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Facility ID	Project#/PATS#	Type	PSD #	Submittal Date	Batch #
0510008	042	AC	315		

☒ File Approved For Disposal ☒ Correspondence ☐ Intent ☐ Permit ☐ Draft (Title V)

☐ Return File to BAR ☐ Amendment ☐ Application ☐ OGC ☐ Proposed (Title V)

Document Date Aug 15, 2003

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Golder Associates

August 14, 2003

0237575

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

RE: CARGILL FERTILIZER, INC—RIVERVIEW FACILITY
PERMIT NO. 0570008-036-AC; PSD-FL-315; NO. 5 GRANULATION PLANT
0570008-042-AC

Dear Mr. Linero:

On March 13, 2001 and May 25, 2001, Cargill Fertilizer, Inc. applied for several modifications to its Riverview Facility, including modifications to the No. 5 Diammonium Phosphate (DAP) Plant. This construction was subsequently approved by the Florida DEP (Permit No. 0570008-036-AC;PSD-FL-315, Issued November 21, 2001).

The purpose of this correspondence is to present certain changes to the construction application. Cargill is proceeding with the construction of this source, however Cargill is planning changes to some aspects of the project. The changes to the construction application are described below.

NO. 5 GRANULATION (DAP) PLANT REVISIONS

The No. 5 DAP Plant currently consists of one emission point with a stack. Gases from the reactor, granulator, dryer, cooler, and equipment vents (screens, conveyors, and elevators) all discharge through this stack. The No. 5 DAP Plant currently utilizes five scrubbers to control emissions. Exhaust gases from the reactor and granulator (RG) are vented to the RG venturi scrubber. This gas stream is then vented to the RG/cooler/equipment vents (RGCE) packed tailgas scrubber. Exhaust gases from the cooler and equipment vents are vented to the cooler/equipment vents (CE) venturi scrubber, and then through the RGCE tailgas scrubber. Exhaust gases from the dryer are controlled by the dryer venturi scrubber and then the dryer tailgas scrubber. A flow diagram of the No. 5 DAP Plant was presented in the permit application (refer to Figure 2-12).

Cargill did not propose to modify the control equipment configuration in the permit application. However, Cargill is now proposing to modify the control equipment configuration. In the new control equipment and stack configuration, the No. 5 Granulation Plant will utilize seven scrubbers to control emissions. Exhaust gases from the reactor and granulator will be vented through the RG venturi scrubber, and then vented through a new ammonia vaporizer. This gas stream will exit through a new dedicated stack. Gases from the cooler will vent through a new venturi scrubber. Gases from the equipment vents will vent through the existing CE venturi scrubber, and then will combine with the gas stream exiting the cooler scrubber and vent through the existing RGCE (renamed CE) packed-bed tailgas scrubber. Exhaust gases from the dryer will evacuate through the existing dryer venturi scrubber, and then through the existing dryer packed-bed tailgas scrubber. Both the dryer tailgas scrubber and the CE tailgas scrubber will be routed to the existing stack.

Cargill is not proposing any changes to the current permitted emission rates or production rate. Cargill is proposing several minor revisions to the proposed changes described in the permit application. These include:

- Renaming of the No. 5 DAP Plant to the No. 5 Granulation Plant.
- Addition of micronutrients and sulfur to the reactor/granulator to allow for production of sulfur and nutrient rich DAP grades; and
- Expansion of the No. 5 Granulation Plant building by 175 feet (ft) to the south and 100 ft to the west, from the southeast corner of the building, to allow room for micronutrient unloading and storage.

Refer to Tables 2-3 and 2-9b for the revised stack and vent geometry, pollution control equipment and stack location and operating parameters, respectively, for the No. 5 Granulation Plant. Refer also to revised Tables 6-4, 6-6, and 6-7 for the stack parameter changes at the No. 5 Granulation Plant. Refer to Table 6-13 for the revised building dimensions used in the modeling analysis. Refer to Figure 2-12 for the revised No. 5 Granulation Plant future process flow diagram. The revised facility plot plan, indicating the stack locations for the No. 5 Granulation Plant, is presented in Figure 2-2. The application form pages that are affected by this change are presented in Attachment A.

AFFECTS ON CONSTRUCTION PERMIT

Modeling Analysis

The construction changes described above will not change any of the permitted emission rates contained in Permit No. 0570008-036-AC;PSD-FL-315, issued November 21, 2001. Since there will be no emission rate changes, and the changes to the future stack parameters will be minor, the predicted pollutant impacts that were presented in the application are not expected to change. However, to demonstrate that the proposed changes will not result in predicted PM_{10} or SO_2 impacts that will significantly contribute to or cause violations of the PM_{10} and SO_2 AAQS or PSD Class I or II increment, a modeling analysis was performed to determine the difference in impacts over the modeled area for the proposed changes at the No. 5 Granulation Plant. The difference between the "current" and "future" No. 5 Granulation Plant sources only was modeled. The "current" No. 5 Granulation Plant sources represent the emissions and sources from the current construction permit (Permit No. 0570008-036-AC). The "future" No. 5 Granulation Plant sources represent the changes as described above.

Methodology

To determine this difference, the "future" No. 5 Granulation Plant sources were modeled with positive emissions and the "current" No. 5 Granulation Plant sources were modeled as negative emissions. A positive predicted impact would demonstrate that the "future" impacts were greater than the "current" impacts in the modeled areas.

To predict impacts in the site vicinity, the ISCST3 model (Version 02035) was used with 5 years of meteorological data from Tampa and Ruskin. This is the same model and meteorological data used in the previous analysis. Both the "future" and "current" No. 5 Granulation Plant sources were modeled in the same run.

From the previous analyses, violations were predicted for the following:

- Annual and 24-hour average PM_{10} AAQS,
- 24-hour average SO_2 AAQS,
- 24-hour average PM_{10} PSD Class II increment, and
- 24-hour and 3-hour average SO_2 PSD Class I increment.

To verify that the proposed changes at the No. 5 Granulation Plant will not result in predicted PM_{10} or SO_2 impacts that will significantly contribute to or cause violations of the PM_{10} and SO_2 AAQS and PSD Class I or Class II increments, a modeling analysis was performed for the pollutants and areas

(i.e., PSD Class I and Class II) where violations were predicted in the PSD application. Therefore, only SO_2 and PM_{10} modeling analyses were performed in the site vicinity and an SO_2 modeling analysis was performed at the PSD Class I area. Specifically, only PM_{10} AAQS, PM_{10} and SO_2 PSD Class II increment, and SO_2 PSD Class I analyses were performed.

Receptor Grid

The modeling grid surrounding Cargill that was used in this analysis represents the same screening and refined grids used in the AAQS and PSD Class II increment modeling analyses presented in the May 2001 PSD application. For the 24-hour average PM_{10} AAQS and PSD Class II increment analyses, screening and refined modeling grids over the area of TECO Gannon were used since this is the area where the violations of the standards were predicted in the PSD application. Because maximum annual average PM_{10} concentrations and annual, 24-hour, and 3-hour average SO_2 concentrations for the AAQS and PSD Class II increment analyses were predicted in different locations near Cargill and TECO Gannon, a full screening modeling grid was used. This grid included the Cargill property boundary and off-site polar rings out to 6 km for PM_{10} and 32.5 km for SO_2, based on the modeling analysis presented in the PSD application.

Modeling Results

A summary of the SO_2 and PM_{10} concentration differences from "future" to "current" No. 5 Granulation Plant sources predicted in the site vicinity are presented in Table 1. A summary of the SO_2 concentration differences from "future" to "current" No. 5 Granulation Plant sources predicted at the Chassahowitzka NWA is presented in Table 2. A summary of the stack and operating parameters and PM_{10} and SO_2 emission rates for the "current" and "future" No. 5 Granulation Plant that was used in the modeling analysis is presented in Table 3.

