AC29-21697
25149

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: _____ [X] New[1] [ ] Existing[1]

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

COMPANY NAME: Agrico Chemical Company COUNTY: Hillsborough

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Dry phosphate rock conveying system - 5 baghouses "B,C,G,H,L"

SOURCE LOCATION: Street P. O. Box 445 City Gibsonton, FL 33534

UTM: East 361689 M North 3076178 M

Latitude 27 ° 48 ' 18 "N Longitude 82 ° 24 ' 12 "W

APPLICANT NAME AND TITLE: Harold W. Long, Jr., Manager, Environmental Control

APPLICANT ADDRESS: P. O. Box 1110, Mulberry, FL 33860

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Agrico Chemical Company

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, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: H. W. Long

Harold W. Long, Jr., Manager, Envir. Control
Name and Title (Please Type)

Date: 10/15/79 Telephone No. (813) 428-1431

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

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

Signed: R T Schneider

Raymond T. Schneider
Name (Please Type)

(Affix Seal)

Jacobs Engineering Group, Pridgen Eng. Div.
Company Name (Please Type)

P. O. Box 2008, Lakeland, FL 33803
Mailing Address (Please Type)

Florida Registration No. 12008 Date: 10/17/79 Telephone No. (813) 665-1511

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

SECTION II: GENERAL PROJECT INFORMATION

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

Addition of particulate control equipment to existing wet rock conveyor system; also the installation of control equipment on proposed conveyor system to new storage silos, to receive and transship dry phosphate rock. Proposed facility: Five (5) 15,000 CFM baghouses, will meet all compliance requirements.

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

Start of Construction February, 1980* Completion of Construction May, 1981*

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

Dust Collectors	$223,800	Paint	$ 2,800
Structure	56,200	Electrical & Controls	147,000
Piping	4,800	Concrete	12,000
Ducts	34,100	TOTAL	$480,700

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

None

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

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr ____ ; if seasonal, describe: Operation will be intermittent, depending on demand. Receiving and shiploading can be around-the-clock activities.

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

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

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

SECTION II FOOTNOTES

* Preliminary and subject to delay in DER, EPA and local administrative proceedings.

** This new project is only associated with a DRI for which approval was granted by Hillsborough County on 3/27/74, and that it was specifically envisioned in Agrico's Supplemental Application of Development Approval of a DRI approved on 7/16/75 and extended on 9/6/78.

*** Source is within the area of influence of a non-attainment area as that term is defined in Rule 17-2.02 (11). However, the source is exempted from the provisions of 17-2.17 (5) through (7) by 17-2.17 (3)(a) 1.a. (ii).

**** It is Agrico's position that this source is not a "Major Emitting Facility" as that term is defined in the Clean Air Act and incorporated in Chapter 17-2. However, without waiving this position, Agrico will complete this application as if both BACT and PSD apply.

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

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

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Dry Phosphate	Particulate	100	5,400,000	DC-"B,C,G,H,L"
Rock				

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

1. Total Process Input Rate (lbs/hr): 5,400,000
2. Product Weight (lbs/hr): 5,399,988

C. Airborne Contaminants Emitted: 2,800,000 TPY/2,700 TPH = 1,037 Operating Hours

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Particulate	2.30	1.19	2.30 lbs/hr.	2.30	1149	596	DC-"B"
Particulate	2.30	1.19	2.30 lbs/hr.	2.30	1149	596	DC-"C"
Particulate	2.30	1.19	2.30 lbs/hr.	2.30	1149	596	DC-"G"
Particulate	2.30	1.19	2.30 lbs/hr.	2.30	1149	596	DC-"H"
Particulate	2.30	1.19	2.30 lbs/hr.	2.30	1149	596	DC-"L"

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]
Mikro-Pulsaire	Particulate	99.8%	<50	Supp.Nos. 2 & 5
Bag-type Dust				
Collectors (5), Model				
221STRH-8-20				

[1] See Section V, Item 2.

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

[3] Calculated from operating rate and applicable standard

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

[5] If Applicable

E. Fuels N.A.

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

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

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lbs/gal Typical Percent Nitrogen: _____

Heat Capacity: _____ BTU/lb _____ BTU/gal

Other Fuel Contaminants (which may cause air pollution): _____

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

G. Indicate liquid or solid wastes generated and method of disposal. None.

Baghouse product discharges onto next conveyor in line.

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

Stack Height: "B" 75. "C" 75. "G" 75. / "H" 60. "L" 60. ft. Stack Diameter: 2.75 (Each) ft.

Gas Flow Rate: 15,000 (Each ACFM Gas Exit Temperature: 105 °F.

Water Vapor Content: 4.7 % Velocity: 42.1 (Each) FPS

SECTION IV: INCINERATOR INFORMATION N.A.

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste _____

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

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

Manufacturer _____

Date Constructed _____ Model No. _____

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

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

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

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

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

Brief description of operating characteristics of control devices: _____

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

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

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

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
[ ] Yes [X] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [X] No

Contaminant	Rate or Concentration

C. What emission levels do you propose as best available control technology?

Contaminant	Rate or Concentration
Particulate	2.3 lbs/hr. each dust collector or 11.5 lbs/hr. total.

D. Describe the existing control and treatment technology (if any). New installation. Present system handles only wet rock.

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:
5. Useful Life:
6. Operating Costs:
7. Energy:
8. Maintenance Cost:
9. Emissions:

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

10. Stack Parameters

a. Height: ft. b. Diameter: ft.

c. Flow Rate: ACFM d. Temperature: °F

e. Velocity: FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1.

a. Control Device: Electrostatic Precipitator

b. Operating Principles: Charged particles are attracted to electrodes. Particles shaken loose periodically for removal.

c. Efficiency*: Unknown d. Capital Cost: Very High

e. Useful Life: Unknown f. Operating Cost: Unknown

g. Energy*: Unknown h. Maintenance Cost: Unknown

i. Availability of construction materials and process chemicals: Unknown

j. Applicability to manufacturing processes: No known application in area for this type operation.

k. Ability to construct with control device, install in available space, and operate within proposed levels: Unknown

2.

a. Control Device: Venturi Scrubber

b. Operating Principles: Wet particles are captured in recirculated scrubber water.

c. Efficiency*: 95-99.9% d. Capital Cost: Varies

e. Useful Life: Rated - long service f. Operating Cost: Unknown

g. Energy**: Depends on ΔP h. Maintenance Costs: Unknown

i. Availability of construction materials and process chemicals: Available

j. Applicability to manufacturing processes: ΔP high for desired removal efficiency.

k. Ability to construct with control device, install in available space, and operate within proposed levels: Recirculating ponds would be a problem.

*Explain method of determining efficiency. Mfg.'s data

**Energy to be reported in units of electrical power – KWH design rate.

3.

a. Control Device: Baghouse Dust Collector

b. Operating Principles: Pull air through multiple bags to filter out particles. Reverse air pulse periodically cleans and empties each bag to hopper below.

c. Efficiency*: Rated to 99.99+% d. Capital Cost: High

e. Life: Rated - long service f. Operating Cost: Low

g. Energy: Medium h. Maintenance Cost: Low

*Explain method of determining efficiency above. Mfg.'s data

i. Availability of construction materials and process chemicals: Available

j. Applicability to manufacturing processes: Good

k. Ability to construct with control device, install in available space and operate within proposed levels: Good

4.

a. Control Device

b. Operating Principles:

c. Efficiency*:

d. Capital Cost:

e. Life:

f. Operating Cost:

g. Energy:

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected:

1. Control Device: Five Mikro-Pulsaire Dust Collectors, Model 221STRH-8-20
2. Efficiency*: 99.8%
3. Capital Cost: $480,700
4. Life: Long service
5. Operating Cost: Unknown
6. Energy: 77.5 KWH/each collector
7. Maintenance Cost: Unknown
8. Manufacturer: Mikro-Pul Corp.
9. Other locations where employed on similar processes:

a.

(1) Company: Eastern Associated Terminals

(2) Mailing Address:

(3) City: Tampa (4) State: Florida

(5) Environmental Manager:

(6) Telephone No.:

*Explain method of determining efficiency above. Best engineering judgment

(7) Emissions*:

Contaminant	Rate or Concentration
Particulate	0.0139

(8) Process Rate*: 1500 TPH

b.

(1) Company:

(2) Mailing Address:

(3) City: (4) State:

*Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

10. Reason for selection and description of systems: Efficiency is excellent; cost is reasonable; no waste products generated.

*Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data Not applicable - ambient data survey has been submitted to FDER.

1. _____ no sites _____ TSP _____( ) SO^2* _____ Wind spd/dir

Period of monitoring ___/___/___ to ___/___/___
month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? ____ Yes ____ No

b) Was instrumentation calibrated in accordance with Department procedures? ____ Yes ____ No ____ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. 5 Year(s) of data from 1 / 1 / 71 to 12/ 31 / 75
month day year month day year

2. Surface data obtained from (location) Tampa Airport

3. Upper air (mixing height) data obtained from (location) Tampa Airport

4. Stability wind rose (STAR) data obtained from (location) Tampa Airport

C. Computer Models Used

1. Single Source (CRSTER) Modified? If yes, attach description.
2. Point Multiple (PTMTP-W) Modified? If yes, attach description.
3. Air Quality Display Model (AQDM) Modified? If yes, attach description.
4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	1.448 grams/sec
SO^2	NA grams/sec

E. Emission Data Used in Modeling N.A.

Attach list of emission sources. Emission data required is source name, description on point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

F. Attach all other information supportive to the PSD review.

*Specify bubbler (B) or continuous (C).

G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

Little or no difference in social impact.
Environmental impact will be 5.95 TPY particulate matter added to plant ambient air.

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.

SUPPLEMENT NO. 1

DC-"B,C,G,H,L":

Total Process Input Rate	-	5,400,000 lbs./hr.
Stack Emissions	-	12 lbs./hr.
Product Weight	-	5,399,988 lbs./hr.

SUPPLEMENT NO. 2

FROM DESIGN DATA:

All dust collectors are designed to operate under maximum conditions of 10 grains/standard cubic foot inlet loading, approximately 15°F above ambient temperature and a maximum absolute humidity of 0.03 lbs. water/lb. air to yield maximum emissions outlet loadings of 0.02 grains/standard cubic foot. Outlet loading based on actual tests made on same product, collectors and processes.

The absolute humidity is the dew point for 90°F air, the maximum expected in this location. The approximately 15°F temperature gain for the ambient air induced to transport the dust and collect it in the baghouse is estimated from the fan heat of compression and heat from the warm product being transported.

From Psychrometric Chart or Table:

Volume at 90°F 1 lb. dry air = 13.85 CF

Volume at 90°F 1 lb. dry and vapor to saturate it - 14.55 CF

$$\frac{14.55-13.85}{14.55} \times 100 = 4.7\% \ H_2O$$

Dust Collector Nos. B, C, G, H, L

$$(15,000)(1-.047)\ \frac{530}{565} = 13,409 \text{ SCFM Dry } (70^\circ F)$$

$$(13,409)\ \frac{10}{7000} = 19.16 \text{ Lb/Min Inlet Particulate}$$

$$(13,409)\ \frac{0.02}{7000} = .0383 \text{ Lb/Min Outlet Particulate}$$

$$\frac{19-.04}{19} \times 100 = 99.8\% \text{ Efficiency}$$

8.18 PHOSPHATE ROCK PROCESSING

8.18.1 Process Description[1]

Phosphate rock preparation involves beneficiation to remove impurities, drying to remove moisture, and grinding to improve reactivity. Usually, direct-fired rotary kilns are used to dry phosphate rock. These dryers burn natural gas or fuel oil and are fired counter-currently. The material from the dryers may be ground before storage in large storage silos. Air-swept ball mills are preferred for grinding phosphate rock.

8.18.2 Emissions and Controls[1]

Although there are no significant emissions from phosphate rock beneficiation plants, emissions in the form of fine rock dust may be expected from drying and grinding operations. Phosphate rock dryers are usually equipped with dry cyclones followed by wet scrubbers. Particulate emissions are usually higher when drying pebble rock than when drying concentrate because of the small adherent particles of clay and slime on the rock. Phosphate rock grinders can be a considerable source of particulates. Because of the extremely fine particle size, baghouse collectors are normally used to reduce emissions. Emission factors for phosphate rock processing are presented in Table 8.18-1.

Table 8.18-1. PARTICULATE EMISSION FACTORS FOR PHOSPHATE ROCK PROCESSING WITHOUT CONTROLS[a] EMISSION FACTOR RATING: C

Type of source	Emissions	
	lb/ton	kg/MT
Drying[b,c]	15	7.5
Grinding[b,d]	20	10
Transfer and storage[d,e]	2	1
Open storage piles[e]	40	20

[a] Emission factors expressed as units per unit weight of phosphate rock.

[b] References 2 and 3.

[c] Dry cyclones followed by wet scrubbers can reduce emissions by 95 to 99 percent.

[d] Dry cyclones followed by fabric filters can reduce emissions by 99.5 to 99.9 percent.

[e] Reference 3.

AGRICO NOTE: Due to low reliability of emission factor rating: C, used best engineering judgment in determining efficiency.

SUPPLEMENT NO. 4

See Tab "J" - supplemental backup documents for design details listed on manufacturer's data sheets and price and equipment sizing quotes.

POINT	VENDOR	MODEL	CFM	FAN H.P.	RATIO
G.F.					
A'	MIKROPULSAIRE	720KTR-10	60,000	200	7.08
B'	"	196TRH-8-20	10,000	25	5.41
C'	"	"	"	"	"
D'	"	"	"	"	"
E'	"	"	"	"	"
D.R					
A	MIKROPULSAIRE	720KTRH-10	100,000	300	11.8
B	"	221STRH-8-20	15,000	40	7.2
C	"	"	"	"	7.2
D	"	289TRH-8-20	"	"	5.51
E	"	"	"	"	5.51
F	"	720KTR-10	50,000	150	5.9
G	"	221STRH-8-20	15,000	40	7.2
H	"		"	"	7.2
J	DUCON	45/102	30,000	200	-
K	"	"	"	200	-
L	MIKROPULSAIRE	221STRH-8-20	15,000	40	7.2

Supplement No. 4

AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL

SUPPLEMENT NO. 5

Dust Collectors - B, C, G, H, L

Manufacturer Data Sheet

10 Grains/SCF Maximum Input
0.02 Grains/SCF Maximum Output

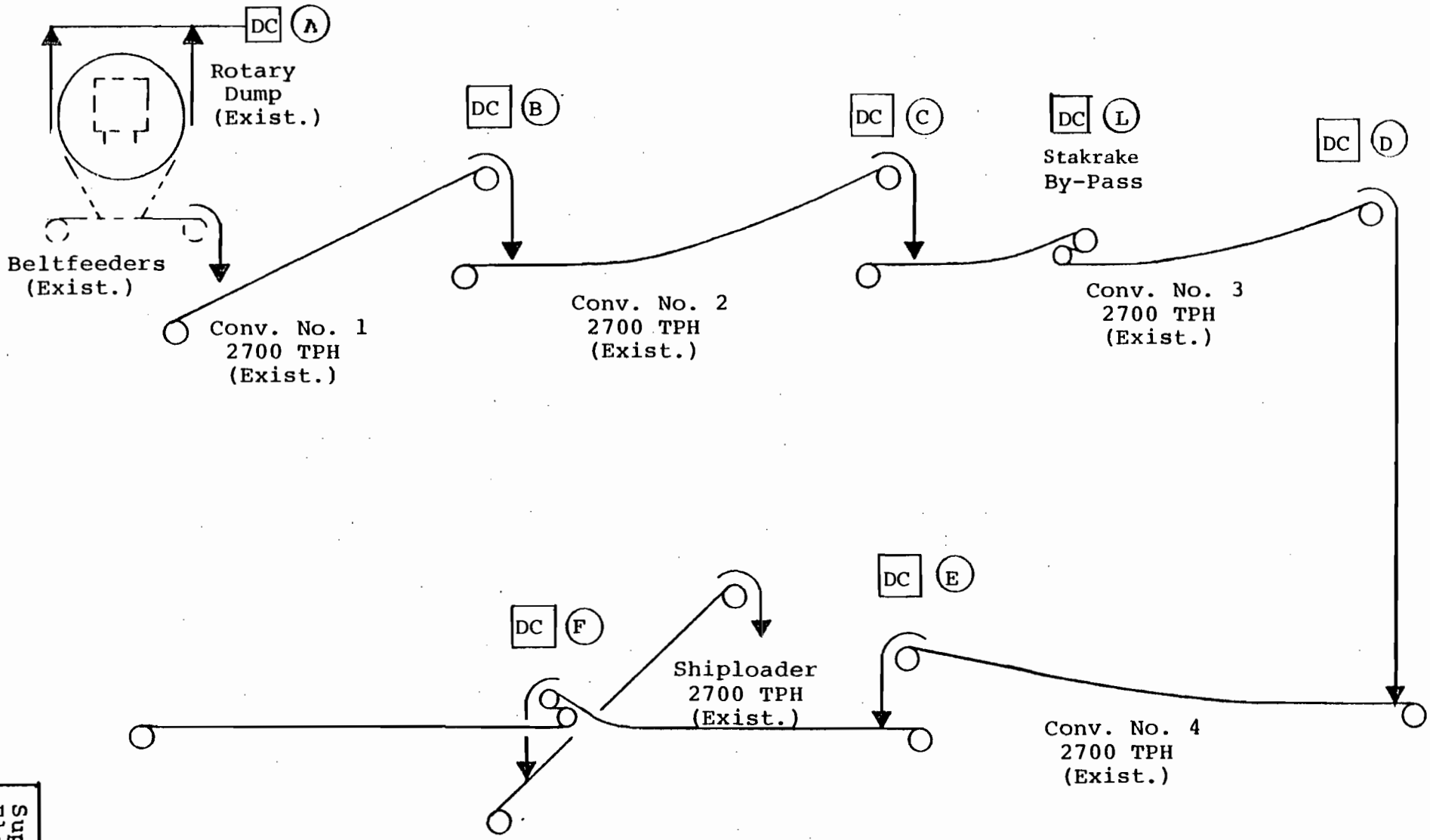
$\frac{(10-0.02)}{(10)}(100) = 99.8\%$ Efficiency

From Supplement No. 2:

Input = 19.16 lb/Minute/Dust Collector

(19.16)(60) = 1149 lb/Hr. = Potential Emission

Actual Emissions = Potential (1-Efficiency)
= (1149)(1-0.998)
= 2.30 lb/Hr.

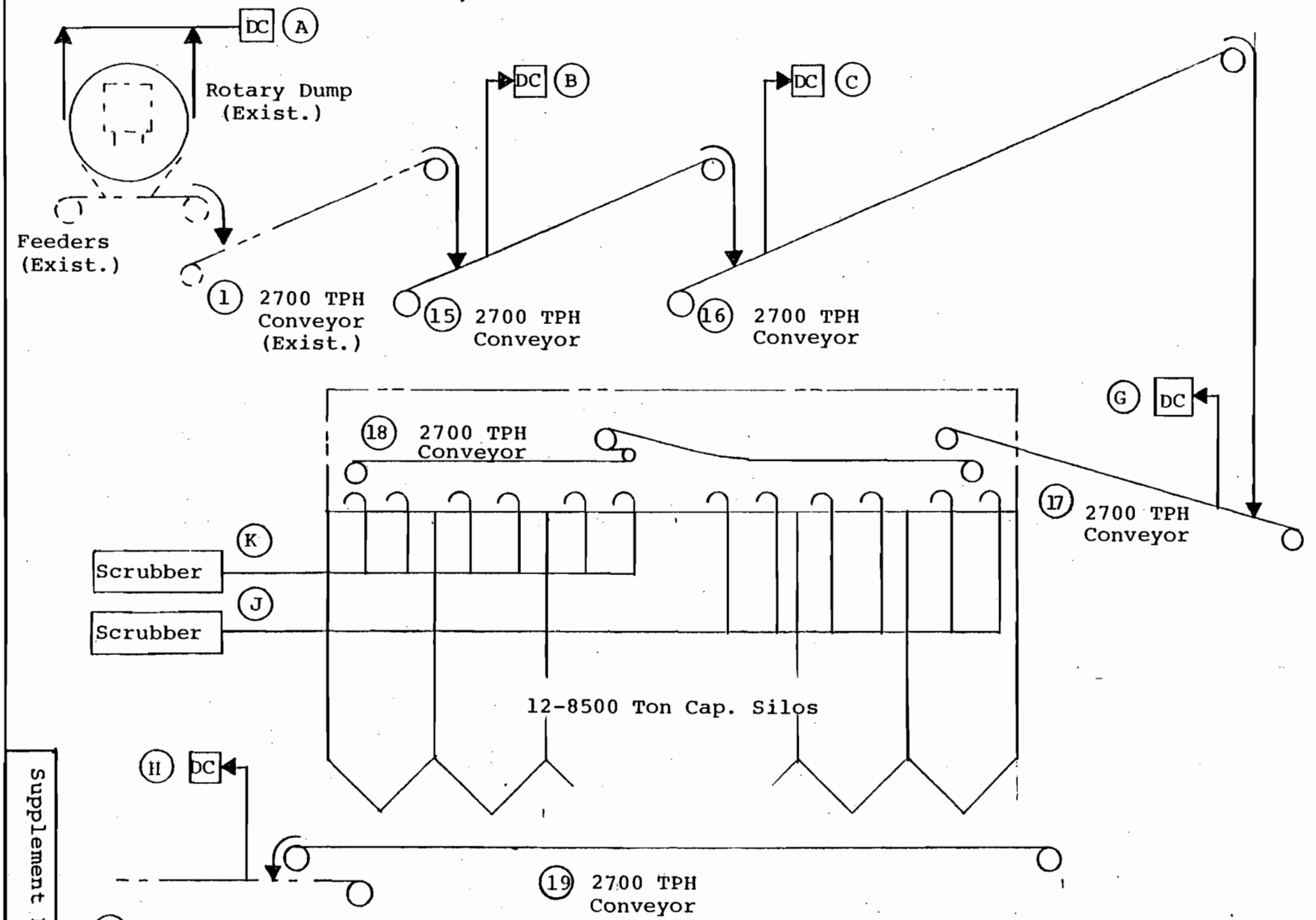


Dust Collectors
D, E & F will replace
existing Dust collectors

DIRECT LOADING
TO SHIP

Supplement No. 6
Flow Diagram

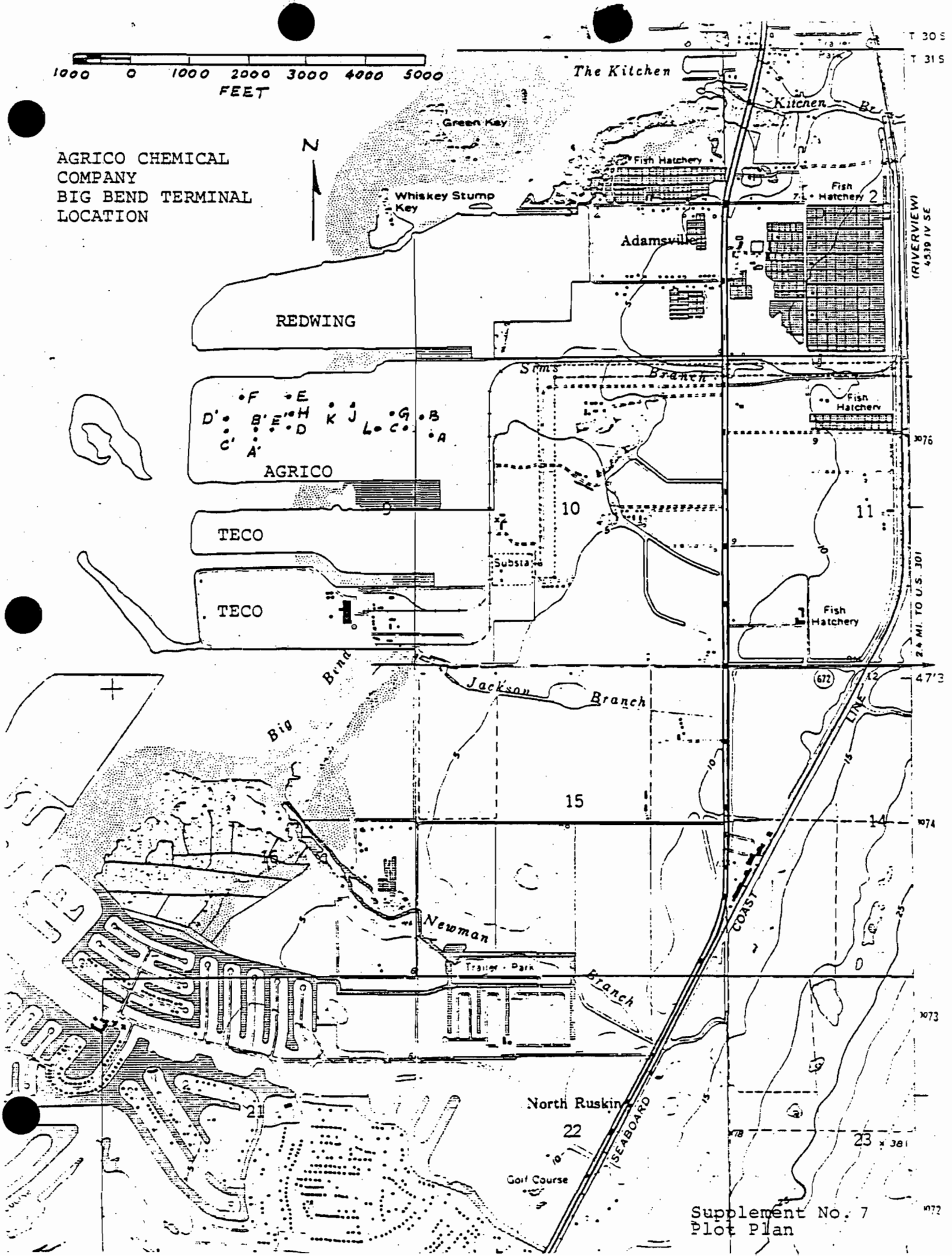
AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL



LOADING TO STORAGE SYSTEM

AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL

Supplement No. 6



Supplement No. 7
Plot Plan

Agrico
ONE OF THE WILLIAMS COMPANIES

May 21, 1982

DER
MAY 24 1982
BAQM

Mr. Steve Smallwood
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32301

Re Agrico Chemical Company's Big Bend Terminal
Request for PSD Negative Determination

Dear Sir:

Pursuant to 40 CFR §§ 52.21 and 52.530, Agrico Chemical Company hereby requests a determination that PSD review is not required prior to construction of a prilled sulfur terminal at our Big Bend Terminal in Hillsborough County, Florida.

The basis for this request is twofold. First, Agrico's Big Bend is not currently a "major stationary source" as that term is defined in 40 CFR § 52.21(b)(1). The terminal handles phosphate rock and currently emits 1.6 tons per year of particulate matter (see, Agrico's Air Pollutant Emissions Report for calendar year 1981, Hillsborough County Environmental Protection Commission). This is well below the 250 tons per year threshhold set in the definition.

Second, the proposed addition could add a maximum of 21.9 tons per year of particulates. (This limit was derived from conditions established by DER in its issuance of a Construction Permit, No. AC 29-5954, issued February 5, 1982, for the Terminal: Total particulate emissions shall not exceed 5 lbs/hr. This addition is clearly not major in its own right based on the following calculations.

$$365 \times 24 = 8760 \text{ Hrs} \times 5 \text{ lbs/hr} = \frac{43,800}{2,000} = 21.9 \text{ TPY Total Allowable Emissions.}$$

Based upon this information, Agrico requests a determination that PSD review is not required prior to construction of its proposed additional facilities.

Please review and confirm this request at the earliest possible date. If we can provide any further data, please do not hesitate to call.

Sincerely,

H. W. Long, Jr.
Manager
Environmental Control

HWL,jr./jm
cc: E. P. de la Parte, Esq.
M. G. Livingood, Esq.

