, when the taules
were idle. The sulfur particle concentration from the
No 2 Track Pit was estimated to be 0.4 grains / Pt3
ander all conditions:
Emissions = 10 cfm/vent x 2 Vents x 60 mm/hm
x 0. 4gr/ft3 x 1/2000 14/gr
= 0.07 b/hn 1/2000 to 1/2000 to 1/2
x 8760 hr/yr x 1/2000 to 16
$= 0.30 + p \times $

RAIL PIT

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION



APPLICATION TO SERRED CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Molten Sulfur System	[]New ¹ [XX]Ex	istingl		
APPLICATION TYPE: [XX] Construction [] Open	eration [] Modific	ation		
COMPANY NAME: IMC Fertilizer, Inc.		COUNTY:	Polk	
Identify the specific emission point source	(s) addressed in thi	s applicatio	n (i.e. Lime	
Kiln No. 4 with Venturi Scrubber; Peaking Ut	nit No. 2, Gas Fired) Rail Pit		

The Rail Pit is an 800 ton capacity pit used to receive molten sulfur from rail cars. Up to four cars can be unloaded simultaneously into the pit (240 tons/hour unloading rate). The sulfur from the Rail Pit is transferred to the No. 1 and No. 2 Storage Tanks at a rate of 173 tons per hour.

The pit is 146 feet long by 12 feet wide by 8 feet deep and is covered by a steel plate top. There are five 6-inch diameter vents in the top of the pit, venting eight feet above grade. Ventilation of the pit is natural (no forced draft) and there is always sulfur in the pit under normal operating conditions.

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

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

	Contam	inants	Utilization		
Description	Туре	% Wt	Rate - lbs/hr	Relate to Flow Diagram	
Molten Sulfur	none		161700 TPY Annu	al Thru-Put	
			240 TPH (max)	from rail cars	
			173 TPH to Ta	nks 1 and 2	
			`		

В.	Process Rate, if applicable: (See Sect	tion V, Item 1)
	1. Total Process Input Rate (lbs/hr):	NA
	2. Product Weight (lbs/hr):	NA
	2. 100dcc elgic (108/iii/:	

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

Name of	Emission ¹		Allowed ² Emission Rate per	Allowable ³ Emission	Potential ⁴ Emission		Relate to Flow	
Contaminant	Maximum lbs/hr	Actual Y/yr	Rule 17-2	lbs/hr	lbs/yr	T/yr	Diagram	
Part. Matter	0.17	0.75	17-2.600(11)	 —	0.17	0.75		
		-						
			,					

¹See Section V, Item 2.

²Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

³Calculated from operating rate and applicable standard.

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

D. Control Devices: (See Section V, Item 4)	D.	Control	Devices:	(See	Section	٧.	Item	4))
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Name and Type (Model & Serial No.)	Conteminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
None		-		
	:			
			·	-

E. Fuels

	Consump	tion*	
Type (Be Specific)	avg/hr	max./hr	Maximum Heat Input (MMBTU/hr)
None			
		-	
		+	

Fuel Analysis:		•	
Percent Sulfur:		Percent Ash:	
Density:	lbs/gal	Typical Percent Nitrogen:	
Heat Capacity:	BTU/16		BTU/gal
F. If applicable, indicate the particular Annual Average NA			
Annusl Average <u>NA</u> G. Indicate liquid or solid wast			
None		: · · · · · · · · · · · · · · · · · · ·	
	,		

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_							200 °F
				_		0.85	
ater vapo:	Content:			^ \	elocity:		rr
		SECT	. '	incinerat ot Applia	or information	ATION	
Type of Waste	Type 0 (Plastics)				I Type IV (Patholo ical)	g- (Liq.& Gas	Type VI s (Solid By-prod.)
Actual lb/hr Inciner- ated							
Uncon- trolled (lbs/hr)							
otal Weigh		ted (lbs/hi	r)	per day	da		/hr)wks/yr
		Volume (ft) ³	Heat Re	elease /hr)	Туре	el BTU/hr	Temperature (°F)
Primary Ch	amber			`			
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tack Heigh as Flow Ra (f 50 or m		er day desi				ssions rate i	n grains per st <i>a</i> n

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Ultimate disposal sh, etc.):	ofany	effluent	other	than	thet	emitted	from	the	stack	(scrubber	water
				• •					-		
						`					

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

- Total process input rate and product weight -- show derivation [Rule 17-2.108(127)]
- (See Sections IIA and IIIA)

 2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made. (See Page 7a)
- 3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
- (See Page 7a)

