Golder Associates Inc.

6241 NW 23rd Street, Suite 500
Gainesville, FL 32653-1500
Telephone (352) 336-5600
Fax (352) 336-6603

January 29, 1999

9837578A/01

Florida Department of Environmental Protection
Division of Air Resources Management
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Attention: Mr. A.A. Linero, P.E., Administrator, New Source Review Section

RE: Cargill Fertilizer, Inc.
MAP Plant Expansion - Riverview
DEP File No. 0570008-026-AC (PSD-FL-251)

Dear Mr. Linero:

The purpose of this correspondence is to respond to the Department's letters dated July 7, July 8 and December 31, 1998, concerning the above referenced air construction permit application. These letters include comments from the Hillsborough Co. Environmental Protection Commission (HCEPC) and the U.S. Fish and Wildlife Service (USFWS), and this correspondence provides responses to these comments.

FDEP Comments

1. In regards to stack testing data for the MAP Plant, detailed test report sheets for the last three annual compliance tests are contained in Attachment A. Sketches of the scrubbers and their configuration are not being provided since they are existing scrubbers which are not being modified, and Cargill is now proposing to add a new tail gas scrubber for fluorides removal (see Item 2 below).

   Design efficiencies for PM removal, as well as other scrubber operating parameters and operational limitations, are contained in the operation and maintenance plan in the proposed Title V operating permit recently issued. This information is provided in Attachment B. Note that design efficiencies for the ARCO scrubbers are for fluorides removal, and for the CHEMCO and D. R. Technology scrubbers are for PM removal. No design data is available for efficiency for PM10 removal, but efficiency is expected to be slightly lower than that for PM removal.

2. Cargill has reevaluated the need for a replacement scrubber and is now planning on installing a new packed bed tailgas scrubber. Specific design information is not yet available, but will be submitted to the Department prior to installation of the scrubber. A revised flow diagram is attached which shows the new scrubber.

3. The acid scrubbers were categorized as process equipment based on EPA regulations and definitions included in the CAM rule. We were merely applying the stated criteria to the MAP plant situation, and since this equipment met all the criteria, this equipment should be deemed as inherent process equipment. Nevertheless, we have

revised the appropriate application page and flow diagram to reflect these devices as air pollution control equipment. All other necessary information is provided in Attachment B.

4. The concerns over the definition of ambient air were resolved during our meeting with the Department on July 20, 1998. Cargill discussed the measures they are taking to ensure that all property boundaries are properly fenced or have other physical barriers, and are properly posted and patrolled.

USFWS Comments

1. PSD Applicability

   The USFWS comments on the affects on upstream and downstream emissions units in determining PSD applicability, as well as the inclusion of several separate projects into a single project. These concerns are addressed below.

   The USFWS mentions the proposed project for the No. 7 Phosphate Rock Grinding/Drying mill. A PSD permit for this new mill (Permit No. 0570008-024-AC; PSD-FL-247) was issued in November, 1998. Moreover, phosphate rock from the No. 7 Rock Mill is used only in the GTSP and phosphoric acid plants. As a result, a MAP plant increase has no effect upon the No. 7 Rock Mill.

   Additional phosphoric acid for the MAP Plant increase, if assumed to be produced on-site, can be produced using either sulfuric acid generated on-site, or purchased sulfuric acid. Cargill has recently been authorized under a new PSD permit (Permit No. 0570008-025-AC; PSD-FL-250 issued October, 1998) for an increase of 1,000 TPD of sulfuric acid from the No. 7 Sulfuric Acid Plant (SAP). This increase is more than adequate to supply the additional phosphoric acid for the MAP Plant increase. As a result, the increased SO_2 and sulfuric acid mist (SAM) emissions from the increase have already been addressed through the No. 7 SAP PSD application and permit.

   Additional phosphoric acid needed for the proposed MAP Plant increase can come from phosphoric acid generated on-site, or from off-site purchases. Assuming all required phosphoric acid is generated on-site, increases in actual fluoride (F) emissions from the Phosphoric Acid Plant could occur.

   Downstream material handling sources could also be impacted by the proposed MAP increase, however, this would only occur if total dry products production (i.e., MAP, DAP and GTSP) increased at the Riverview plant. Currently, it is not anticipated that total dry products production will increase. Nevertheless, in order to be conservative, it will be assumed that the downstream material handling system will be affected by the proposed project.

   Presented in Tabies 1, 2 and 3 is information showing the potential increase in emissions associated with the MAP Plant increase (i.e., MAP Plant, Phosphoric Acid Plant and Material Handling System). As shown, PSD review is still triggered only for PM/PM10 and F emissions.