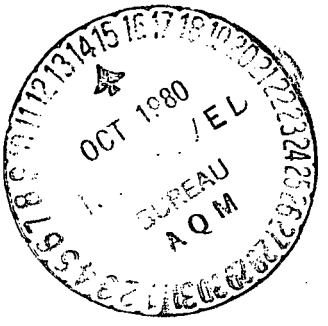
Agrico Mining Company—A Division of Agrico Chemical Company • P. O. Box 1110 • Mulberry, Florida 33860
813/428-1431

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

OCT 7 1980



REF: 4AH-AF

Mr. Harold Long, Jr., Manager
Environmental Control
Agrico Chemical Company
P. O. Box 1110
Mulberry, Florida 33860

Re: Modification to Big Bend
Phosphate Rock Shipping
Terminal, PSD-FL-045

Dear Mr. Long:

The applicability of the referenced construction under Federal Prevention of Significant Deterioration (PSD) regulations (40 CFR 52.21) has been reevaluated in accordance with the revised regulation promulgated August 7, 1980. The project has been determined not to require PSD preconstruction review. Processing of your application therefore has ceased.

The determination is based on the information contained in your application (PSD-FL-045) and associated correspondence. This information shows the post-modification potential to emit all emissions units at the terminal to equal 36.9 tons per year (see attached table). The calculation assumes design maximum capacity for each unit. The limiting effect of federally enforceable restrictions on operating hours contained in the state construction permits also are considered in the calculation. Further, the potential emission rate is considered to equal the permitted allowable emission rate determined during the State of Florida's site-specific preconstruction review process.

The proposed modification is an expansion and is expected to increase actual particulate emissions. For this reason, the post-modification potential to emit of the source equals or exceeds the potential to emit of the existing source (pre-modification). All existing and proposed emissions units are accounted for in the calculation of potential to emit.

The previous allowable emission rates for certain existing emissions units which greatly exceeded the potential emission rate are not considered in calculating the source's potential to emit. In addition, quantifiable fugitive emissions are not considered in determining PSD applicability for this source. The source is defined as a phosphate rock shipping terminal and therefore consistent with 40 CFR 52.21(i)(4), the source is exempt from considering fugitive emissions in the potential emissions calculation used for comparison with the 100/250 ton per year emissions criterion which triggers PSD review.

The existing source's potential to emit (≤36.9 tons per year) is less than the 250 ton per year criterion applicable to this source category. For this reason, the existing source is not a major stationary source. Moreover, the proposed modification does not increase potential emissions by greater than 250 tons per year and does not itself constitute a major stationary source. Therefore, the proposed modification is not subject to PSD pre-construction review.

This determination applies only to the requirements of 40 CFR 52.21 and has no effect on other permits that may be required of the source. You should also be aware that changes in the state permit conditions and any future modifications to the source will be considered separately for possible PSD review requirements. Should you have any questions regarding this determination contact Mr. K. Williams, Chief, New Source Review at 404/881-4552 or Mr. J. Shumaker of TRW Inc. at 919/541-9100. TRW Inc. is under contract to EPA and its personnel are acting as authorized representatives of the Agency in providing aid to the Region IV PSD program.

Sincerely yours,

Tommie A. Gibbs, Chief
Air Facilities Branch

TAG:JLS:jbt

Attachment

cc: Steve Smallwood
Florida Department of Environmental Regulation

POTENTIAL TO EMIT
AGRICO CHEMICAL
BIG BEND TERMINAL

Emissions Units	Control Equipment	Facility	Pounds/hour	Hours/year	Tons/year
Dry Rock Dump to Conveyor No. 1	Dust Collector A	A	15.3	1037	8.0
Conveyor 1 to Conveyor 2 or Conveyor 15	Dust Collector B	B	2.3	1037	1.2
Conveyor 2 to Conveyor 3, and Conveyor 15 to Conveyor 16	Dust Collector C	C	2.3	1037	1.2
Conveyor 3 or 14 to Conveyor 4	Dust Collector D	D	2.3	1570	1.8
Conveyor 4 to Conveyor 5	Dust Collector E	E	2.3	1570	1.8
Shiploader to Ship or Barge	Dust Collector F	F	7.7	1570	6.0
Conveyor 16 to Conveyor 17	Dust Collector G	G	2.3	1037	1.2
Conveyor 19 to Conveyor 4	Dust Collector H	H	2.3	1037	1.2
Fertilizer Rail and Truck (New) to Conveyor 20	Dust Collector A'	A'	9.2	800	3.7
Conveyor 20 to Conveyors 21 and 28	Dust Collector B'	B'	1.5	800	0.6
Conveyor 21 to Conveyor 22	Dust Collector C'	C'	1.5	800	0.6
Conveyor 22 to Conveyor 23	Dust Collector D'	D'	1.5	800	0.6
Conveyor 28 to Conveyor 29	Dust Collector E'	E'	1.5	800	0.6
Conveyor 17 to Conveyor 18	Scrubber J	J	6.8	1037	3.6
Conveyor 18 to Silos	Scrubber K	K	6.8	1037	3.6
Stackrake bypass (Conveyor 3)	Dust Collector L	L	2.3	1037	1.2
Conveyor 29 to Conveyor 14	Inside Building		0	-	-
Conveyor 14 to Conveyor 27	Inside Building		0	-	-
Conveyor 27 to Conveyor 26	Inside Building		0	-	-
Conveyor 12 to Conveyor 25	Inside Building		0	-	-
Conveyor 25 to Conveyor 24	Inside Building		0	-	-
			67.9		36.9

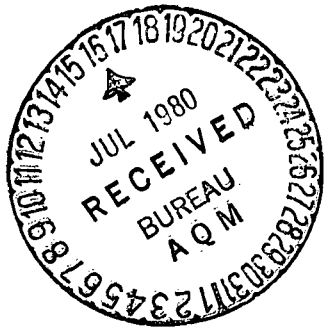
[a]Potential to emit is limited by federally enforceable restrictions contained in the conditions of Florida permits numbers AC 29-25142, 25149, and 25160 through 25164.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30308

JUL 8 1980



REF: 4AH-AF

Mr. Steve Smallwood, Chief
Bureau of Air Quality Management
Division of Environmental Programs
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

Re: Agrico Chemical Company
Big Bend Phosphate Terminal
PSD-FL-045

Dear Mr. Smallwood:

Enclosed for your review and comment are the Public Notice and Preliminary PSD Determination for the Agrico Chemical Company's proposed modification to the Big Bend Terminal, south of Tampa, Florida. The public notice will appear in a local newspaper, The Tampa Tribune, in the near future.

Please let my office know if you have comments or questions regarding this determination. You may contact Mr. Kent Williams of my staff at 404/881-4552 or Mr. Jeffrey Shumaker of TRW Inc. at 919/541-9100. TRW Inc. is under contract to EPA, and TRW personnel are acting as authorized representatives of the Agency in providing aid to the Region IV PSD review program.

Sincerely,

Tommie A. Gibbs

Tommie A. Gibbs, Chief
Air Facilities Branch

TAG:JLS:jt

Enclosure

PUBLIC NOTICE

PSD-FL-045

A modification to an air pollution source is proposed for construction by the Agrico Chemical Company near the town of Gibsonton in Hillsborough County, Florida. The modification is to the Big Bend Phosphate Terminal. The modification will allow handling of dry phosphate rock and an increased amount of fertilizer.

The proposed construction has been reviewed by the U. S. Environmental Protection Agency (EPA) under Federal Prevention of Significant Deterioration (PSD) Regulations (40 CFR 52.21), and EPA has made a Preliminary Determination that the construction can be approved provided certain conditions are met. A summary of the basis for this determination and the application for a permit submitted by Agrico are available for public review at: Hillsborough County Environmental Protection Commission, 1900 9th Avenue, Tampa, Florida 33605.

The allowable emissions of particulates emitted from this modification are less than 50 tons per year, 1000 pounds per day, and 100 pounds per hour. Potential emissions of no other pollutants exceed 100 tons per year. Therefore, air impact analysis are not required, and the increment consumed by the source was not determined.

Any person may submit written comments to EPA regarding the proposed modification. All comments, postmarked not later than 30 days from the date of this notice, will be considered by EPA in making a Final Determination regarding approval for construction of this source. These comments will be made available for public review at the above location. Furthermore, a public hearing can be requested by any person. Such requests should be submitted within 15 days of the date of this notice. Letters should be addressed to:

Mr. Tommie A. Gibbs, Chief
Air Facilities Branch
U.S. Environmental Protection Agency
345 Courtland Street, NE
Atlanta, Georgia 30308

PSD-FL-045

PRELIMINARY DETERMINATION

I. Applicant

Agrico Chemical Company
P. O. Box 1110
Mulberry, Florida 33860

II. Location

The proposed modification is located at the Agrico Big Bend Terminal on U.S. 41, approximately 3 1/2 miles south of Gibsonton, Florida in Hillsborough County. The UTM coordinates are: Zone 17, 361.55 km East and 3076.20 km North.

III. Project Description

The applicant proposes to modify its existing phosphate rock terminal to receive dry phosphate rock by railcar, transfer to dry rock storage, reclaim from storage, and transfer to ships and barges. The system also will allow transfer directly from receiving to shipping. The throughput of dry phosphate rock will be 2.8 million tons per year.

The applicant also proposes to increase the handling of phosphate fertilizer at the terminal from 400,000 tons per year to 800,000 tons per year.

The equipment used to effect the various material transfers, and the maximum operating rates are summarized in Table 1. The use of existing equipment to handle dry rock constitutes increased potential TSP emissions, because the dry rock generates much more particulate than the wet rock.

Particulate emissions largely are generated between conveyors as the materials drop from one conveyor to another. Table 2 summarizes the location of the various dust collectors. Dust collectors D, E, and F replace existing collectors 2, 3, and 4 respectively. Dust collector 1 remains as an existing unit while all others are new facilities.

IV. Source Impact Analysis

The proposed modification has the potential to emit (uncontrolled) greater than 100 tons per year of particulates (TSP). This is shown in Table 3 as the total of 16,641 tons per year (allowance has been made for the reduced operating hours permitted). Therefore, in accordance with the provisions of Federal Regulations 40 CFR Part 52.21 promulgated

TABLE 1

Project Description - Materials Handling

Process	Facility	Capacity (tons/hr)	New or Existing[b]
Receiving of Dry Phosphate Rock			
	Railcar Dump		Existing
	Conveyor No. 1	2700	Existing
Dry Rock to Storage System (from Conveyor No. 1)			
	Conveyor No. 15	2700	New
	Conveyor No. 16	2700	New
	Conveyor No. 17	2700	New
	Conveyor No. 18	2700	New
	Twelve Storage Silos	8500[a]	New
Dry Rock from Storage (from Silos)			
	Conveyor No. 19	2700	New
	Conveyor No. 4	2700	Existing
Dry Rock Receiving to Shipping (from Conveyor No. 1)			
	Conveyor No. 2	2700	Existing
	Conveyor No. 3[c]	2700	Existing
	Conveyor No. 4	2700	Existing
Ship or Barge loading (from Conveyor No. 4)			
	Conveyor No. 5	2700	Existing
	Shiploader	2700	Existing
Receiving of Fertilizer (New)[d]			
	Rail and Truck Dump	500	New
	Conveyor No. 20	500	New
Fertilizer to Storage (from Conveyor No. 20)			
	Conveyor No. 21	500	New
	Conveyor No. 22	500	New
	Conveyor No. 23	500	New
Fertilizer - Receiving to Shipping (from Conveyor No. 20)			
	Conveyor No. 28	500	New
	Conveyor No. 29	500	New
	Conveyor No. 14	1500	Existing
	Conveyor No. 4	2700	Existing

[a]Tons storage per silo

[b]Dry Phosphate Rock is a new material with a greater potential to emit than the wet rock permitted on existing facilities.

[c]By-pass stakrake (to existing exterior wet rock storage).

[d]Existing Fertilizer receiving, handling and storage not listed since no new potential from these sources.

TABLE 2

Project Description - Emissions and Controls

Emitting Facilities	Control Equipment
Dry Rock Dump to Conveyor No. 1	Dust Collector A
Conveyor 1 to Conveyor 2 or Conveyor 15	Dust Collector B
Conveyor 2 to Conveyor 3, and Conveyor 15 to Conveyor 16	Dust Collector C
Stackrake bypass (Conveyor 3)	Dust Collector L
Conveyor 3 or 14 to Conveyor 4	Dust Collector D
Conveyor 4 to Conveyor 5	Dust Collector E
Shiploader to Ship or Barge	Dust Collector F
Conveyor 16 to Conveyor 17	Dust Collector G
Conveyor 17 to Conveyor 18,and Conveyor 18 to Silos	Scrubbers J and K
Conveyor 19 to Conveyor 4	Dust Collector H
Fertilizer Rail and Truck (New) to Conveyor 20	Dust Collector A'
Conveyor 20 to Conveyors 21 and 28	Dust Collector B'
Conveyor 21 to Conveyor 22	Dust Collector C'
Conveyor 28 to Conveyor 29	Dust Collector E'
Conveyor 22 to Conveyor 23	Dust Collector D'
Conveyor 29 to Conveyor 14	Inside Building
Conveyor 14 to Conveyor 27	Inside Building
Conveyor 27 to Conveyor 26	Inside Building
Conveyor 12 to Conveyor 25	Inside Building
Conveyor 25 to Conveyor 24	Inside Building

TABLE 3

Summary of Applicability to Prevention
of Significant Deterioration Review
Under Existing and Proposed Regulations

Control Facility	(Uncontrolled) Pounds/hour	Permitted[a] Hours/yr	Potential Uncontrolled Tons/yr	Allowable Controlled Pounds/hr
A	7663	1037	3973	15.3
B	1149	1037	596	2.3
C	1149	1037	596	2.3
D	1149	1570	902	2.3
E	1149	1570	902	2.3
F	3131	1570	2458	7.7
G	1149	1037	596	2.3
H	1149	1037	596	2.3
L	1149	1037	596	2.3
A'	4595	800	1838	9.2
B'	766	800	306	1.5
C'	766	800	306	1.5
D'	766	800	306	1.5
E'	766	800	306	1.5
J	2279	1037	1182	6.8
K	2279	1037	1182	6.8
			Total 16,641	67.9

[a] Permitted operating hours are controlled by Florida State Permits, and have been proposed by the applicant to be a condition of this PSD permit to ensure applicability of reduced PSD review.

June 19, 1978, Prevention of Significant Deterioration (PSD) review is required for this pollutant.

The application also was reviewed under the partial stay of PSD regulations, published February 5, 1980 and the proposed revisions of the PSD regulations referenced in that partial stay. It was determined that the exemption outlined in the partial stay does not apply and the proposed modification is subject to PSD review because:

1. The proposed modification results in potential to emit, as defined in PSD regulations proposed September 5, 1979, greater than 250 tons per year. The allowable (controlled) emissions shown in Table 3 as 67.9 pounds per hour at the maximum potential operating time of 8760 hours per year result in 297 tons per year of potential to emit.

2. Contemporaneous reductions due to the shutdown of dust collectors 2, 3, and 4 have been estimated as 9 pounds per hour (39 tons per year). These dust collectors have current Florida permits which have allowable emissions 161.46 pounds per hour (707 tons per year). These allowable emissions were based upon the State of Florida process weight rule and are considered by EPA to be unrealistically high for actual emissions handling wet rock and the capacity of 400,000 tons per year of granular fertilizer. No allowance was made for a reduction in allowable emissions from dust collector 1 from previously permitted 44.19 pounds per hour to 5 pounds per hour since this was not considered to represent a reduction of actual emissions. (See section IVB for further discussion).

3. The net potential to emit is 297 minus 39 equals 258 tons per year of controlled TSP emissions which classifies the source as a major stationary source.

TSP is the only regulated pollutant subject to PSD review. No other regulated pollutants are emitted in significant quantities by the modified facilities.

Full PSD review consists of:

A. Control Technology Review

B. Air Quality Review

1. Impact upon Ambient Air Quality

2. Impact upon Increment

3. Impact upon Soils, Visibility and Vegetation

4. Impact upon Class I areas.

C. Growth Analysis

Table 4 summarizes allowable emission and permitted operating times which determine the level of PSD review required under the PSD regulations.

The total allowable emissions are less than 100 pounds per hour and 50 tons per year. The applicant has shown that scheduling of rail and truck unloading and ship loading of both dry rock and fertilizer simultaneously would make emissions of 1000 pounds per day highly improbable even though 1600 pounds per day is theoretically possible. The applicant has proposed a further record-keeping condition be placed upon his Florida permits (and made a condition of this Federal PSD permit) to ensure daily emissions are maintained below 1000 pounds. Therefore, consistent with the provisions of 40 CFR 52.21 (j)(2) and (k)(1)(ii) PSD review is limited to:

A. Ensuring compliance with State Implementation Plans (SIP) and Federal Regulations (40 CFR parts 60 and 61), and

B. Impacts upon Class I areas and upon areas of known increment violation.

A. Control Technology Review

Although these facilities are exempt from a Best Available Control Technology (BACT) review, they are required to meet all applicable emission limits and standards of performance under the Florida State Implementation Plan (SIP) and Federal Regulations (40 CFR Parts 60 and 61) consistent with paragraph (i) of 40 CFR 52.21.

The emission limits and restrictions on operating time have been summarized in Table 4. These are permit conditions on State of Florida Permits under the Florida SIP. These limits and time restrictions also

TABLE 4

Summary of Allowable TSP Emission, and Limits on Operating Time[a]

Facility	Pounds/hour	Hours/year	Tons/year
A	15.3	1037	8.0
B	2.3	1037	1.2
C	2.3	1037	1.2
D	2.3	1570	1.8
E	2.3	1570	1.8
F	7.7	1570	6.0
G	2.3	1037	1.2
H	2.3	1037	1.2
L	2.3	1037	1.2
A'	9.2	800	3.7
B'	1.5	800	0.6
C'	1.5	800	0.6
D'	1.5	800	0.6
E'	1.5	800	0.6
J	6.8	1037	3.6
K	6.8	1037	3.6
	Total 67.9		36.3

[a] Conditions of Florida Permits Numbers AC 29-25142, 25149, 25160 thru 25164, and conditions of this PSD permit (Section V).

have been proposed by the applicant as conditions of this PSD permit to ensure the exemption from the full PSD review discussed above.

No Federal regulations (40 CFR Parts 60 and 61) are applicable.

To achieve the emissions control required the applicant proposes to install fifteen baghouse dust collectors designed to yield maximum outlet loadings of 0.02 grains per dry standard cubic foot (99.8% efficient), and two wet scrubbers designed to yield maximum outlet loadings of 0.03 grains per dry standard cubic foot (99.7% efficient). The location and identity of these control facilities have been summarized in Table 2 with allowable emissions summarized in Table 4.

All new and existing conveyors are to be covered to eliminate potential for fugitive TSP generation. The applicant has proposed that no fugitive TSP will be emitted. To ensure this condition 5 of Section V has been imposed.

B. Air Quality Review

Although exempt from a full Air Quality Review the impact upon Class I areas and any areas of known increment violation must be reviewed.

The nearest Class I area is the Chassahowitzka National Wildlife Refuge located about 90 Km to the north-northwest. The emitting stacks on this modification are all relatively low altitude source points which yield maximum ground concentration impacts in close proximity to the source. Further, the impact area for this source is on the order of 5 kilometers. Therefore, at 90 kilometers the emissions from the proposed modification is anticipated to pose no threat to the Class I area.

The impact of this project upon the TSP non-attainment area surrounding Tampa in Hillsborough County was shown to be less than 1 ug/m^3 (annual average) and 4.7 ug/m^3 (24 hour average). These are below the significance levels of 1 and 5 respectively for these averaging periods published in the preamble to 40 CFR 52.21.

The modification impacts no known areas of Class II increment violation. A possible increment violation has been modeled in a PSD application submitted by Tampa Electric Company (PSD-FL-040). This had been attributed to the use in the model analysis of the allowable (by Florida permit conditions) emissions (901 tons per year) from Agrico dust collectors 1 through 4. This modeled possible increment violation is eliminated by this modification because all but 3.6 tons per year of those previously permitted 901 tons per year of allowable emissions are eliminated by this modification. This is consistent with the previously discussed estimate of contemporaneous reductions (shut down of dust collectors 2, 3, and 4).

V. Conclusion

EPA Region IV proposes a preliminary determination of approval for construction of the modification to the Agrico Chemical Company, Big Bend Terminal proposed in their application dated October 22, 1979 as amended by additional information submitted March 14, 1980 and a letter dated March 19, 1980. The conditions set forth in the permit are as follows:

1. The modification and the facilities constructed shall be in accordance with the capacities and specifications summarized in Table 1 and stated in the completed application.

2. The applicant shall comply with the allowable emission and operating hour limits summarized in Table 4. Further, the applicant shall maintain a log with daily entries showing operating time for each emission point listed in Table 2 and a summation of the total daily allowable emissions from the new and modified facilities. The total allowable emissions shall not exceed 1000 pounds in any single day. This daily log shall also contain accumulated annual operating hours to demonstrate compliance with the annual limits of Table 4. This log shall be available for inspection for a period of at least 2 years.

3. Compliance with all hourly emission limits (Table 4) shall be determined by performance tests scheduled in accordance with General Conditions attached. The performance tests shall be in accordance with the provisions of reference methods in appendix A of 40 CFR 60, except as provided under 40 CFR 60.8 (b), as follows:

   a. Method 5 or Method 17 for concentration of particulate matter and associated moisture content;

   b. Method 1 for sample and velocity traverses;

   c. Method 2 for velocity and volumetric flow rate;

   d. Method 3 for gas analysis (if necessary); and

   e. Method 9 for visible emissions.

   For Method 5, the sampling probe and filter holder may be operated without heaters. The sampling time for each run, using Method 5 or Method 17, shall be at least 60 minutes. The minimum sample volume shall be 0.85 dscm (ca. 30 dscf).

   A compliance test shall consist of the average of 3 consecutive one-hour runs.

   The conveyors shall be loaded within 10 percent of maximum capacity during sampling.

4. Visible emissions test results shall be recorded from the 17 controlled emission points. These observations shall be made concurrent with the performance tests of condition 4 above.

5. Fugitive emissions from this source shall not occur (as stated in the application). To ensure compliance no opacity of 5% or greater, as measured by Method 9, shall be allowed.

6. The source shall comply with the requirements of the attached General Conditions.

GENERAL CONDITIONS

1. The permittee shall notify the permitting authority in writing of the beginning of construction of the permitted source within 30 days of such action and the estimated date of start-up of operation.

2. The permittee shall notify the permitting authority in writing of the actual start-up of the permitted source within 30 days of such action and the estimated date of demonstration of compliance as required in the specific conditions.

3. Each emission point for which an emission test method is established in this permit shall be tested in order to determine compliance with the emission limitations contained herein within sixty (60) days of achieving the maximum production rate, but in no event later than 180 days after initial start-up of the permitted source. The permittee shall notify the permitting authority of the scheduled date of compliance testing at least thirty (30) days in advance of such test. Compliance test results shall be submitted to the permitting authority within forty-five (45) days after the complete testing. The permittee shall provide (1) sampling ports adequate for test methods applicable to such facility, (2) safe sampling platforms, (3) safe access to sampling platforms, and (4) utilities for sampling and testing equipment.

4. The permittee shall retain records of all information resulting from monitoring activities and information indicating operating parameters as specified in the specific conditions of this permit for a minimum of two (2) years from the date of recording.

5. If, for any reason, the permittee does not comply with or will not be able to comply with the emission limitations specified in this permit, the permittee shall provide the permitting authority with the following information in writing within five (5) days of such conditions:

   (a) description of noncomplying emission(s),

   (b) cause of noncompliance,

   (c) anticipated time the noncompliance is expected to continue or, if corrected, the duration of the period of noncompliance,

   (d) steps taken by the permittee to reduce and eliminate the noncomplying emission,

   and

   (e) steps taken by the permittee to prevent recurrence of the noncomplying emission.

   Failure to provide the above information when appropriate shall constitute a violation of the terms and conditions of this permit. Submittal of this report does not constitute a waiver of the emission limitations contained within this permit.

6. Any change in the information submitted in the application regarding facility emissions or changes in the quantity or quality of materials processed that will result in new or increased emissions must be reported to the permitting authority. If appropriate, modifications to the permit may then be made by the permitting authority to reflect any necessary changes in the permit conditions. In no case are any new or increased emissions allowed that will cause violation of the emission limitations specified herein.

7. In the event of any change in control or ownership of the source described in the permit, the permittee shall notify the succeeding owner of the existence of this permit by letter and forward a copy of such letter to the permitting authority.

8. The permittee shall allow representatives of the State environmental control agency or representatives of the Environmental Protection Agency, upon the the presentation of credentials:

   (a) to enter upon the permittee's premises, or other premises under the control of the permittee, where an air pollutant source is located or in which any records are required to be kept under the terms and conditions of the permit;

   (b) to have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit, or the Act;

   (c) to inspect at reasonable times any monitoring equipment or monitoring method required in this permit;

   (d) to sample at reasonable times any emission of pollutants;

   and

   (e) to perform at reasonable times an operation and maintenance inspection of the permitted source.

9. All correspondence required to be submitted by this permit to the permitting agency shall be mailed to the:

   Chief, Air Facilities Branch
   Air and Hazardous Materials Division
   U.S. Environmental Protection Agency
   Region IV
   345 Courtland Street
   Atlanta, Georgia 30308

10. The conditions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

The emission of any pollutant more frequently or at a level in excess of that authorized by this permit shall constitute a violation of the terms and conditions of this permit.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30308

JUL 8 1980

REF: 4AH-AF

Ms. Sally Thompson, President
Hillsborough Environmental Coalition
Post Office Box 2800
Tampa, Florida 33601

Re: Agrico Chemical Company
PSD-FL-045
Modification to Big Bend
Phosphate Terminal

Dear Ms. Thompson:

Agrico Chemical Company proposes to modify its Big Bend Terminal south of Gibsonton, Florida. The modification will allow handling of dry phosphate rock and an increased amount of fertilizer. Control equipment is to be installed to limit particulate emissions to an hourly allowable maximum. Operating time restrictions limit daily and annual allowable emissions.

The U.S. Environmental Protection Agency has reviewed the proposed modification under the authority of Federal Prevention of Significant Deterioration Regulations (40 CFR 52.21) and reached a preliminary determination of approval with conditions for this construction. This approval applies only to Federal regulatory requirements and has no bearing on State or local functions.

Please also be aware that the attached public notice announcing the Agency's preliminary determination, the availability of pertinent information for public scrutiny and the opportunity for public comment will be published in a local newspaper, The Tampa Tribune. This notice has been mailed to you for your information and in accordance with regulatory requirements. You need take no action unless you wish to comment on the proposed construction.

If you have questions, please feel free to call Mr. Kent Williams of my staff at 404/881-4552 or Mr. Jeffrey L. Shumaker of TRW Inc. at 919/541-9100. TRW is under contract to EPA and its personnel are acting as authorized representatives of the Agency in providing aid to the Region IV PSD review program.

Sincerely yours,

Tommie A. Gibbs

Tommie A. Gibbs, Chief
Air Facilities Branch

Attachment

TAG:JWP:jt

cc FL DER

Letter Also Sent To:

Tampa City Council
3rd Floor
City Hall
Tampa, Florida 33604

Ms. June Noel
State A-95 Coordinator
Florida State Planning and Development Clearinghouse
Office of Planning and Budget
The Capitol
Tallahassee, Florida 32301

Hillsborough County Commission
Hillsborough County Courthouse
Post Office Box 1110
Tampa, Florida 33601

PUBLIC NOTICE

PSD-FL-045

A modification to an air pollution source is proposed for construction by the Agrico Chemical Company near the town of Gibsonton in Hillsborough County, Florida. The modification is to the Big Bend Phosphate Terminal. The modification will allow handling of dry phosphate rock and an increased amount of fertilizer.

The proposed construction has been reviewed by the U. S. Environmental Protection Agency (EPA) under Federal Prevention of Significant Deterioration (PSD) Regulations (40 CFR 52.21), and EPA has made a Preliminary Determination that the construction can be approved provided certain conditions are met. A summary of the basis for this determination and the application for a permit submitted by Agrico are available for public review at: Hillsborough County Environmental Protection Commission, 1900 9th Avenue, Tampa, Florida 33505.

The allowable emissions of particulates emitted from this modification are less than 50 tons per year, 1000 pounds per day, and 100 pounds per hour. Potential emissions of no other pollutants exceed 100 tons per year. Therefore, air impact analysis are not required, and the increment consumed by the source was not determined.