 4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to sir ratio; for scrubber include cross-section sketch, design pressure drop, etc.)
- 5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).
- 6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.
- (See Section IIA)

 7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).
- See Attached
 8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

See Attached
DER Form 17-1.202(1)
Effective November 30, 1982



4014 NW THIRTEENTH STREET GAINESVILLE, FLORIDA 32609 904/377-5822 - FAX 377-7158

SOL	ail Pit		
CALCULATED BY	JOHN B. KOOGLER	P.E. DATE	
SHEET NO		OF	

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TRANSFER PIT

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION



APPLICATION TO MINIMUM CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE:	Molten Sulfur System	[] New ^l	[^{XX}] Existing ¹	
APPLICATION TY	PE: $[X]$ Construction $[X]$ Operation $[X]$	peration [] Mo	odification	
COMPANY NAME:_	IMC Fertilizer, Inc.		COUNTY:	Polk
Identify the sp	pecific emission point source	e(s) addressed	in this application	(i.e. Lime
Kila No. 4 with	h Venturi Scrubber; Peaking I	Unit No. 2, Gas	Fired)Transfer	Pi†

The molten sulfur Transfer Pit is an 80 ton capacity pit through which sulfur is transferred from the No. 1 Truck Pit to storage Tanks 1 and 2. The molten sulfur from Tanks 1 and 3 (sulfur from Truck Pit No. 1 and from the Rail Pit) is transferred through the Transfer Pit back to Truck Pit No. 1 for distribution to the sulfuric acid plants. (Under unusual conditions, sulfur from Tanks 1 and 2 is delivered from the Transfer Pit directly to the acid plants.)

The pit is 15 feet long by 10 feet wide by 10 feet deep and is covered by a steel plate top. The pit is vented through a single 4-inch diameter exhausting 12 feet above grade. Ventilation is natural (no forced draft). There is always molten sulfur in the Transfer Pit under normal conditions.

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

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

	Contam	inants	Utilization					
Description	Туре	% Wt	Rate - lbs/hr	Relate to Flow Diagram				
Molten Sulfur	none		646,140 TPY Annu	al Thru-put				
			75 TPH to and	from Tanks 1 and 2				
				,				
			``					

В.	Process Rate, if applicable:	(See Section V, Item 1)	
	1. Total Process Input Rate	(lbs/hr):NA	
	2. Product Weight (lbs/hr):	NA	

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

Name of	Emiss	ion ^l	Allowed ² Emission Rate per	Allowable ³ Emission	Potent Emis	Relate to Flow	
Contaminant			Rule 17-2	lbs/hr	lbs/yr	T/yr	Diagram
Part. Matter	0.05	0.23	17-2.600(11)	-	0.05	0.23	-
			`				

¹See Section V, Item 2.

²Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

³Calculated from operating rate and applicable standard.

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

Name and Type (Model & Serial No.)	Co	ontaminant	Eff	iciency	Size (in	f Particles Collected microns) plicable)	Basis for Efficiency (Section \ Item 5)
None				•		<u> </u>	
		:					
					_		
				<i>3</i> `			
Fuels							
- (0 0 10:)			Consum	ption*			
Type (Be Specific)	1	avg/hr		та п	x./hr		um Heat Input MMBTU/hr)
None				•			
		·					
<u> </u>							
nits: Natural GasMMC	F/hr	; Fuel Oils-	gall	ons/hr; C	oal, wood,	refuse, oti	nerlbs/hr.
el Analysis:					-		
rcent Sulfur:				Percent	Ash:		
nsity:		1t	s/gal	Typical	Percent N	itrogen:	
at Capacity:			3TU/16				BTU/ga
her Fuel Contaminants	(whi	ch may cause	air	pollution):		
· · · · · · · · · · · · · · · · · · ·							
If applicable, indic	ate	the percent	of fu	el used f	or space h	eating.	
1.4	A			aximum			