2. Best Available Control Technology (BACT)

The USFWS comments on Cargill's proposed BACT limits. For PM, Cargill is proposing a PM/PM10 limit of 16.8 lb/hr, which is equivalent to 0.2 lb/ton of MAP product and 0.4 lb/ton of P_2O_5 input. The USFWS contents that this limit is too high, but the proposed limit is well below the current allowable of 22 lb/hr. Moreover, the 4/1/93 test data is considered to be valid, and was in fact accepted by FDEP a compliance test data. Cargill does not feel comfortable at this time accepting a lower limit.

In regards to F emissions, USFWS incorrectly states that Cargill is proposing a F emission limit of 0.052 lb/ton P2O5 input. They refer to permits for other sources which have been issued at 0.0417 lb/ton P2O5. In fact, Cargill's proposed limit of 1.8 lb/hr is equivalent to 0.0417 lb/ton P2O5 input (considering round off). This limit is consistent with the most stringent BACT limits issued to date for MAP/DAP plants.

3. Air Quality Related Values (AQRV) Analysis

The AQRV analysis, presented in the original application, remains valid even if the additional emissions increases as a result of including upstream and downstream affected sources are included in the analysis. In the original analysis, maximum PM10 impacts upon the Chassahowitzka Class I area due to the proposed project were predicted to be very low. The basis for the impacts was a 14.8 lb/hr increase for the MAP plant (increasing from 2.0 lb/hr to 16.8 lb/hr). This is equivalent to 64.8 TPY increase on an annual basis. If the Material Handling System is now considered in the analysis, the short term emission increase would not change, since the existing and future maximum PM10 emissions for the system are the same (7.95 lb/hr; see Table 2 attached). Therefore, only annual PM10 impacts are affected by considering the Material Handling System.

The annual emissions increase is changing from 64.8 TPY to 91.26 TPY (refer to Table 3 attached). If the impacts upon the Class I area are assumed to be proportional to emissions, which is essentially true due to the distance from Cargill to the Class I area, then the revised maximum annual PM10 impact upon the Class I area is 0.004 ug/m3. This level of impact is well below EPA proposed significant impact levels, and well below any potential effects levels for vegetation and wildlife in the Class I area, and is in fact immeasurable.

In the original PSD analysis, maximum F impacts upon the Chassahowitzka Class I area due to the proposed project were predicted to be very low. The basis for the impacts was a 1.56 lb/hr increase for the MAP plant (increasing from 0.20 lb/hr to 1.76 lb/hr). The annual emissions increase was 6.9 TPY. If the Phosphoric Acid Plant is now considered in the analysis (0.81 lb/hr current versus 2.29 lb/hr future), the short term emission increase would change to 3.04 lb/hr, and the annual increase to 13.35 TPY (see Tables 1 and 3 attached).

If the impacts upon the Class I area are assumed to be proportional to emissions, which is essentially true due to the distance from Cargill to the Class I area, then the revised maximum annual F impacts upon the Class I area are as follows:

Annual – 0.0006 ug/m3
High 24-hr – 0.012 ug/m3

High 8-hr – 0.037 ug/m3

These levels of impact are well below well below any established effects levels for vegetation and wildlife in the Class I area.

HCEPC Comments

HCEPC's are addressed below, in the same order as they appear in the HCEPC letter.

1. The NESHAPS for Phosphate Fertilizer Production has not yet been promulgated. Once promulgated, Cargill will comply with the applicable requirements by the date established in the rule. The NESHAP has nothing to do with the present MAP application.
2. Impacts on the upstream and downstream units are addressed in the discussion presented above.
3. The 0.5% sulfur fuel proposed by Cargill is consistent with the low sulfur fuel currently used throughout the Riverview facility. Minimal amounts of fuel oil will be used in the MAP plant as backup fuel only. There is no environmental justification for requiring a lower sulfur fuel oil which would require a separate fuel oil storage and supply system.
4. BACT for PM emissions is addressed in the above discussion.
5. Under PSD regulations, BACT only applies to affected emissions units which are undergoing a physical or operational change. As such, BACT only applies to the MAP Plant for the proposed modification.

Thank you for considering this information. If you require anything further, please do not hesitate to call.

Sincerely,

GOLDER ASSOCIATES INC.