Any person may submit written comments to EPA regarding the proposed modification. All comments, postmarked not later than 30 days from the date of this notice, will be considered by EPA in making a Final Determination regarding approval for construction of this source. These comments will be made available for public review at the above location. Furthermore, a public hearing can be requested by any person. Such requests should be submitted within 15 days of the date of this notice. Letters should be addressed to:

Mr. Tommie A. Gibbs, Chief
Air Facilities Branch
U.S. Environmental Protection Agency
345 Courtland Street, NE
Atlanta, Georgia 30308

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301

BOB GRAHAM
GOVERNOR

JACOB D. VARN
SECRETARY

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

April 14, 1980

Mr. Tom Gibbs, Chief
Air Facilities Branch
Air and Hazardous Materials Division
U.S. EPA, Region IV
Atlanta, Georgia 30308

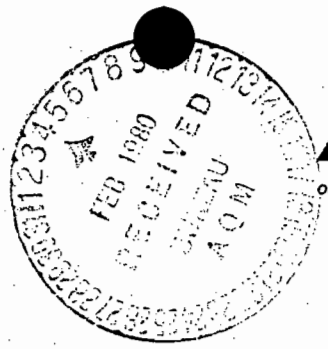
Dear Mr. Gibbs:

Attached please find copies of the Air Construct Permits recently issued by the Bureau of Air Quality Management to Anheuser-Busch, Inc., and Cargill, Inc. Both sources will be located in Duval County.

Sincerely,

M. G. Hodges
Environmental Scientist
Florida Department of Environmental Regulation
Bureau of Air Quality Management

MGH:caa



Agrico
ONE OF THE WILLIAMS COMPANIES

February 1, 1980

Mr. Steve Smallwood, Bureau Chief
Bureau of Air Quality Management
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

Dear Mr. Smallwood:

We have received the originals of the seven construction permits dated January 28, 1980, for our Big Bend Terminal. We note the following typographical errors:

1. Permit No. AC25142, UTM 320.085E should read: UTM 362.085E.

2. Permit No. AC25161, Longitude 82° 21' 25" W should read: 82° 24' 25" W.

3. Permit No. AC25162, UTM 3076.285N should read: 3076.284N.

Please send corrected cover pages for these three permits, or if you approve, we will ink in the corrections.

Please advise.

Sincerely yours,

Harold W. Long, Jr.
Manager, Environmental Control

HWL:gnc

cc: Mr. D. Puchaty, Tampa-DER
Mr. R. T. Schneider, Pridgen
Mr. R. Stewart, Tampa-HCEPC

Agrico Chemical Company • P. O. Box 1110 • Mulberry, Florida 33860
813/428-1431

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301

BOB GRAHAM
GOVERNOR

JACOB D. VARN
SECRETARY

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

February 14, 1980

Mr. Harold W. Long, Jr., Manager
Environmental Control
Agrico Chemical Company
P. O. Box 1110
Mulberry, Florida 33860

Dear Mr. Long:

Attached please find three cover pages which reflect corrections of the typographical errors noted in your letter of February 1, 1980, attached, addressed to Steve Smallwood, Bureau Chief, Bureau of Air Quality Management.

Thank you for calling these errors to our attention.

Sincerely,

Mark G. Hodges
Environmental Scientist

MGH:caa

cc: Mr. D. Puchaty, Tampa, DER
Mr. R. T. Schneider, Pridgen
Mr. R. Stewart, Tampa-HCEPC

Attachments

PS Form 3811, Aug. 1978

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

● SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one).
- ☐ Show to whom and date delivered .... ¢
- ☒ Show to whom, date, and address of delivery .. ¢
- ☐ RESTRICTED DELIVERY
  Show to whom and date delivered .... ¢
- ☐ RESTRICTED DELIVERY.
  Show to whom, date, and address of delivery. $____

(CONSULT POSTMASTER FOR FEES) AGRICO

2. ARTICLE ADDRESSED TO:
MR. D. PUCHATY DIST. MGR. SWD
7601 HWY 301 N
TAMPA, FL. 33610

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.
	466675	

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐ Addressee ☐ Authorized agent
K McArthur

4. DATE OF DELIVERY 1/31/80 POSTMARK
TAMPA, FL PRODUCE STA JAN 31 80 USPS

5. ADDRESS (Complete only if requested)
7601 Hwy 301 N.

6. UNABLE TO DELIVER BECAUSE: Tampa Fla 33610 CLERK'S INITIALS

☆ GPO: 1978-272-382

PS Form 3811, Aug. 1978

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

● SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

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- ☐ Show to whom and date delivered .... ¢
- ☒ Show to whom, date, and address of delivery .. ¢
- ☐ RESTRICTED DELIVERY
  Show to whom and date delivered .... ¢
- ☐ RESTRICTED DELIVERY.
  Show to whom, date, and address of delivery. $____

(CONSULT POSTMASTER FOR FEES) AGRICO

2. ARTICLE ADDRESSED TO:
H.W. LONG, JR., ENV. CNTRL
AGRICO CHEM. CO.
P.O. BOX 1110
MULBERRY, FL. 33860

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.
	466674	

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐ Addressee ☐ Authorized agent

4. DATE OF DELIVERY 1/31/80 POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: CLERK'S INITIALS

☆ GPO: 1978-272-382

● SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

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- ☒ Show to whom, date, and address of delivery .. ¢
- ☐ RESTRICTED DELIVERY
  Show to whom and date delivered .... ¢
- ☐ RESTRICTED DELIVERY.
  Show to whom, date, and address of delivery. $____

(CONSULT POSTMASTER FOR FEES) AGRICO

2. ARTICLE ADDRESSED TO:
ROGER STEWART, DIR.
HCEPC
1900 9th AVE,
TAMPA, FL. 33605

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.
	466676	

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐ Addressee ☐ Authorized agent

4. DATE OF DELIVERY 1-31 POSTMARK JAN 31 1980

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: CLERK'S INITIALS

PS Form 3811, Aug. 1978

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

☆ GPO: 1978-272-382

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301

BOB GRAHAM
GOVERNOR

JACOB D. VARN
SECRETARY

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICANT: Agrico Chemical Company
P. O. Box 1110
Mulberry, Florida 33860

PERMIT/CERTIFICATION
NO. AC 25162

COUNTY: Hillsborough

PROJECT: Upgrade Shiploader Baghouse

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Chapter 17-2 & 17-4, Florida Administrative Code. The above named applicant, hereinafter called Permittee, is hereby authorized to perform the work or operate the facility shown on the approved drawing(s), plans, documents, and specifications attached hereto and made a part hereof and specifically described as follows:

For the construction of a new dust collector to allow the transfer of dry phosphate rock and granular fertilizer. Particulates are to be trapped by a Mikro-Pulsaire Bag-type Dust collector, Model 720 KTR-10.

The project is located at the Agrico Big Bend Terminal near Gibsonton, Florida. The universal transverse mercator and latitude, longitude coordinates are: UTM Zone 17, 361.125E, 3076.284N and 27°48'22"N by 82°24'33"W respectively.

Construction shall be in accordance with the attached permit application and attached plans, documents and drawings except as otherwise noted on page 3, "Specific Conditions".

Attachments are as follows:

1. "Application to Construct Air Pollution Sources", DER form 17-2.122(16).

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions:, and as such are binding upon the permittee and enforceable pursuant to the authority of Section 403.161(1), Florida Statutes. Permittee is hereby placed

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301

BOB GRAHAM
GOVERNOR

JACOB D. VARN
SECRETARY

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICANT: Agrico Chemical Company
P. O. Box 1110
Mulberry, Florida 33860

PERMIT/CERTIFICATION
NO. AC 25161

COUNTY: Hillsborough

PROJECT: Dry Phosphate Rock and Granular Fertilizer Conveying System

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Chapter 17-2 & 17-4, Florida Administrative Code. The above named applicant, hereinafter called Permittee, is hereby authorized to perform the work or operate the facility shown on the approved drawing(s), plans, documents, and specifications attached hereto and made a part hereof and specifically described as follows:

For the construction of upgraded dust collectors on the existing conveying system to allow transshipping of dry phosphate rock and granular fertilizer. Drop points are to be controlled by Mikro-Pulsaire Bag-type Dust Collectors, Model 289TRH-8-20.

The project is located at the Agrico Big Bend Terminal near Gibsonton, Florida. The universal transverse mercator and latitude, longitude coordinates are: UTM Zone 17, 361.339E, 3076.219N and 27°48'19"N by 82°24'25"W, respectively.

Construction shall be in accordance with the attached permit application and attached plans, documents and drawings except as otherwise noted on page 3, "Specific Conditions".

Attachments are as follows:

1. "Application to Construct Air Pollution Sources", DER form 17-1.122(16).

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions:, and as such are binding upon the permittee and enforceable pursuant to the authority of Section 403.161(1), Florida Statutes. Permittee is hereby placed

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BOB GRAHAM
GOVERNOR

JACOB D. VARN
SECRETARY

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICANT: Agrico Chemical Company
P. O. Box 1110
Mulberry, Florida 33860

PERMIT/CERTIFICATION NO. AC 25142

COUNTY: Hillsborough

PROJECT: Dust control equipment on rotary railcar dump.

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Chapter 17-2 & 17-4, Florida Administrative Code. The above named applicant, hereinafter called Permittee, is hereby authorized to perform the work or operate the facility shown on the approved drawing(s), plans, documents, and specifications attached hereto and made a part hereof and specifically described as follows:

For the construction of particulate control equipment to existing railcar dump to enable the terminal to receive and transship dry phosphate rock. Particulate is to be trapped by a Mikro-Pulsaire Bag-Type Dust Collector, Model 720KTRH-10.

The project is located at the Agrico Big Bend Terminal near Gibsonton, Florida. The universal transverse mercator and latitude, longitude coordinates are: UTM Zone 17, 362.085E, 3076.101N and 27°48'15"N by 82°23'57"W respectively.

Construction shall be in accordance with the attached permit application and attached plans, documents and drawings except as otherwise noted on page 3, "Specific Conditions".

Attachments are as follows:

1. "Application to Construct Air Pollution Sources", DER form 17-1.122(16).

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions:, and as such are binding upon the permittee and enforceable pursuant to the authority of Section 403.161(1), Florida Statutes. Permittee is hereby placed

Smallwood, S.

REF: 4AH-AF

Mr. Harold W. Long, Jr.
Manager, Environmental Control
Agrico Chemical Company
P. O. Box 1110
Mulberry, Florida 33860

Re: EPA-PSD-FL-045

Dear Mr. Long:

This letter is in response to your letter of September 11, 1979 to Roger Pfaff of EPA's Air Programs Branch regarding PSD review for your prilled sulfur facility at Big Bend terminal. It is clear from this letter that Agrico did not request federal review of this application. Consequently, this project has been withdrawn from PSD review and review activities will not resume unless initiated by request from Agrico. Further, we understand that such a request is not likely to occur before conclusion of current litigation involving the Florida DER.

Incidently, EPA Region IV has recently undergone a reorganization and all new source review activites, including PSD review, will be performed by staff under my direction. Responsibility has shifted from the Air Programs Branch under Winston Smith to the air Facilities Branch.

Another point of importance is the position expressed in your September 11 letter that the facilities in question will not be subject to PSD review if litigation results in a state permit retroactively effective January 20, 1978. Concerning this position, you should be aware that "major modification," as defined in the existing regulations (40 CFR 52.21), considers increases in a source's potential to emit since August 7, 1977. Your facilities therefore would be subject to PSD review, if they meet the 100/250 ton per year applicability criteria, regardless of the outcome of current litigation.

You may be referring to the exemption clause in paragraph (i) part (3) of the PSD regulations which exempts major sources and modifications from the requirements of paragraphs (j) through (r) conditioned on 1) obtaining permits prior to March 1, 1978, 2) commencing construction before March 7, 1979, and 3) not discontinuing construction for more than 18 months (paraphrased regulation). It is doubtful that your facilities could qualify for this exemption because construction did not commence prior to March 9, 1979, but additional analysis of your individual circumstances would be necessary to make a final determination on this point. It is important to note, however, that this exemption concerns only certain PSD requirements and not the obligation to undergo PSD review.

With this in mind, you may want to consider submitting an application for these facilities to this office before litigation on the state level concludes. Otherwise, additional time will be needed to obtain federal approval for construction. If I or my staff can provide additional information regarding the federal PSD regulations, please don't hesitate to call us at 404/881-4552.

Sincerely yours,

Tommie A. Gibbs
Chief
Air Facilities Branch

Mark - Your copy

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

ACTION NO.

ACTION DUE DATE

	TO: (NAME, OFFICE, LOCATION)	INITIAL	DATE
1	Judy Rogers		
2	OSCAR MARTINEZ (PURCHASING)		
3	FINANCE AND ACCOUNTING		
4.			

REMARKS:

A. Sign All Copies of Invoice.

B. Include Fund Name AR
RCC # 0441
Prog. Module # 2110

C. Return everything to us for payment.

Note: If you need a copy of the proof of advertisement, please keep one (1) original and return a xerox copy for our records.

PH #8-0870

INFORMATION
- REVIEW & RETURN
- REVIEW & FILE
- INITIAL & FORWARD

DISPOSITION
- REVIEW & RESPOND
- PREPARE RESPONSE
- FOR MY SIGNATURE
- FOR YOUR SIGNATURE
- LET'S DISCUSS
- SET UP MEETING
- INVESTIGATE & REPT
- INITIAL & FORWARD
- DISTRIBUTE
- CONCURRENCE
- FOR PROCESSING
- INITIAL & RETURN

FROM: Oscar Martinez

DATE

PHONE

"COURTESY INVOICE - IF PAYING BY INVOICE, PLEASE RETURN A COPY TO INSURE PROPER CREDIT."

DATE	AD NUMBER	DESCRIPTION	INSERT CODE	SPACE	TIMES	RATE	REF. CODE	CHARGES	CREDITS	INVOICE BALANCE
12-26		AFFIDAVIT	M		1		MS	2,00		2,00

Date Invoice Rec'd 1-17-80 By:
Date Goods Services Rec'd By:
Date Goods Inspected/Approved By:

INSERTION CODES
S - SUNDAY
M - MORNING
E - EVENING
SE - SUNDAY & EVE.
ES - EVE. & SUNDAY
ME - MORN. & EVE.
EM - EVE. & MORN.
SME - SUNDAY, MORN. & EVE.

REFERENCE CODES
C - COLOR
AD - ADDITIONAL CHARGE
AR - ART CHARGE
BX - BOX CHARGE
CD - CLASSIFIED DISPLAY AD
CL - CLASSIFIED AD
CM - CREDIT MEMO
CS - CASH
CT - CUT CHARGE
DH - DEAD HEAD
FD - FIVE STAR DISPLAY AD
FN - FUNERAL NOTICE
GN - GENERAL DISPLAY AD
JE - JOURNAL ENTRY
LG - LEGAL AD
MG - MAKE GOOD
MS - MISCELLANEOUS
PO - POLK DISPLAY AD
PH - PHOTO
RD - RETAIL DISPLAY AD
SC - SPACE CHARGE
SP - SPLIT CHARGE
SW - SWITCH CHARGE
TR - TRANSFER

DER

SPACE CODES
IN - INCHES
LN - LINES
WO - WORDS

DEPT OF ENVIRONMENTAL REG
2600 BLAIR STONE RD
FINANCE & ACCOUNTS SECT
TALLAHASSEE FL 32301

ACCT. I.D. 59-1433952

THE TRIBUNE CO.
P. O. BOX 191
TAMPA, FLORIDA 33601
TEL. 272-7709 272-7708

TERMS NET-INVOICE

REGULAR RETAIL ADVERTISING

JAN 17 1980
PURCHASING

ACCOUNT NO. 036397
SALESMAN NO. 10
DATE 12-28-79

0441 2/10 AR

"COURTESY INVOICE - IF PAYING BY INVOICE, PLEASE RETURN A COPY TO INSURE PROPER CREDIT."

DATE	AD NUMBER	DESCRIPTION	INSERT CODE	SPACE	TIMES	RATE	REF. CODE	CHARGES	CREDITS	INVOICE BALANCE
12-26		AFFIDAVIT	M		1		MS	2,00		2,0(
		Date Invoice Rec'd. 1-17-80 BY: [illegible]								
		Date Goods Services / Rec'd.								
		Date Goods Inspected / Appv'd.								

INSERTION CODES
S - SUNDAY; M - MORNING; E - EVENING; SE - SUNDAY & EVE.; ES - EVE. & SUNDAY; ME - MORN. & EVE.; EM - EVE. & MORN.; SME - SUNDAY, MORN. & EVE.

REFERENCE CODES
C - COLOR; AD - ADDITIONAL CHARGE; AR - ART CHARGE; BX - BOX CHARGE; CD - CLASSIFIED DISPLAY AD; CL - CLASSIFIED AD; CM - CREDIT MEMO; CS - CASH; CT - CUT CHARGE; DH - DEAD HEAD; FD - FIVE STAR DISPLAY AD; FN - FUNERAL NOTICE; GM - GENERAL DISPLAY AD; JE - JOURNAL ENTRY; LG - LEGAL AD; MG - MAKE GOOD; MS - MISCELLANEOUS; PD - POLK DISPLAY AD; PH - PHOTO; RD - RETAIL DISPLAY AD; SC - SPACE CHARGE; SP - SPLIT CHARGE; SW - SWITCH CHARGE; TR - TRANSFER

SPACE CODES
IN - INCHES; LN - LINES; WO - WORDS

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TEL. 272-7709 272-7708

TERMS NET-INVOICE

REGULAR RETAIL ADVERTISING

ACCOUNT NO. 036397
SALESMAN NO. 10
DATE 12-28-79

0441 Dud Rogers 2110 AR

"COURTESY INVOICE - IF PAYING BY INVOICE, PLEASE RETURN A COPY TO INSURE PROPER CREDIT."

DATE	AD NUMBER	DESCRIPTION	INSERT CODE	SPACE	TIMES	RATE	REF. CODE	CHARGES	CREDITS	INVOICE BALANCE
12-26		AFFIDAVIT	M		1		MS	2,00		2,0

Date Invoice Rec'd. 1-17-80 By: mw

Date Goods Services Rec'd. ____ By: ____

Date Goods Inspected / Appv'd. ____

INSERTION CODES
S - SUNDAY; M - MORNING; E - EVENING; SE - SUNDAY & EVE.; ES - EVE. & SUNDAY; ME - MORN. & EVE.; EM - EVE. & MORN.; SME - SUNDAY, MORN. & EVE.

REFERENCE CODES
C - COLOR; AD - ADDITIONAL CHARGE; AR - ART CHARGE; BX - BOX CHARGE; CO - CLASSIFIED DISPLAY AD; CL - CLASSIFIED AD; CM - CREDIT MEMO; CS - CASH; CT - CUT CHARGE; DH - DEAD HEAD; FD - FIVE STAR DISPLAY AD; FN - FUNERAL NOTICE; GN - GENERAL DISPLAY AD; JE - JOURNAL ENTRY; LG - LEGAL AD; MG - MAKE GOOD; MS - MISCELLANEOUS; PD - POLK DISPLAY AD; PH - PHOTO; RD - RETAIL DISPLAY AD; SC - SPACE CHARGE; SP - SPLIT CHARGE; SW - SWITCH CHARGE; TR - TRANSFER

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TERMS NET-INVOICE

REGULAR RETAIL ADVERTISING

ACCOUNT NO. 036397
SALESMAN NO. 10
DATE 12-28-79

0441 Ltd Poles 2/10 ER

"COURTESY INVOICE - IF PAYING BY INVOICE, PLEASE RETURN A COPY TO INSURE PROPER CREDIT."

DATE	AD NUMBER	DESCRIPTION	INSERT CODE	SPACE	TIMES	RATE	REF. CODE	CHARGES	CREDITS	INVOICE BALANCE
12-26			M	50.00 LN	1	.8900	LO	44.50		44.50

0441 Judy Rogers 2118 EXT

Date Invoice Rec'd 1-17-80 By: mm

Date Cook's Services / Rec'd ____ By: ____

Date Inspected / Appv'd ____ By: ____

INSERTION CODES
S - SUNDAY
M - MORNING
E - EVENING
SE - SUNDAY & EVE.
ES - EVE. & SUNDAY
ME - MORN. & EVE.
EM - EVE. & MORN.
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TERMS NET-INVOICE

REGULAR RETAIL ADVERTISING

DER
ACCOUNT NO. 036397

SALESMAN NO. 10

JAN 17 1980
DATE 12-28-79

PURCHASING

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12-26			M	50.00LN	1	.8900	LG	44.50		44.5

Date Invoice Rec'd. 1-17-80 By: [illegible]
Date Services / Rec'd. ______ By: ______
Date Goods Inspected / Appv'd. ______ By: ______

INSERTION CODES
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TERMS NET-INVOICE

REGULAR RETAIL ADVERTISING

ACCOUNT NO. 036397
SALESMAN NO. 10
DATE 12-28-79

0441 Gilda Rogers 2/10 KR

"COURTESY INVOICE - IF PAYING BY INVOICE, PLEASE RETURN A COPY TO INSURE PROPER CREDIT."

DATE	AD NUMBER	DESCRIPTION	INSERT CODE	SPACE	TIMES	RATE	REF CODE	CHARGES	CREDITS	INVOICE BALANCE
12-26			M	50.00LN	1	.8900	LG	44.50		44.50

Date Invoice Rec'd 1-17-80 By: mw

Date Goods Services Rec'd. By:

Date Goods Inspected/Appv'd By:

INSERTION CODES

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TALLAHASSEE FL 32301

ACCT. I.D. 59-1433952

THE TRIBUNE CO.
P. O. BOX 191
TAMPA, FLORIDA 33601

TEL. 272-7709 272-7708

TERMS NET-INVOICE

0441 Mark Rogers 2/10 SR

ACCOUNT NO. 036397

SALESMAN NO. 10

DATE 12-28-79

REGULAR RETAIL ADVERTISING

THE TAMPA TRIBUNE

Published Daily
Tampa, Hillsborough County, Florida

State of Florida
County of Hillsborough } ss.

Before the undersigned authority personally appeared G. T. Gleason, who on oath says that he is Controller of The Tampa Tribune, a daily newspaper published at Tampa in Hillsborough County, Florida; that the attached copy of advertisement being a ....

---------------------------LEGAL NOTICE-----------------

in the matter of The Florida Dept. of Environmental Regulation has received an application from and intends to issue seven Construction Permits to Agrico Chemical Co.

was published in said newspaper in the issues of December 26, 1979

Affiant further says that the said The Tampa Tribune is a newspaper published at Tampa, in said Hillsborough County, Florida, and that the said newspaper has heretofore been continuously published in said Hillsborough County, Florida, each day and has been entered as second class mail matter at the post office in Tampa, in said Hillsborough County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he has neither paid nor promised any person, firm, or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

G. T. Gleason

Sworn to and subscribed before me, this ... 9th ... *day of* ... January ..., *A.D. 19* 80.

(SEAL)

Notary Public State of Florida at Large
My Commission Expires Oct. 25, 1982.

Construction Permit

The Florida Department of Environmental Regulation (DER) has received an application from and intends to issue seven Construction Permits to Agrico Chemical Company for construction at, and expansion to, the Phosphate Rock and Granular Fertilizer Handling Facility, located at the Big Bend Terminal, Hillsborough County. No Determination of Best Available Control Technology (BACT) was required. Copies of the Application, Technical Analysis, and Proposed Permits are available for inspection at the following offices.

S.W. District, DER
7601 Hwy 301 N., Tampa

Hillsborough County Env. Protection Commission
7402 N. 56th Street
Tampa

Bureau of Air Quality Mgt., DER
2600 Blair Stone Road
Tallahassee, FL 32301

Persons wishing to comment on this action shall submit comments to Mr. Bill Thomas at the Tallahassee office within 30 days of this notice.

M3531 Dec. 26, 1979

THE TAMPA TRIBUNE

Published Daily
Tampa, Hillsborough County, Florida

State of Florida
County of Hillsborough } ss.

Before the undersigned authority personally appeared G. T. Gleason, who on oath says that he is Controller of The Tampa Tribune, a daily newspaper published at Tampa in Hillsborough County, Florida; that the attached copy of advertisement being a .....

.....LEGAL NOTICE.....

in the matter of The Florida Dept. of Environmental Regulation has received an application from and intends to issue seven Construction Permits to Agrico Chemical Co.

was published in said newspaper in the issues of December 26, 1979

Affiant further says that the said The Tampa Tribune is a newspaper published at Tampa, in said Hillsborough County, Florida, and that the said newspaper has heretofore been continuously published in said Hillsborough County, Florida, each day and has been entered as second class mail matter at the post office in Tampa, in said Hillsborough County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he has neither paid nor promised any person, firm, or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

G. T. Gleason

Sworn to and subscribed before me, this 9th *day of* January, *A.D. 19* 80.

(SEAL)

Notary Public State of Florida at Large
My Commission Expires Oct. 25, 1982.

JAN 4
RECEIVED
Finance & Accts.
D.E.R.

Construction Permit
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Tallahassee, FL 32301
Persons wishing to comment on this action shall submit comments to Mr. Bill Thomas at the Tallahassee office within 30 days of this notice.
M3531 Dec. 26, 1979

DER
JAN 1980
PURCHASING

0441
Julie Rogers
2110
KR

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301

BOB GRAHAM
GOVERNOR

JACOB D. VARN
SECRETARY

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

Tampa Tribune
P.O. Box 191
Tampa, Fl. 33601

12/7/79

Dear Sir:

Re: Legal Advertisement (4
Classified Advertisement ( )

We are forwarding to you a Legal advertisement to be published on the following date (s):

Dec 26, 1979
one time only

Subject Construction Permit

To ensure prompt payment, please send an invoice and one proof of publication, when applicable, to the address below:

Department of Environmental Regulation
PURCHASING OFFICE
2600 Blair Stone Road
Tallahassee, Florida 32301

If you have question, please contact us at 904/488-0870.

Sincerely,

M H Wallace

for Oscar A. Martinez, Director
Purchasing Office

Enclosure: (1)

Construction Permit

The Florida Department of Environmental Regulation (DER) has received an application from and intends to issue seven Construction Permits to Agrico Chemical Company for construction at, and expansion to, the Phosphate Rock and Granular Fertilizer Handling Facility, located at the Big Bend Terminal, Hillsborough County. No Determination of Best Available Control Technology (BACT) was required. Copies of the Application, Technical Analysis, and Proposed Permits are available for inspection at the following Offices.

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2600 Blair Stone Rd.
Tallahassee, Fl 32301

Persons wishing to comment on this action shall submit comments to Mr. Bill Thomas at the Tallahassee office within 30 days of this notice.

Smallwood

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30308

DEC 17 1979

Mr. Harold W. Long, Jr.
Manager, Environmental Control
Agrico Chemical Company
Mining Division
P. O. Box 1110
Mulberry, Florida 33860

Dear Mr. Long,

This letter is to inform you that EPA has reviewed your application PSD FL 010 for the expansion of Agrico's Phosphoric Acid Tank Farm at Big Bend Terminal.

Based on information provided by Agrico in its July 7, 1979 Application to Operate/Construct Air Pollution Sources (as submitted to the Florida Department of Environmental Regulation) and information obtained from the Florida DER, EPA has determined that:

1. There will be no increase in potential emissions of fluoride from the proposed modification such that the 100/250 tons per year applicability criterion could be satisfied.

2. There have been no increases in potential fluoride emissions at Big Bend Terminal since August 7, 1977.

Consequently, this proposed facility does not constitute a major modification and a PSD application is not required for its construction.

Sincerely yours,

ORIGINAL
SIGNED BY

Tommie A. Gibbs, Chief
Air Facilities Branch

cc: W. Rhea
R. L. Tan
P. J. Weller
J. L. Shumaker
File: PSD FL 010

Agrico
ONE OF THE WILLIAMS COMPANIES

October 22, 1979

Mr. Roger Pfaff
U. S. Environmental Protection Agency
Air Programs Branch
345 Courtland Street, N.E.
Atlanta, GA 30308

Re: PSD FL 008 - Expansion at Big Bend Terminal; Dry Phosphate Rock and Granular Fertilizer Handling

Dear Mr. Pfaff:

On September 5, 1979 we wrote to you withdrawing the subject permit application. Again, on September 7, 1979, we responded to the questions you raised concerning that application in your letter of August 29, 1979.

We hereby resubmit our application for PSD review by EPA.