	ht:	12		ft.	Stack Dia	meter	0.2	33 f
as Flow R	ate:15	ACFM	<u> </u>	_DSCFM	Gaa Exit	Tempe	rature:	200
ater Vapo	r Content	2-3		^~%	Velocity:		2.9	F
,		SECT			ATOR INFOR	MATIO	IN .	,
Type of Waste	Type 0 (Plastic				III Type ge) (Patho ica	log-	Type V (Liq.& Gas By-prod.)	Type VI (Solid By-prod.
Actual lb/hr ncinér- ated								
Uncon- trolled lbs/hr)								
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tal Weigh	nt Incine	f Hours of	r)	per day	Design	Capa day/w	k	hr)
otal Weigh	nt Incine e Number (ated (lbs/h	r)	per day	Design	Capa day/w	k 1	
tal Weigh	nt Incine e Number (ated (lbs/h	r)	per day	Design	Capa day/w	·k ·	wks/yr
tal Weigh proximate nufacture te Consti	nt Incine e Number (volume	r)	per day	Design	Capa day/w	k	wks/yr
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tal Weigh proximate nufacture te Consti rimary Ch econdary ack Heigh s Flow Ra	nt Incine	Volume (ft)	Heat Ro (BTU,	per day Mode elease /hr) ater:	Design Y Pl No Type DSC:	Capa day/w	BTU/hr Stack Te	Temperature (°F)

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NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

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

 2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made. (See Page 7a)
- 3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test). (See Page 7a)
- 4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.)
- 5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).
 NA
- 6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.
- (See Section IIA)

 7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).
- See Attached
 8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

See Attached DER Form 17-1.202(1)

Effective November 30, 1982



4014 NW THIRTEENTH STREET GAINESVILLE, FLORIDA 32609 904/377-5822 • FAX 377-7158

JOB	rausfer	P,+		
CALCULATED BY	JOHN B. K	OOGLER. P.E.	_DATE	
SHEET NO.		_	_OF	

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TANKS 1 AND 2

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION



APPLICATION TO SPERENCE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Molten Sulfur System	[] New ^l (XX) Existing ^l
APPLICATION TYPE: [XX] Construction [] Opera	tion [] Modification
COMPANY NAME: IMC Fertilizer, Inc.	COUNTY: POIK
Identify the specific emission point source(s)	addressed in this application (i.e. Lime
Kiln No. 4 with Venturi Scrubber; Peaking Unit	No. 2, Gas Fired) Tanks 1 and 2

Tanks 1 and 2 are identical molten sulfur storage tanks with capacities of 2000 short tons each. The Tanks are 40 feet in diameter and 33 feet high. Each Tank has five 8-inch diameter roof vents; four rim vents and one center vent.

Sulfur is transferred from the Rail Pit directly to the Tanks for storage. Additionally, approximately 25 percent of the sulfur received at the No. 1 Truck Pit is transferred to the Tanks for storage. Sulfur from the Tanks are returned, through the Transfer Pit, to the No. 1 Truck Pit for distribution to the acid plants.

It is assumed that the total sulfur throughput for the two Tanks is equally divided between the Tanks.

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

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

	Contaminants		Utilization	•	
Description	Туре	% Wt	Rate - Each Tank	Relate to Flow Diagram	
Molten Sulfur	none		201,960 TPY Annu	al Thru-Put	
			75 TPH To and	From Transfer Pit	
			173 TPH From F	ail Pi†	
			`		

В.	Process Rate, if applicable: (See Sec	tion V, Item 1)
	1. Total Process Input Rate (1bs/hr):	NA
	2. Product Weight (lbs/hr):	NA

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

Name of	Emission ¹		Allowed ² Emission Rate per	Allowable ³ Emission	Potential ⁴ Emission		Relate to Flow	
Contaminant	Maximum lbs/hr	Actual T/yr	Rule 17-2	lbs/hr	lbs/yr	T/yr	Diagram	
Part. Matter	0,61(max)	1.22	17-2.600(11)	-	0.61(max)	1.22		
						-		
				· ·			<u> </u>	
			,					

¹See Section V, Item 2.

²Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

³Calculated from operating rate and applicable standard.

 $^{^{4}}$ Emission, if source operated without control (See Section V, Item 3).

D. Cantral Devices: (See Section V, Item 4	D.	Control	Devices:	(See	Section	٧.	Item	4)
--	----	---------	----------	------	---------	----	------	---	---

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected(in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
None		· :		
		J		

E. Fuels

	Consu	ption*	-	
Type (Be Specific)	avg/hr	max./hr	Maximum Heat Input (MMBTU/hr)	
None				
	1			