David A. Buff

David A. Buff, P.E.
Principal Engineer
Florida P.E. #19011
SEAL

DB/arz

Enclosures

cc: David Jellerson, Cargill
Kathy Edgemon, Cargill
Rick Kirby, HCEPC
File (2)

cc: J. Reynolds, BAR
C. Holladay, BAR
SWD
EPA
NPS

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Table 1. Fluoride Emissions Increase From Phosphoric Acid Plant, Cargill, Riverview

Source	Emission Basis	Operating Hours	Fluoride Emissions (TPY)
Future Maximum Emissions (a)			
Phosphoric Acid Plant	2.29 lb/hr	8,760	10.03
Current Actual Emissions (b)			
Phosphoric Acid Plant	0.81 lb/hr	8,760	3.55
		Net Change =	**6.48**

(a) Based on current permit conditions for Phosphoric Acid Plant.
(b) Based on 1996 and 1997 Annual Operating Reports:
1996 - 0.36 lb/hr; 8,760 hr/yr
1997 - 1.25 lb/hr; 8,760 hr/yr

Table 2. PM/PM10 Emission Increases From Materials Handling System, Cargill, Riverview

Source	Max gr/dscf	Operating Hours	PM/PM10 Emissions lb/hr	PM/PM10 Emissions TPY
Future Maximum Emissions (a)				
West Baghouse	0.02	8,000	1.16	17.20
South Baghouse	0.03	8,000	1.16	4.60
Tower Baghouse	0.03	8,000	3.10	12.40
Bldg. #6 Baghouse	0.02	4,000	0.62	1.20
Belt 7 to 8 Baghouse	0.02	6,000	0.62	1.90
Belt 8 to 9 Baghouse	0.02	6,000	1.19	3.60
Chokefeeder	n/a	8,000	0.10	0.40
		Totals =	7.95	41.30
Current Actual Emissions (b)				
West Baghouse	0.02	3,965	1.16	2.30
South Baghouse	0.03	4,048	1.16	2.35
Tower Baghouse	0.03	4,048	3.10	6.27
Bldg. #6 Baghouse	0.02	1,867	0.62	0.58
Belt 7 to 8 Baghouse	0.02	3,965	0.62	1.23
Belt 8 to 9 Baghouse	0.02	3,965	1.19	2.36
Chokefeeder	n/a	4,048	0.10	0.20
		Totals =	7.95	15.29
		Emissions Change =		**26.01**

Note:

gr/dscf = grains per dry standard cubic foot

(a) Based on permit conditions for Material Handling System.

(b) Based on 1996 and 1997 Annual Operating Reports.

Table 3. PSD Source Applicability Analysis, Cargill MAP Plant Expansion (revised 1/29/99)

Emission Scenario	Emission Rate (TPY)						
	PM	PM10	F	SO2	VOC	NOx	CO
Current Actual Emissions							
MAP Plant/Cooler (a)	8.35	8.35	0.86	0.006	0.029	1.45	0.36
Phosphoric Acid Plant	--	--	3.55	--	--	--	--
Material Handling System	15.29	15.29	--	--	--	--	--
Subtotal	23.64	23.64	4.41	0.006	0.029	1.45	0.36
Proposed Maximum Emissions (b)							
MAP Plant/Cooler @ 2,016 TPD	73.6	73.6	7.73	0.62	0.07	3.68	0.92
Phosphoric Acid Plant	--	--	10.03	--	--	--	--
Material Handling System	41.3	41.3	--	--	--	--	--
Subtotal	114.9	114.9	17.76	0.62	0.07	3.68	0.92
Total Net Increase	91.3	91.3	13.35	0.61	0.04	2.23	0.56
PSD Significant Emission Rate	25	15	3	40	40	40	100

Notes:

MAP = monoammonium phosphate.
PM = particulate matter.
PSD = prevention of significant deterioration.
F = fluoride.
lb/hr = pounds per hour.
TYP = tons per year.
MMscf = million standard cubic feet.

(a) PM/PM10 and F emissions based on average MAP hours of operation during 1996 and 1997 of 8,305 hours and 8,294 hours, respectively, and annual stack test results as follows:
1997: PM-1.21 lb/hr; F-0.18 lb/hr (Nos. 3 and 4 MAP plants and South Cooler combined)
1996: PM-2.81 lb/hr; F-0.23 lb/hr (Nos. 3 and 4 MAP plants and South Cooler combined)
Combustion related emissions based on average MAP plant natural gas usage during 1996 and 1997 of 20.00 MMscf and 21.3 respectively, and AP-42.

(b) Proposed emission rates are 16.8 lb/hr for PM; and 1.76 lb/hr for fluoride.

REVISED APPLICATION PAGES

Emissions Unit Control Equipment Information

A.

1. Description (limit to 200 characters):

Cyclonic Spray Scrubbers (2) - ARCO

2. Control Device or Method Code: **85**

B.