You will note that the modelling study performed by David Buff of ESE, in conformance with DER ground rules, gives Class I and Non-attainment area impacts. Also, allowable emissions are well below 50 tons per year, a Tier I review case.

If you have any questions concerning this submission, please advise.

Very truly yours,

Harold W. Long, Jr.
Manager, Environmental Control

HWLJr/mg
Enclosures

Agrico
ONE OF THE WILLIAMS COMPANIES

October 22, 1979

J. P. Subramani, Ph.D., P.E.
Chief, Bureau of Air Quality Management
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32301

Dear Dr. Subramani:

We withdrew the seven air construction applications for our Big Bend Terminal (originally submitted July 9, 1979) by letter to you on August 22, 1979. In the letter we indicated that we would, in the near future, resubmit on the latest DER permit forms and incorporate a complete and clear response to each item in your "Completeness Evaluation Report."

Enclosed is our resubmission of the seven applications to expand the materials handling capacity of the Big Bend Terminal.

Essentially, these are the same as previously submitted except that a new "L" dust collector has been added to prevent fugitive particulate emissions from No. 3 conveyor belt, and an error in the volume of the "J" and "K" scrubbers was corrected from 60,000 ACFM to the 30,000 ACFM actual fan capacity as specified by the supplier. This latter correction cuts the emissions from these scrubbers in half. Also, in order to have Supplements 2 and 5 be consistent with each other, it was necessary to carry calculations to two decimal places, which changed the emission amounts slightly.

As requested by the DER review team, we have included large, folded blueprints of the Plot Plans that show the approximate location of each dust collector or scrubber emission point. Due to their bulk, we have included only one copy of each to serve as Supplement No. 8 for all permits.

In addition to the required modelling analysis herein incorporated under Tab I, Agrico consents to one year of post-construction HI Vol monitoring for particulate matter at a station to be selected, in the Adamsville area (subject to DER approval) and in the neighborhood of Hillsborough County Station H54 or TECO Stations T5 or T12 if these stations become inoperable at that time.

As previously noted, this proposal will result in development of a joint venture between Agrico and W. R. Grace to be known as Big Bend Terminal Company. However, Agrico will continue as the responsible plant operator.

Also enclosed is the application fee check to the State of Florida DER.

Very truly yours,

Harold W. Long, Jr.
Manager, Environmental Control

HWLJr/bfb
Enclosures
cc: Mr. Joe Griffiths
Hillsborough County EPC

Agrico Chemical Company • P. O. Box 1110 • Mulberry, Florida 33860
813/428-1431

ESE ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.

79 160 001

August 31, 1979

Dr. J.P. Subramani, P.E.
Chief, Bureau of Air Quality Management
State of Florida
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

Dear Dr. Subramani:

At the request of Mr. Harold Long of Agrico Chemical Company, Environmental Science and Engineering, Inc. has obtained available ambient total suspended particulate matter (TSP) data in the vicinity of the Agrico Big Bend Terminal facility. Attached please find a summary of this data. The data have been collected by Tampa Electric Company (TECO) and Hillsborough County (HCEPC), and all TSP stations within about 5 km of Big Bend are included for the years 1977 through the present. Both the monitoring networks of TECO and HCEPC have undergone quality assurance audits by the U.S. EPA.

It is ESE's opinion that there is more than sufficient TSP monitoring data in the vicinity of Big Bend in order to develope suitable annual average and short-term background TSP concentrations to be used in Agrico's modeling evaluation. The fact that there are a total of 9 stations from which historical data are available bear this out. These data will be utilized to develop appropriate, but conservative, background TSP concentrations for the modeling. We would be happy to discuss with you at a later time the background levels we will use and the methodology and justification for use of those values.

Sincerely,

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.

David A. Buff

David A. Buff, P.E.
Group Leader
Air Engineering Meteorology Group

DAB:ai

P.O. BOX 13454 GAINESVILLE, FLORIDA 32604 904/372-3318

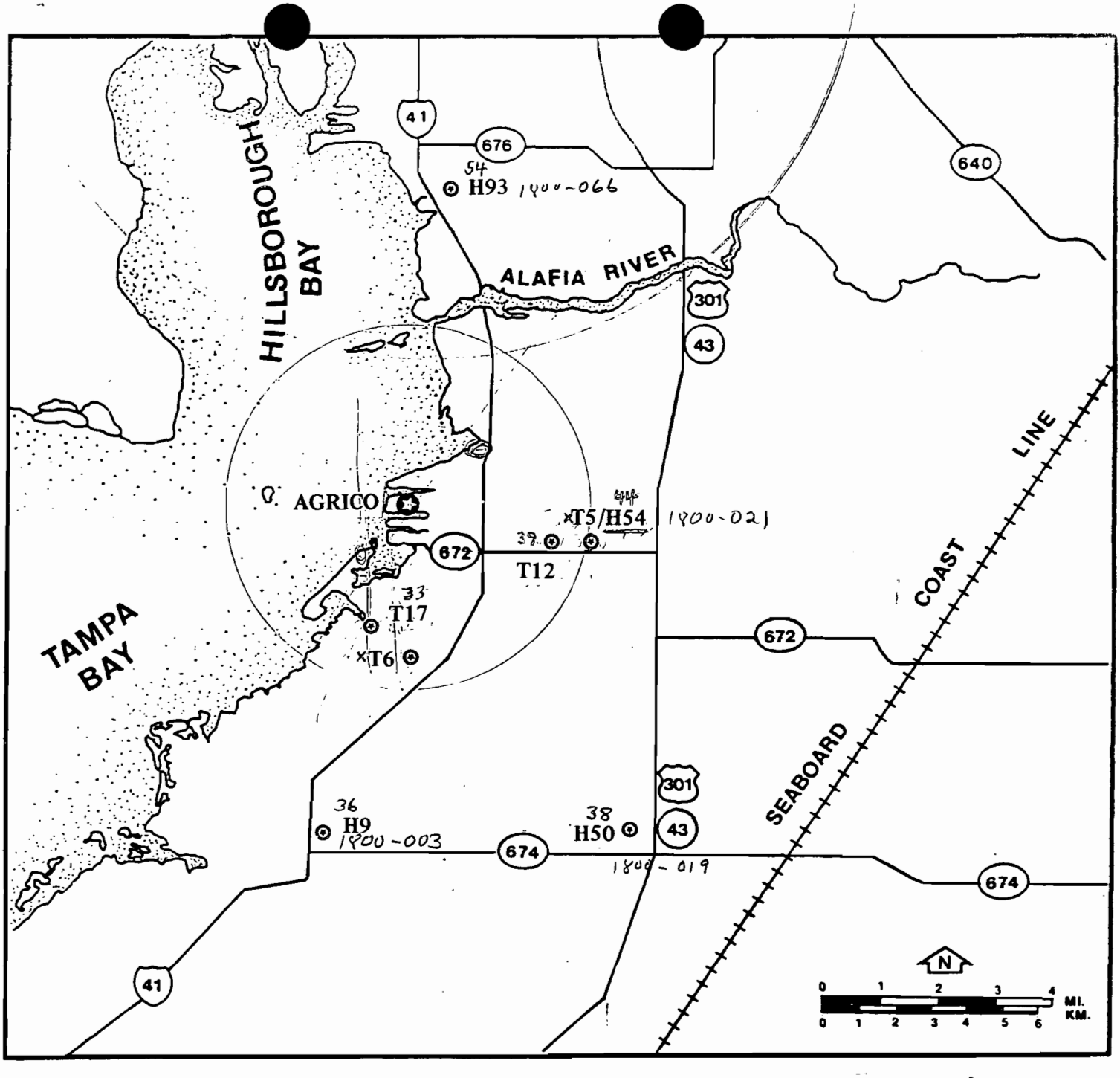


Figure 1. LOCATIONS OF TECO AND HCEPC 24-HOUR AMBIENT TOTAL SUSPENDED PARTICULATE MATTER MONITORING STATIONS WITHIN A 5-MILE RADIUS OF AGRICO BIG BEND TERMINAL

Table 1. Summary of Ambient 24-Hour Total Suspended Particulate Matter Data in the Vicinity of the Agrico Big Bend Facility, 1977-1979.

Station No.	Time Period	Number of Observations	Geometric Mean ($\mu g/m^3$)	Highest 24-Hour ($\mu g/m^3$)	Second-Highest 24-Hour ($\mu g/m^3$)	Standard Geometric Deviation
TECO 5	1/77 - 12/77	30	38	103	87	1.96
TECO 6	1/77 - 12/77	40	37	115	81	1.54
	1/78 - 12/78	15*	39	64	61	1.38
TECO 12	1/77 - 12/77	45	37	111	71	1.48
	1/78 - 12/78	49	39	86	78	1.45
	1/79 - 3/79	11*	48	80	77	1.52
TECO 17	1/78 - 12/78	31	33	79	55	1.37
	1/79 - 3/79	12*	46	77	76	1.52
HCEPC 9 (1800 -003)	1/77 - 12/77	54	31	74	55	1.40
	1/78 - 12/78	61	36	97	70	1.43
	1/79 - 7/79	33*	43	71	66	1.32
HCEPC 50 (-019)	1/77 - 12/77	52	32	79	69	1.47
	1/78 - 12/78	61	38	109	96	1.53
	1/79 - 7/79	35*	46	95	85	1.48
HCEPC 54 (-021)	1/77 - 12/77	58	38	110	103	1.56
	1/78 - 12/78	61	44	131	100	1.50
	1/79 - 7/79	35	55	110	101	1.60
HCEPC 93 (-066)	1/77 - 12/77	56	33	87	83	1.87
	1/78 - 12/78	60	54	188	131	1.56
	1/79 - 7/79	32*	61	108	104	1.33

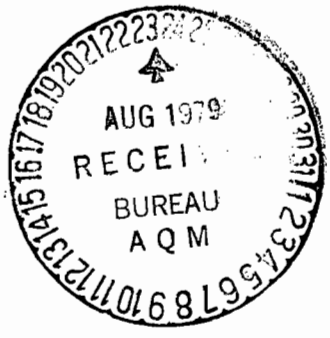
*Sampling not conducted for the entire year

Sources: Environmental Science and Engineering, 1979
Hillsborough County Environmental Protection Commission, 1977, 1978, and 1979.
Tampa Electric Company, 1977, 1978, and 1979.

Agrico

ONE OF THE WILLIAMS COMPANIES

August 22, 1979



J. P. Subramani, Ph.D., P.E.
Chief, Bureau of Air Quality Management
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32301

Dear Dr. Subramani:

On July 9, 1979 Agrico filed seven air construction applications to expand the materials handling capacity of our Big Bend Terminal. On August 7, 1979 we received your review for completeness of our applications. At the time of review, you assigned the following numbers to our applications:

AC 29-21696 (rotary car dump for dry rock)
AC 29-21697 (new conveying system for dry rock)
AC 29-21698 (storage silos for dry rock)
AC 29-21699 (conveyors to shiploader)
AC 29-21700 (shiploader)
AC 29-21701 (granular fertilizer unloading)
AC 29-21702 (granular fertilizer transfer and storage)

Your "Completeness Evaluation Report" of our applications described the applicable rules and air model data requirements. It also contained a list of Technical Discrepancies common to all applications and listed items related to each specific application. Due to the complex nature of our applications, the various rules and your completion report, Agrico requested a meeting with you and your staff. The request was granted and the meeting between Agrico personnel and Bureau personnel was held August 16, 1979 in Tallahassee. This meeting was for Bureau clarification and guidance for Agrico to be able to respond fully and completely to each item of your review and completion report. This was accomplished at the August 16th meeting.

Agrico has reviewed the applications, your staff review and the meeting notes, and has determined that it would be better for Agrico to withdraw the present applications and refile new applications. In doing this, we would refile on the "new" DER permit forms and it would allow us to incorporate a complete and clear response to each item in your completeness report. Therefore, we request that our applications Nos. AC 29-21696 through AC 29-21702 be withdrawn from further review consideration. We will file new applications in the near future.

Agrico Chemical Company • P. O. Box 1110 • Mulberry, Florida 33860
813/428-1431

It is our understanding that the present DER policy on withdrawn applications is that you will retain one informational copy and return all other copies to Agrico. Also, we understand that the permit fee for each application is forfeited.

On July 6, 1979 we also filed applications and fees with Joe Griffiths of the Hillsborough County Environmental Protection Commission. Based on Mr. Griffiths' letter to me of August 6, 1979, he indicated the review of these applications was being handled by the State DER. By copy of this letter we request Mr. Griffiths to return all copies of the applications, except he should retain one copy of each application for informational purposes if he wishes. At the time we refile our applications with the State DER, we will file an informational copy of each application with Mr. Griffiths.

Thank you for all the considerations shown Agrico concerning these applications. If you have any questions, please direct them to my attention.

Very truly yours,

Harold W. Long, Jr.
Manager, Environmental Control

HWLJr/bfb

cc: Mr. Dave Puchaty
Mr. Joe Griffiths
Mr. Ray Schneider
Mr. Harry Holzschuh
Mr. Mike Altenburger
Mr. Ed de la Parte

MEETING: Agrico, Post-Application Incompleteness Conference

DATE: 16 August 1979

LOCATION: BAQM, Tallahassee

ATTENDEES:

NAME	ORGANIZATION
Larry George	Florida DER, BAQM
Bill Thomas	Florida DER, BAQM
J. P. Subramani	Florida DER, BAQM
Steve Smallwood	Florida DER, BAQM
Bill Blommel	Florida DER, BAQM
Mark Hodges	Florida DER, BAQM
Ken Kosky	ESE, Gainesville
Mike Altenburger	W. R. Grace (813-533 2171)
Harold Long	Agrico (813-428 1431)
John Essig	Agrico (813-428 1431)

PROCEEDINGS:

As an introductory briefing, Steve Smallwood presented a detailed illucidation of the March and July nonattainment rules. Addressed were actual changes in the rule and applicability thereof. Determination of source categories and technical details which were affected by the rule changes.

Statewide compliance was addressed. Agrico envisioned no problem and W. R. Grace is involved only as a silent, unobligated partner at this time.

21 December, 1976 was stated as the starting point for the 50 TPY accumulation in reference to the Tier I vs Tier 2 determination. This was decided to be a moot point, however, as Agrico is well above this emission level.

The point, for Agricos' benefit, was made that offsets could only come from major sources in the nonattainment area, under the March rule, and that there was no "clean area" concept under the aforementioned rule.

Agrico representatives appeared pleased with the conference and much progress was made.

The following technical discrepancies in the permit as cited in the letter of incompleteness were resolved or committed to resolution:

(see AGRICO "Completeness Report" of 6 August 1979, "Technical Discrepancies") -

Part 1

1.) Start-up date is contingent upon permit issuance date. More refined estimates will be made when possible.

2.) - 5.) RF, (response forthcoming)

5.) 15° increase is dependent upon ambient conditions; RF.

6.) - 10.) RF

Part 2

1.) RF

2.) RF

Part 3

1.) RF

2.) No, (Harold Long).

Part 4

1.) Previous history indicates baghouse ineffective; RF

2.)- 6.) RF

7.) Sludge will be disposed of in Polk County

8.) RF

Part 5

1.) RF

2.) RF

Part 6

1.) RF, clarified, yes, both

2.) RF

Part 7

1.) Agreed to drop

2.) Totally enclosed, (granular and dry rock)

3.) RF

Part 8

1.) Disposed of

2.) RF

3.) RF

4.) No

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301

BOB GRAHAM
GOVERNOR

JACOB D. VARN
SECRETARY

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

August 3, 1979

H. W. Long, Jr.
Manager, Environmental Control
Agrico Chemical Company
P. O. Box 1110
Mulberry, Florida 33860

Dear Mr. Long:

Your seven applications to expand the materials handling capacity of the Agrico Big Bend Terminal have been received and reviewed for completeness.

Each of the seven applications received has been found to be incomplete in several respects.

Although you have filed on an obsolete form we will, in this particular case, accept the old application forms, provided you file the additional information required by the new application form (copy attached) and that you provide the additional information necessary to determine which specific rules apply to your project and the information needed to evaluate your proposal with respect to the applicable rules.

Due to your proximity to the Hillsborough County Particulate Nonattainment area, information is needed to establish whether or not the increase in particulate emissions from the Terminal will result in a significant impact on the particulate nonattainment area.

The attached report "Completeness Evaluation of Agrico Construction Permit Applications" number AC 29-21696 through number AC 29-21702 describes the additional information needed to complete your applications with respect to this item and the other items cited below.

Due to the date on which you chose to file, your project will be subject to the March 1979 version of the Nonattainment rules (17-2.17 & 2.18), should your ambient impact evaluation indicate that the particulate emissions resulting from your proposed terminal expansion

will have a significant impact on the nonattainment area. If any of your projects are subject to the March 1979 Nonattainment Rule, you will need to recommend LAER for each such project, provide a list of all sources that are owned or controlled by Agrico within the State of Florida, and certify that all of these sources are in compliance with all applicable state air rules or on an approved compliance schedule to meet the applicable rules. You would also need to obtain acceptable emission offsets for your increases in particulate emissions. The March rule limits the source of these offsets to within the designated particulate nonattainment area. The July '79 revisions allows the offsetting source(s) to be located either within the nonattainment area, or within 50 kilometers of the nonattainment area if the offsetting source has a significant impact on the designated nonattainment area.

I have attached a copy of FAC 17-2 as it existed prior to March 1979, a copy of the March 79 revisions, and a copy of the June 20, 1979 revisions which corrected several technical deficiencies in the March '79 Nonattainment Rule. The June 20, 1979 corrections became effective July 19, 1979.

You also need to establish if the project is subject to the state PSD rule. For this you need to provide the Department with information on all potential and allowable emissions from the terminal, and the changes in these potential and allowable emissions that would occur if your projects are approved. If the termianl is a "major emitting facility" (it appears that it is), and the expansion you propose will result in increasing the emissions from the terminal, (it appears that it would) your projects are subject to the State PSD rule. Under that rule, you need to recommend BACT for each project, (which you have done, in part) and provide the Department with adequate assurance that the increase in emissions will not cause a new ambient violation or cause an exceedance of the applicable PSD increments (this you have not yet done).

As part of the PSD information required, you will need to provide 3 months of pre-construction ambient air monitoring and a commitment to conduct post-construction monitoring.

In addition to the information needed to answer the above general questions, information is needed to complete the answers to various technical questions asked in the permit application forms. These items are set forth in the attached report, and include but are not

limited to information on emission point coordinates, fugitive dust control methods, particulate collection/ captures systems to be used in conjunction with the proposed scrubbers and bag houses, existing conveyor designations versus previously used conveyer designations, solids content of recirculated scrubber waters, and corrections, additions or clarifications to submitted data concerning process flow rates, and supporting technical data.

It may be in your interest to meet with the individuals within the Bureau of Air Quality Management who have the responsibility of reviewing, processing and recommending issuance or denial of the construction permits you have requested. We will be glad to meet with you to assist you in filing a complete application, and to work with you in any way possible to expedite the processing of your applications.

Should you have any questions, please contact Steve Smallwood at (904) 488-1344.

Sincerely,

J. P. Subramani, Ph.D. P.E.
Bureau of Air Quality
Management

cc: S. Smallwood
D. Puchaty
D. Williams
R. Stewart
R. Cunningham
file

TO: H. W. Long, Jr.
Agrico Chemical Company

Completeness Evaluation of Agrico Construction Permit Applications Number AC29-21696 through Number AC29-21702.

This report was prepared as attachment for letter from J. P. Subramani to H. W. Long, August 7, 1979, same subject.

J. P. Subramani

Prepared by:

_____

_____

_____

_____

_____

Completeness Report for the Expansion
and Modification of Agrico Big Bend Terminal

Application:

AC 29-21696 (rotary car dump for dry dock)
AC 29-21697 (new conveying system for dry rock)
AC 29-21698 (storage silos for dry rock)
AC 29-21699 (conveyors to shiploader)
AC 29-21700 (shiploader)
AC 29-21701 (granular fertilizer unloading)
AC 29-21702 (granular fertilizer transfer and storage)

Determination of Applicable Rules

Due to the location of your facility in proximity to the Hillsborough County particulate nonattainment area, evaluation requirements are imposed under both the non-attainment rules (17-2.17) and the PSD rules (17-2.04)

Exemption from the nonattainment rules will require demonstration in accordance with 17-2.17(1)(b) that the impact of the new source(s) on the nonattainment area will not cause the tabulated significance levels to be exceeded.

For purposes of this analysis all emission points comprising a single permit application shall be considered to be a single source. For dust collectors D, E and F, which may be considered modifications, the impact analysis shall be based on the increase in emissions over existing dust collectors 2, 3 and 4 respectfully.

Your facility will also be subject to the PSD review of 17-2.04(6) unless data can be submitted showing that the potential to emit (see definition 17-2.02(90)) is less than 250 tons per year.

Modelling and Data Requirements

PSD review will require an air quality analysis which affirmatively provides the Department with reasonable assurance that the facility will not cause an increase in ambient concentrations that will exceed and PSD increment or cause a violation of any air quality standard.

Since this above analysis will require modelling of fan-forced rather than combustion-type emission points, it is recommended that you, or your consultants, meet with us to discuss applicable modelling techniques prior to beginning any analysis. The PSD analysis will also require review of ambient monitoring data in the area for the period 1974 - present. It is our judgement that additional monitoring will be necessary in the immediate vicinity of the proposed facility to quantify what may be an abnormally high background concentration due to nearby sources of fugitive particulate matter. The monitoring is to be conducted for at least 3 months on a 3-day sampling cycle at a site approved by the Department, and all data should be entered into the Storage and Retrieval of Aerometric Data System (SAROAD). In order to enter such data in the SAROAD system, EPA approved reference or equivalent methods and instrument must be used, and the data collected in accordance with all applicable EPA quality assurance and instrument siting and operation criteria.

The foregoing requirements and 17-2.05(3), Prohibitive Acts, Fugitive Particulate require that control measure and ambient impacts for fugitive particulate sources must be addressed. Specifically, the applications should identify and discuss what measures, at the level of BACT, will be employed for control of fugitive emissions from sources including, but not limited to dredging and disposal of sludge from the scrubber sludge pond and wet rock storage along conveyor C-3.

Given the technical problems in quantifying such emissions and evaluating their impacts, it is likely that unless evaluation of submitted data and projected fugitive control measure indicate otherwise, we shall require a commitment from you to perform post-construction monitoring for the purpose of quantifying and evaluating fugitive emissions from the site.

Technical Discrepancies

The following items are common to all the applications received:

1. Specify the proposed start up date for the new operations.

2. Specify what limitations of operation hours, if any, are requested.

3. The allowable emission rates are based on the proposed BACT. The process weight table found in 17-2.05 is not applicable.

4. Confirm the stack height figures listed as above grade or clarify the meaning of the height listed.

5. Explain the basis for the assumption that all control equipment discharges are 15°F above the ambient temperature.

6. Provide the UTM coordinates within 0.1 km and the latitude/longitude for each emission point.

7. Describe the capture equipment methodology and the flow for each dust collector pickup area.

8. Detail the technique of depositing the recovered particulate on the conveyor and the prevention of escape or re-entrainment of the recovered particulate.

9. Give a description of the form which the dry rock is received in, i.e., as mined, crushed, etc.

10. Submit the test data that was used for determining the efficiency of the baghouse and scrubber.

The following items related to questions contained on application AC 29-21696 (existing rotary car dump and DC-A):

1. Verify that at present the rotary car dump is used exclusively for the transfer of wet phosphate rock and contains no control equipment for that operation.

2. Explain what fugitive dust controls are to be employed on the rail cars delivering the dry rock to the rotary car dump.

The following items pertain to items found in application AC 29-21697 (conveying system with DC-B, C, G, H):

1. Verify that for dry rock shipping, the existing conveyors are covered.

2. Will the existing truck dump feeding conveyors 2 or 15 at DC-B via conveyor number 7 handle any dry rock or source of particulate? If so, provide information on the control devices for the transfer of rock and the control of fugitive emissions along with usage rate of the truck dump.

The following questions relate to the information contained in application AC 29-21698 (storage silos and DC-J, K):

1. Explain the different moisture conditions for the silos that preclude the use of baghouses since the operation of the conveying system on each side of the silo does not have this restriction.

2. A higher energy scrubber and baghouse should be examined in the BACT application.

3. Which silos will be vented through each scrubber.

4. Explain the derivation of the 5.5% water vapor content in the emission stack flow characteristics data sheet.

5. Provide information on the water flow rate of the recycled and fresh water in the scrubber, the water pressure, and the nozzle type.

6. Specify the design solids content of the recirculated water and explain its effect on scrubber operation.

7. Explain to the proposed fugitive dust control to be used for the disposal of the sludge from the settling pond.

8. Detail the methodology of capturing the particulate during the loading of conveyor number 19 from the storage silo and its transmittal to the scrubbers.

The following questions relates to application AC 29-21699 (conveying and DC-D, E):

1. Verify that the location of conveyor number 5 is between conveyor number 4 and the shiploaders conveyor. If it is not, describe its location and relationship to other conveyors.

2. Give the proposed date of the operation of the silo route and the status of this route after the start up of the silo route.

These items relate to application AC 29-21700 (shiploader and DCF):

1. Explain the nature and detail of the "on board" capture system at the shiploading discharge point.

2. If DC-F is covering the conveyor number 5 - shiploader transfer point and the shiploading discharge point, is 10 gr/SCF still valid with two separate drop points? Explain.

These items relate to application AC 29-21701 (granular fertilizer unloading):

1. Existing permits for DC-2, 3 and 4 are not pertinent to this application and should not be included on it.

2. What fugitive dust controls are employed on the rail cars and trucks delivering the granular fertilizer to the unloaders? Resolve and explain.

3. The discrepancy between hourly capacity and annual usage and tonnage. The hourly rates give 500 TPH x 800 Hr. = 400,000 TPY while the present 250 TPH facility is stated to have capacity of 400,000 TPY with projected total system capcity of 800,000 TPY. Previous permits list this at 350 ton/hr throughput rate? Which is correct?

The following questions relate to the application AC 29-21702 (granular fertilizer transfer and storage):

1. Existing permits for DC- 1, 2, 3 and 4 are not pertinent information for this application and should not be included.

2. Submit a legible schematic layout of the granular fertilizer unloading, conveying to storage, and conveying to the shiploading system along with the capacity of each conveyor. Both the new and existing conveying system should be included. (This may be on paper larger than 8½ x 11, if it is more convenience to do so).

3. Explain the dust control methodology in the storage building and at all conveyor interfaces.

4. Is the entire conveying system covered?

Send copy to S. Smallwood

Agrico

ONE OF THE WILLIAMS COMPANIES

July 11, 1979

JUL 1979
RECEIVED
BUREAU
AQM

D.E.R.
JUL 16 1979
SOUTHWEST DISTRICT
TAMPA

Mr. Dan Williams
Dept. of Environmental Regulation
7601 Highway 301 North
Tampa, FL 33610

Dear Dan:

We inadvertently omitted a Supplement #3 drawing from the Permit Application for "J" and "K" Scrubbers covering Dry Phosphate Rock Storage, as submitted to you last Friday, July 6, 1979 for Agrico's Big Bend Terminal Expansion. We have enclosed 5 copies of this drawing; if you will kindly insert one in each copy of the 5 applications submitted at Tab D immediately following Supplement #2.