As shown in Table 1, the change in annual average SO_2 and PM_{10} impacts are predicted to be less than 1 microgram per cubic meter ($\mu g/m^3$), indicating that there is no significant change in impacts predicted for the "current" No. 5 Granulation Plant sources compared to those predicted for the "future" No. 5 Granulation Plant sources, over the modeled area. The increase in 24-hour average SO_2 and PM_{10} concentrations and the 3-hour average SO_2 concentrations predicted in the site vicinity are greater than or just below the significant impact levels. Therefore, further AAQS and PSD Class II increment analyses were performed.

As shown in Table 2, the change in 24-hour and 3-hour SO_2 impacts predicted at the PSD Class I area are less than 0.001 and 0.004 $\mu g/m^3$, respectively, and are less than 1-percent of the PSD Class I significant impact levels, indicating that there is no significant change in impacts predicted for the "current" No. 5 Granulation Plant to those predicted for the "future" No. 5 Granulation Plant sources at the PSD Class I area. Therefore, the proposed changes will not significantly increase any of the SO_2 impacts predicted at the PSD Class I area.

Since Cargill did not contribute to any of the violations shown in the PSD application, and the impacts predicted for the proposed changes to the No. 5 Granulation Plant indicate no significant change in impacts, Cargill will not significantly contribute to or cause any violations of the AAQS or PSD Class I or II increments. However, since the 24-hour PM_{10} and 24-hour and 3-hour average SO_2 concentration differences predicted from "future" to "current" No. 5 Granulation Plant sources did show slight increases (refer to Table 1), AAQS and PSD Class II modeling analyses were conducted.

The AAQS and PSD Class II increment modeling analysis used the same background sources, meteorological data, and receptor grid as the modeling analysis presented in the PSD application. The only changes to the modeling input files were the proposed changes to the No. 5 Granulation

Plant. The results of the 24-hour and 3-hour average SO_2 and 24-hour PM_{10} AAQS screening analysis are presented in the revised Table 6-15. Based on the screening analysis results, modeling refinements were performed. The revised results of the refined modeling analysis are presented in Table 6-16.

The maximum predicted highest, second-highest (HSH) 24-hour and 3-hour SO_2 concentrations from the AAQS modeling analysis are 263 and 1,167 $\mu g/m^3$, respectively. These concentrations include ambient non-modeled 24-hour and 3-hour concentrations of 31 and 121 $\mu g/m^3$, respectively. The maximum predicted HSH 3-hour concentration is less than the 3-hour AAQS of 1,300 $\mu g/m^3$. The HSH 24-hour concentration of 263 $\mu g/m^3$ is predicted to be greater than the 24-hour AAQS of 260 $\mu g/m^3$. However, the project does not have a significant impact at any receptor or during any time period when the AAQS is exceeded.

As shown in Table 6-16, the maximum predicted highest, sixth-highest (H6H) 24-hour PM_{10} concentration was 141.6 $\mu g/m^3$. This concentration includes the ambient non-modeled 24-hour concentration of 39 $\mu g/m^3$. This concentration is less than the 24-hour AAQS of 150 $\mu g/m^3$.

The results of the 24-hour PM_{10} PSD Class II increment screening analysis are presented in the revised Table 6-17. Based on the screening analysis results, modeling refinements were performed. Based on the 24-hour PM_{10} PSD Class II increment refined analysis, an area surrounding TECO Gannon was identified where all of the predicted violations occurred. An analysis was performed using a refined modeling grid over this entire area, which included only the modified No. 5 Granulation Plant sources and emissions. As shown in Table 4, the maximum predicted highest 24-hour PM_{10} concentration was 1.24 $\mu g/m^3$, well below the 24-hour PM_{10} significant impact level of 5 $\mu g/m^3$. Therefore, the modified No. 5 Granulation Plant will not contribute significantly to violations of the 24-hour PM_{10} PSD Class II increment.

Since there were no violations of the PSD Class II increment predicted in the PSD application for SO_2, an SO_2 PSD Class II increment analysis was not performed with the proposed changes at the No. 5 Granulation Plant.

Based on the modeling analysis, the proposed changes at the No. 5 Granulation Plant will not contribute to or cause violations of the AAQS or PSD Class I or II increments.

BACT Analysis

The best available control technology (BACT) analysis in the construction permit application was based on medium-energy venturi scrubbers and packed-bed tailgas scrubbers using process cooling pond water for the No. 5 Granulation Plant. The Florida DEP approved this as BACT in the final construction permit (Permit No. 0570008-036-AC;PSD-FL-315, issued November 21, 2001). Cargill is proposing to continue to utilize medium-energy venturi scrubbers and packed-bed tailgas scrubbers, with the addition of an ammonia vaporizer.

In an ammonia vaporizer, an air stream passes through the tubes of a shell and tube heat exchanger. On the shell side, ammonia is vaporized while moisture condenses from the air stream on the tube side. The condensed moisture on the tube side absorbs the majority of the fluoride (F) present in the gas stream. In order to properly wet all surfaces and promote improved operation, a portion of the condensate is continuously recirculated over the tube sheet and through the tubes. At Cargill Green Bay's North Ammoniated Phosphates (AP) Plant, an ammonia vaporizer currently controls gases from the reactor and granulator.

In addition to the five existing scrubbers, Cargill is adding two new scrubbers (ammonia vaporizer and cooler venturi scrubber) to more efficiently control F and PM emissions. The proposed control technology configuration will represent equivalent or better control than the configuration proposed in the PSD application, capable of attaining the current permitted emission rates. Therefore, the proposed control equipment configuration will represent BACT for the No. 5 Granulation Plant.

If you have any questions, feel free to call me at (352) 336-5600 or Dean Ahrens, Cargill Riverview, at (813) 671-6369.

Sincerely,

GOLDER ASSOCIATES INC.

David A. Buff

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

FWB/DAB/jej

Enclosures

cc: F. Bergen, Golder
D. Ahrens, Cargill
D. Jellerson, Cargill
S. Craig
P:\Projects\2002\0237575 Cargill Riverview\4.1\071603\L071603.doc
C. Holladay
Q. Kissel, ISU D
D. Campbell, EPA R4
B. Worley, EPA
O. Brenyah, DEP

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.

David A. Buff — Signature

8/14/03 — Date

(seal)

* Attach any exception to certification statement.

Table 1. Change in Predicted SO_2 and PM_{10} Concentrations Due to Revisions to the No. 5 Granulation Plant Sources Only, Predicted in the Site Vicinity, Cargill Riverview

Pollutant/ Averaging Time	Concentration [a] Difference ($\mu g/m^3$)	Receptor Location [b] Direction (degrees)	Receptor Location [b] Distance (m)	Time Period (YYMMDDHH) [c]	Significant Impact Level ($\mu g/m^3$)
SO_2					
Annual	0.01	211.8	601	91123124	1
	0.01	211.8	601	92123124	
	0.01	211.8	601	93123124	
	0.01	211.8	601	94123124	
	0.01	211.8	601	95123124	
Highest 24-Hour	9.35	216.2	351	91071224	5
	2.64	210.0	600	92112724	
	3.24	211.8	601	93112824	
	2.62	210.0	600	94021324	
	3.44	272.6	1,083	95071724	
Highest 3-Hour	56.32	216.2	351	91071221	25
	10.00	212.8	800	92031218	
	11.13	216.2	351	93012418	
	8.42	256.6	1,011	94062609	
	20.47	272.6	1,083	95071715	
PM_{10}					
Annual	0.18	253.1	1,079	91123124	1
	0.19	211.8	601	92123124	
	0.21	211.8	601	93123124	
	0.18	253.1	1,079	94123124	
	0.19	211.8	601	95123124	
Highest 24-Hour	4.43	216.2	351	91071224	5
	2.36	210.0	600	92112724	
	2.15	211.8	601	93112824	
	2.79	211.8	601	94021324	
	3.59	272.6	1,083	95071724	

[a] Difference in concentrations from current and future No. 5 Granulation Plant sources. Current No. 5 Granulation Plant sources represent maximum potential emissions and sources from PSD Construction Permit No. 0570008-036-AC.

Future No. 5 Granulation Plant sources represent the proposed changes.

Based on 5-year surface and upper air meteorological data for 1991 to 1995 from the National Weather Service stations in Tampa and Ruskin, respectively.