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

• • • • • • • • • • • • • • • • • • • •	•		-
Fuel Analysis:			
Percent Sulfur:		Percent Ash:	
Density:	lbs/gal	Typical Percent Nitrogen:	
Heat Capacity:	BTU/1b		BTU/gal
Other Fuel Contaminants (which	may cause air p	ollution):	
F. If applicable, indicate th	e percent of fue	l used for space heating.	
Annual Average NA			
G. Indicate liquid or solid w			
None	_		

	jht:35			ft.	Stack Diamete	0.6	<u>7 </u>
as Flow R				_DSCFM	Gas Exit Temp	erature: 2	40•
ater Vapo	r Content:	2-3		<u></u> %	Velocity:	0.85	FI
		SECT		INCINERA ot Appli	TOR INFORMATI	ON	
Type of Waste					II Type IV e) (Patholog- ical)		Type VI (Solid By-prod.
Actual lb/hr Inciner- ated							
Uncon- trolled (lbs/hr)							
tal Weig	ht Inciner		r)	per day	Design Cap		or)
	er -		_		l No.		
anufactur				Mode			
nufactur		Volume (ft) ³		elease _			Temperature (°F)
nufactur te Const		Volume (ft) ³	Heat Re	elease _	Fuel		Temperature
nufactur te Const	ructed	Volume (ft) ³	Heat Re	elease _	Fuel		Temperature
rimary C	ructed	Volume (ft) ³	Heat Re (BTU)	olease /hr)	Fuel	BTU/hr	Temperature (°F)
nufactur te Const rimary C econdary ack Heig	hamber Chamber	Volume (ft) ³	Heat Re (BTU,	elease /hr)	Type	BTU/hr Stack Te	Temperature
rimary Constack Height Solution Reference Refe	hamber Chamber ht:	Volume (ft) ³	Heat Re (BTU) Stack Diam ACFM	elease /hr) nter:	Fuel Type DSCFM*	BTU/hr Stack Te	Temperature (°F)

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4014 NW THIRTEENTH STREET GAINESVILLE, FLORIDA 32609 904/377-5822 = FAX 377-7158

JOB Molte	en Sulfur	Sta To	ànks	122
CALCULATED BY	JOHN B. KOO	LER. P.E. DA	TE	
SHEET NO.	·	/OF	3	

Thrupu	4
I	From Reil Pit = 16,700 tpy tank = 80850 try transferred at rate of 173 tph (52 ft3/min
2) Total Fact	From Transfer Pit = 242220 py tank = 12,110 py transferred at vate of 75 tol (22 ft3/min
B) Total	to Transfer Pit = 403920try n tank = 201960try transferred at rate of 75tph (22ft3/min)
	lation Rate (each tank)
	Idle (no salfar in or out) 18 cfm/vent x 5 vents = 90 cfm (nation)
	Filled from Pail Pit 90 cfm (matural) + 52 cfm = 142 cfm Time = 80850 try/173 trh = 467 hr/yr
	illed from Trousfor Pit 20 cfu (netwol) + 22 cpu = 112cfu Time = 121110 tpy / 75 tph = 1615 hr/yr
Tank D	scharging to Transfer Pit 90 efu (natural) - 22 cfm = 68 cfm. Time = 201960 try /75 tgh = 2693 hr/yr
Taule	



4014 NW THIRTEENTH STREET GAINESVILLE, FLORIDA 32609 904/377-5822 • FAX 377-7158

JOB		
CALCULATED BY_	JOHN B. KOOGLER. P.E. DATE	
SHEET NO.	2 OF 3	

Emission Rate

Sulfur particle concentration in gas stroom
ulen tank is being filled = 0.5gr/ft3
Bultar particle concentration in gas stream
I when tente is idle or sutter without y
= 0.3 gr/Pt ³
Heurly Emissions (each Tank)
Ray Pit to Tank
= 142 P+3/mm x GO mm/hm x O. Sgr/ P+3
x 1/2000 L/g n
= 0.61 16/hr Hax
Transfer P. + to Tank
= 112 P+3/min x 60 min /hr x 0. \$94/P+3
x 1/2000
= 0.48 IV/hr
Tank to Transfer Pit
= 68 Pt3/min x 60-in/hin x 0.391/ft3
1/2000
= 0.17 16/4~
Tank Idle
= 90 Kt / min x 60 min Mn x 0, Ban/1243
= 90 Pt3/min x 60 min Min x 0, 3 g 1/ Py3
= 0.2316/hr



4014 NW THIRTEENTH STREET GAINESVILLE, FLORIDA 32609 904/377-5822 = FAX 377-7158

JOB					
CALCULATED BY	JOHN B.	KOOGLE	R. P.E.	_DATE	<u>. </u>
SHEET NO.			ユ	OF	3

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Brief description o	operacing (CHAIACCO		or comero		·		
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		٠.	•	<u>-</u>			·	
Ultimate disposal on the state of the state	f any effluer	nt other	than t	hat emitte	d from the	stack	(scrubber	water
			_					

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

- Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]
- (See Sections IIA and IIIA)

 2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made. (See Page 7a)
- 3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
- (See Page 7a)
 4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for acrubber include cross-section sketch, design pressure drop, etc.)
- 5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).
 NA
- 6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.