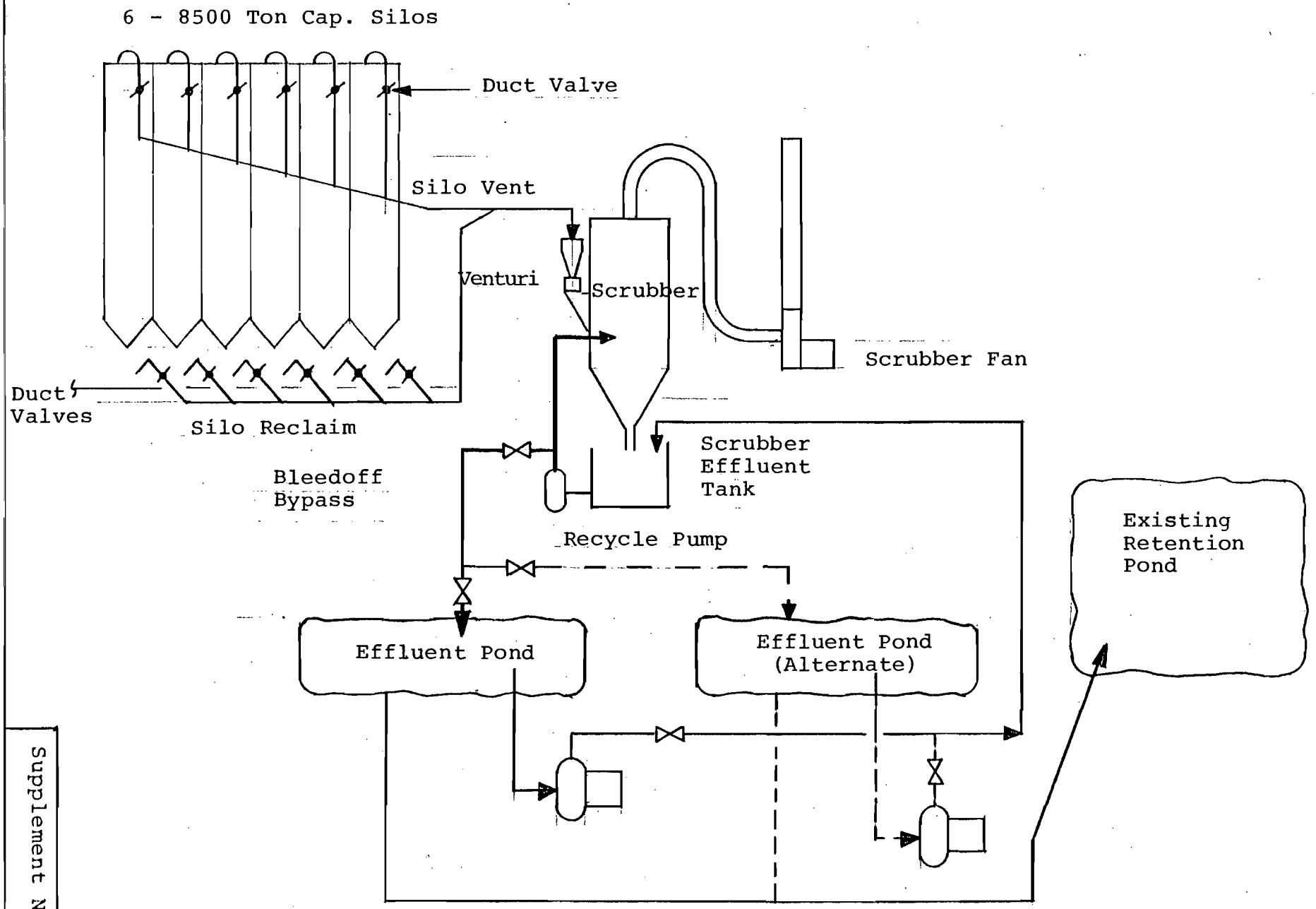
Thank you for your cooperation.

Very truly yours,

John H. Essig

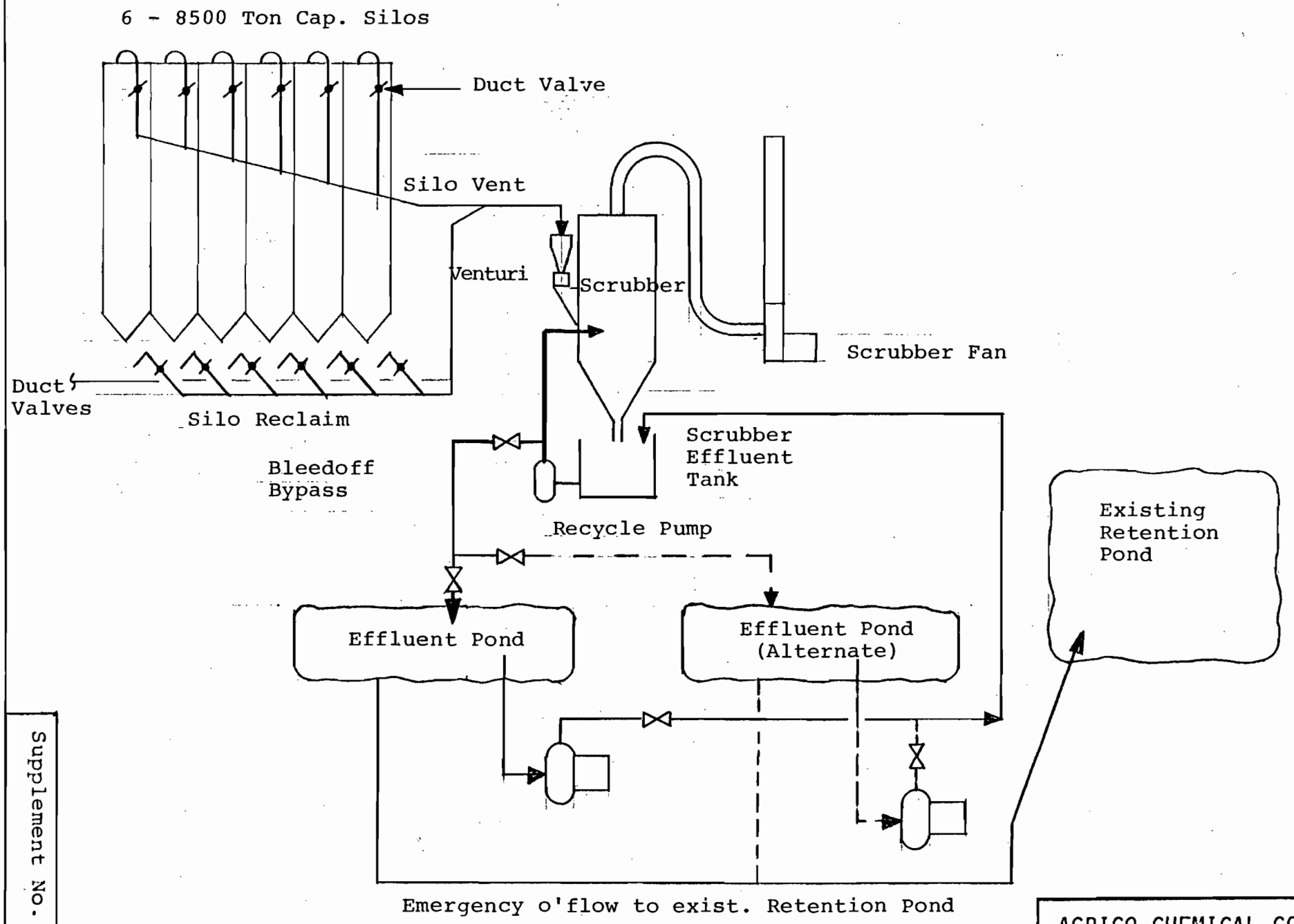
JHE/mn
Enclosures

Agrico Chemical Company • P. O. Box 1110 • Mulberry, Florida 33860
813/428-1431



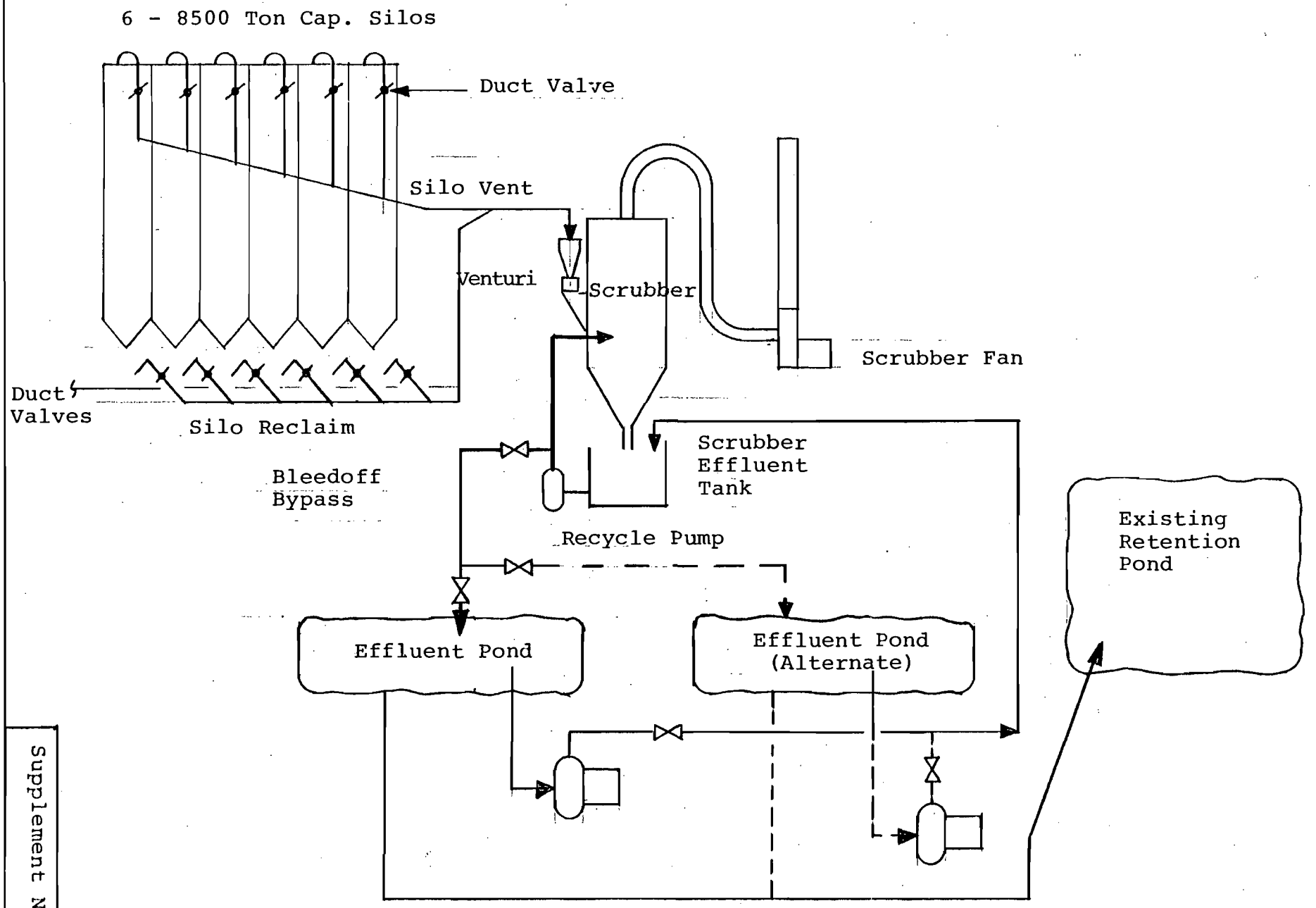
Supplement No. 3

AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL



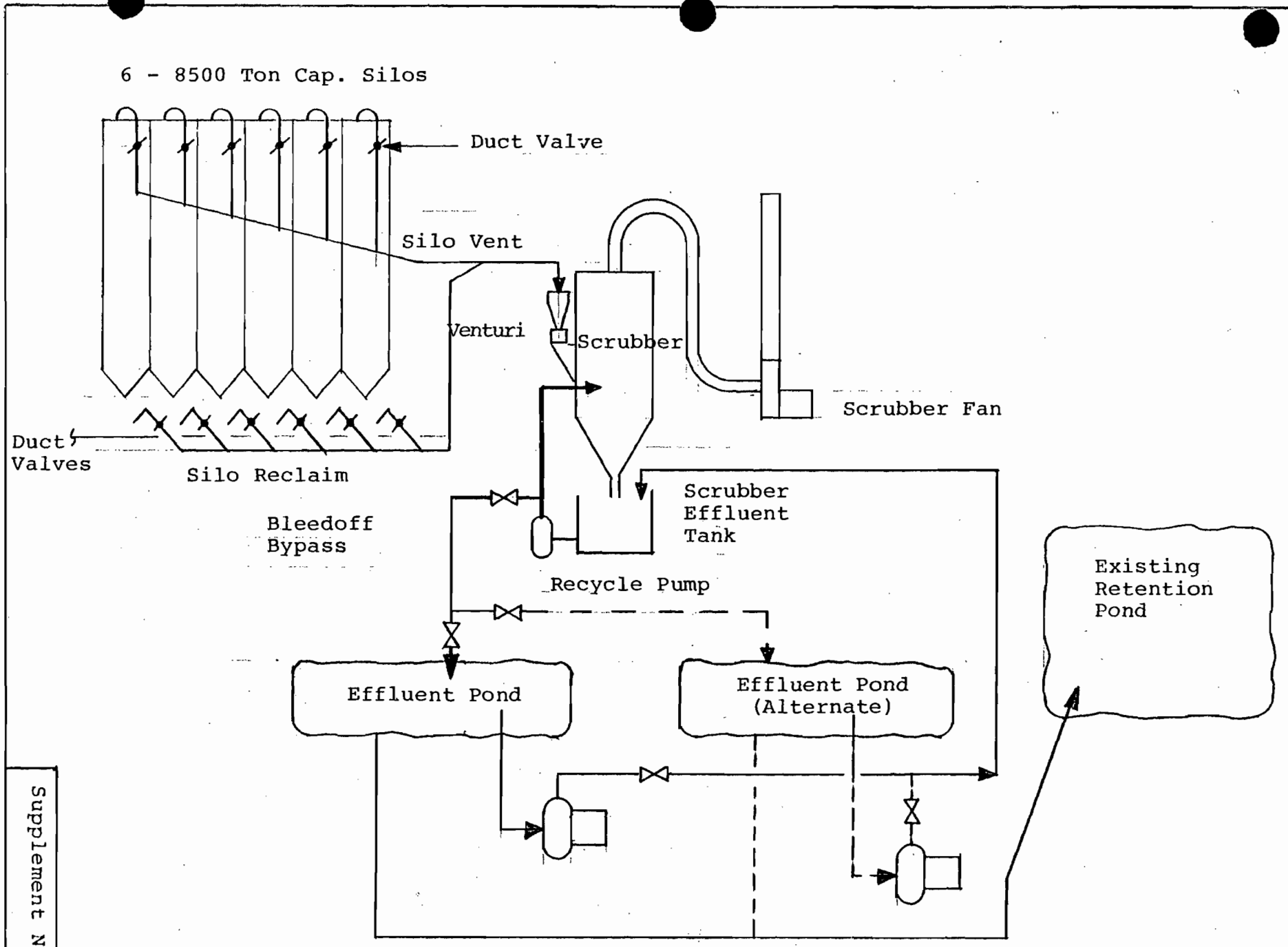
Supplement No. 3

AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL



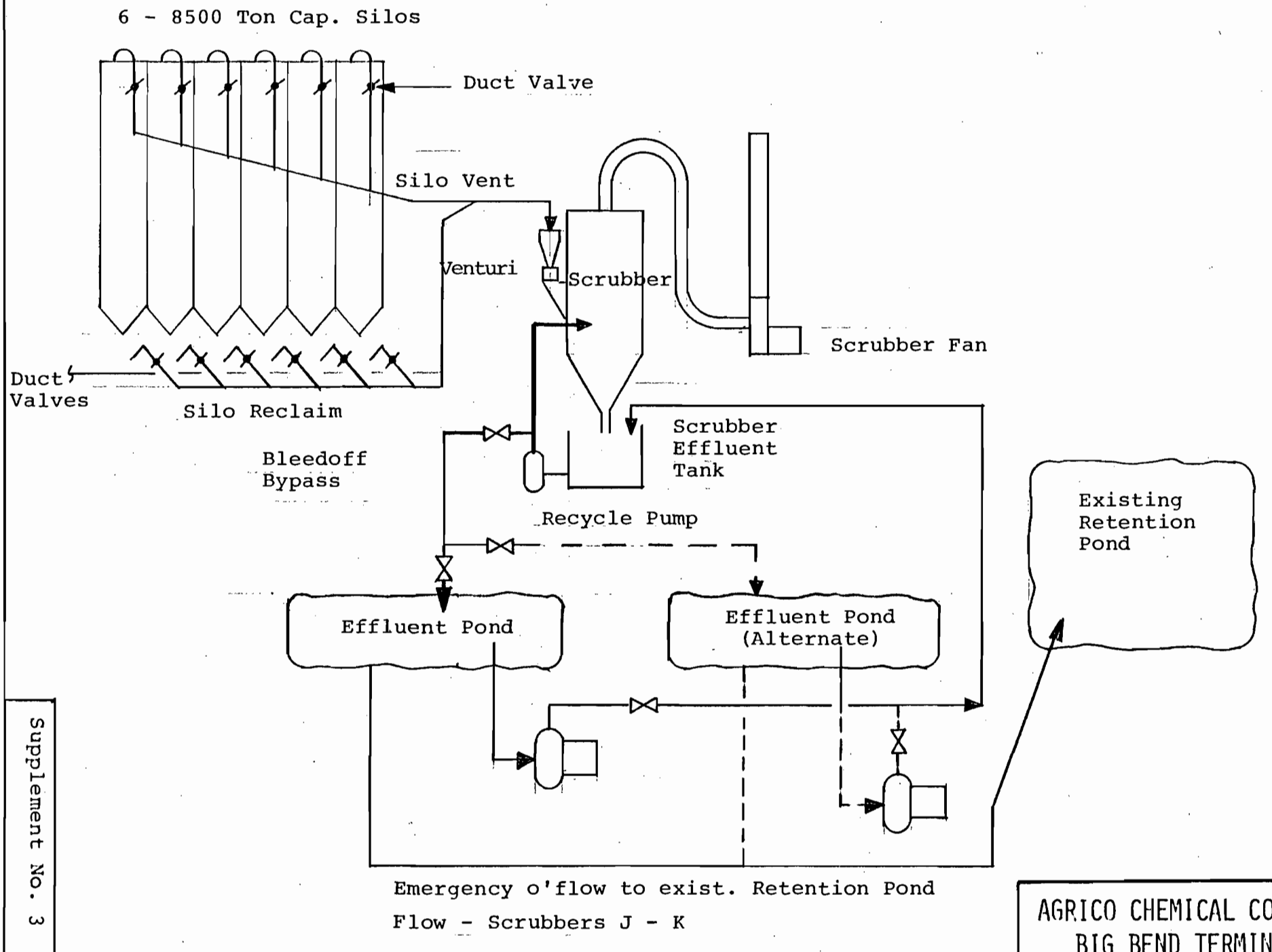
Supplement No. 3

AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL



Supplement No. 3

AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL



Supplement No. 3

AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301

BOB GRAHAM
GOVERNOR

JACOB D. VARN
SECRETARY

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

CERTIFIED MAIL

August 6, 1979

H. W. Long, Jr.
Manager, Environmental Control
Agrico Chemical Company
P. O. Box 1110
Mulberry, Florida 33860

Dear Mr. Long:

We have received and reviewed for completeness the seven applications which you filed on July 9, 1979 to expand the materials handling capacity of the Agrico Big Bend Terminal.

Each of the seven applications received has been found to be incomplete in several respects.

Although you have filed on an obsolete form we will, in this particular case, accept the old application forms, provided you file the additional information required by the new application form (copy attached) and that you provide the additional information necessary to determine which specific rules apply to your project and the information needed to evaluate your porposal with respect to the applicable rules.

Due to your proximity to the Hillsborough County Particulate Nonattainment area, information is needed to establish whether or not the increase in particulate emissions from the Terminal will result in a significant impact on the particulate nonattainment area.

The attached report "Completeness Evaluation of Agrico Construction Permit Applications" number AC 29-21696 through AC 29-21702 describes the additional information needed to complete your applications with respect to this item and the other items.

The applicable rules on the date you filed your applications were the March 1979 version of the Nonattainment rules (17-2.17 & 17-2.18). An ambient impact evaluation under these applicable rules indicate that the particulate emissions resulting from your proposed terminal expansion will have a significant impact on the nonattainment area.

Therefore, you will need to recommend LAER for each such project, provide a list of all sources that are owned or controlled by Agrico within the State of Florida, and certify that all of these sources are in compliance with all applicable state air rules or on an approved compliance schedule to meet the applicable rules. You would also need to obtain acceptable emission offsets for your increases in particulate emissions.

The March rule also requires the source(s) of these offsets to be within the designated particulate nonattainment area. (The July '79 revision however, allows the offsetting source(s) to be located either within the nonattainment area, or within 50 kilometers of the nonattainment area if the offsetting source has a significant impact on the designated nonattainment area).

You also need to establish if the project is subject to the state PSD rule. For this you need to provide the Department with information on all potential and allowable emissions from the terminal, and the changes in these potential and allowable emissions that would occur if your projects are approved. If the terminal is a "major emitting facility" (it appears that it is), and the expansion you propose will result in increasing the emissions from the terminal, (it appears that it would) your projects are subject to the State PSD rule. Under that rule, you need to recommend BACT for each project, (which you have done, in part) and provide the Department with adequate assurance that the increase in emissions will not cause a new ambient violation or cause exceedance of the applicable PDS increments (this you have not yet done).

As part of the PSD infromation required, you will need to provide 3 months of pre-construction ambient air monitoring and a commitment to conduct post-construction monitoring.

In addition to the information needed to answer the above general questions, specific answers to various technical questions are also needed in order to fully evaluate the application forms. These items are set forth in the attached report, and include but are not limited to information on emission point coordinates, fugitive dust control methods, particulate collection/capture systems to be used in conjunction with the proposed scrubbers and baghouses, existing conveyor designations as opposed to previously used conveyer designations, solids content of recirculated scrubber waters, as well as corrections, additions or clarifications concerning process flow rates and supporting technical data.

It may be in your interest to meet with the individuals within the Bureau of Air Quality Management who have the responsibility of reviewing, processing and recommending issuance or denial of the construction permits you have requested. We will be glad to meet with you to assist you in filing a complete application, and to work with you in any way possible to expedite the processing of your applications.

For your information, I have attached a copy of 17-2 FAC as it existed prior to March 1979, a copy of the March 1979 revisions, and a copy of the June 20, 1979 revisions which corrected several technical deficiencies in the March 1979 Nonattainment Rule. The June 20, 1979 corrections became effective July 19, 1979.

Should you have any questions, please contact Steve Smallwood at (904) 488-1344.

Sincerely,

J. P. Subramani, Ph.D, P.E.
Chief, Bureau of Air Quality Management

JPS/es

Attachment

cc: S. Smallwood
D. Puchaty
D. Williams
R. Stewart
R. Cunningham
File

Completeness Report for the Expansion
and Modification of Agrico Big Bend Terminal

Application:

AC 29-21696 (rotary car dump for dry rock)
AC 29-21697 (new conveying system for dry rock)
AC 29-21698 (storage silos for dry rock)
AC 29-21699 (conveyors to shiploader)
AC 29-21700 (shiploader)
AC 29-21701 (granular fertilizer unloading)
AC 29-21702 (granular fertilizer transfer and storage)

Determination of Applicable Rules

Due to the location of your facility in proximity to the Hillsborough County particulate nonattainment area, evaluation requirements are imposed under both the non-attainment rules (17-2.17) and the PSD rules (17-2.04)

Exemption from the nonattainment rules will require demonstration in accordance with 17-2.17(1)(b) that the impact of the new source(s) on the nonattainment area will not cause the tabulated significance levels to be exceeded.

For purposes of this analysis all emission points comprising a single permit application shall be considered to be a single source. For dust collectors D, E and F, which may be considered modifications, the impact analysis shall be based on the increase in emissions over existing dust collectors 2, 3 and 4 respectfully.

Your facility will also be subject to the PSD review of 17-2.04(6) unless data can be submitted showing that the potential to emit (see definition 17-2.02(90)) is less than 250 tons per year.

Modelling and Data Requirements

PSD review will require an air quality analysis which affirmatively provides the Department with reasonable assurance that the facility will not cause an increase in ambient concentrations that will exceed and PSD increment or cause a violation of any air quality standard.

Since this above analysis will require modelling of fan-forced rather than combustion-type emission points, it is recommended that you, or your consultants, meet with us to discuss applicable modelling techniques prior to beginning any analysis. The PSD analysis will also require review of ambient monitoring data in the area for the period 1974 - present. It is our judgement that additional monitoring will be necessary in the immediate vicinity of the proposed facility to quantify what may be an abnormally high background concentration due to nearby sources of fugitive particulate matter. The monitoring is to be conducted for at least 3 months on a 3-day sampling cycle at a site approved by the Department, and all data should be entered into the Storage and Retrieval of Aerometric Data System (SAROAD). In order to enter such data in the SAROAD system, EPA approved reference or equivalent methods and instrument must be used, and the data collected in accordance with all applicable EPA quality assurance and instrument siting and operation criteria.

The foregoing requirements and 17-2.05(3), Prohibitive Acts, Fugitive Particulate require that control measure and ambient impacts for fugitive particulate sources must be addressed. Specifically, the applications should identify and discuss what measures, at the level of BACT, will be employed for control of fugitive emissions from sources including, but not limited to dredging and disposal of sludge from the scrubber sludge pond and wet rock storage along conveyor C-3.

Given the technical problems in quantifying such emissions and evaluating their impacts, it is likely that unless evaluation of submitted data and projected fugitive control measure indicate otherwise, we shall require a commitment from you to perform post-construction monitoring for the purpose of quantifying and evaluating fugitive emissions from the site.

Technical Discrepancies

The following items are common to all the applications received:

1. Specify the proposed start up date for the new operations.

2. Specify what limitations of operation hours, if any, are requested.

3. The allowable emission rates are based on the proposed BACT. The process weight table found in 17-2.05 is not applicable.

4. Confirm the stack height figures listed as above grade or clarify the meaning of the height listed.

5. Explain the basis for the assumption that all control equipment discharges are 15°F above the ambient temperature.

6. Provide the UTM coordinates within 0.1 km and the latitude/longitude for each emission point.

7. Describe the capture equipment methodology and the flow for each dust collector pickup area.

8. Detail the technique of depositing the recovered particulate on the conveyor and the prevention of escape or re-entrainment of the recovered particulate.

9. Give a description of the form which the dry rock is received in, i.e., as mined, crushed, etc.

10. Submit the test data that was used for determining the efficiency of the baghouse and scrubber.

The following items related to questions contained on application AC 29-21696 (existing rotary car dump and DC-A):

1. Verify that at present the rotary car dump is used exclusively for the transfer of wet phosphate rock and contains no control equipment for that operation.

2. Explain what fugitive dust controls are to be employed on the rail cars delivering the dry rock to the rotary car dump.

The following items pertain to items found in application AC 29-21697 (conveying system with DC-B, C, G, H):

1. Verify that for dry rock shipping, the existing conveyors are covered.

2. Will the existing truck dump feeding conveyors 2 or 15 at DC-B via conveyor number 7 handle any dry rock or source of particulate? If so, provide information on the control devices for the transfer of rock and the control of fugitive emissions along with usage rate of the truck dump.

The following questions relate to the information contained in application AC 29-21698 (storage silos and DC-J, K):

1. Explain the different moisture conditions for the silos that preclude the use of baghouses since the operation of the conveying system on each side of the silo does not have this restriction.

2. A higher energy scrubber and baghouse should be examined in the BACT application.

3. Which silos will be vented through each scrubber.

4. Explain the derivation of the 5.5% water vapor content in the emission stack flow characteristics data sheet.

5. Provide information on the water flow rate of the recycled and fresh water in the scrubber, the water pressure, and the nozzle type.

6. Specify the design solids content of the recirculated water and explain its effect on scrubber operation.

7. Explain to the proposed fugitive dust control to be used for the disposal of the sludge from the settling pond.

8. Detail the methodology of capturing the particulate during the loading of conveyor number 19 from the storage silo and its transmittal to the scrubbers.

The following questions relates to application AC 29-21699 (conveying and DC-D, E):

1. Verify that the location of conveyor number 5 is between conveyor number 4 and the shiploaders conveyor. If it is not, describe its location and relationship to other conveyors.

2. Give the proposed date of the operation of the silo route and the status of this route after the start up of the silo route.

These items relate to application AC 29-21700 (shiploader and DCF):

1. Explain the nature and detail of the "on board" capture system at the shiploading discharge point.

2. If DC-F is covering the conveyor number 5 - shiploader transfer point and the shiploading discharge point, is 10 gr/SCF still valid with two separate drop points? Explain.

These items relate to application AC 29-21701 (granular fertilizer unloading):

1. Existing permits for DC-2, 3 and 4 are not pertinent to this application and should not be included on it.

2. What fugitive dust controls are employed on the rail cars and trucks delivering the granular fertilizer to the unloaders? Resolve and explain.