[b] Relative to No. 9 Sulfuric Acid Plant stack.

[c] YYMMDDHH = Year, Month, Day, Hour Ending

Table 2. Change in Predicted SO_2 Concentrations Due to Revisions to the No. 5 Granulation Plant Sources Only, Predicted at the Chassahowitzka NWA, Cargill Riverview

Averaging Time	Concentration Difference [a] ($\mu g/m^3$)	Receptor Location (m)		Time Period (Julian day/ hour/year)	PSD Class I Significant Impact Levels ($\mu g/m^3$)
		UTM East	UTM North		
24-Hour	0.0006	340,300	3,165,700	(038/23/90)	0.2
3-Hour	0.0038	340,300	3,165,700	(007/11/90)	1.0

Notes:
m = meter
UTM = Universal Transverse Mercator
$\mu g/m^3$ = micrograms per cubic meter

[a] Difference in concentrations from current and future No. 5 Granulation Plant sources. Current No. 5 Granulation Plant sources represent the maximum potential emissions and sources from PSD Construction Permit No. 0570008-036-AC. Future No. 5 Granulation Plant sources represent the proposed changes at the No. 5 Granulation Plant. Concentrations are highest predicted with CALPUFF model and CALMET Tampa Bay Domain, 1990.

Table 3. Stack and Operating Parameters and Emissions Rates Used in the Modeling Analysis for the No. 5 Granulation Plant -- Cargill Riverview

Source	ISCST Source ID	Maximum SO_2 Emission Rates				Maximum PM_{10} Emission Rates				Stack Height		Stack Diameter		Exit Flow Rate	Exit Temperature		Exit Velocity	
		Hourly		Annual		Hourly		Annual										
		lb/hr	g/sec	TPY	g/sec	lb/hr	g/sec	TPY	g/sec	ft	m	ft	m	(acfm)	°F	K	ft/s	m/s
EXISTING OPERATIONS ("CURRENT") [a]																		
No. 5 DAP Plant--Common Stack	DAPNO5C	12.58	1.59	2.52	0.072	12.8	1.61	56.10	1.61	133	40.54	7.0	2.13	121,732	132	329	52.7	16.07
MODIFIED OPERATIONS ("FUTURE") [b]																		
No. 5 Granulation Plant--R/G Stack	DAP5RG	--	--	--	--	6.40	0.81	28.05	0.81	134	40.84	5.5	1.68	83,000	166	348	58.2	17.75
No. 5 Granulation Plant--Dryer, Cooler, & Equipment Stack	DAPNO5	12.58	1.59	2.52	0.072	6.40	0.81	28.05	0.81	133	40.54	7.0	2.13	156,000	110	316	67.6	20.59
Total		12.58	1.59	2.52	0.072	12.8	1.61	56.10	1.61									

[a] Represents sources and emission rates from Construction Permit No. 0570008-036-AC;PSD-FL-315, issued November 21, 2001.

[b] Represents proposed changes to the No. 5 Granulation Plant as described in the preceding letter.

PSD REPORT

REVISIONS

Table 2-9b. Summary of Stack Locations and Pollution Control Equipment for the No. 5 Granulation Plant (Revised 08/11/03)

Source	EU ID	Stack Location [a] X (ft)	Stack Location [a] Y (ft)	Primary Control Equipment Type	Primary Control Equipment Design Capacity	Secondary Control Equipment Type	Secondary Control Equipment Design Capacity	Stack Exit Flow Rate (acfm)
Existing No. 5 DAP Plant								
Reactor and Granulator	--	--	--	RG Venturi Scrubber	24,000 acfm	--	--	--
Cooler and Equipment Vents	--	--	--	CE Venturi Scrubber	55,000 acfm	--	--	--
Reactor, Granulator, Cooler, and Equipment Vents	--	--	--	--	--	RGCE Tailgas Scrubber	64,000 acfm	--
Dryer	--	--	--	Dryer Venturi Scrubber	49,000 acfm	Dryer Tailgas Scrubber	37,000 acfm	--
Total--DAP Common Plant Stack	055	-1,747	-381	--	--	--	--	101,000
Modified No. 5 Granulation Plant								
Reactor and Granulator Stack	055	-1,850	-381	Venturi Scrubber	98,000 acfm	Ammonia Vaporizer (new)	90,000 acfm	83,000
Cooler	--	--	--	Venturi Scrubber (new)	55,000 acfm	--	--	--
Equipment Vents	--	--	--	Venturi Scrubber	57,000 acfm	--	--	--
Cooler and Equipment Vents	--	--	--	--	--	Packed-Bed Tailgas Scrubber	110,000 acfm	--
Dryer	--	--	--	Venturi Scrubber	68,000 acfm	Packed-Bed Tailgas Scrubber	63,000 acfm	--
Dryer/Cooler/Equipment Vents Stack	055	-1,747	-381	--	--	--	--	156,000

Notes: DAP = Diammonium Phosphate

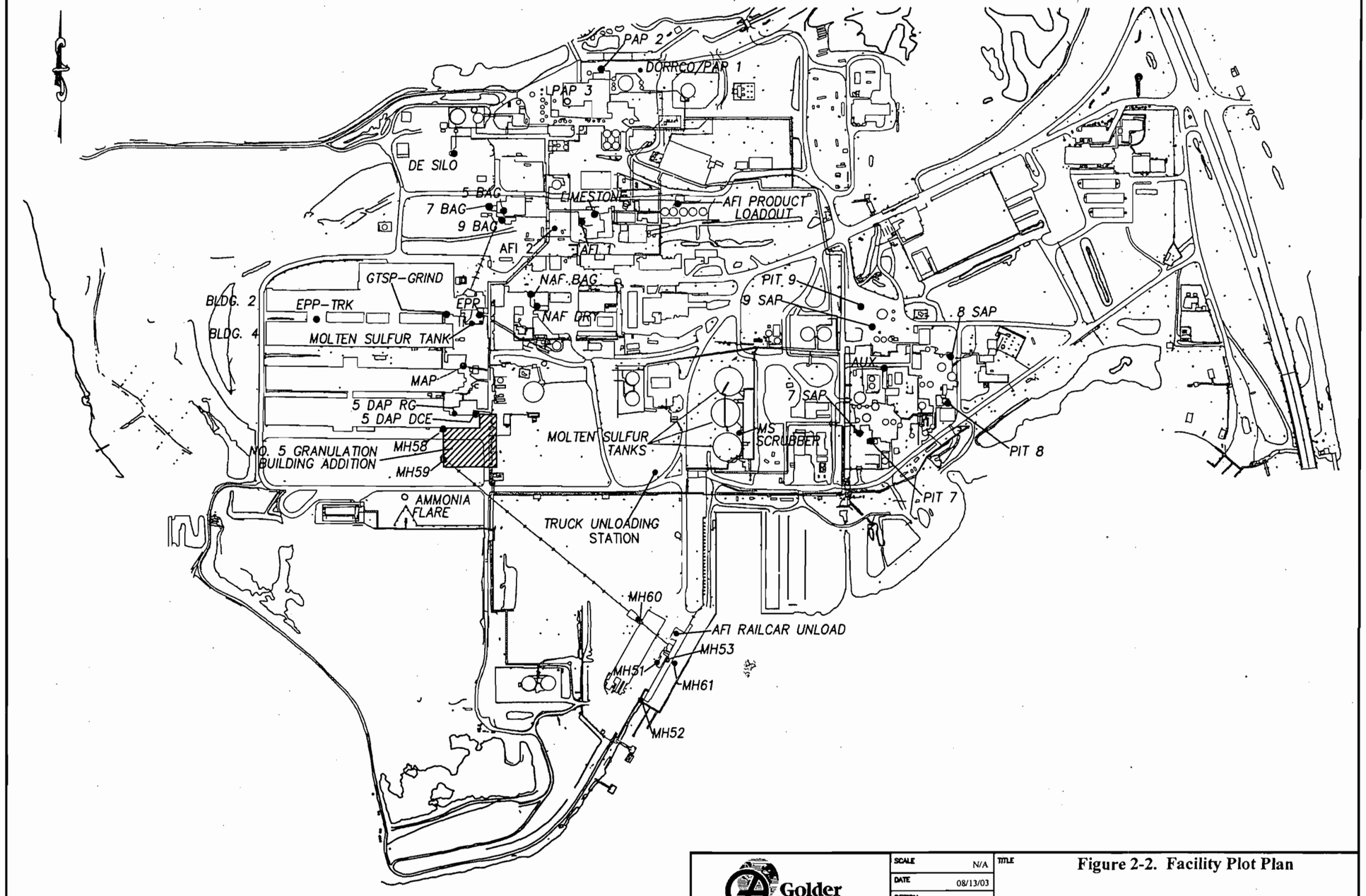
PM/PM_{10} = Particulate Matter/Particulate Matter with aerodynamic diameter less than or equal to 10 micrometers

[a] Relative to No. 9 Sulfuric Acid Plant stack.