(See Section IIA)

- 7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of air-borne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).
- See Attached
 8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

See Attached
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Effective November 30, 1982

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TANK NO. 3

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION



APPLICATION TO SPEEDED/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE:	Molten Sulfur System	[] New ^l [XX] Exi	stingl	
APPLICATION TY	PE: [XX] Construction [] Op	peration [] Modifica	tion	
COMPANY NAME:_	IMC Fertilizer, Inc.		_ COUNTY:	Polk
Identify the s	pecific emission point source	e(s) addressed in this	application	n (i.e. Lime
Kiln No. 4 wit	h Venturi Scrubber; Peaking (Jnit No. 2, Gas Fired)	Tank No	o. 3

Molten Sulfur Storage Tank No. 3 is a 4865 ton capacity tank. The Tank is 60 feet in diameter, 32 feet high at the top of the side wall and 38.8 feet high at the top of the domed roof. The Tank has one 24-inch diameter center roof vent and four 12-inch diameter rim roof vents.

The Tank receives sulfur from Truck Pit No. 2 that is in excess of the acid plant capacity. The sulfur is transferred to the Tank at the rate of 175 tons per hour. The sulfur in the Tank is transferred back to Truck Pit No. 2 (at 175 tons per hour) for distribution to the acid plants.

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

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

	Contam	inants	Utilization				
Description	Туре	% Wt	Rate - lbs/hr	Relate to Flow Diagra			
Molten Sulfur	none	·	160,000 TPY Annu	al Thru-put			
			175 TPH To and	From No. 2 Truck Pit			
	,						
			`				

B. Pr	ocess Rate.	if	applicable:	(See	Section V		Item 1	.)
-------	-------------	----	-------------	------	-----------	--	--------	----

1.	Total Process Input Rate (lbs/hr):	NA	
2.	Product Weight (lba/hr):	NA	

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

Name of	Emiss	ionl	Allowed ² Emission Rate per	Allowable ³ Emission	Potent Emiss	Relate to Flow		
Contaminant	Maximum lbs/hr	Actual T/yr	Rule 17-2	lbs/hr	lbs/yr	T/yr	Diagram	
Part. Matter	0.61(max)	1.12	17-2.600(11)	<u>-</u>	0.61(max)	1.12	_	
•								
		-						
			,					

¹See Section V, Item 2.

²Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

³Calculated from operating rate and applicable standard.

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

Name and Type (Model & Serial No.)	Contaminant	- 1	ficiency	Size (in	f Particles Collected microns) plicable)	Basis for Efficiency (Section \ Item 5)
None			-			
_						
			,			
			· ·			<u> </u>
. Fuels						
		Consu	ption*			
Type (Be Specific)	avq/t	ır	ma:	x./hr		Heat Input BTU/hr)
None						
					_	
			<u> </u>			· · · · · · · · · · · · · · · · · · ·
Units: Natural GasMMC	:t/hr; tuel Uil	.sgall	ons/hr; Co	oal, wood,	refuse, othe	rlbs/hr.
uel Analysis:						
ercent Sulfur:						
ensity:				Percent N	itrogen:	
eat Capacity:						BTU/ga
ther Fuel Contaminants	(which may cau	se air	pollution,):		
		.				
. If applicable, indic					_	•
nnual Average NA						
. Indicate liquid or s						
None		-				

		/ent/4 Rim V Geometry an		racteri	stics (Pr	ovide	data for e	ach stack):
Stack Heig	ght:	40/37		ft.	Stack Di	amete	r: 2.0/1.0	<u> </u>
Gas Flow R	late: 18 (each) ACFM_	-	DSCFM	Gas Exit	Temp	erature:	240
Water Vapo	r Conten	t:2-3	3	_	Velocity	: 0.	10/0.:38	FI
·				٠.				· · · · · · ·
		SEC			ATOR INFO licable)	RMATI	ON	
Type of Waste			Type II n) (Refuse)		ge) (Path		Type V (Liq.& Gas By-prod.)	Type VI (Solid By-prod.
Actual lb/hr Inciner- ated						•		
Uncon- trolled (lbs/hr)								
ĭotal Weig Approximat	ht Incin		hr)	per day	Desig	n Cap	acity (lbs/	nr)
Date Const	ructed _			Mode	el No			
		Volume (ft) ³	Heat R (BTU	elease /hr)	Туре	Fuel	BTU/hr	Temperature (°F)
Primary C	hamber			<u> </u>		+		
Secondary	Chamber							
Stack Heig	ht:	ft.	Stack Diam	mter:			Stack Te	mp
Gas Flow R	ate:		ACFM		DS(CFM+	Velocity: _	FP
		s per day de , gas correc				emiss:	ions rate in	ı grains per stan
Type of po	llution o	control devi	ce: [] C	yclone	[] Wet 5	crubl	ber [] Aft	erburner
			[] 0	ther (sp	ecify)			
DEO E 1	7 1 2026					,		