3. The discrepancy between hourly capacity and annual usage and tonnage. The hourly rates give 500 TPH x 800 Hr. = 400,000 TPY while the present 250 TPH facility is stated to have capacity of 400,000 TPY with projected total system capcity of 800,000 TPY. Previous permits list this at 350 ton/hr throughput rate? Which is correct?

The following questions relate to the application AC 29-21702 (granular fertilizer transfer and storage):

1. Existing permits for DC- 1, 2, 3 and 4 are not pertinent information for this application and should not be included.

2. Submit a legible schematic layout of the granular fertilizer unloading, conveying to storage, and conveying to the shiploading system along with the capacity of each conveyor. Both the new and existing conveying system should be included. (This may be on paper larger than 8½ x 11, if it is more convenience to do so).

3. Explain the dust control methodology in the storage building and at all conveyor interfaces.

4. Is the entire conveying system covered?

File: EPA Hills Co - AP, Permits
Copy to S. Smallwood

Agrico
ONE OF THE WILLIAMS COMPANIES

July 10, 1979

Mr. Winston Smith
Office of Air Programs
U.S. EPA Region IV
345 Courtland St. N.E.
Atlanta, GA 30308

Dear Mr. Smith:

Enclosed is a copy of our application to construct an Air Pollution Source at the existing Agrico Big Bend Terminal, as submitted to the Florida Department of Environmental Regulation and Hillsborough County Environmental Protection Commission.

This is our application to EPA for a PSD review and determination.

Very truly yours,

Harold W. Long, Jr.
Manager
Environmental Control

HWLJr/mn
Enclosure

cc: Mr. P. David Puchaty
Mr. Ed de la Parte

State of Florida

DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

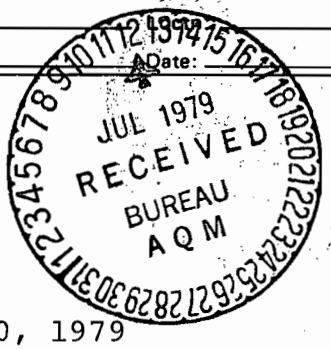
For Routing To District Offices And/Or To Other Than The Addressee

To: _____ Loctn.: _____

To: _____ Loctn.: _____

To: _____

From: _____ Date: _____



NONATTAINMENT AREA PERMIT APPLICATIONS

EXPEDITE ROUTING AND REVIEW

TO: Dr. J. P. Subramani July 10, 1979

ATTENTION: Mr. Steve Smallwood

FROM: Dan A. Williams

SUBJECT: Hillsborough County AP
Agrico Chemical Company - Big Bend Terminal Expansion

1. Dry Phosphate Rock Receiving
2. Dry Phosphate Rock Receiving
3. Dry Phosphate Rock Storage
4. Granular Fertilizer & Dry Phosphate Rock Conveying System
5. Shiploader for Dry Phosphate Rock and Granular Fertilizer
6. Granular Fertilizer Storage & Handling
7. Granular Fertilizer Storage & Handling

The enclosed permit applications were received yesterday from Agrico Chemical Company. The facility is located within the area of influence of the Hillsborough County particulate nonattainment area. Therefore the applications are forwarded to your office for processing per instruction received at the Orlando meeting on June 29, 1979.

The applicant notified our office prior to submitting the applications and I tried to convince them to wait until the new rule becomes effective. It appears I wasn't too successful.

Our PATS terminal operator received the applications, processed the checks, and inputted the information into the PATS system before I was aware the applications had been submitted. Therefore, the receipts and PATS master record sheets have been included in the package.

The applicant submitted five copies of the applications to our office. I have retained one copy and am forwarding four copies to you. I have also been notified the applicant submitted five additional copies directly to the Hillsborough County local program.

Also, please be advised there is an existing wet phosphate rock unloading operation, granular fertilizer unloading and storage operation, and a ship loadout operation owned by Agrico operating at this site. This facility was originally issued construction permits to build in 1975.

DAW/rkt

H6 - Rev 7/76

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

Nº 32404

RECEIPT FOR APPLICATION FEES AND MISCELLANEOUS REVENUE

Received from Cyprus Chemical Co. Date 7-9-79

Address One Williams Center, Tulsa, OK Dollars $ 140.00

Applicant Name & Address Harold D. Long, Jr., Box 1110, Mulberry

Source of Revenue Big Bend Terminal

Revenue Code 0101 Application Number AC29-21696 thru AC29-21702

By Florelle Barron

205155

Agrico

ONE OF THE WILLIAMS COMPANIES

September 8, 1977

To Whom It May Concern:

Please be advised that the undersigned is Senior Vice President, Mining, Agrico Chemical Company, a Delaware corporation, with its principal office at One Williams Center, Tulsa, Oklahoma, hereafter called "Agrico." Mr. H. W. Long, Jr., Manager of Environmental Control of Agrico, is authorized to make, execute and submit to any appropriate federal, state or local government authority, in behalf of Agrico, any statement, application, request or the like, that is or shall be necessary, appropriate, or useful, for normal business activities.

Very truly yours,

AGRICO CHEMICAL COMPANY

By _____
R. G. Garcia
Senior Vice President - Mining

Agrico Chemical Company • P. O. Box 1110 • Mulberry, Florida 33860
813/428-1431

INC D

RESOLUTION

Upon motion by Commissioner Bondi, seconded by Commissioner Bowmer, the following Resolution was adopted by unanimous vote.

WHEREAS, Agrico Chemical Company has previously filed with this Board an Application for Development Approval of a Development of Regional Impact (Hillsborough County Building and Zoning Department Petition No. 74-5-DRI) in accordance with Section 380.06(6), Florida Statutes (1973), which Application was approved by Resolution of this Board dated March 27, 1974; and

WHEREAS, Agrico Chemical Company has previously filed with this Board a Supplemental Application of Development Approval of a Development of Regional Impact (Hillsborough County Building and Zoning Department Petition No. 75-12-DRI) in accordance with Section 380.06(6), Florida Statutes (1974), which Application was approved by Resolution of this Board dated July 16, 1975; and

WHEREAS, Agrico Chemical Company, by and through its attorney, Edward P. de la Parte, Jr., has filed an application for an extension for an additional period of three years of the Development Order of this Board previously entered July 16, 1975; and

WHEREAS, this Board has reviewed the application for an extension and has found excusable delay in the proposed development activity,

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF HILLSBOROUGH COUNTY, FLORIDA, IN REGULAR MEETING ASSEMBLED THE 6th DAY OF SEPTEMBER, 1978, AS FOLLOWS:

1. That the Resolution of Approval and the Development Order for Development Approval of a Development of Regional Impact by Agrico Chemical Company (Hillsborough County Building and Zoning Department Petition No. 75-12-DRI) is and the same is hereby extended for an additional period of three years from and after

July 16, 1978, to and including July 15, 1981, provided that this effective period may be extended by this Board upon a finding of excusable delay in any proposed development activity.

2. That all other terms, conditions, phrases, and expressions of the Resolution of Approval and the Development Order for Development Approval of a Development of Regional Impact by Agrico Chemical Company (Hillsborough County Building and Zoning Department Petition No. 75-12-DRI) be and the same are hereby affirmed.

STATE OF FLORIDA)
) SS
COUNTY OF HILLSBOROUGH)

I, JAMES F. TAYLOR, JR., Clerk of the Circuit Court and Ex-Officio Clerk of the Board of County Commissioners of Hillsborough County, Florida, do hereby certify that the above and foregoing is a true and correct copy of a Resolution adopted by the Board in its meeting of the 6th day of September, 1978, as the same appears of record in Minute Book 68 of the Public Records of Hillsborough County, Florida.

WITNESS my hand and official seal this 14th day of November, 1978.

JAMES F. TAYLOR, JR., CLERK

By: Estelle J. Waters
Deputy Clerk

AGRICO
28-2312

Environmental Control Equipment

1. Granular Fertilizer Products

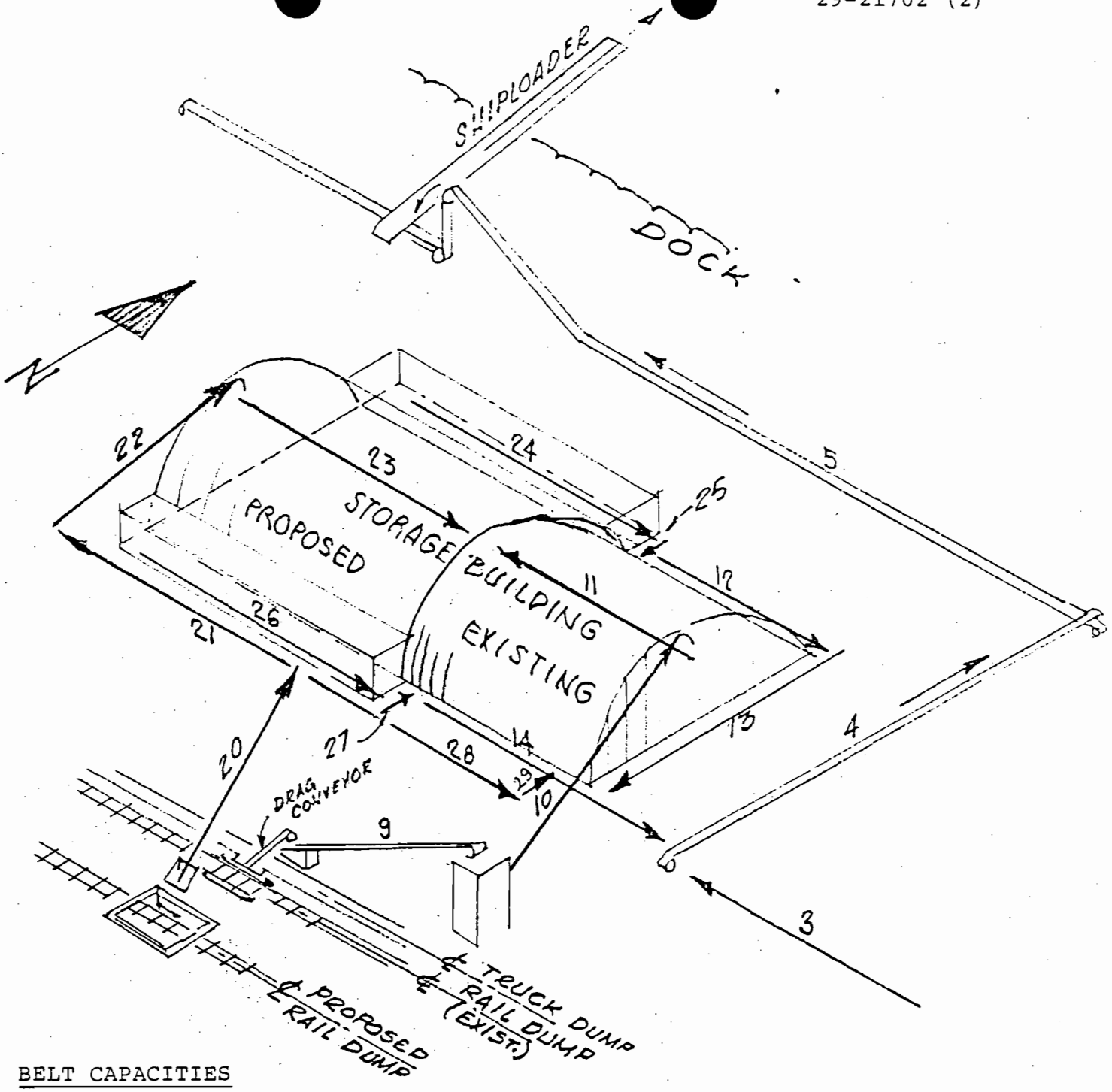
A'. Dust Collector - Rail dump & conveyor transfer
B'. Dust Collector - Conveyor transfer
C'. Dust Collector - Conveyor transfer
D'. Dust Collector - Conveyor transfer
E'. Dust Collector - Conveyor transfer
E. Dust Collector - Conveyor transfer
F. Dust Collector - Shiploader

Existing Dust Collectors	Permit No.
DC-1 - Recieving Granular Fertilizer - Remains as part of new system	A029-14854
DC-2 - Shipping Granular Fertilizer - Replace with "D" below	A029-12987
DC-3 - Shipping Granular Fertilizer - Replace with "E" above	A029-12987
DC-4 - Shiploader - Replace with "F" above	A029-14855

2. Dry Rock Transfer and Storage

A. Dust Collector - Railcar rotary dump
B. Dust Collector - Conveyor transfer
C. Dust Collector - Conveyor transfer
D. Dust Collector - Conveyor transfer
G. Dust Collector - Conveyor transfer
H. Dust Collector - Conveyor transfer
J. Scrubber - Silo discharge - on silo vent scrubber
K. Scrubber - Silo discharge - on silo vent scrubber

NOTE: Dust Collectors E and F are common to both systems.
Dust Collector D is common to both systems initially.



BELT CAPACITIES

EXISTING	3	3000 TPH	PROPOSED	20	500 TPH
	4	3000 TPH		21	500 TPH
	5	3000 TPH		22	500 TPH
	Shiploader	3000 TPH		23	500 TPH
	9	350 TPH		24	1000 TPH
	10	350 TPH		25	1000 TPH
	11	350 TPH		26	1500 TPH
	12	1200 TPH		27	1500 TPH
	13	1200 TPH		28	500 TPH
	14	1500 TPH		29	500 TPH

Conveyors 3, 4, 5 and the shiploader are multiple use conveyors.

SPECIAL SUPPLEMENT: ANSWERS TO TECHNICAL
DISCREPANCIES NOTED IN J. P. SUBRAMANI LETTER, 8/6/79

PERMIT APPLICATION AC29-21702 (DC-B',C',D',E')

1. Existing permits for DC-1,2,3,4 will not be listed.

2. Pridgen will provide large drawing (MYLAR) of entire plant layout. Blue prints will be folded to 8½" x 11" for insertion into final application.

3. The method employed to control dust inside the storage building, including conveyor interfaces, is to coat the product with oil at the production source.

4. The entire conveyor system exterior to the storage building is covered. The granular fertilizer DAP is hygroscopic. All equipment and surfaces in contact with this product must be dry.

SPECIAL SUPPLEMENT: ANSWERS TO TECHNICAL
DISCREPANCIES NOTED IN J. P. SUBRAMANI LETTER, 8/6/79

PERMIT APPLICATION AC29-21701 (DC-A')

1. Existing permits for DC-2,3,4 will not be listed.

2. The granular fertilizer products, particularly DAP, are hygroscopic and must be kept dry. The railcars and trucks that transport these products are the enclosed type. This type of equipment prevents the release of particulate into the atmosphere while in transit.

3. Typographical error - should be 350 TPH.

SPECIAL SUPPLEMENT: ANSWERS TO TECHNICAL
DISCREPANCIES NOTED IN J. P. SUBRAMANI LETTER, 8/6/79

PERMIT APPLICATION AC29-21700 (DC-F)

1. The shiploader is a piece of equipment on rails to enable it to traverse along the dock and be positioned opposite the hold of the ship to be loaded. The shiploader has a retractable boom containing a conveyor to move the material to the ship, and also a telescoping duct to convey particulate matter from the hold of the ship to a dust collector. The collected particulate is deposited into the boom conveyor for transfer to the ship. The shiploader has two chutes on the end of the retractable boom -- one to deposit the material in the ship's hold and one to collect particulate from the ship's hold. The ship's hold, after the hatch covers are removed, is covered with tarpaulins with close fitted openings for the shiploading chute and the dust-collecting duct.

   The large quantity of air withdrawn from the ship's hold produces a negative pressure and holds any airborne particulate from escaping into the atmosphere.

2. A selected part of the capacity of dust collector DC-F is used to control the fugitive particulate at the transfer from No. 5 Conveyor onto the shiploader conveyor. This transfer point will utilize approximately 15,000 CFM and the ship hold venting 35,000 CFM. The 10 gr/SCF will not be affected by the number of pick-up points. The collector has a capacity of 50,000 CFM with a 10 gr/SCF particulate loading.

SPECIAL SUPPLEMENT: ANSWERS TO TECHNICAL
DISCREPANCIES NOTED IN J. P. SUBRAMANI LETTER, 8/6/79

PERMIT APPLICATION AC29-21699 (DCs-D, E)

1. The location of Conveyor No. 5 is between Conveyor No. 4 and the shiploaders conveyor.

2. The direct route completion is anticipated as September, 1980. If our experience with the direct route during construction poses no fugitive particulate problems, we will in our operation permit application request that we be allowed to retain this feature.

SUPPLEMENT NO. 2

FROM DESIGN DATA:

Two wet collectors (venturi-cyclonic separator) are designed to operate under maximum conditions of 10 grains/standard cubic foot inlet loading, approximately 15°F above ambient temperature to yield a maximum emissions outlet loading of 0.03 grains/standard cubic foot. Outlet loading based on manufacturer's and engineering consultant's recommendation and based on experience with similar installations.

Scrubbing water maximum temperature - 95°F

Vapor Pressure 95°F water = 1.659 inches Hg

Therefore: $\% H_2O = \frac{1.659}{29.92} \times 100 = 5.5\%$

The approximately 15°F above ambient temperature gain for the ambient air induced to transport the dust to the venturi-cyclonic separator scrubber for collection is estimated from the fan heat of compression. The heat gain from the warm product is absorbed by the scrubbing water. The volume percent water in the stack must be determined by a stack test procedure. The percent water vapor can vary from 2 to 10 percent in the exhaust air from wet scrubbers in this service and location.

Wet Scrubbers Nos. J, K

$(30,000)(1-.055)\ \frac{530}{565} = 26,594$ SCFM Dry

$(26,594)\ \frac{10}{7000} = 38$ Lb/Min Inlet Particulates

$(26,594)\ \frac{0.03}{7000} = 0.114$ Lb/Min Outlet Particulates

$\frac{38-.114}{38} \times 100 = 99.7\%$ Efficiency

SPECIAL SUPPLEMENT: ANSWERS TO TECHNICAL
DISCREPANCIES NOTED IN J. P. SUBRAMANI LETTER, 8/6/79

PERMIT APPLICATION AC29-21697 (DCs-B,C,G,H)

1. The existing Conveyors Nos. 1, 2 and 3 are not now covered. The modification to permit the receiving of dry rock and transfer directly for ship-loading includes that Conveyors Nos. 1 and 2 will be covered. Conveyor No. 3 transfers wet rock to a traveling stacker-reclaimer and thus cannot be covered. Conveyor No. 4 is not covered at this time, but will be as part of this project. Conveyor No. 5 is not covered because of the traveling equipment associated with its discharge arrangement.

2. The existing truck dump and Conveyor No. 7 will not be utilized for receiving dry phosphate rock by truck.

NOTE: Although Conveyor No. 3 cannot be covered, the loop in the belt at the stacker-reclaimer may create a dust problem. We propose to add Dust Collector "L" at this point, to be included in this application.

SPECIAL SUPPLEMENT: ANSWERS TO TECHNICAL
DISCREPANCIES NOTED IN J. P. SUBRAMANI LETTER, 8/6/79

PERMIT APPLICATION AC29-21698 (Scrubbers - J, K)

1. The drying of run-of-mine phosphate rock does not remove all of the water from the rock. Economic considerations preclude the elimination of all moisture. The rock is usually reclaimed from wet rock storage pile at approximately 13% moisture content and "dried" to approximately 3% moisture content. The dried rock is usually stored in silos prior to shipping. The rock is loaded into enclosed railcars for transfer to a port terminal or other destination. This storage in bulk, handling and shipping does not reduce the heat in the rock or the moisture content to any great extent.

   When the warm moist rock is loaded into the terminal silos, it is mixed with the induced ambient air and the cool air in the silo. The silo is vented to remove the induced and displaced silo air to prevent the escape of particulate to the atmosphere. This particulate-laden exhaust air will be moist and will clog the baghouse filter cloth. For this reason, wet scrubbers are used in this service. Conveyor transfer exhaust air is ambient air that is induced and not mixed with the warm and moist rock. This particulate-laden air is not as moist and does not clog the baghouse filter cloth. These collectors are insulated and heated to reduce the dew point.

2. As noted in 1. above, baghouses are not practical for this application. Use of a higher energy scrubber than necessary to insure compliance with emissions and ambient air standards is self-defeating in that the energy source (TECO) must increase its emissions of particulate and SO_2 in order to provide the increased energy.

3. There are 12 silos in one single row running East and West. The first six silos from the East end will be serviced by Scrubber "J". The West six silos will be serviced by Scrubber "K".

4. See 1. above and Supplement No. 2.

5. & 6. The venturi-cyclonic separator wet scrubber under consideration requires 300 gpm of water delivered to the venturi throat. It is introduced through several open pipes and directed tangentially into the venturi throat.

   The amount of recycled water used will depend on the solids concentration that can be tolerated in the entrainment loss to the atmosphere from the cyclonic separator. The estimated maximum solids concentration in the 300 gpm recirculation water to the venturi throat is 1.3 percent with a discharge solids concentration of 2 percent to the scrubber sump. A bleed of 120 gpm of this 2 percent slurry flows to a settling pond. A make-up of 120 gpm of clarified water is added to the scrubber sump, giving a 1.3 percent solids concentration. The estimated entrainment to the atmosphere from the cyclonic separator is 0.25 gpm of 2 percent slurry.

APPLICATION QUESTIONS (Cont'd.)

PERMIT APPLICATION AC29-21698 (Scrubbers - J, K) (Cont'd.)

7. The sludge from the scrubber effluent ponds will be periodically dredged in a moist state and trucked to the existing dredge spoil area on the South side of the property. The moist state of the sludge will prevent the material becoming airborne. No controls are planned for this activity.

8. The method of capturing the particulate during the loading of Conveyor 19 from the storage silos is similar to the collection at a conveyor transfer. The spout from the silo, the silo gate and chute to the conveyor are attached as one piece with no openings for particulate to escape. The chute is attached (dust tight) to the covered skirt-board on Conveyor 19. A suction collection is positioned downstream from the load point on the top of the skirt-board enclosure. The particulate will be captured only at that silo being discharged. Only one silo will discharge at any one time. The particulate will be conveyed by duct to the scrubber.

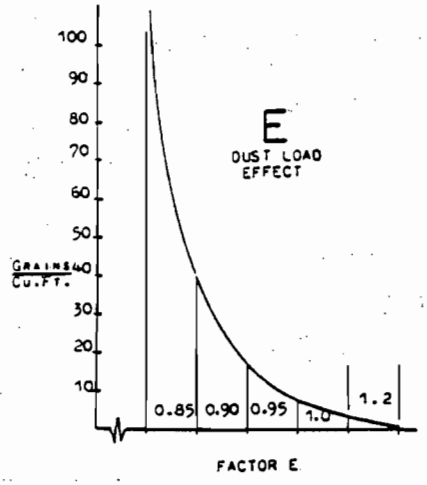


TABLE E shows dust load effect, and shows typical performance curve of a pulse jet or blow ring collector.

EXAMPLE PROBLEMS

1. **Given:** Air containing rock dust
   Nuisance venting, 10 grains/cf (Max.)
   Ambient Temperature
   10,000 cfm
   Dust Mostly -325 Mesh

   Required: Filter Ratio to determine Sq. Ft. of cloth.

   Solution: A = 10
   B = 1.0
   C = 1.0
   D = 1.0
   E = 1.0

   F.R. = 10 x 1 x 1 x 1 x 1 = 10 cfm/Sq. Ft.

   Therefore, 10,000 cfm/10 cfm Sq. Ft. = 1000 Sq. Ft. Required

   Extrapolation to a Shaker:
   FR = 10 ÷ 5 = 2 cfm/Sq. Ft. (or 10/4 = 2.5)
   10,000 cfm/2 or 2.5 = 4000 to 5000 Sq. Ft.

2. **Given:** 4000 cfm
   Pigment Dust, 2000 lbs./Hr.
   Effluent from MIKRO-ATOMIZER (Fine grinding Pulverizer producing 5 Micron ave. particle) 140°F.

   Required: Filter Ratio

   Solution: A = 9.0
   B = 0.9
   C = 0.8
   D = 0.9
   E = 0.85

   Filter Ratio = 9.0 x 0.9 x 0.8 x 0.9 x 0.85 = 4.95 cfm/Sq. Ft.

   Therefore, 4000/4.95 = 810 Sq. Ft. required.

3. **Given:** 36000 acfm effluent from a spray drier
   Plastic Resin Dust 20 to 30 μ average size (fines present to 0.5 μ) 1500 lbs/Hr.

   Required: Filter Rate

   $$\text{Grains/Ft.}^3 = \frac{1500}{60} \times \frac{7000}{36000} = 4.9$$

   Solution: A = 9.0
   B = 0.8
   C = 0.78
   D = 1.0
   E = 1.0

   Filter Ratio = 9.0 x 0.8 x 0.78 x 1.0 x 1.0 = 5.6 cfm/Sq. ft.

   Approximately 6500 Sq. Ft. MIKRO-PULSAIRE required.

The results of Example No. 1 agree well with field installations where MIKRO-PULSAIRE units are operating in rock products industries at between 8 cfm/sq. ft. and 11 cfm/sq. ft. on nuisance venting service. Note that operation at higher temperature with heavy loadings (such as a cement finish mill) reduces the filter rate to about 6.5 which also agrees with operating results.

Examples 2 and 3 are typical process applications. Many such installations are in operation today at filter ratios in the range shown.

MikroPul USF
CORPORATION
SUBSIDIARY OF UNITED STATES FILTER CORPORATION
10 Chatham Road, Summit, N.J. 07901 · Phone: (201) 273-6360

IT. NO.	QUANTITY	ARTICLES AND DESCRIPTION	UNIT PRICE	TOTAL AMOUNT

SHIPMENT COULD BE MADE IN APPROXIMATELY EIGHTEEN (18) TO TWENTY-TWO (22) WEEKS AFTER RECEIPT OF APPROVED CONTRACT DRAWINGS. APPROPRIATE APPROVAL DRAWINGS COULD BE SUPPLIED IN FROM THREE (3) TO FOUR (4) WEEKS AFTER RECEIPT OF PURCHASE ORDER. IF THE FOREGOING SHIPPING ESTIMATE DOES NOT MEET WITH YOUR REQUIREMENTS, WE WOULD APPRECIATE THE OPPORTUNITY TO REVIEW OUR VARIOUS MANUFACTURERS SHOP FABRICATION SCHEDULES IN ORDER THAT WE MIGHT IMPROVE UPON THE QUOTED TIME PERIOD, IF AT ALL POSSIBLE.

THE MIKRO-PULSAIRE DUST COLLECTORS COVERED BY THIS QUOTATION ARE GUARANTEED TO HAVE A MAXIMUM EFFLUENT DUST LOADING OF 0.02 GR/CU.FT. WITH STACK VISIBILITY CLEAR AT ALL TIMES.

THE EQUIPMENT PROPOSED IS DESIGNED IN PRINCIPLE TO MEET THE GENERAL CONDITIONS FOR SAFETY AS REQUIRED BY OSHA. HOWEVER, BECAUSE OF THE GENERAL AND SUBJECTIVE NATURE OF OSHA REQUIREMENTS AND BECAUSE OF THE PROPER INSTALLATION AND OPERATION OF THE EQUIPMENT WILL HAVE SIGNIFICANT AFFECT ON COMPLIANCE TO SUCH REQUIREMENTS, WE ARE UNABLE TO WARRANT, OR GUARANTY, EXPRESSLY OR IMPLICITLY, THAT THIS EQUIPMENT CONFORMS IN ALL RESPECTS TO OSHA REQUIREMENTS. SINCE YOU MUST PROTECT YOUR EMPLOYEES, WE WILL BE GLAD TO WORK WITH YOU TO HELP IDENTIFY RECOGNIZABLE HAZARDS.

ALL ITEMS OTHER THAN THOSE LISTED ABOVE FOR SUPPLY BY LINDER INDUSTRIAL MACHINERY COMPANY SHALL BE FURNISHED BY THE PURCHASER. AN APPROXIMATE LIST OF EQUIPMENT AND SERVICES TO BE FURNISHED BY THE PURCHASER FOLLOWS:

1. All foundations.
2. All electrical wiring, push button stations and motor starters.
3. Provide for and do all erection.
4. All equipment testing.
5. All compressed air piping from air compressor to collector manifold including pressure gauge and air line filter at comection to collector manifold.
6. All duct system and supports.