1. Description (limit to 200 characters):

Venturi Scrubbers (3) - CHEMCO (2) and D.R. Technology

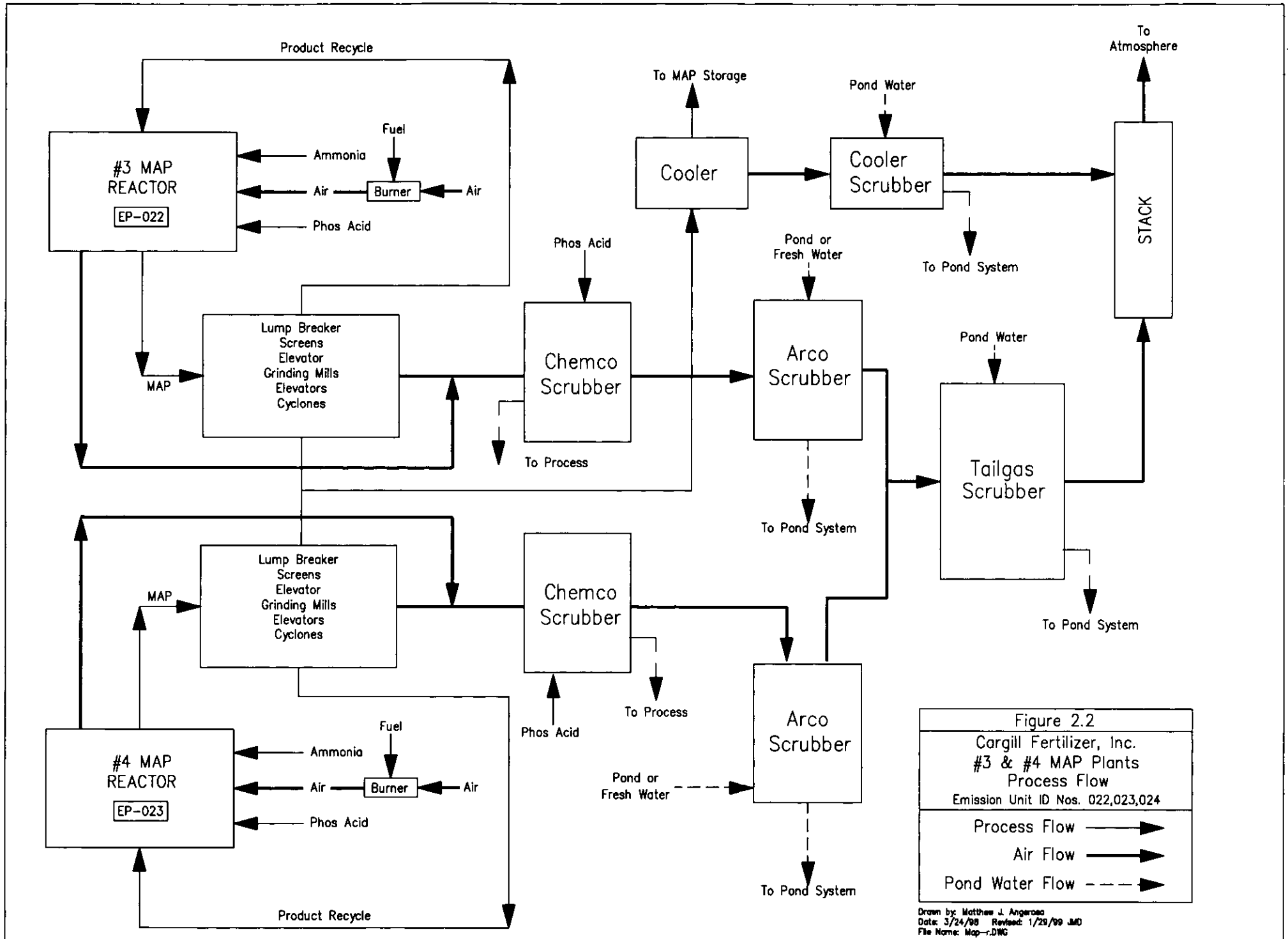
2. Control Device or Method Code: **53**

C.

1. Description (limit to 200 characters):

Cyclonic Mist Eliminator

2. Control Device or Method Code: **15**


Product Recycle
#3 MAP REACTOR
EP-022
Fuel
Ammonia
Air
Burner
Air
Phos Acid
To MAP Storage
Cooler
Pond Water
Cooler Scrubber
To Pond System
To Atmosphere
STACK
Phos Acid
Pond or Fresh Water
MAP
Lump Breaker
Screens
Elevator
Grinding Mills
Elevators
Cyclones
Chemco Scrubber
To Process
Arco Scrubber
To Pond System
Pond Water
Tailgas Scrubber
To Pond System
MAP
Lump Breaker
Screens
Elevator
Grinding Mills
Elevators
Cyclones
Chemco Scrubber
Phos Acid
To Process
Arco Scrubber
Pond or Fresh Water
To Pond System
#4 MAP REACTOR
EP-023
Fuel
Ammonia
Air
Burner
Air
Phos Acid
Product Recycle
Figure 2.2
Cargill Fertilizer, Inc.
#3 & #4 MAP Plants
Process Flow
Emission Unit ID Nos. 022,023,024
Process Flow
Air Flow
Pond Water Flow
Drawn by: Matthew J. Angerosa
Date: 3/24/98 Revised: 1/29/99 JMD
File Name: Map-r.DWG