[b] Existing operations refers to sources and equipment in operation prior to the PSD construction permit's issuance.

Table 2-3. Stack and Vent Geometry and Operating Data for the Modified Emissions Units -- Cargill Riverview (Revised 08/11/03)

Source	EU ID	Plot Plan ID	Stack/Vent Release Height (ft)	Stack/Vent Diameter (ft)	Actual Exhaust Gas Flow Rate ACFM	SCFM	DSCFM	Exhaust Gas Exit Temperature (Deg. F)	Exhaust Gas Water Vapor Content (%)	Exhaust Gas Velocity (ft/sec)
EXISTING OPERATIONS [b]										
No. 8 Sulfuric Acid Plant	005	8 SAP	150	8.00	118,900	100,400	100,400	165	0.00%	39.4
No. 9 Sulfuric Acid Plant	006	9 SAP	150	9.00	159,600	137,000	137,000	155	0.00%	41.4
Phosphoric Acid Plant--Prayon Reactor/No. 1 Filtration Unit[a]	073	PAP 1	110	4.00	18,300	17,102	16,200	105	5.13%	24.2
Phosphoric Acid Plant--No. 1 Filtration Unit[a]/No. 2 Filtration Unit/Dorrco Reactor	073	PAP 2	110	4.83	38,900	35,720	33,400	115	6.48%	35.3
Phosphoric Acid Plant--No. 3 Filtration Unit	073	PAP 3	115	4.92	57,100	54,816	52,700	90	3.92%	41.3
GTSP Plant Common Stack	007	GTSP	126	8.00	171,700	153,138	138,900	132	9.30%	51.1
AFI Defluorination System/Granulation System	078	AFI	136	6.00	108,400	94,300	79,600	147	15.60%	63.9
AFI Diatomaceous Earth Hopper	079	DE Silo	64	1.50	600	580	518	90	10.00%	5.7
AFI Limestone Silo	080	Limestone	85	1.50	800	770	691	90	10.00%	5.7
AFI Product Loadout	081	AFI Product Loadout	30	3.00	21,100	20,300	18,300	90	10.00%	49.5
No. 5 DAP Plant	055	5 DAP	133	7.00	140,600	125,400	109,600	132	12.60%	60.9



Golder Associates GAINESVILLE, FLORIDA		SCALE	N/A
		DATE	08/13/03
		DESIGN	N/A
		CADD	N/A
FILE Name:	Figure 2-2.dwg	LAST REVISED	JEJ
PROJECT No.	023-7575 REV. 1	REVIEW	N/A

TITLE: **Figure 2-2. Facility Plot Plan**

Cargill Riverview

PATH: 0237575\4.1\071603\Figure 2-2.dwg

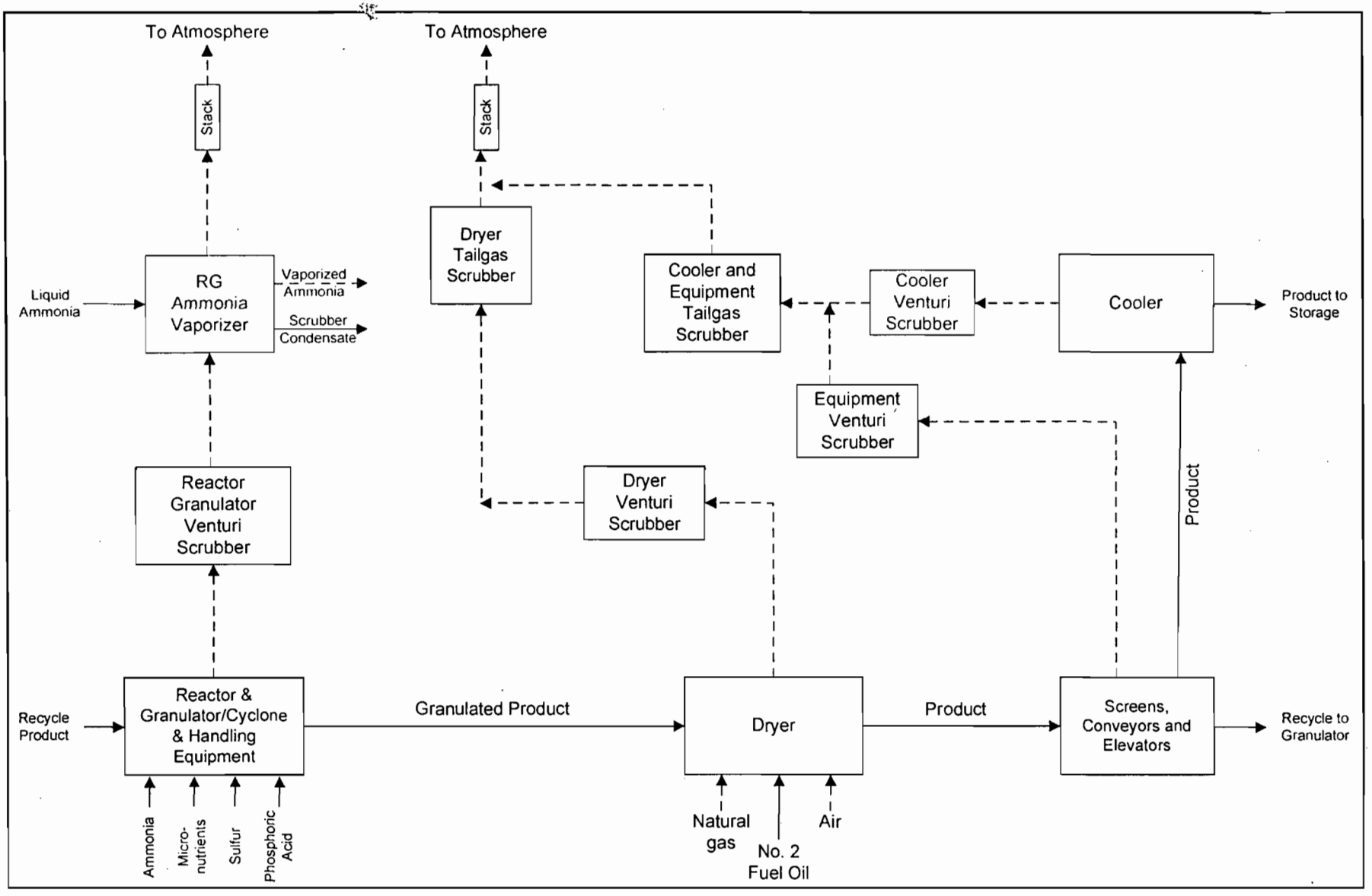


Figure 2-12.
Future Process Flow Diagram
No. 5 Granulation Plant - Cargill, Riverview

Source: Golder, 2003.