SPECIAL SUPPLEMENT: ANSWERS TO TECHNICAL
DISCREPANCIES NOTED IN J. P. SUBRAMANI LETTER, 8/6/79

PERMIT APPLICATION AC29-21696 (DC-A)

1. The existing rotary car dump is used exclusively for the transfer of wet phosphate rock and contains no control equipment for that operation.

2. Dried phosphate rock is loaded into covered hopper cars at the Mines Dry Mill.

Quick way to find fabric filter cloth area with this . . .

New Filter Rate Guide

If you buy fabric filters, you'll find this filter rate guide a handy tool in figuring the number of sq. ft. of cloth area needed for efficient collector operation.

MOST USERS AND SUPPLIERS of fabric dust collectors will agree that a bag filter can never be too large. More cloth area means lower pressure drop, reserve capacity for surges or expansion, and longer media life.

However, the financial facts of life make it necessary to use a fabric collector sized without extravagant amounts of extra media. The problem, then, is to select the highest filter rate (velocity through the media expressed in ACFM/Sq. Ft. or Feet Per Minute) consistent with good operation.

Many factors are involved in fabric filter performance. The following summarizes the major items:

MATERIAL FACTORS

(Particulate matter)
Fineness and Size Distribution
Particle Shape
Agglomeration Tendencies
Static Charge or Tendency
Other Physical Properties
(Adhesion, Sublimation, deliquisence)
Chemical Properties
(Crystallization, Polymerization Reactivity)

SYSTEM FACTORS

Gas Constituents
Loading
Media Limitations
Temperature
Humidity
Desired Differential Pressure
(If different from IGCI standards)
Turbulence
Dust Origin

The precise function of each factor is not easily defined mathematically; in fact, some variables defy logic almost completely. Thus, dust collector application remains somewhat of an art, with field experience and even intuition playing an important role.

The Mikro Filter Rate Guide is an attempt to define the most important factors to a sufficient degree for good equipment selection. It cannot, of course, replace good judgement, and in fact should be considered a *Guide* subject to interpretation by the manufacturer of the dust collector under consideration. The target performance of the Guide is an equilibrium differential pressure of 3″ to 4″ w.g. across media at design flow and load conditions.

The application of this Guide is to high performance, high filter rate (or velocity) collectors which usually use a felt media combined with frequent and thorough cleaning. Examples are pulse jet types and blow ring style units.

A conservative extension of the results to shaker type collectors (woven media, less frequent cleaning) can be obtained by dividing the Guide's filter rate by 4 or 5. Note, however, that high dust loadings permitted in the high performance units may be totally impractical for shakers. Many additional variables must be considered in this extrapolation, such as precleaners, special entries, etc., so that it is advisable to obtain filter rates from individual manufacturers.

The Guide consists of five factors which are multiplied together to arrive at a filter rate. These are:

A. *This factor is obtained from Table A.* It is a function of the material itself, combining many of the items that effect filtration. Laboratory test can determine this factor, but field experience on a given material is far superior since longer operating periods are sometimes necessary to arrive at true equilibrium. The normal datum used is operation at ambient temperature with average 10-50 micron dust and approximately 10 grains/cu. ft. load from a nuisance class application.

B. *An application factor.* Obviously, process operation with attendant upsets must be treated differently than simple venting. This factor attempts to classify common applications.

C. *The temperature effect.* Experience has shown more cloth is required with increased temperature approximately as shown on Curve "C". The explanation is probably a gas viscosity increase with temperature. This is eventually counteracted by reduced density, hence the curve is asymptotic to a value of approximately 0.7 at 250° or more.

D. *The fineness factor.* This obvious factor needs little explanation. It is sometimes difficult to divorce fineness from the character of the material. Fume in general has a low "A" factor because of fineness.

E. *The dust load curve.* This curve is the typical performance curve of a pulse jet or blow ring collector plotted at a constant differential pressure. It usually becomes asymptotic to a given cfm/Sq. Ft. which means that above a certain loading, normally in excess of 100 grains/Cu. Ft., a given collector can handle more material without lowering cfm/Sq. Ft. The probable reason for this is the fact that the air becomes saturated with dust, much as it can become saturated with water and simply cannot hold more, thus the bag surfaces receive a saturation-limited rate of accumulation per unit time.

TABLE B

APPLICATION	FACTOR B
NUISANCE VENTING Relief of transfer points, conveyors, packing stations, etc.	1.0
PRODUCT COLLECTION Air conveying-venting mills flash driers classifiers, etc.	0.9
PROCESS GAS FILTERATION Spray driers, kilns, reactors, etc.	0.8

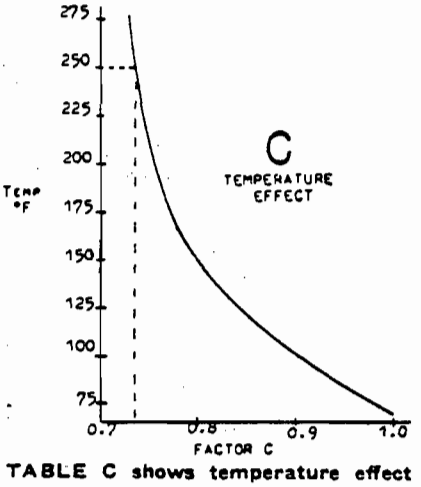


TABLE C shows temperature effect as related to amount of cloth fabric required.

TABLE D

FINENESS	FACTOR D
Over 100 micron	1.2
50 to 100 micron	1.1
10 to 50 micron	1.0
3 to 10 micron	0.9
Under 3 micron	0.8

TABLE A

Multiplier A	15*	12	10	9.0	6.0**
MATERIALS	Cake Mix Cardboard Dust Cocoa Feeds Flour Grain Leather Dust Sawdust Tobacco	Asbestos Buffing Dust Fibrous & Cellulosic Material Foundry Shakeout Gypsum Lime (Hydrated) Perlite Rubber Chemicals Salt Sand Sandblast Dust Soda Ash Talc	Alumina Aspirin Carbon Black (Finished) Cement Ceramic Pigments Clay & Brick Dusts Coal Flourspar Gum, Notural Kaolin Limestone Perchlorates Rock Dust, Ores and Minerals Silica Sorbic Acid Sugar	Ammonium Phosphate-Fertilizer Coke Diatomaceous Earth Dry Petrochemicals Dyes Fly Ash Metal Powder Metal Oxides Pigments, Metallic and Synthetic Plastics Resins Silicates Starch Stearates Tannic Acid	Activated Carbon Carbon Black (Molecular) Detergents Fumes and other dispersed products direct from reactions Powdered Milk Soaps

*In general physically and chemically stable materials.

**Also includes those solids that are unstable in their physical or chemical state due to hygroscopic nature, sublimation and/or polymerization.

LINDER INDUSTRIAL MACHINERY COMPANY

SERVICE WITH WINGS

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August 10, 1979

Jacobs Engineering Group
P.O. Box 2008
Lakeland, Florida 33803

Technical
H 4

ATTENTION: Norm Curran

REFERENCE: Project No. 28-2312
Agrico - Big Bend
Linder Proposal No. H7-13

Dear Norm:

In response to your request of Terry Wheeler and in accordance with our telephone conversation today, we are enclosing MikroPul bulletin entitled "New Filter Rate Guide" which should satisfy the D.E.R. request for test data for determining efficiency of the Mikro-Pulsaire collectors. As we discussed, the efficiency of the collector is a function of determining the number of square feet of cloth area required for the application. The attached bulletin addresses itself directly to determining the proper filter ratio.

Should you have any questions regarding the enclosed data or if we may be of further service to you in this regard, please do not hesitate to call.

Very truly yours,
LINDER INDUSTRIAL MACHINERY COMPANY

Gary L. Allen
Sales Engineer

GLA/mlp
Enclosure

cc: Terry Wheeler - Linder

A G R I C O C H E M I C A L C O M P A N Y

BIG BEND TERMINAL

PROJECT DESCRIPTION AND SCOPE

The purpose of this project is to construct new facilities at the existing Agrico Big Bend Terminal. One part of the new facilities will receive dry phosphate rock by railcar, transfer to storage, reclaim from storage and transfer to ships or barges via the existing shiploader. Initially, and until the silo storage and reclaim system is operable, seven of the dust collectors for the above system will be installed on the existing conveyor system to enable dry rock to be transferred directly for shipping. The second part of the facilities will receive phosphate fertilizer by railcar and truck, transfer to storage, reclaim and transfer by the existing conveyor system to the shiploader for loading ships and barges. This part also will have the provision to receive and transfer directly for shipping.

Approximately 2,800,000 TPY of dry rock will be received at the terminal. The dry rock will be received by the existing railcar rotary dump, Dust Collector (A) will be installed at this site. The rock will be conveyed by existing Conveyor No. 1 and transferred to Conveyor No. 15, Dust Collector (B) will be installed at this site. The material will be transferred from Conveyor No. 15 to Conveyor No. 16, Dust Collector (C) will be installed at this site. Conveyor No. 16 will discharge to Conveyor No. 17, Dust Collector (G) will be installed at this site. Conveyor No. 17 will discharge into Silo No. 1 or to tripper Conveyor No. 18. Conveyor No. 18 will discharge into Silos Nos. 2 through 12. The discharge of Conveyor No. 17 and Conveyor No. 18 will

be within the gallery atop the silos. The silos and silo discharges will be vented by Scrubbers (J) and (K). The silo venting will create a negative pressure in the gallery to contain the dust from the discharge of Conveyors Nos. 17 and 18. The silos will discharge to Conveyor No. 19 for transfer to existing Conveyor No. 4, Dust Collector (H) will be installed at this site. Existing Dust Collector No. "DC-3" (A029-12987) will be replaced by Dust Collector (E). The existing Dust Collector No. "DC-4" (A029-14855) will be replaced with new Dust Collector (F) to service the shiploader.

Initially, Dust Collector (B) will control the transfer from existing Conveyor No. 1 to existing Conveyor No. 2. Dust Collector (C) will control the transfer from existing Conveyor No. 2 and the existing stackrake to existing Conveyor No. 3. Dust Collector (L) will control fugitive particulate at the stackrake. Dust Collector (D) will be installed in place of existing Dust Collector "DC-2" (A029-12987) to control the transfer from existing Conveyor No. 3 or existing Conveyor No. 14 to existing Conveyor No. 4.

Conveyors Nos. 15 through 19 will convey 2700 TPH of dry phosphate rock. These conveyors will have covers, except tripper Conveyor No. 18, to prevent windblown particulate and to keep the material dry.

The dust collectors will return the collected particulate to that conveyor exiting from the transfer point.

The scrubber effluent will be partially recycled and partially bled off to a settling pond. The clarified pond water will be recycled to the Scrubber. The settled particles will be dredged from the pond, as required, and disposed of on the south side of the property.

Fresh water will be required from time to time to provide the necessary supply for the scrubbers. Excess water in the scrubber effluent pond, should this condition occur, and ground water runoff will be retained in an existing retention pond.

Approximately 800,000 TPY (400,000 TPY at present) of fertilizer products will be received at the terminal. These products will be unloaded into below grade hoppers and transferred to Conveyor No. 20, Dust Collector (A') will be installed at this site. The material will be transferred from Conveyor No. 20 to Conveyor No. 21 or Conveyor No. 28, Dust Collector (B') will be installed at this site. Conveyor No. 21 will transfer to Conveyor No. 22, Dust Collector (C') will be installed at this site. Conveyor No. 22 will transfer to storage tripper Conveyor No. 23, Dust Collector (D') will be installed at this site. Conveyors Nos. 24 and 26 will be for storage reclaim within the storage building. The latter conveyors will transfer to Conveyors Nos. 25 and 27, which will, in turn, transfer to existing Conveyors Nos. 12 and 14. These conveyors are also within the storage building. Conveyor No. 28 will transfer to Conveyor No. 29, Dust Collector (E') will be installed at this site. Conveyor No. 29 will transfer to existing Conveyor No. 14 within the storage building.

Conveyors Nos. 20 through 23 and 28 and 29 will convey 500 TPH of fertilizer products. These conveyors will also be covered. Conveyors Nos. 24 and 25 will convey 1000 TPH, while Conveyors Nos. 26 and 27 will convey 1500 TPH.

Dust Collectors (D), (E) and (F) will control fertilizer particulate, in addition to dry phosphate rock particulate.

SPECIAL SUPPLEMENT: ANSWERS TO TECHNICAL
DISCREPANCIES NOTED IN J. P. SUBRAMANI LETTER, 8/6/79

ITEMS COMMON TO ALL APPLICATIONS RECEIVED:

1. The proposed start-up date for the new operations is approximately 16 months following construction permits approval. Our present estimate of this date is May, 1981.

2. Due to around-the-clock nature of the terminal operations, we need the flexibility of 24 HPD, 7 DPW, 52 WPY operation. Scheduling of the various operations of receiving, storing and shipping either dry phosphate rock or granular fertilizer will take cognizance of hourly, daily, and annual emissions limitations.

3. BACT emission rates are proposed.

4. Stack heights are above grade.

5. Dried products retain heat for considerable lengths of time in storage, also heat generated by control equipment or inherent in scrubbant may result in gas exit temperatures above ambient. For modeling purposes, our best engineering judgment is 90°F, maximum ambient, 105°F maximum stack temperature.

6. Applications will show UTM and latitude and longitude to nearest 0.1 Km. for stacks.

7. & 8. The method of collecting dust at the conveyor transfer points is as follows: The material, dry phosphate rock, -3/4" +150 mesh; will be conveyed at a rate of 2700 short tons per hour on 54" wide conveyor belts. The conveyors will travel at approximately 370 feet per minute and will utilize 35° equal roll idlers. The conveyors will have top covers to reduce the wind from blowing the conveyed material from the belts. Existing Conveyors Nos. three (3) and five (5) will not be covered because of the traveling equipment associated with their discharge arrangements.

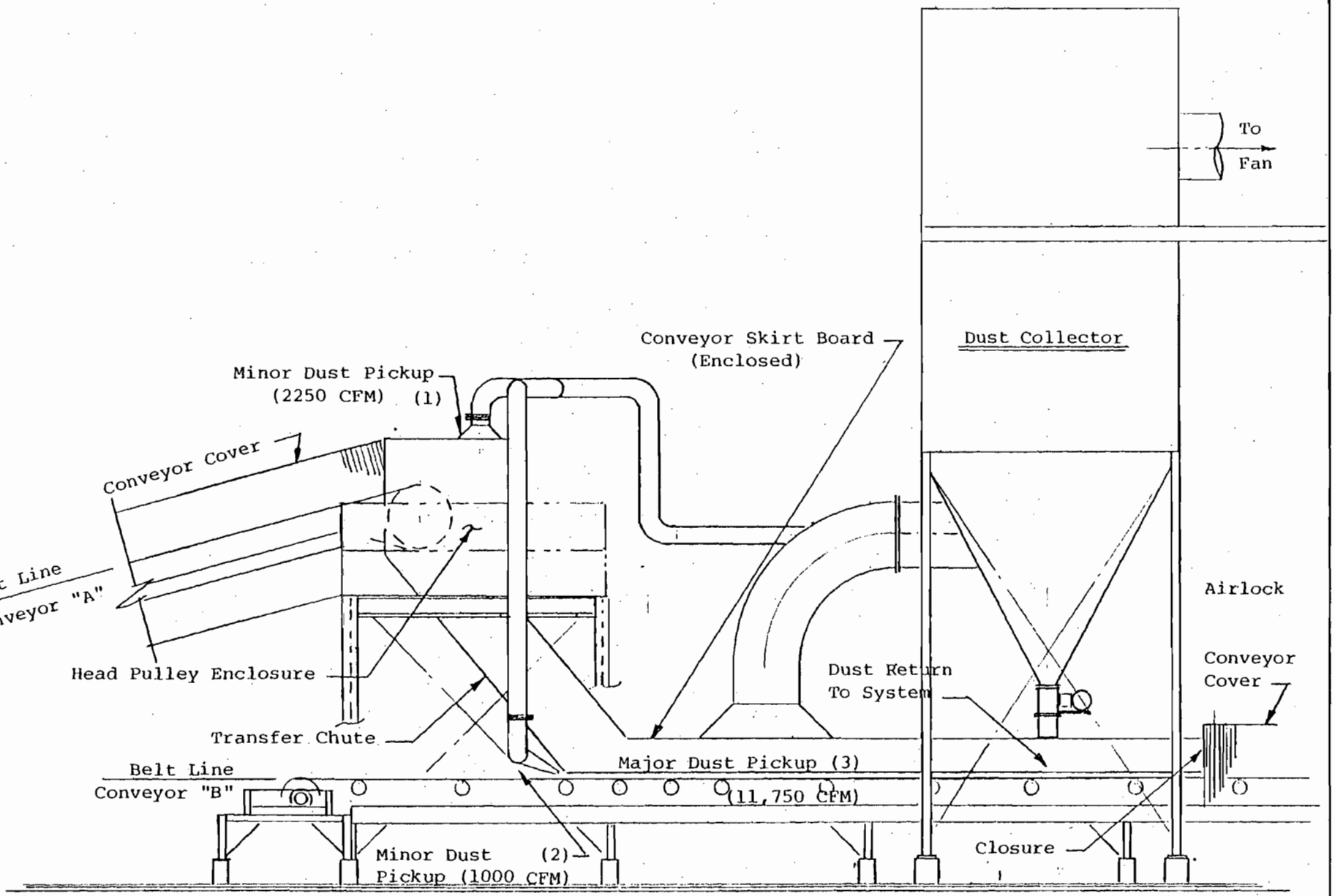
   The attached schematic illustrates the discharge from Conveyor A to Conveyor B. There are three particulate pickup points at each transfer. Point one (1) will be sized at 500 CFM per foot of belt width, and point two (2) at 1000 CFM. (American Conference of Governmental Industrial Hygienists). These points are minor pickup points. The major pickup point -- three (3) -- will be sized for 11,750 CFM at the receiving of the material onto Conveyor B. This point is designed by reference to Hemeon.

   The collected particulate will be discharged from the dust collector via a motorized airlock onto Conveyor B downstream from the pickup point at three (3).

   Similar methodology is followed in the conveying of granular fertilizer.

9. Dried rock is received as run-of-mine, -3/4" +150 mesh.

10. See attached vendor's data sheets for dust collectors.



SCHEMATIC - DUST COLLECTION
CONVEYOR TRANSFER POINT

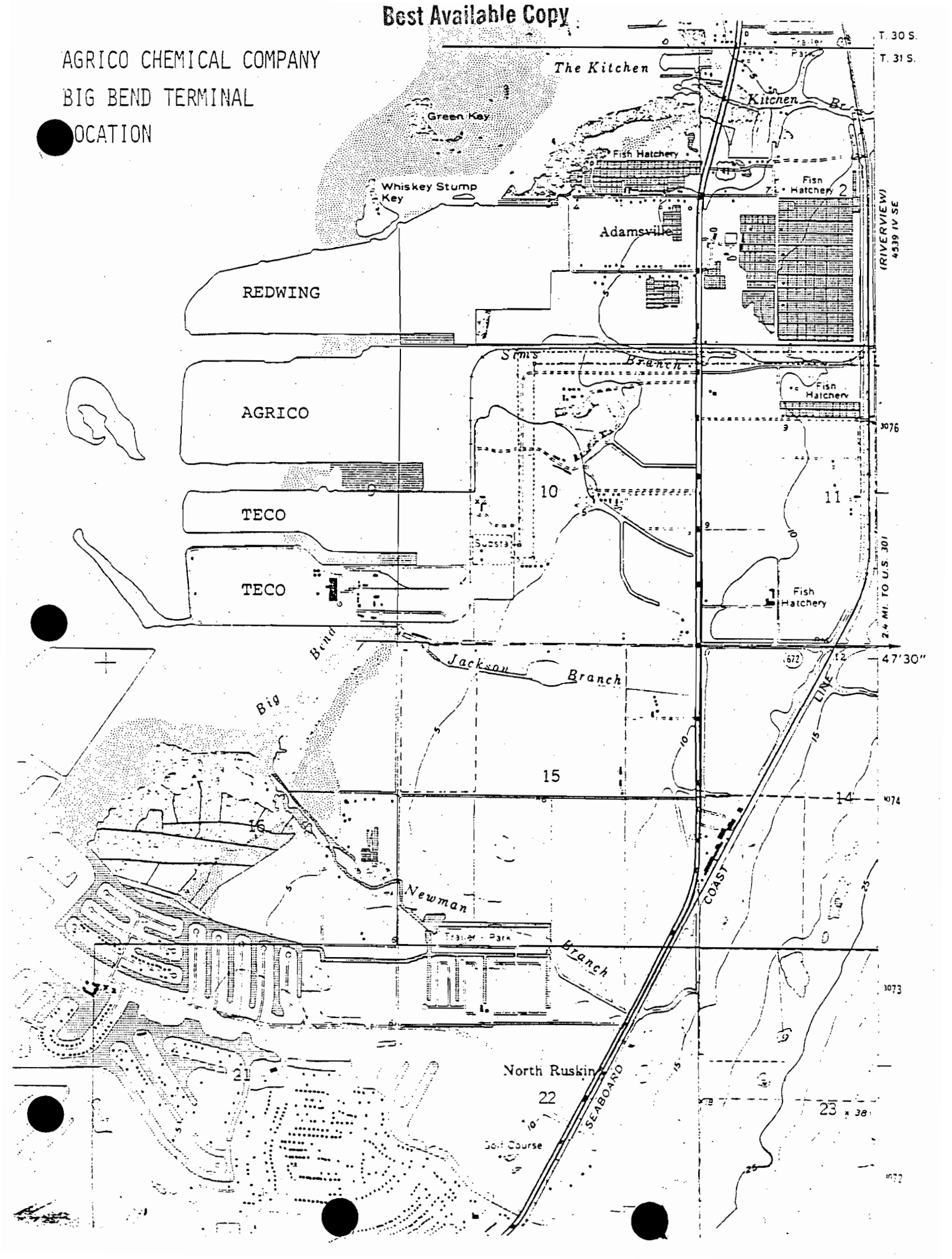
AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL

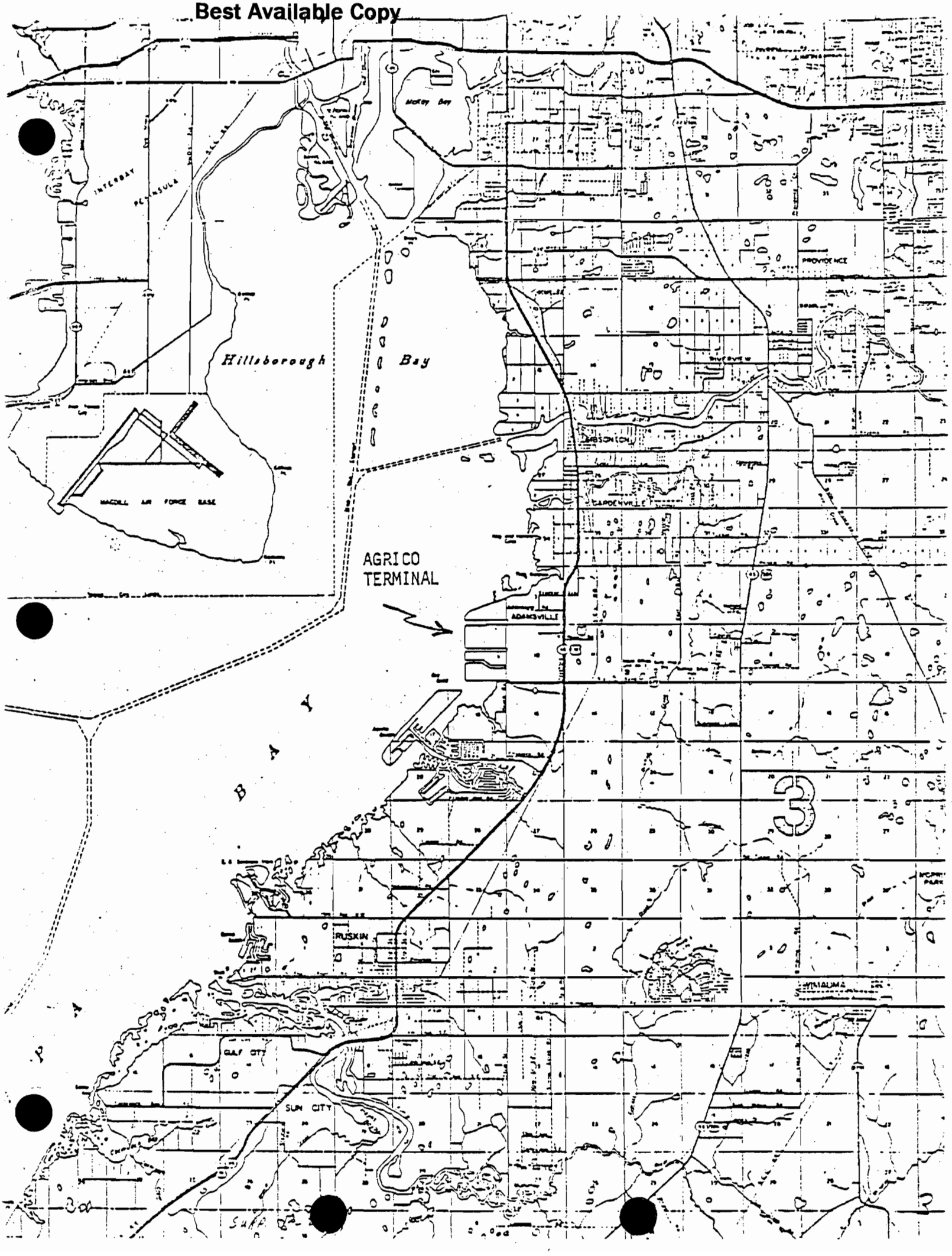
Supplement No. TECH.
Discrepancies 7 & 8