ATTACHMENT A

HISTORICAL MAP PLANT TEST DATA

SUMMARY OF TEST DATA

PLANT : CARGILL - TPA UNIT : #3 & #4 MAP RUN NUMBERS :1, 2, 3

TEST DATE : 7/30/98

	#1	#2	#3	AVERAGES
DATE	7/30/98	7/30/98	7/30/98	
START TIME	7:49	8:56	10:01	
END TIME	8:51	9:59	11:04	
STACK DIAMETER (INCHES)	84	84	84	
NOZZLE DIAMETER (INCHES)	0.190	0.190	0.190	
TEST TIME (MINUTES)	60	60	60	
NUMBER OF TEST POINTS PER RUN	20	20	20	
STACK GAS TEMPERATURE (°F)	140.5	140.3	140	**140.4**
STACK GAS MOISTURE (%)	13.72	14.07	14.01	**13.9**
STACK GAS MOLECULAR WEIGHT	27.49	27.45	27.46	**27.5**
STACK GAS VOLUME SAMPLED (CUBIC FEET)	33.995	34.915	35.293	
VOLUME SAMPLED (SCF @ 68°F)	32.572	33.087	33.256	
STACK GAS VELOCITY (FEET PER SECOND)	59.19	60.54	60.68	**60.14**
STACK GAS FLOW RATE (ACFM)	136668.6	139782.8	140120.7	138857.4
STACK GAS FLOW RATE (DSCFM @ 68°F)	104082.3	106062.3	106357.4	105500.7
FLUORIDE COLLECTED (MGS)	0.5605	0.4140	0.4760	
FLUORIDE CONCENTRATION (GRAINS/DSCF)	0.00027	0.00019	0.00022	**0.00023**
FLUORIDE MASS RATE (LBS/HOUR)	0.237	0.175	0.201	**0.205**
PARTICULATE COLLECTED (GMS)	0.0061	0.0047	0.0045	
PARTICULATE CONCENTRATION (GRAINS/DSCF)	0.0029	0.0022	0.0021	**0.002**
PARTICULATE MASS RATE (LBS/HOUR)	2.578	1.992	1.903	**2.158**
ISOKINETIC SAMPLING RATE, %I	101.96	101.64	101.88	

FIELD DATA AND SAMPLES UNDER THE CONTROL OF: TIM CAPELLE

LABORATORY ANALYSIS UNDER THE CONTROL OF: CARGILL

Process Operational Data

Plant Name: Cargill Fertilizer, Inc.

Test For: Ammonia, Fluoride, Particulate and Opacity

Test Date: July 30, 1998

Source ID: 3 & 4 MAP and Product Cooler

#3 MAP

Parameters	Unit	Run 1	Run 2	Run 3	avg.
Ammonia Feed Rate	#/Hr	8,000	8,000	8,000	8,000
Acid Feed Rate	GPM	95	96	96	96
Chemco Scrub Make-up Rate	GPM	30	32	32	31
Arco Scrub Make-up Rate	GPM	42	25	30	32
Chemco Scrub recycle Rate	GPM	1,187	1,186	1,181	1,185
Arco Scrub recycle Rate	GPM	305	305	305	305
Scrubber System Pressure Drop	"H2O	31	32	30	31
Mole Ratio		1.21	1.3	1.28	1.26
Scrub fan amps	AMPS	66	66	66	66
MAP produced	TPH	34.5	34.5	34.5	34.5

#4 MAP and South Ammonium Phosphate Cooler

Parameters	Unit	Run 1	Run 2	Run 3	avg.
Ammonia Feed Rate	#/Hr	8,000	8,000	8,000	8,000
Acid Feed Rate	GPM	100	100	100	100
Chemco Scrub Make-up Rate	GPM	14	14	13	14
Arco Scrub Make-up Rate	GPM	22	23	20	22
Chemco Scrub Recycle Rate	GPM	1,191	1,192	1,193	1,192
Arco Scrub Recycle Rate	GPM	263	262	262	262
Scrubber System Pressure Drop	"H2O	41	44	42	42
Scrub Fan Amps	AMPS	73	73	72	73
MAP produced	TPH	34.5	34.5	34.5	34.5
Cooler Scrubber Sprays	GPM	745	756	726	742
Cooler Delta P	"H2O	12	12	11	12
Cooler Fan	AMPS	83	82	83	83
Mole Ratio		1.42	1.23	1.25	1.3
Total MAP produced	TPH	69	69	69	69