Process Flow Legend

Material Flow ——→

Air Flow - - - →

New or Modified Equipment or Process

Filename: 0237575/4/4.1/L071603/Figure2-12.vsd

Date: 08/14/03

Golder Associates

Table 6-4r. Stack Parameters and Potential SO_2 and NO_X Emission Rates for Future Cargill Riverview Sources (Revised 08/11/03)

AIRS Number	Source	ISCST Source ID	Short-Term SO_2 Emissions lb/hr	Short-Term SO_2 Emissions g/sec	Annual Average SO_2 Emissions TPY	Annual Average SO_2 Emissions g/sec	Annual Average NO_X Emissions TPY	Annual Average NO_X Emissions g/sec	Stack/Vent Release Height ft	Stack/Vent Release Height m	Stack/Vent Diameter ft	Stack/Vent Diameter m	Gas Flow Rate acfm	Gas Exit Temperature °F	Gas Exit Temperature K	Velocity ft/sec	Velocity m/sec	Discharge Direction (Vert./Horiz.)	Location [a] X Coordinate ft	Location [a] X Coordinate m	Location [a] Y Coordinate ft	Location [a] Y Coordinate m	Modeled in Significant Impact Analysis? (Yes/No)
[b]	Molten Sulfur Handling																						
	Pits 7, 8, and 9[c]	MSPITS	0.13	0.017	0.12	0.003	0.00	0.00	8.00	2.44 [d]	--	-- [d]	-- [d]	48.8	14.89 [d]	3.72	1.13 [d]	[d]	78	24	-238	-73	Yes
	Tanks 1, 2, and 3/Truck Loading	MSTKTL	3.34	0.421	8.88	0.255	0.00	0.00	33	10.06	0.83	0.25	665	110	316	20.48	6.24	V	-630	-192	-460	-140	Yes
4	No. 7 Sulfuric Acid Plant--24-hr/Annual Average	NO7SAP	466.70	58.803	2,044.0	58.799	70.13	2.02	150	45.72	7.50	2.29	109,924	152	340	41.47	12.64	V	-60	-18	-460	-140	No
	No. 7 Sulfuric Acid Plant--3-hr Average	NO7SAP	533.30	67.195	--	--	--	--															
5	No. 8 Sulfuric Acid Plant--24-hr/Annual Average	NO8SAP	393.75	49.612	1,724.6	49.612	59.13	1.70	150	45.72	8.00	2.44	129,400	165	347	42.91	13.08	V	340	104	-90	-27	Yes
	No. 8 Sulfuric Acid Plant--3-hr Average	NO8SAP	450.00	56.699	--	--	--	--															
6	No. 9 Sulfuric Acid Plant--24-hr/Annual Average	NO9SAP	495.83	62.474	2,171.8	62.474	74.46	2.14	150	45.72	9.00	2.74	171,100	155	341	44.83	13.66	V	0	0	0	0	Yes
	No. 9 Sulfuric Acid Plant--3-hr Average	NO9SAP	566.67	71.399	--	--	--	--															
	Phosphate Rock Grinding/Drying System																						
100	No. 5 Rock Mill Dust Collector	RKMLNO5	6.59	0.830	1.32	0.038	5.69	0.16	91	27.74	2.50	0.76	36,100	166	348	122.57	37.36	V	-1,620	-494	510	155	Yes
106	No. 7 Rock Mill Dust Collector	RKMLNO7	6.59	0.830	1.32	0.038	5.69	0.16	91	27.74	3.00	0.91	20,000	165	347	47.16	14.37	V	-1,638	-499	486	148	Yes
101	No. 9 Rock Mill Dust Collector	RKMLNO9	6.59	0.830	1.32	0.038	5.69	0.16	91	27.74	2.50	0.76	31,360	162	345	106.48	32.45	V	-1,630	-497	460	140	Yes
7	EPP Manufacturing Plant	EPPPLNT	40.54	5.108	8.11	0.233	35.04	1.01	126	38.40	8.00	2.44	237,000	132	329	78.58	23.95	V	-1,730	-527	50	15	Yes
	Molten Sulfur Tank[e]	EPPMSTK	0.15	0.019	0.66	0.019	0.00	0.00	29	8.72	0.50	0.15	1	77	298	0.10	0.03	V	-1,730	-527	20	6	Yes
78	Animal Feed Ingredient Plant No. 1 Granulation System No. 1	AFIGRAN	25.36	3.195	5.07	0.146	21.90	0.63	136	41.45	6.00	1.83	109,400	150	339	64.49	19.66	V	-1,230	-375	460	140	Yes
103	Animal Feed Ingredient Plant No. 2 Granulation System/Milling, Classification, and Cooling Equipment Scrubber No. 2	AFI2	38.04	4.793	7.61	0.219	32.85	0.94	145	44.20	7.00	2.13	153,200	150	339	66.3	20.22	V	-1,414	-431	420	128	Yes
25	No. 5 Granulation Plant Dryer/Cooler/Equipment Vents Stack	DAPNO5	12.58	1.585	2.52	0.072	17.52	0.50	133	40.54	7.00	2.13	156,000	110	316	67.56	20.59	V	-1,744	-532	-380	-116	Yes
22,23,24	Nos. 3 and 4 MAP Plants and South Cooler	MAPNO34	0.003	0.0004	0.01	0.0004	2.08	0.06	133	40.54	7.00	2.13	165,000	142	334	71.46	21.78	V	-1,800	-549	-170	-52	No

[a] Relative to H_2SO_4 Plant No. 9 stack location.
[b] AIRS Nos. 063, 064, 065, 066, 067, 068, 069, 074.
[c] Location represented by centroids of pits.
[d] Volume source dimensions based on methods presented in accordance with ISCST3 User's Manual.

Source	Physical Dimensions (ft) Height (H)	Physical Dimensions (ft) Width (W)	Model Dimensions (ft) Height (H or H/2)	Model Dimensions (ft) Sigma Y (W/4.3)	Model Dimensions (ft) Sigma Z (H/2.15)
Pits 7, 8, and 9	8.0	210.0	8.0	48.8	3.72

[e] Assumed velocity, calculated flow rate.

Table 6-6r. Stack Parameters and Potential PM_{10} Emission Rates for Future Cargill Riverview Sources (Revised 08/11/03)