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lltimate sh, etc.	of a	ny ef	fluent	other	than	that	emitted	from	the	stack	(scrubber	water
											-	
												_

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

- Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]
- (See Sections IIA and IIIA)

 2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made. (See Page 7a)
- 3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
- (See Page 7a)
 4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.)
- 5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).
- 6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.
- (See Section IIA)

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

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

See Attached
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Effective November 30, 1982



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JOB	·			
CALCULATED BY	JOHN B.	KOOGLER. P	<u>.E.</u> c	DATE
SHEET NO.		<u> </u>	o)F

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4014 NW THIRTEENTH STREET GAINESVILLE, FLORIDA 32609 904/377-5822 • FAX 377-7158

JOB			
CALCULATED BY	JOHN B.	KOOGLER. P.E.	DATE
SHEET NO.			OF

Emissions :
Track D. H - Tank
= (5vents x 18ft 3/4, 17) + 52 cfm] x 60 min/4 x 0. 5 gr/P+3
x V popo K/g n
- O. 61 16/4r
1 1 1 1 x 314 ln/yn x 1/200
= 0.28 try
Tank to Touck Pit
= [90-52] x 60min/hn x 0.3 gr/ft3x 1/200
= 0.10 (6/40
x 914 h-/yr x 1/2000
Tank Idle
= 90 cft x 60 mm/lin x 0.3gr/Rt3x1/2000
= 0.23 16/4
x 6932 hr/yr x 1/200
= 0.80 try
Total Annual = 0.28 + 0.04 + 0.80 = 1.12 tay
Max Hourly = 0.61 16/hr

BACT AND PSD (Neither Required)

9.	The appropriate application fee made payable to the Department of	in accordance with Rule 17-4.05. The check should be Environmental Regulation.
10.		n permit, attach a Certificate of Completion of Con- source was constructed as shown in the construction
	CECTION WI. DE	ST AVAILABLE CONTROL TECHNOLOGY
Α.	. (Not Applicable) new stationary sources pursuant to 40 C.F.R. Part 60
	[] Yes [] No	
	Contaminant	Rate or Concentration
j		,
<u>-</u>		
В.	Has EPA declared the best availa	ble control technology for this class of sources (If
	[] Yes [] No	
	Contaminant	Rate or Concentration
	-	
-		
C.	What emission levels do you propo	ae as best available control technology?
	Contaminant	Rate or Concentration
	<u> </u>	
	<u> </u>	<u> </u>
ο.	Describe the exiating control and	treatment technology (if any).
	1. Control Device/System:	2. Operating Principles:
	3. Efficiency:*	4. Capital Costs:
*Exi	plain method of determining	
DE R	Form 17-1.202(1)	·
Eff	ective November 30, 1982	Page 8 of 12

		•								
	5.	Useful Life:		6.	Operating Costs:					
	7.	Energy:		8.	Maintenance Cost:					
	9.	Emissions:								
		Contaminant			Rate or Concentration					
	10.	Stack Parameters			*					
	а.	Height:	ft.	b.	Diameter: ft.					
	c.	Flow Rate:	ACFM	d.	Temperature: °F.					
	e.	Velocity:	FPS							
ε.		cribe the control and treatment additional pages if necessary).		olog	y available (As many types as applicable,					
	1.									
	a.	Control Device:		ь.	Operating Principles:					
	c.	Efficiency: 1		d.	Capital Cost:					
	e.	Useful Life:		f.	Operating Cost:					
	g.	Energy: ²		h.	Maintenance Coat:					
	i.	i. Availability of conatruction materials and process chemicals:								
	j. Applicability to manufacturing processes:									
	k.	Ability to construct with contract within proposed levels:	ol de	vice	, install in available space, and operate					
	2.									
	a.	Control Device:		ь.	Operating Principles:					
	c.	Efficiency: 1		d.	Capital Cost:					
	e.	Useful Life:		f.	Operating Cost:					
	g.	Energy: ²		h.	Maintenance Cost:					
	i.	Availability of construction ma	terial	ls an	d process chemicals:					
1 _{Ex}	plai ergy	n method of determining efficien to be reported in units of elec	cy. trical	pow	er – KWH design rate.					