Test Conducted by: Stevenson & Associates

Production Superintendent: _____

SUMMARY OF TEST DATA

PLANT : CARGILL - TPA UNIT : #3 & #4 MAP RUN NUMBERS :1, 2, 3

TEST DATE : 7/31/97

	#1	#2	#3	AVERAGES
DATE	7/31/97	7/31/97	7/31/97	
START TIME	9:36	10:52	12:10	
END TIME	10:39	11:55	13:12	
STACK DIAMETER (INCHES)	84	84	84	
NOZZLE DIAMETER (INCHES)	0.200	0.200	0.200	
TEST TIME (MINUTES)	60	60	60	
NUMBER OF TEST POINTS PER RUN	20	20	20	
STACK GAS TEMPERATURE (°F)	140.5	142.4	142	141.8
STACK GAS MOISTURE (%)	13.36	11.63	12.94	12.6
STACK GAS MOLECULAR WEIGHT	28.40	28.60	28.45	28.5
STACK GAS VOLUME SAMPLED (CUBIC FEET)	39.050	37.117	36.390	
VOLUME SAMPLED (SCF @ 68°F)	38.169	35.775	34.855	
STACK GAS VELOCITY (FEET PER SECOND)	61.37	57.34	56.11	58.27
STACK GAS FLOW RATE (ACFM)	141703.5	132397.8	129565.0	134555.4
STACK GAS FLOW RATE (DSCFM @ 68°F)	108489.9	103057.0	99376.1	103641.0
PARTICULATE COLLECTED (GMS)	0.0025	0.0030	0.0041	0.003
PARTICULATE CONCENTRATION (GRAINS/DSCF)	0.0010	0.0013	0.0018	0.001
PARTICULATE MASS RATE (LBS/HOUR)	0.940	1.143	1.546	1.209
FLUORIDE COLLECTED (MGS)	0.7135	0.3915	0.3284	
FLUORIDE CONCENTRATION (GRAINS/DSCF)	0.0003	0.0002	0.0001	0.0002
FLUORIDE MASS RATE (LBS/HOUR)	0.268	0.149	0.124	0.180
ISOKINETIC SAMPLING RATE, %I	103.45	102.08	103.14	

FIELD DATA AND SAMPLES UNDER THE CONTROL OF: TIM CAPELLE

LABORATORY ANALYSIS UNDER THE CONTROL OF: CARGILL

Process Operational Data

Plant Name: Cargill Fertilizer, Inc.

Test For: Ammonia, Fluoride, Particulate and Opacity

Test Date: July 31, 1997

Source ID: 3 & 4 MAP and Product Cooler

#3 MAP

Parameters	Unit	9:00	10:00	11:00	12:00	13:00	avg.
Ammonia Feed Rate	#/Hr	7,800	7,800	7,800	7,800	7,800	7,800
Acid Feed Rate	GPM	97	96	96	96	96	96
Chemco Scrub Make-up Rate	GPM	16	12	11	11	11	12
Arco Scrub Make-up Rate	GPM	25	26	27	26	26	26
Chemco Scrub recycle Rate	GPM	1,255	1,276	1,280	1,284	1,291	1,277
Arco Scrub recycle Rate	GPM	302	298	300	300	302	300
ChemcoDeltaP	"H2O	21	22	21	21	21	21
Arco Delta P	"H2O	11	11	12	12	12	12
Mole Ratio		1.23	1.19	1.11	1.16	1.19	1.18
Scrub fan amps	AMPS	74	73	73	73	73	73
MAP produced	TPH	34.2	34.2	34.2	34.2	34.2	34.2

#4 MAP and South Ammonium Phosphate Cooler

Parameters	Unit	9:00	10:00	11:00	12:00	13:00	avg.
Ammonia Feed Rate	#/Hr	7,800	7,800	7,800	7,800	7,800	7,800
Acid Feed Rate	GPM	95	96	95.5	95.5	95.5	955
Chemco Scrub Make-up Rate	GPM	9	8	7.5	7.5	7.5	7.9
Arco Scrub Make-up Rate	GPM	21	21	25	22	22	22
Chemco Scrub Recycle Rate	GPM	1,065	1,063	1,062	1,081	1,086	1,071
Arco Scrub Recycle Rate	GPM	304	302	302	303	302	303
ChemcoDeltaP	"H2O	6	6	6	5	6	6
Arco Delta P	"H2O	15	15	15	15	15	15
Scrub Fan Amps	AMPS	70	70	70	70	70	70
MAP produced	TPH	34.2	34.2	34.2	34.2	34.2	34.2
Cooler Scrubber Sprays	GPM	750	752	737	752	746	747
Cooler Delta P	"H2O	17	17	16	12	14	15
Cooler Fan	AMPS	72	71	71	64	67	69
Mole Ratio			1.04	1.08	1.09	1.07	1.07
Total MAP produced	TPH	68.4	68.4	68.4	68.4	68.4	68.4