AIRS Number	Source	ISCST Source ID	Short-Term PM_{10} Emissions lb/hr	Short-Term PM_{10} Emissions g/sec	Annual Average PM_{10} Emissions TPY	Annual Average PM_{10} Emissions g/sec	Stack/Vent Release Height ft	Stack/Vent Release Height m	Stack/Vent Diameter ft	Stack/Vent Diameter m	Gas Flow Rate acfm	Gas Exit Temperature °F	Gas Exit Temperature K	Velocity ft/sec	Velocity m/sec	Discharge Direction[a] (Vert./Horiz.)	Location[c] X Coordinate ft	Location[c] X Coordinate m	Location[c] Y Coordinate ft	Location[c] Y Coordinate m	Modeled in Significant Impact Analysis? (Yes/No)
[b]	Molten Sulfur Handling																				
	Pits 7, 8, and 9[d]	MSPITS	1.31	0.165	1.10	0.032	8.00	2.44 [e]	--	--	--	48.84	14.89 [e]	3.72	1.13 [e]	[e]	78	24	-238	-73	Yes
	Tanks 1, 2, and 3/Truck Loading	MSTKTL	0.28	0.036	1.02	0.029	33	10.06	0.83	0.25	665	110	316	20.48	6.24	V	-630	-192	-460	-140	Yes
	Phosphate Rock Grinding/Drying System																				
100	No. 5 Rock Mill Dust Collector	RKMLNO5	1.56	0.197	6.85	0.197	91	27.74	2.50	0.76	36,100	166	348	122.57	37.36	V	-1620	-494	510	155	Yes
106	No. 7 Rock Mill Dust Collector	RKMLNO7	1.56	0.197	6.85	0.197	91	27.74	3.00	0.91	20,000	165	347	47.16	14.37	V	-1638	-499	486	148	Yes
101	No. 9 Rock Mill Dust Collector	RKMLNO9	1.56	0.197	6.85	0.197	91	27.74	2.50	0.76	31,360	162	345	106.48	32.45	V	-1630	-497	460	140	Yes
102	Ground Rock Silo Dust Collector	GRKSILO	0.41	0.052	1.78	0.051	67	20.42	0.80	0.24	1,200	80	300	39.79	12.13	H	-1640	-500	526	160	Yes
7	EPP *Manufacturing Plant*	EPPPLNT	12.00	1.512	52.56	1.512	126	38.40	8.00	2.44	237,000	132	329	78.58	23.95	V	-1730	-527	50	15	Yes
	Molten Sulfur Tank[f]	EPPMSTK	0.19	0.024	0.85	0.024	28	8.72	0.50	0.15	1	77	298	0.10	0.03	V	-1730	-527	20	6	Yes
8	EPP Ground Rock Handling	EPPGRKH	0.95	0.120	4.16	0.120	87	26.52	1.20	0.37	4,400	138	332	64.84	19.76	H	-1880	-573	50	15	Yes
72	EPP Truck Loading Station Baghouse	EPPTLST	0.53	0.067	2.30	0.066	38	11.58	2.67	0.81	2,200	77	298	6.55	2.00	H	-2450	-747	30	9	Yes
	EPP Truck Loading Station Fugitive	EPPTLSF	0.20	0.025	0.40	0.012	27.50	8.38 [g]	--	--	--	139.53	42.53 [g]	25.58	7.80 [g]	[g]	-2450	-747	30	9	Yes
	Animal Feed Ingredient Plant																				
78	Granulation System No. 1	AFIGRAN	8.00	1.008	35.04	1.008	136	41.45	6.00	1.83	109,400	150	339	64.49	19.66	V	-1230	-375	460	140	Yes
	Milling, Classification, and Cooling Equipment No. 1	COOLEQB	5.14	0.648	22.53	0.648	85	25.91	5.00	1.52	56,000	120	322	47.53	14.49	V	-1110	-338	446	136	Yes
103	Granulation System/Milling, Classification, and Cooling Equipment Scrubber No. 2	AFI2	13.14	1.656	57.57	1.008	145	44.20	7.00	2.13	153,200	150	339	66.35	20.22	V	-1414	-431	420	128	Yes
79	DE Hopper Baghouse	DEHOPPB	0.05	0.007	0.23	0.007	64	19.51	1.50	0.46	600	90	305	5.66	1.72	--	-1840	-561	760	232	Yes
80	Limestone Silo Baghouse	LIMESIB	0.32	0.040	1.40	0.040	85	25.91	1.50	0.46	3,500	90	305	33.01	10.06	--	-1090	-332	540	165	Yes
81	AFI Product Loadout Baghouse	AFIPRLB	2.06	0.260	9.01	0.259	30	9.14	3.00	0.91	23,100	90	305	54.47	16.60	V	-860	-262	528	161	Yes
	AFI Product Loadout Fugitive	AFIPRLF	0.03	0.003	0.12	0.003	50.00	15.24 [h]	--	--	--	63.72	19.42 [h]	46.51	14.18 [h]	[h]	-860	-262	528	161	Yes
55	No. 5 Granulation Plant																				
	Dryer/Cooler Equipment Vents Stack	DAPNO5	6.40	0.806	28.05	0.807	133	40.54	7.00	2.13	156,000	110	316	67.56	20.59	V	-1744	-532	-380	-116	Yes
	Reactor/Granulator Stack	DAP5RG	6.40	0.806	28.05	0.807	134	40.84	5.50	1.68	83,000	166	348	58.23	17.75	V	-1851	-564	-380	-116	Yes
22,23,24	Nos. 3 and 4 MAP Plants and South Cooler Material Handling Conveyor	MAPNO34	10.00	1.260	42.50	1.223	133	40.54	7.00	2.13	165,000	142	334	71.46	21.78	V	-1800	-549	-170	-52	No
51	West Baghouse	MHWESTB	1.16	0.146	4.60	0.132	30	9.14	3.50	1.07	33,000	80	300	57.17	17.42	V	-950	-290	-1480	-451	Yes
52	South Baghouse	MHSOUTB	1.16	0.146	4.60	0.132	50	15.24	1.50	0.46	4,500	80	300	42.44	12.94	H	-1030	-314	-1650	-503	Yes
53	Tower East Baghouse	MHTWREB	0.80	0.101	3.20	0.092	30	9.14	2.50	0.76	12,000	80	300	40.74	12.42	H	-910	-277	-1500	-457	Yes
58	Building No.6 Baghouse	MHBLDG6	0.62	0.078	1.20	0.035	30	9.14	1.16	0.35	3,630	80	300	57.24	17.45	H	-1890	-576	-450	-137	Yes
59	Belt 7 to 8 Baghouse	BLT78BH	0.62	0.078	1.90	0.055	45	13.72	1.16	0.35	3,630	80	300	57.24	17.45	H	-1890	-576	-580	-177	Yes
60	Belt 8 to 9 Baghouse	BLT89BH	1.19	0.150	3.60	0.104	75	22.86	1.57	0.48	6,930	80	300	59.54	18.15	H	-1030	-314	-1290	-393	Yes
	AFI Railcar Unloading	AFIRCUL	0.15	0.019	0.06	0.002	15.00	4.57 [i]	--	--	--	14.0	4.25 [i]	13.95	4.25 [i]	[i]	-850	-259	-1350	-411	Yes
61	East Vessel Loading Facility-Shiphold/Chokefeed	EVSHIPL	0.10	0.013	0.42	0.012	30.00	9.14 [j]	--	--	--	3.49	1.06 [j]	6.98	2.13 [j]	[j]	-890	-271	-1520	-463	Yes

[a] For modeling purposes, horizontal discharges were modeled with a velocity of 0.01 m/s.

[b] Relative to H2SO4 Plant No. 9 stack location.

[c] AIRS Nos. 063, 064, 065, 066, 067, 068, 069, 074.

[d] Location represented by centroids of pits.

[e, g, h, i, j] Volume source dimensions based on methods presented in accordance with ISCST3 User's Manual.

Source	Physical Dimensions (ft) Height (H)	Physical Dimensions (ft) Width (W)	Model Dimensions (ft) Height (H or H/2)	Model Dimensions (ft) Sigma Y (W/4.3)	Model Dimensions (ft) Sigma Z (H/2.15)
[e] Pits 7, 8, and 9	8.0	210	8.0	49	3.7
[g] EPP Truck Loading Station Fugitive	55.0	600	27.5	140	25.6
[h] AFI Product Loadout Fugitive	100.0	274	50	63.7	46.5
[i] AFI Railcar Unloading	30.0	60	15	14.0	14.0
[j] East Vessel Loading Facility-Shiphold/Chokefeed	30.0	15	30	3.5	6.98

[f] Assumed velocity, calculated flow rate.

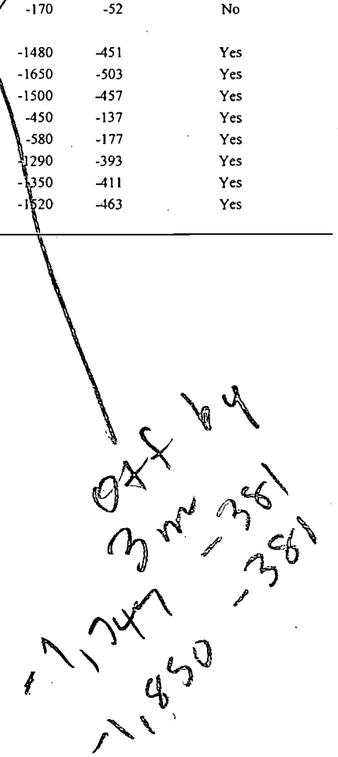


Table 6-7r. Stack Parameters and Actual and Potential Fluoride Emission Rates for Current and Future Cargill Riverview Sources (Revised 08/11/03)