Applicability to manufacturing processes: Ability to construct with control device, install in available space, and operate within proposed levels: 3. Control Device: Operating Principles: d. Cspital Cost: Efficiency: 1 f. Operating Cost: Useful Life: Energy: 2 h. Maintenance Cost: Availability of construction materials and process chemicals: Applicability to manufacturing processes: Ability to construct with control device, install in available space, and operate within proposed levels: 4. Control Device: b. Operating Principles: Efficiency: 1 d. Capital Costs: Useful Life: f. Operating Cost: Energy: 2 Maintenance Cost: Availability of construction materials and process chemicals: Applicability to manufacturing processes: Ability to construct with control device, install in available space, and operate within proposed levels: Describe the control technology selected: Efficiency: 1 1. Control Device: 3. Capital Cost: Useful Life: Energy:2 5. Operating Cost: Maintenance Cost: 8. Manufacturer: Other locations where employed on similar processes: a. (1) Company: (2) Mailing Address: (3) City: (4) State: ¹Explain method of determining efficiency. 2 Energy to be reported in units of electrical power - KWH design rate. DER Form 17-1.202(1)

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Effective November 30, 1982

(· ·
	5) Environmental Manager:	
(6) Telephone No.:	·
(7) Emissions: 1	
	Contaminant	Rate or Concentration
(8) Process Rate: 1	
b	. (1) Company:	
(2). Mailing Address:	
C	3) City:	(4) State:
(!	5) Environmental Manager:	
(6) Telephone No.:	
(7) Emissions: ¹	
	Contaminant	Rate or Concentration
(1	3) Process Rate: 1	
10). Reason for selection and	description of avatems:
		·
	icant must provide this info lable, applicant must state t SECTION VII - P	
avai]	lable, applicant must state t	he reason(s) why.
avai]	lable, applicant must state t SECTION VII - P ompany Monitored Data	he reason(s) why. REVENTION OF SIGNIFICANT DETERIORATION
evail	lable, applicant must state t SECTION VII - P ompany Monitored Data	he reason(s) why. REVENTION OF SIGNIFICANT DETERIORATION (Not Applicable)
. Co	SECTION VII - P ompany Monitored Data no. sites eriod of Monitoring	REVENTION OF SIGNIFICANT DETERIORATION (Not Applicable) TSP () SO ² * Wind spd/dir
. Co	SECTION VII - P ompany Monitored Data no. sites eriod of Monitoring	REVENTION OF SIGNIFICANT DETERIORATION (Not Applicable) TSP () SO ² + Wind spd/dir / / to // month day year month day year
evail Co At	SECTION VII - P ompany Monitored Data no. sites eriod of Monitoring	REVENTION OF SIGNIFICANT DETERIORATION (Not Applicable) TSP () SO ² * Wind spd/dir / / to // month day year month day year summaries to this application.