Test Conducted by: Stevenson & Associates

For Production Superintendent: Kathy Gallagher

SUMMARY OF TEST DATA

PLANT : CARGILL UNIT : MAP RUN NUMBERS :1, 2, 3

TEST DATE : 8/1/96

	#1	#2	#3	AVERAGES
DATE	8/1/96	8/1/96	8/1/96	
START TIME	8:02	9:22	10:37	
END TIME	9:06	10:25	11:40	
STACK DIAMETER (INCHES)	84	84	84	
NOZZLE DIAMETER (INCHES)	0.210	0.210	0.210	
TEST TIME (MINUTES)	60	60	60	
NUMBER OF TEST POINTS PER RUN	20	20	20	
STACK GAS TEMPERATURE (°F)	136.2	137.9	139	137.5
STACK GAS MOISTURE (%)	12.12	13.34	13.20	12.9
STACK GAS MOLECULAR WEIGHT	28.55	28.40	28.42	28.5
STACK GAS VOLUME SAMPLED (CUBIC FEET)	41.030	39.840	40.370	40.4
VOLUME SAMPLED (SCF @ 68°F)	40.997	39.764	39.959	40.2
STACK GAS VELOCITY (FEET PER SECOND)	58.62	58.30	58.56	58.5
STACK GAS FLOW RATE (ACFM)	135347.0	134610.0	135210.6	135055.8
STACK GAS FLOW RATE (DSCFM @ 68°F)	105391.2	103045.5	103569.8	104002.1
PARTICULATE COLLECTED (GMS)	0.0078	0.0087	0.0082	
PARTICULATE CONC (GRAINS/DSCF)	0.002936	0.003376	0.003166	0.003159
PARTICULATE MASS RATE (LBS/HOUR)	2.6515	2.9813	2.8105	2.8144
FLOURIDE COLLECTED (GMS)	0.0006	0.0007	0.0008	
FLOURIDE CONC (GRAINS/DSCF)	0.0029	0.0034	0.0032	
FLOURIDE MASS RATE (LBS/HOUR)	0.1992	0.2347	0.2619	0.231931
ISOKINETIC SAMPLING RATE, %I	103.751931	102.922323	102.904196	103.1928

FIELD DATA AND SAMPLES UNDER THE CONTROL OF: TIM CAPELLE

LABORATORY ANALYSIS UNDER THE CONTROL OF: CARGILL

Process Operational Data

Plant Name. Cargill Fertilizer, Inc.

Test For: Ammonia, Fluoride, Particulate and Opacity

Test Date: August 1, 1996

Source ID: 3 & 4 MAP and Product Cooler

Test Conducted by: Stevenson & Associates

#3 MAP

Parameters	Unit	8:00	9:00	10:00	11:00	avg.
Ammonia Feed Rate	#/Hr	8,600	8,600	8,600	8,600	8,600
Acid Feed Rate	GPM	92	91.5	91.5	91.5	91.6
Chemco Scrub Make-up Rate	GPM	18	13	18	19	68
Arco Scrub Make-up Rate	GPM	34	33	45	44	39
Chemco Scrub recycle Rate	GPM	1,045	1,040	1,042	1,038	1,041
Arco Scrub recycle Rate	GPM	301	299	299	298	299
ChemcoDeltaP	"H2O	14	14	15	13	14
Arco Delta P	"H2O	15	16	14	14	15
Mole Ratio		1.48	1.39	1.39	1.39	1.41
Scrub fan amps	AMPS	75	76	76	76	76
MAP produced	TPH	34.1	34.1	34.1	34.1	34.1

Production Superintendent Harold D Matthews

#4 MAP and South Ammonium Phosphate Cooler

Parameters	Unit	8:00	9:00	10:00	11:00	avg.
Ammonia Feed Rate	#/Hr	8,600	8,600	8,600	8,600	8,600
Acid Feed Rate	GPM	98	96.5	97.5	98	97.5
Chemco Scrub Make-up Rate	GPM	30	28	28	28	29
Arco Scrub Make-up Rate	GPM	24	25	32	33	29
Chemco Scrub Recycle Rate	GPM	1,125	1,122	1,117	1,121	1,121
Arco Scrub Recycle Rate	GPM	275	273	273	275	274
ChemcoDeltaP	"H2O	11	11	11	10	11
Arco Delta P	"H2O	14	14	14	14	14
Scrub Fan Amps	AMPS	78	78	79	79	79
MAP produced	TPH	34.1	34.1	34.1	34.1	34.1
Cooler Scrubber Sprays	GPM	747	749	747	747	748
Cooler Delta P	"H2O	16	16	16	16	16
Cooler Fan	AMPS	71	71	71	71	71
Mole Ratio		1.34	1.24	1.21	1.2	1.25
Total MAP produced	TPH	68.2	68.2	68.2	68.2	68.2