AIRS Number	Source	ISCST Model ID	Short-Term F Emissions lb/hr	Short-Term F Emissions g/sec	Annual Average F Emissions TPY	Annual Average F Emissions g/sec	Stack/Vent Release Height ft	Stack/Vent Release Height m	Stack/Vent Diameter ft	Stack/Vent Diameter m	Gas Flow Rate acfm	Gas Exit Temperature °F	Gas Exit Temperature K	Velocity ft/sec	Velocity m/sec	Discharge Direction (Vert./Horiz.)	Location [c] X Coordinate ft	Location [c] X Coordinate m	Location [c] Y Coordinate ft	Location [c] Y Coordinate m	Modeled in Significant Impact Analysis? (Yes/No)
CURRENT SOURCES																					
73	Phosphoric Acid Production Facility																				
	Prayon Reactor/No. 1 Filtration Unit	PAPPRAC	0.09	0.01	0.21	0.01	110	33.53	4.00	1.22	18,300	105	313.71	24.20	7.38	V	-1140	-347	940	287	Yes
	No. 1 Filtration Unit/No.2 Filtration Unit/Dorrco Reactor	PAPF12C	1.14	0.14	2.75	0.08	110	33.53	4.80	1.46	38,900	115	319.26	35.30	10.76	V	-1200	-366	1120	341	Yes
	No. 3 Filtration Unit	PAPF3C	0.26	0.03	0.63	0.02	115	35.05	4.90	1.49	57,100	90	305.37	41.30	12.59	V	-1350	-411	984	300	Yes
7	GTSP/AP Manufacturing Plant	GTSPAPC	1.55	0.20	2.47	0.07	126	38.40	8.00	2.44	171,700	132	328.71	51.11	15.58	V	-1730	-527	50	15	Yes
70,71	Two GTSP Storage Buildings	GTSPSTC	8.44	1.06	29.04	0.84	55	16.76 [b]	--	--	--	191	58.12 [b]	25.58	7.80 [b]	[b]	-2680	-817	50	15	Yes
	Animal Feed Ingredient Plant																				
78	AFI Defluorination & Granulation Scrubber	AFIPLTC	0.17	0.02	1.05	0.03	136	41.45	6.00	1.83	108,400	147	337.04	63.90	19.48	V	-1230	-375	490	149	Yes
55	No. 5 DAP Plant	DAPNO5C	3.02	0.38	8.37	0.24	133	40.54	7.00	2.13	121,732	132	328.71	52.72	16.07	V	-1744	-532	-380	-116	Yes
FUTURE SOURCES																					
73	Phosphoric Acid Production Facility																				
	Prayon Reactor	PAPPRAY	0.57	0.07	2.51	0.07	110	33.53	4.00	1.22	20,900	105	313.71	27.72	8.45	V	-1140	-347	940	287	Yes
	Nos. 1 and 2 Filtration Units	PAPF12	0.57	0.07	2.51	0.07	110	33.53	4.83	1.47	45,000	115	319.26	40.93	12.48	V	-1200	-366	1120	341	Yes
	Dorrco Reactor and New Digester	PAPDORR	0.57	0.07	2.51	0.07	95	28.96	4.50	1.37	55,000	110	316.48	57.64	17.57	V	-1070	-326	1110	338	Yes
	No. 3 Filtration Unit	PAPF3	0.57	0.07	2.51	0.07	115	35.05	4.92	1.50	57,100	90	305.37	50.06	15.26	V	-1350	-411	984	300	Yes
7	EPP Manufacturing Plant	EPPPLNT	1.89	0.24	8.26	0.24	126	38.40	8.00	2.44	237,000	132	328.71	78.58	23.95	V	-1730	-527	50	15	Yes
70,71	Two EPP Storage Buildings	EPPST24	9.92	1.25	43.46	1.25	55	16.76 [b]	--	--	--	191	58.12 [b]	25.58	7.80 [b]	[b]	-2680	-817	50	15	Yes
	Animal Feed Ingredient Plant Nos. 1 and 2																				
55	No. 5 Granulation Plant																				
	Dryer/Cooler/Equipment Vents Stack	DAPNO5	1.45	0.18	6.45	0.19	133	40.54	7.00	2.13	156,000	110	316.48	67.56	20.59	V	-1744	-532	-380	-116	Yes
	Reactor/Granulator Stack	DAP5RG	1.45	0.18	6.45	0.19	134	40.84	5.50	1.68	83,000	166	347.59	58.23	17.75	V	-1851	-564	-380	-116	Yes
22,23,24	Nos. 3 and 4 MAP Plants and South Cooler	MAPNO34	2.00	0.25	8.50	0.24	133	40.54	7.00	2.13	165,000	142	334.26	71.46	21.78	V	-1800	-549	-170	-52	No
78	Defluorination System Scrubber	AFIDFS	2.11	0.27	9.25	0.27	35	10.67	3.00	0.91	25,400	105	313.71	59.89	18.25	V	-1230	-375	490	149	Yes

[a] Relative to H_2SO_4 Plant No. 9 stack location.

[b] Volume source dimensions based on methods presented in accordance with ISCST3 User's Manual.

Source	Physical Dimensions (ft) Height (H)	Physical Dimensions (ft) Width (W)	Model Dimensions (ft) Height (H or H/2)	Model Dimensions (ft) Sigma Y (W/4.3)	Model Dimensions (ft) Sigma Z (H/2.15)
Two GTSP Storage Buildings	55.0	820	55.0	191	25.58

Table 6-13. Building Dimensions Used in the Modeling Analysis (Revised 08/11/03)

Structure	Height		Length		Width	
	ft	m	ft	m	ft	m
Phosphoric Acid Plant						
South Building	100	30.48	95	28.96	60	18.29
North Building	100	30.48	90	27.43	80	24.38
Dry Rock Processing Plant						
Nos. 5/9 Mills Building	35	10.67	75	12.19	47	9.14
Animal Feed Ingredient Plant						
AFI Building No. 1	173	52.73	120	36.58	70	21.34
AFI Loadout Silos	100	30.48	274	83.52	37	11.28
AFI Building No. 2	147	44.81	90	27.43	60	18.29
Material Storage Area						
Building No. 6	74	22.56	790	240.79	120	36.58
Building No. 5	54.7	16.67	790	240.79	110	33.53
Building No. 4	54.7	16.67	830	252.98	100	30.48
Building No. 2 (Bottom)	62	18.90	830	252.98	100	30.48
Building No. 2 (Top)	70	21.34	410	124.97	120	36.58
GTSP Building	127	38.71	150	45.72	90	27.43
DAP 5 Building Tier A	86.5	26.37	260	79.25	225	68.58
DAP 5 Building Tier B	126.5	38.56	50	15.24	50	15.24
Map 3/4 Building	90	27.43	100	30.48	90	27.43
Docks						
West Building	30	9.14	330	100.58	85	25.91
East Building Tier A	30	9.14	370	112.78	30	9.14
East Building Tier B	45	13.72	30	9.14	30	9.14
Belt 8 to 9 Building	75	22.86	59	17.98	28	8.53
Sulfuric Acid Plant						
Auxiliary Boiler Building	18	5.49	80	24.38	50	15.24

Table 6-15. Maximum Predicted Pollutant Impacts After Completion of the Proposed Project, AAQS Screening Analysis, Cargill Riverview (Revised 8/11/03)

Pollutant/ Averaging Time	Concentration ($\mu g/m^3$) [a]			Receptor Location [b]		Time Period (YYMMDDHH) [c]	Florida AAQS ($\mu g/m^3$)
	Total	Modeled Sources	Background	Direction (degree)	Distance (m)		
SO_2							
HSH 24-Hour	213.9	182.9	31	360	5,500	91081224	260
	221.1	190.1	31	100	900	92073024	
	241.1	210.1	31	10	6,000	93071724	
	205.6	174.6	31	21.2	779	94062324	
	219.2	188.2	31	256.6	1,011	95073124	
HSH 3-Hour	1,010.8	889.8	121	180	6,500	91042715	1,300
	981.3	860.3	121	180	6,500	92071815	
	1,043.5	922.5	121	220	5,000	93041512	
	869.6	748.6	121	200	7,500	94091012	
	933.6	812.6	121	160	7,500	95070812	
PM_{10}							
H6H 24-Hour	131.5	92.5	39	350	6,000	95080924	150

Note: HSH= Highest, Second-Highest
H6H= Highest, Sixth-Highest

[a] Based on 5-year surface and upper air meteorological data for 1991 to 1995 from the National Weather Service stations in Tampa and Ruskin, respectively.

[b] Relative to No. 9 Sulfuric Acid Plant stack.