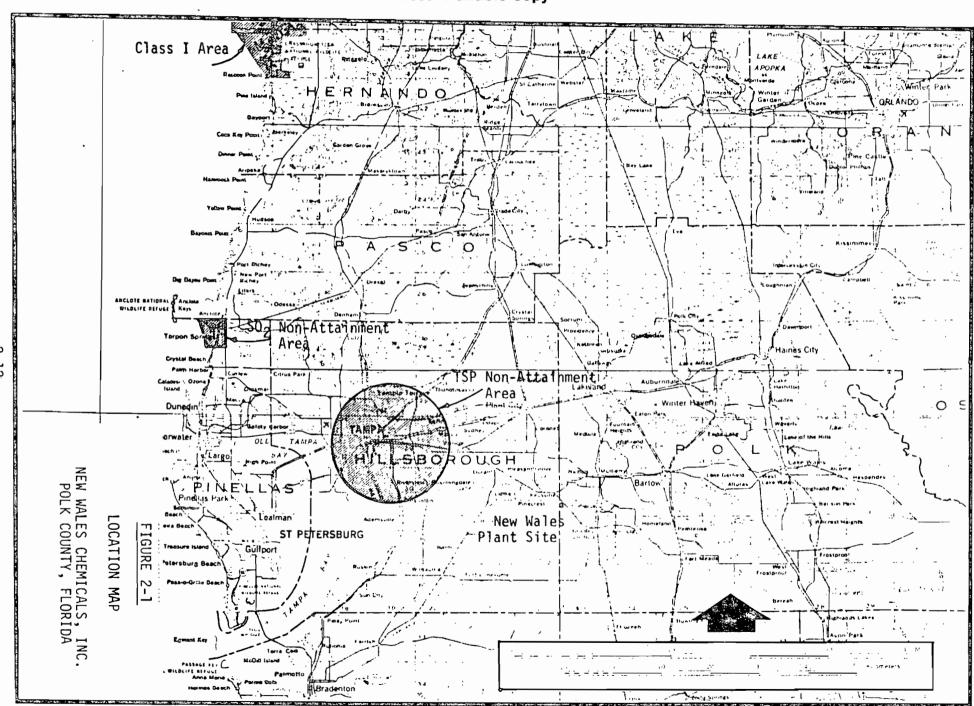
	2. Instrumentation, Field and Labora	atory
	a. Was instrumentation EPA reference	ed or its equivalent? [] Yes [] No
	b. Was instrumentation calibrated in	n accordance with Department procedures?
	[] Yes [] No [] Unknown	
в.	Meteorological Data Used for Air Qua	lity Modeling
	1Year(s) of data from	/ / to / / day year month day year
	2. Surface data obtained from (locat	tion)
	Upper air (mixing height) data of	btained from (location)
	4. Stability wind rose (STAR) data (obtained from (location)
÷.	Computer Models Used	
	1.	Modified? If yes, attach description.
	2	Modified? If yes, attach description.
		Modified? If yes, attach description.
		Modified? If yes, attach description.
	Attach copies of all final model runs ciple output tables.	s showing input data, receptor locations, and prin-
).	Applicants Maximum Allowable Emission	n Data
	Pollutant Emission	n Rate
	TSP	grams/sec
	S 0 ²	grams/sec
•	Emission Data Used in Modeling	
		ission data required is source name, description of UTM coordinates, stack data, allowable emissions,
•	Attach all other information supporti	ive to the PSD review.
i -		et of the selected technology versus other applica- oll, production, taxes, energy, etc.). Include et of the sources.

DER Form 17-1.202(1) Effective November 30, 1982

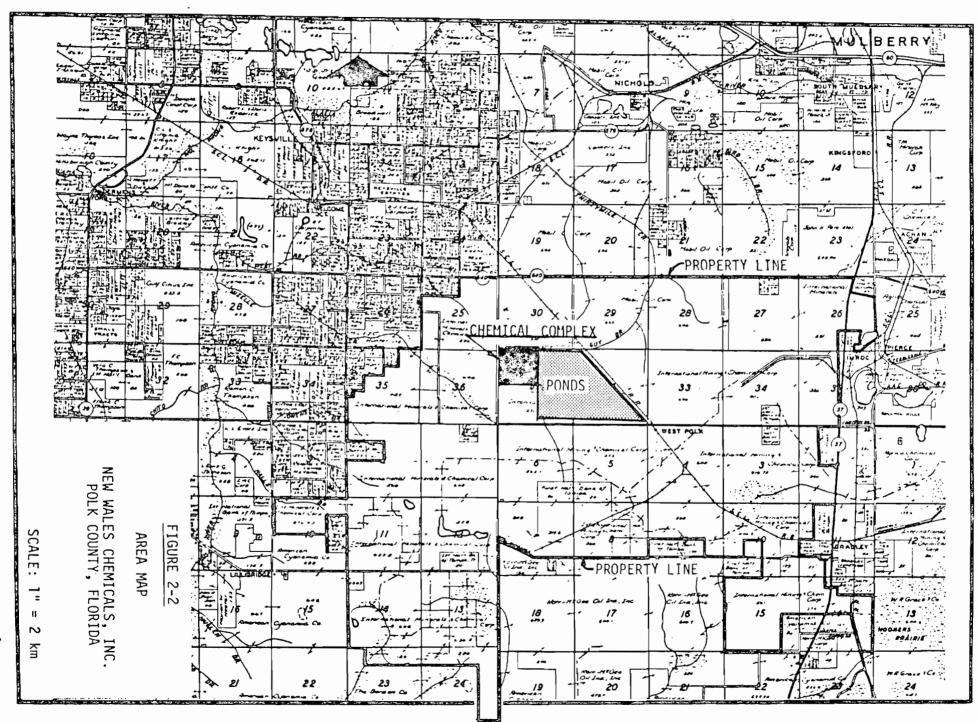
the requested best available control technology.

Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of

Best Available Copy



Best Available Copy



SHOTTES W KOOGLER