Production Superintendent Darrell Mathews

TOTAL P.09

TOTAL P.10

ATTACHMENT B

DESIGN AND OPERATIONAL PARAMETERS FOR MAP PLANT

Monitoring of Operations

D.8. In order to provide reasonable assurance that the pollution control equipment is operating properly, the permittee shall comply with the minimum pressure drops and water flow rates specified in the attached table of control device parameters for the MAP Plant:
[Rule 62-213.440(1), F.A.C.]

Pollution Control Equipment	Parameter	Minimum Limitation	Units	Averaging Time
#3 MAP Arco Scrubber	Flow (recirculation)	230	GPM	24 hr
	Flow (make-up)	20	GPM	24 hr
	Pressure Drop	5	"H_2O	24 hr
#4 MAP Arco Scrubber	Flow (recirculation)	230	GPM	24 hr
	Flow (make-up)	20	GPM	24 hr
	Pressure Drop	5	"H_2O	24 hr
South Cooler Scrubber	Flow (recirculation)	630	GPM	24 hr
	Flow (make-up)	90	GPM	24 hr
	Pressure Drop	10	"H_2O	24 hr
#3 MAP Arco & Chemco Combined	Pressure Drop	18	"H_2O	24 hr
#4 MAP Arco & Chemco Combined	Pressure Drop	18	"H_2O	24 hr
#3 MAP Chemco	Flow	960	GPM	24 hr
#4 MAP Chemco	Flow	960	GPM	24 hr

D.9. The mole ratio parameters for the CHEMCO scrubbers associated with these plants shall not exceed 1.60 (1.10 x 1.45).
[Air Construction permit AC29-261247, 62-4.070(3), F.A.C.]

Recordkeeping and Reporting Requirements

D.10. In order to comply with Conditions D.1, D.2, D.8, and D.9, the permittee shall maintain daily records showing production unit(s) No. 3 and 4 operating time, MAP production rate(s), phosphoric acid (P_2O_5) consumption, natural gas usage for No. 3 and No. 4 MAP Plant, scrubber liquid flow(s), gas pressure drop across the ARCO & Chemco scrubber system combined for production unit(s) No. 3 and 4, gas pressure drop across the Cooler scrubber system, and mole ratio parameters for the Chemco scrubbers. The permittee shall record the scrubber operating parameters at least once per eight hour shift that the unit(s) operates.
[Rule 62-4.070(4), F.A.C., Air Construction permit AC29-261247]

Operation and Maintenance Plan

D.11. The following Operation and Maintenance (O & M) Plan for Particulate Matter Control submitted by the applicant pursuant to Rule 62-296.700(6), F.A.C., shall be followed:

Control Equipment Data

Arco Scrubber (MAP Plants No. 3 & 4)

Manufacturer:	Automotive Rubber Company
Model Name/Number:	WM-350-L
Type:	Cyclonic Spray Scrubber (two)
Design Liquid Gas Ratio:	167 ACF/gallon
Efficiency Rating: (at design capacity)	95%
Pressure Drop:	3 to 17 " w.g.
Scrubbing Liquor Composition:	Pondwater
Operating Parameters:	find in permit

Chemco Scrubber (MAP Plants No. 3 & 4)

Manufacturer:	Chemical Company
Model Name/Number:	Unknown
Type:	Venturi (two)
Design Gas Flow Rate:	35,000 ACFM
Design Liquid to Gas Ratio:	50 ACF/gallon
Efficiency Rating: (at design capacity)	95%
Design Pressure Drop:	6 to 26 " w.g.
Scrubbing Liquor Composition:	Phosphoric Acid
Operating Parameters:	find in permit

D.R. Technology Scrubber (South Cooler)

Manufacturer:	D.R. Technology
Model Name/Number:	N/A
Type:	Wetted wall venturi with cyclonic mist eliminator
Design Liquid to Gas Ratio:	50 ACF/gal
Design Gas Flow Rate:	56,000 ACFM
Efficiency Rate: (at design capacity)	98%
Design Pressure Drop:	9 to 25" w.g.
Scrubbing Liquor Composition:	Pondwater
Operating Parameters:	find in permit