[c] YYMMDDHH = Year, Month, Day, Hour Ending

Table 6-16. Maximum Predicted Pollutant Impacts After Completion of the Proposed Project, AAQS Refined Analysis, Cargill Riverview (Revised 8/11/03)

Pollutant/ Averaging Time	Concentration ($\mu g/m^3$) [a]			Receptor Location [b]		Time Period (YYMMDDHH) [c]	Florida AAQS ($\mu g/m^3$)
	Total	Modeled Sources	Background	Direction (degree)	Distance (m)		
SO_2							
HSH 24-Hour	221.6	190.6	31	101	900	92073024	260
	263.2 [d]	232.2	31	0	5700	93071724	
	260.3 [d]	229.3	31	0	5800	93071724	
	262.3 [d]	231.3	31	0	5700	93071724	
	261.3 [d]	230.3	31	1	5800	93071724	
	261.1 [d]	230.1	31	359	5700	93071724	
	261.9 [d]	230.9	31	359	5800	93071724	
	262.1 [d]	231.1	31	359	5800	93071724	
	262.0 [d]	231.0	31	358	5800	93071724	
	261.5 [d]	230.5	31	357	5800	93071724	
	260.7 [d]	229.7	31	357	5800	93071724	
HSH 3-Hour	1,074	953	121	178	7,000	91071912	1,300
	1,167	1046	121	177	7,000	92041215	
	1,072	951	121	180	6,800	93070212	
PM_{10}							
H6H 24-Hour	141.6	102.6	39	351	6,000	95101624	150

Note: HSH = Highest, Second-Highest
H6H = Highest, Sixth-Highest

[a] Based on 5-year surface and upper air meteorological data for 1991 to 1995 from the National Weather Service stations in Tampa and Ruskin, respectively.

[b] Relative to No. 9 Sulfuric Acid Plant stack.

[c] YYMMDDHH = Year, Month, Day, Hour Ending

[d] Cargill Riverview sources contributed 0.0 $\mu g/m^3$ to this exceedence of the AAQS standard.

Table 6-17. Maximum Predicted PM_{10} Impacts After Completion of the Proposed Project, PSD Class II Increment Screening Analysis, Cargill Riverview (Revised 8/11/03)

Averaging Time	Concentration [a] ($\mu g/m^3$)	Receptor Location [b]		Time Period [c] (YYMMDDHH)
		Direction (degree)	Distance (m)	
HSH 24-Hour	17.8	330	6,000	91081324
	22.4	330	6,000	92071924
	20.2	330	6,000	93082924
	24.8	330	5,500	94120724
	18.7	330	6,000	95092624

Note: HSH= Highest, Second-Highest

[a] Based on 5-year surface and upper air meteorological data for 1991 to 1995 from the National Weather Service stations in Tampa and Ruskin, respectively.

[b] Relative to No. 9 Sulfuric Acid Plant stack.

[c] YYMMDDHH = Year, Month, Day, Hour Ending

Table 4. Maximum Predicted 24-Hour PM_{10} Concentrations for the Modified No. 5 Granulation Plant Only at the PSD Class II Exceedance Area [a] Compared to the Significant Impact Level, Refined Analysis, Cargill Riverview

Averaging Time	Concentration [b] ($\mu g/m^3$)	Receptor Location [c] Direction (degree)	Receptor Location [c] Distance (m)	Time Period [d] (YYMMDDHH)	Significant Impact Level ($\mu g/m^3$)
Highest 24-Hour	1.24	327	5,000	91071224	5
	1.12	337	5,000	92033024	
	0.68	346	5,000	93010724	
	0.72	324	5,000	94072824	
	0.77	320	5,000	95062124	

[a] Based on the screening analysis, an area surrounding TECO Gannon was identified where all exceedances occurred. The No. 5 Granulation Plant only was modeled over the entire area to determine the maximum impacts and to verify that the project would not contribute significantly to the violations predicted for TECO Gannon.

[b] Based on 5-year surface and upper air meteorological data for 1991 to 1995 from the National Weather Service stations in Tampa and Ruskin, respectively.

[c] Relative to No. 9 Sulfuric Acid Plant stack.

[d] YYMMDDHH = Year, Month, Day, Hour Ending

ATTACHMENT A

REVISED APPLICATION FORM PAGES

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):

No. 5 Granulation Plant (formerly the No. 5 DAP Plant)

4. Emissions Unit Identification Number: [ ] No ID
ID: **055** [ ] ID Unknown

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

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):

050 Two (2) Packed-Bed Tailgas Scrubbers

053 Four (4) Venturi Scrubbers (in parallel)

038 Ammonia Vaporizer

2. Control Device or Method Code(s): **050, 053, 038**

Emissions Unit Details

1. Package Unit: Manufacturer:	Model Number:	
2. Generator Nameplate Rating:	MW	
3. Incinerator Information:		
Dwell Temperature:		°F
Dwell Time:		seconds
Incinerator Afterburner Temperature:		°F

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? **5 DAP**	2. Emission Point Type Code: **3**

3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point):

No. 5 Granulation – RG Stack (5 DAP RG)
No. 5 Granulation – Dryer/Cooler/Equipment vents (DCE) stack (5 DAP DCE)

4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:

5. Discharge Type Code: **V**	6. Stack Height: **133** feet	7. Exit Diameter: **7** feet
8. Exit Temperature: **110** °F	9. Actual Volumetric Flow Rate: **156,000** 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):

Parameters represent the existing DCE stack. Refer to PSD Report, Table 2-3, for RG stack parameters.

F. EMISSIONS UNIT POLLUTANTS
(All Emissions Units)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM	053	050	EL
PM_{10}	053	050	EL
FL	053	038	EL
SO_2			EL

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

Potential/Fugitive Emissions

1. Pollutant Emitted: **PM**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **12.8** lb/hour **56.1** tons/year	4. Synthetically Limited? [ ]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year	
6. Emission Factor: Reference: **Permit #: 0570008-014-AV**	7. Emissions Method Code: **0**
8. Calculation of Emissions (limit to 600 characters): **12.8 lb/hr x 8,760 hr/yr ÷ 2,000 lbs/ton = 56.1 TPY**	
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): **Represents both stacks combined.**	

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **OTHER**	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:	4. Equivalent Allowable Emissions: **12.8** lb/hour **56.1** tons/year
5. Method of Compliance (limit to 60 characters): **Annual Stack Emission Test using EPA Method 5.**	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): **Permit Limit in Permit 0570008-014-AV.**	

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

Potential/Fugitive Emissions

1. Pollutant Emitted: **PM_{10}**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **12.8** lb/hour **56.1** tons/year	4. Synthetically Limited? [ ]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year	
6. Emission Factor: Reference: **Permit #: 0570008-014-AV**	7. Emissions Method Code: **0**
8. Calculation of Emissions (limit to 600 characters): **12.8 lb/hr x 8,760 hr/yr ÷ 2,000 lbs/ton = 56.1 TPY**	
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): **Represents both stacks combined.**	

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **OTHER**	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:	4. Equivalent Allowable Emissions: **12.8** lb/hour **56.1** tons/year
5. Method of Compliance (limit to 60 characters): **Annual Stack Emission Test using EPA Method 5.**	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): **Permit Limit in Permit 0570008-014-AV.**	

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:
3. Potential Emissions: **2.9** lb/hour **12.9** tons/year	4. Synthetically Limited? [ ]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year	
6. Emission Factor: **0.04 lb/ton P_2O_5** Reference: **BACT Analysis**	7. Emissions Method Code: **0**
8. Calculation of Emissions (limit to 600 characters): **0.04 lb/ton P_2O_5 x 73.5 ton/hour P_2O_5 = 2.9 lb/hr** **2.94 lb/hr x 8,760 hr/yr x 1 ton/2,000 lbs = 12.9 TPY**	
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): **Represents both stacks combined.**	

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: **0.04 lb/ton P_2O_5**	4. Equivalent Allowable Emissions: **2.9** lb/hour **12.9** tons/year
5. Method of Compliance (limit to 60 characters): **Annual stack emissions test using EPA Method 13A or 13B.**	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): **Based on BACT analysis. Emissions limited to lesser of 0.04 lb/ton P_2O_5 input or 2.9 lb/hr.**	