AGRICO CHEMICAL COMPANY

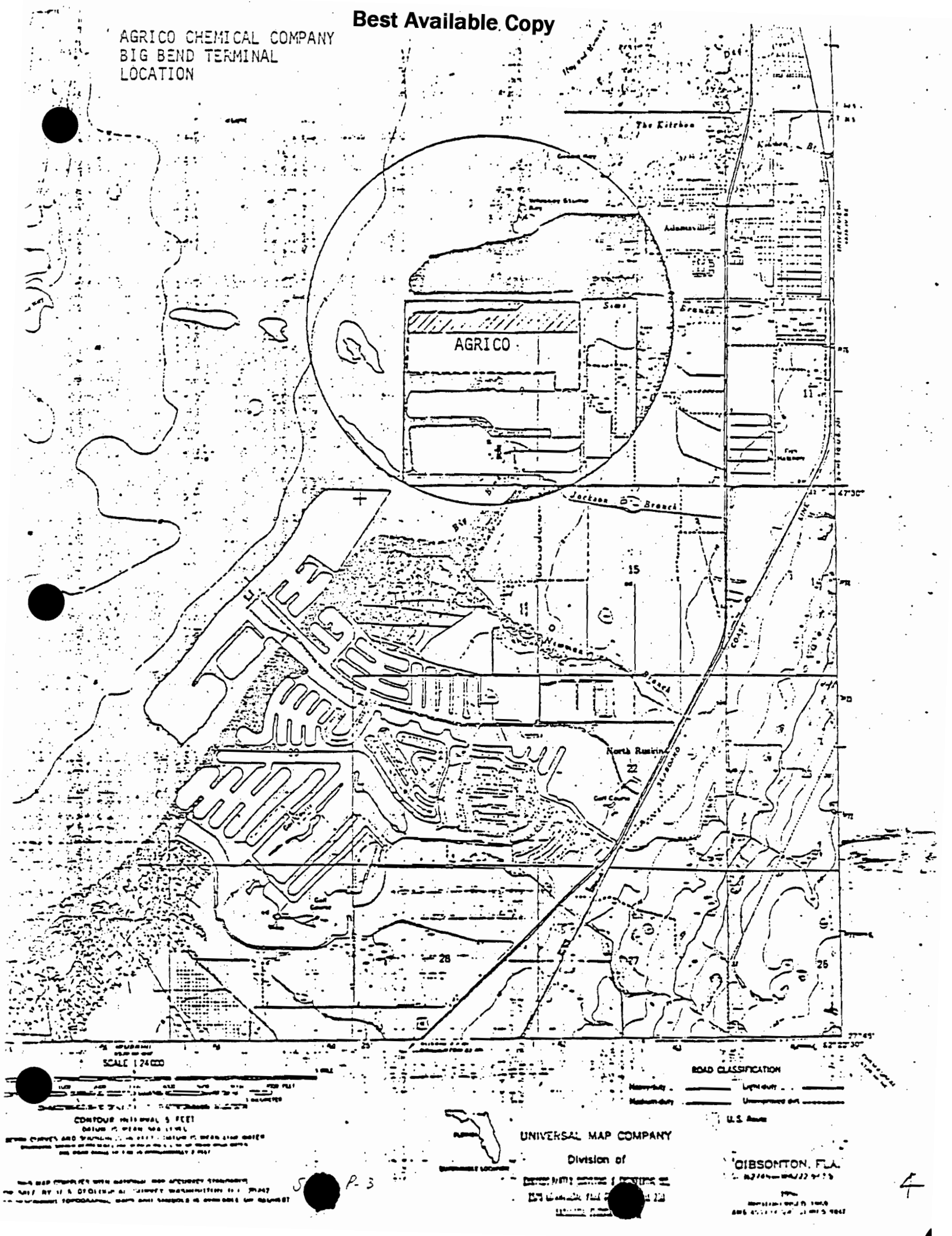
BIG BEND TERMINAL

LOCATION



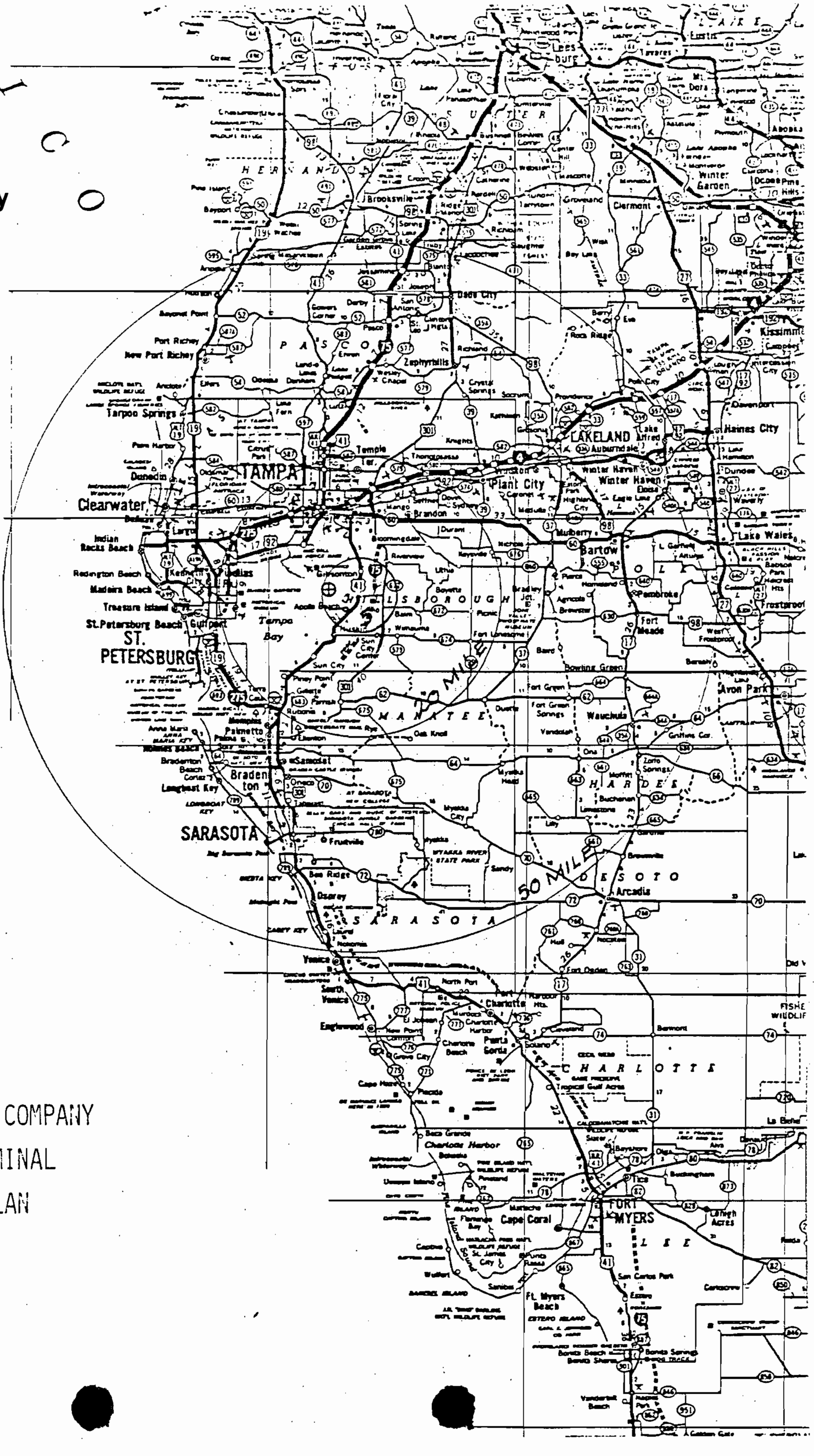


AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL
LOCATION



AGRICO

Best Available Copy

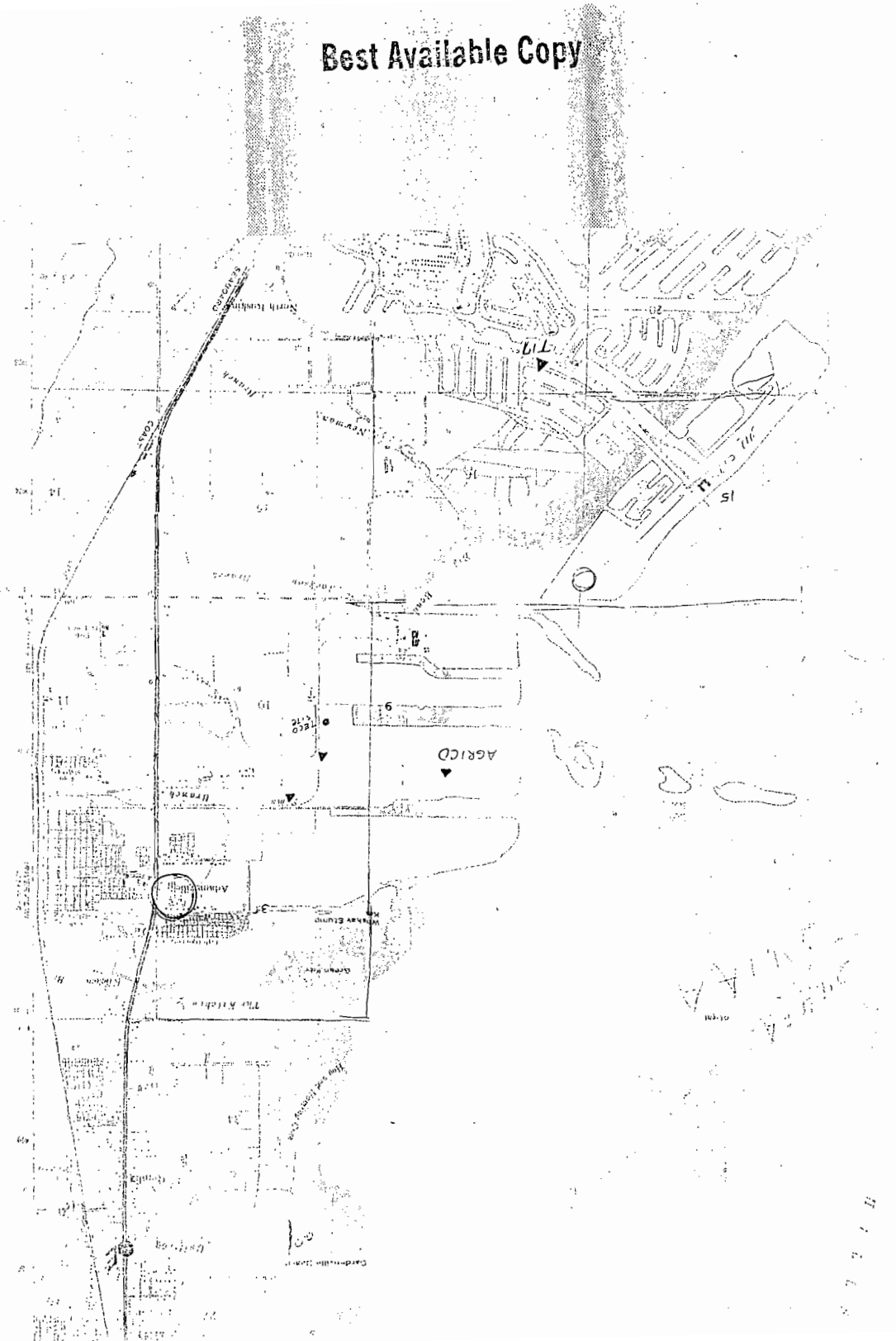


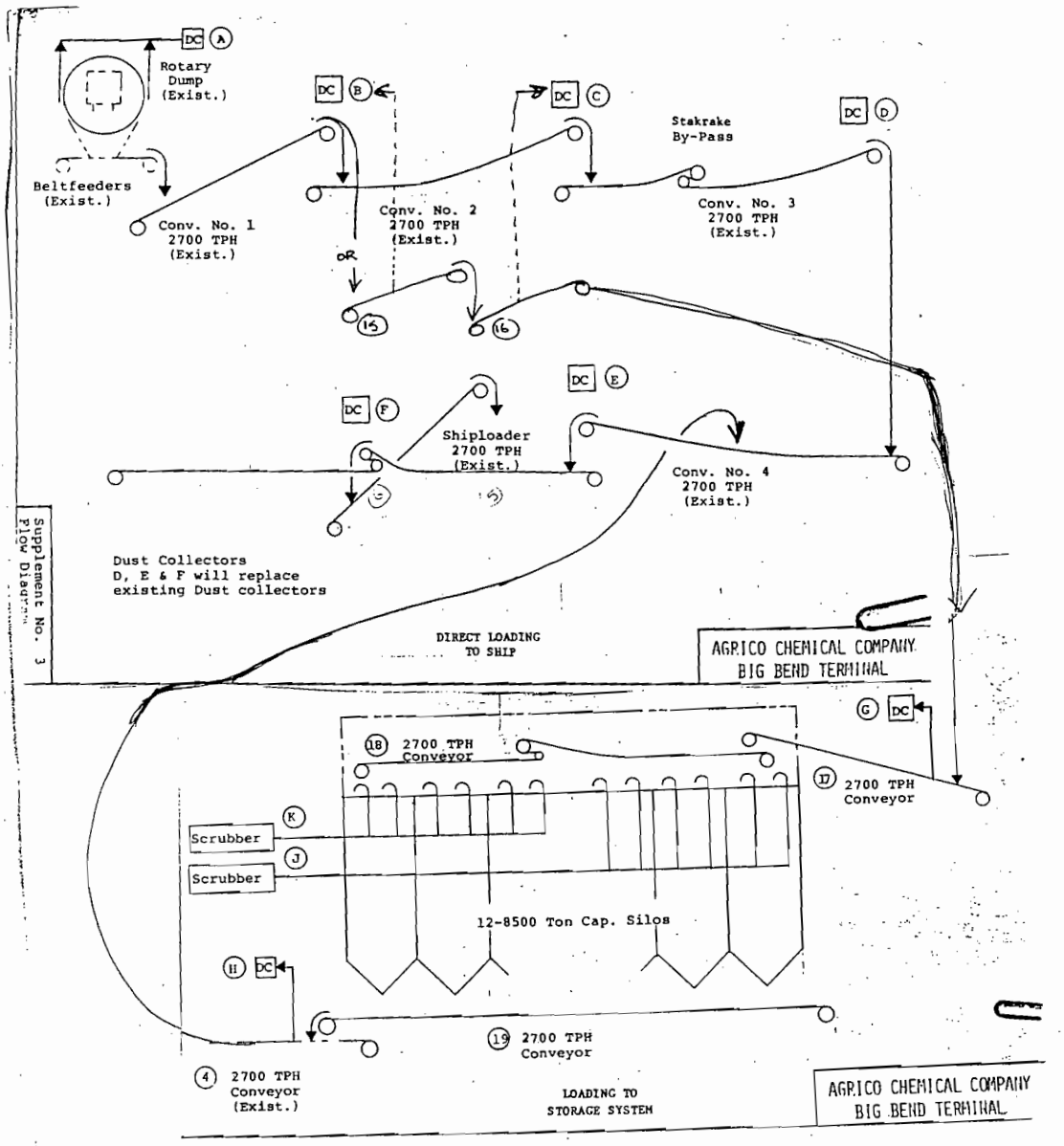
AGRICO CHEMICAL COMPANY

BIG BEND TERMINAL

LOCATION PLAN

Best Available Copy




Supplement No. 3
Flow Diagram
DC A
Rotary Dump (Exist.)
Beltfeeders (Exist.)
Conv. No. 1 2700 TPH (Exist.)
DC B
Conv. No. 2 2700 TPH (Exist.)
DC C
Stakrake By-Pass
DC D
Conv. No. 3 2700 TPH (Exist.)
OR
15
16
DC E
DC F
Shiploader 2700 TPH (Exist.)
Conv. No. 4 2700 TPH (Exist.)
Dust Collectors D, E & F will replace existing Dust collectors
DIRECT LOADING TO SHIP
AGRICO CHEMICAL COMPANY BIG BEND TERMINAL
G DC
18 2700 TPH Conveyor
17 2700 TPH Conveyor
K
Scrubber
J
Scrubber
12-8500 Ton Cap. Silos
H DC
19 2700 TPH Conveyor
4 2700 TPH Conveyor (Exist.)
LOADING TO STORAGE SYSTEM
AGRICO CHEMICAL COMPANY BIG BEND TERMINAL

49141/2 - Buff
89141/2 - Green
42141/2 - White

AGRICO

		Description	1 Utilization Rate (#/HR)	2 Pollutant	3 Actual Discharge (#/HR / TPY)	4 Allowable Discharge (#/HR)	5 Materials Input (#s./HR)	Materials Output (#s./HR)	7 Stack Ht. (FT.)	8 Stack Dia. (FT.)	9 Flow Rate (ACFM)	10 % H_2O Vapor	11 Exit Temp.	12 Total Annual Throughput (TPY)	13 Operating Schedule 103/HR.	14
B	1	Rock Receiving	5.4 x 10⁶	TSP	15.6 / 8.09	61.28	SEE 1.	UTIL - 16#	25	7.14	100,000	4.7	+15°F	2.8×10^6	1037	
C	2	Rock Conveying	" "	TSP	2.4 / 1.24 2.4 / 1.24 2.4 / 1.24 2.4 / 1.24	61.28 61.28 61.28 61.28	SEE 1.	UTIL - 10#	35 60 60 60	2.75 EACH	15,000 EACH	" "	" "	" "	1037	
D	3	Dry Rock Storage	" "	TSP	13.8 / 7.16 13.8 / 7.16	61.28 61.28	SEE 1.	UTIL - 18#	40 40	4 4	60,000 EACH	5.5	" "	" "	" "	
E	4	Granular Plant Food &	3×10^6	TSP	2.4 / .68 2.4 / .68	55.78 55.78	SEE 1.	UTIL - 5#	45	2.75 EACH	15,000 EACH	4.7	" "	~	533	
		Dry Phosphate Rock	5.4×10^6		2.4 / 1.24 2.4 / 1.24	61.28 61.28		UTIL - 5#	45						1037	
F	5	Dry Phosphate Rock	5.4×10^6	TSP	7.8 / 4.04	61.28	SEE 1	UTIL - 8#	60	5	50,000	4.7	" "	2.8×10^6	1037	
		Granular Fertilizer	3×10^6		7.8 / 2.08	55.78		UTIL - 8#						$.8 \times 10^6$	534	
G	6	Granular Plant Food	1×10^6	TSP	9.0 / 3.6	46.79	SEE 1	UTIL - 9#	35	5.5	60,000	4.7	" "	$.4 \times 10^6$	800	
H	7	Granular Plant Food	1×10^6	TSP	1.8 / .72 1.8 / .72 1.8 / .72 1.8 / .72	46.79 46.79 46.79 46.79	SEE 1	UTIL - 7#	40 60 130 50	2.25	10,000 EACH	4.7	"	$.4 \times 10^6$	800	

6/28 al

Pls research & draft a response. As this is an NSPS applicability EPA input is needed

Memorandum

Florida Department of Environmental Protection

RECEIVED
JUN 26 1995
Bureau of Air Regulation

TO: Clair Fancy

FROM: Michael Hewett

DATE: June 23, 1995

SUBJ: IMC-Agrico Company; Big Bend Terminal; Applicability of Subpart X

I was recently contacted by Larry Sellers concerning the renewal of Air Permit AO29-161400, for IMC-Agrico. This is apparently the second or third time the permit has been renewed and Subpart X has never been applied before. However, this time, Hillsborough County EPC is considering applying the EPA standards.

It is IMC-Agrico's contention that, even though the intent of Subpart X is not clear, EPA's background information document states that the Subpart X standards should only be applied to **initial** storage of granular triple super phosphate.

Mr. Sellers has already contacted the EPA in an effort to obtain clarification on the subject. He would also like the Department to interpret the applicability of Subpart X. I am completely unfamiliar with the subject material and I know we have permitting engineers that have dealt with phosphate storage facilities before. If you think a response is warranted, could you have someone in your section look at the information attached and give an opinion on the subject?

Thank you.

Attachment

Law Offices
HOLLAND & KNIGHT

A Partnership Including Professional Corporations

315 South Calhoun Street
P.O. Drawer 810 (ZIP 32302-0810)
Tallahassee, Florida 32301

Atlanta	Orlando
Fort Lauderdale	St. Petersburg
Jacksonville	Tampa
Lakeland	Washington, D.C.
Miami	West Palm Beach

904-224-7000
FAX 904-224-8832

FACSIMILE

TO:

MIKE HEWITT	**DEP**
NAME	COMPANY/FIRM
TALLAHASSEE	**FL**
CITY	STATE
922-6979	**488-0114**
FAX NUMBER	TELEPHONE NUMBER

If you did not receive all of the pages or find that they are illegible, please call

(904) 425-5645

FROM:

LARRY SELLERS	**425-5671**
NAME	TELEPHONE NUMBER

8
TOTAL NUMBER OF PAGES

MESSAGE:

CONFIDENTIALITY NOTE:

The following facsimile is intended solely for the use of the individual to whom it is addressed and may contain information that is privileged, confidential, or otherwise exempt from disclosure under applicable law. If the reader of this message is not the intended recipient or the employee or agent responsible for delivering the message to the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this communication is strictly prohibited. If you have received this communication in error, please immediately notify us by telephone and return the original message to us at the above address via the U.S. Postal service. Thank you.

FOR THE RECORD:

DATE: **6/21/95**

URGENCY: ☐ SUPER RUSH ☐ RUSH ☐ REGULAR

FAXED BY: AMOUNT:

FILE #: **21000-131** CLIENT NAME: **IMC**

CONFIRMED: ☐ YES ☐ NO NAME: TIME:

Law Offices
HOLLAND & KNIGHT

A Partnership including Professional Corporations

315 South Calhoun Street
Suite 600
P.O. Drawer 810 (ZIP 32302-0810)
Tallahassee, Florida 32301
904-224-7000
FAX 904-224-8832

Atlanta
Fort Lauderdale
Jacksonville
Lakeland
Miami
Orlando
St. Petersburg
Tampa
Washington, D.C.
West Palm Beach

VIA TELECOPY

MEMORANDUM -- June 21, 1995

TO: Mike Hewitt
Department of Environmental Protection

FROM: Lawrence E. Sellers, Jr.

RE: IMC-Agrico Company; Big Bend Terminal;
Renewal of Air Permit AO29-161400;
Applicability of Subpart X.

A question has arisen regarding the applicability of Subpart X to IMC-Agrico Company's distribution facility at the Big Bend Terminal in Hillsborough County, Florida.

Enclosed is a copy of a letter dated July 20, 1994, from IMC-Agrico Company to the Environmental Protection Commission of Hillsborough County. This letter explains why the new source performance standards in Subpart X are not applicable to these distribution facilities.

Also enclosed is a copy of a letter dated August 22, 1994, from IMC-Agrico Company to Mr. David McNeal at Region IV. This letter transmits the pages from the background information document that are referenced in the July 20 letter to the County.

Please give me a call at 425-5671 after you have had the opportunity to review these materials.

LES/kfs
Enclosures

cc: J. M. Stewart, IMC-Agrico Company
(w/enclosures)

TAL-65270

IMC AGRICO

Via Hand Delivery

July 20, 1994

Mr. Ben Kalra
Air Permit Engineer
Environmental Protection Commission of Hillsborough County
1410 North 21st Street
Tampa, Florida 33605

RE: Big Bend Terminal, Renewal of Air Permit AO29-161400, FDEP File No. AO29-252389

Dear Mr. Kalra:

As you know, we have submitted an application for the renewal of the referenced air permit. This permit authorizes certain activities at our Big Bend Terminal. On June 20, we received your letter dated June 17 requesting certain additional information regarding this application. The purpose of this correspondence is to respond to that request.

Applicability of Subpart X.

You first asked that we confirm the applicability of the new source performance standards (NSPS) in 40 CFR, Part 60, Subpart X, Standards of Performance for the Phosphate Fertilizer Industry: Granular Triple Super Phosphate (GTSP) Storage Facilities. You correctly note that no prior permit for this facility has ever referred to, or required compliance with, these NSPS.

No prior permit has required compliance with these NSPS because these provisions do not apply to the subject distribution facilities.

Subpart X applies only to GTSP "storage facilities." EPA's background information document (BID) explains the development of Subpart X, and it makes clear that the term "storage facility" includes only the initial storage location (which is usually adjacent to the manufacturing process), where emissions of fluorides are expected due to the curing process:

> The proposed standard would limit emissions of fluorides from the storage building, which is the affected facility. Major sources includes but are not limited to the product pile, transfer conveyors and elevators, screens, and mills. The standards apply at the point(s) where emissions are discharged from the air pollution control system or from the affected facility if no air pollution system is utilized.

Bid at p. 61.

The description of the process also makes clear that EPA intended the NSPS to apply only to storage facilities associated with a manufacturing operation:

> After manufacture, GTSP is moved to a storage building where it remains until the reaction is completed or the product is "cured." *** The GTSP is distributed to a predetermined area in the building by conveyors. After 3 to 5 days, during which fluorides evolve from the storage pile, the product is considered cured and ready for shipping. Front-end loaders move the GTSP to elevators or hoppers where it is conveyed to screens for size separation. Oversize material is rejected, pulverized, and returned to the screen. Undersized material is returned to the GTSP production plant. Material within specification is shipped as product.

BID at pp. 61-63.

jma/c:/wpwin/bbdadd.wp

Via Fax - 1-404-347-3059

August 22, 1994

Mr. David McNeal
United States Environmental Protection Agency
Region IV

RE: NSPS (Subpart X) Applicability to GTSP Distribution Facilities
Background Information Document (BID) Pages

Dear Mr. McNeal:

Attached are copies of pages from the BID (EPA-450/2-74-019a) that are referenced in our letter to the Environmental Protection Commission of Hillsborough County dated July 20, 1994, faxed to you last week.

If you have any questions or need additional information, please do not hesitate to call me at 813-634-3922, ext. 3616.

Jeffrey M. Stewart
Environmental Programs Coordinator

cc: w/o attachment
J. N. Allen, Jr.
L. Sellers, Holland & Knight (Fax)
G. G. Williams

Best Available Copy

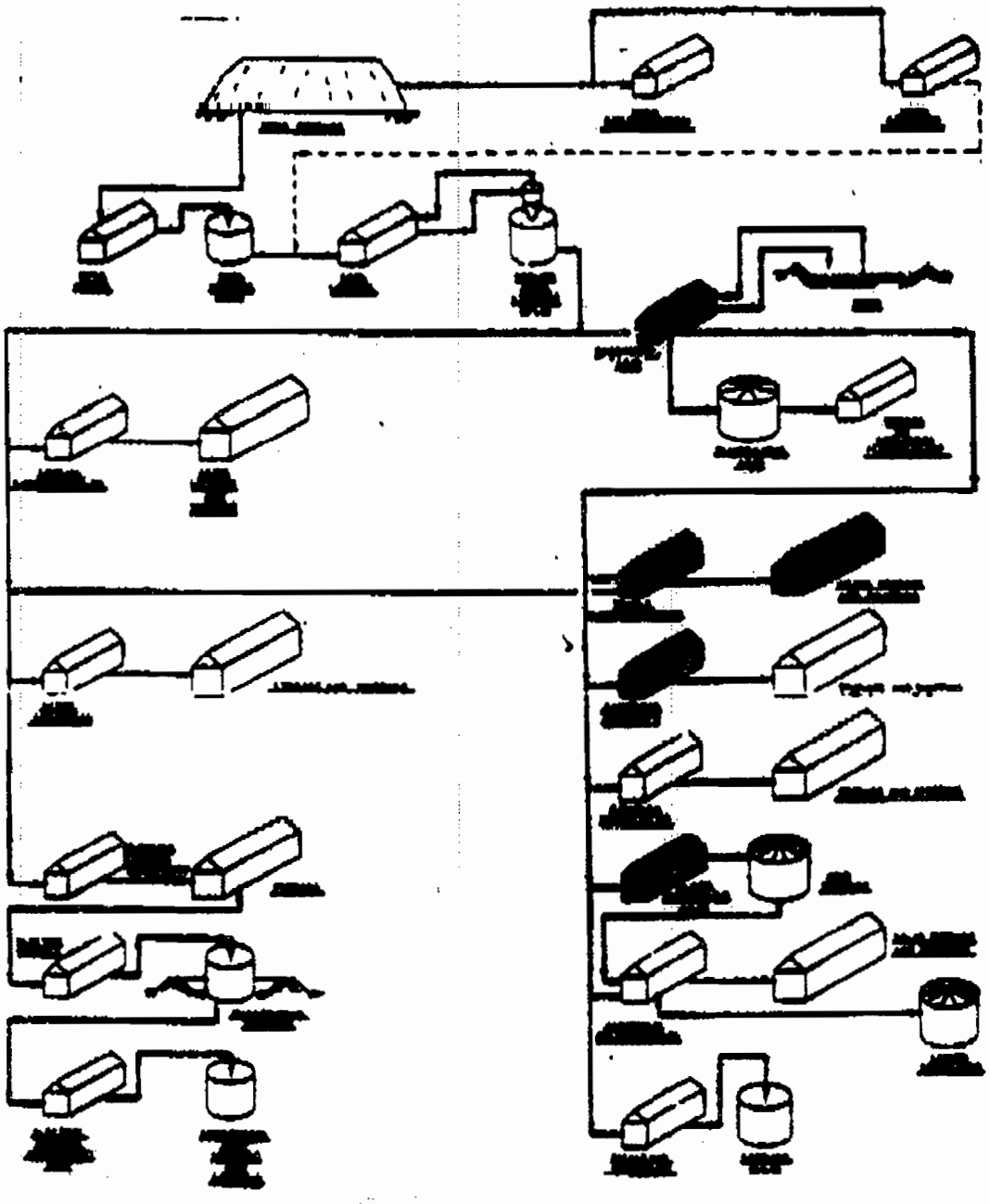


FIGURE 1
PHOSPHATE ROCK PROCESSING INDUSTRY

GRANULAR TRIPLE SUPERPHOSPHATE STORAGE

SUMMARY OF PROPOSED STANDARDS

Standards of performance are being proposed for new granular triple superphosphate (GTSP) storage facilities. The proposed standard would limit emissions of fluorides from the storage building, which is the affected facility. Major sources include but are not limited to the product pile, transfer conveyors and elevators, screens, and mills. The standards apply at the point(s) where emissions are discharged from the air pollution control system or from the affected facility if no air pollution control system is utilized.

The proposed standards would limit emissions to the atmosphere as follows:

Total Fluorides

No more than 0.25 gram total fluorides per hour per metric ton of P_2O_5 in storage (5×10^{-4} pound per hour per ton).

Visible Emissions

Visible emissions shall be less than 20 percent opacity.

DESCRIPTION OF PROCESS

After manufacture, GTSP is moved to a storage building where it remains until the reaction is completed or the product is "cured." Figure 17 illustrates the activities in the storage building. The GTSP is distributed

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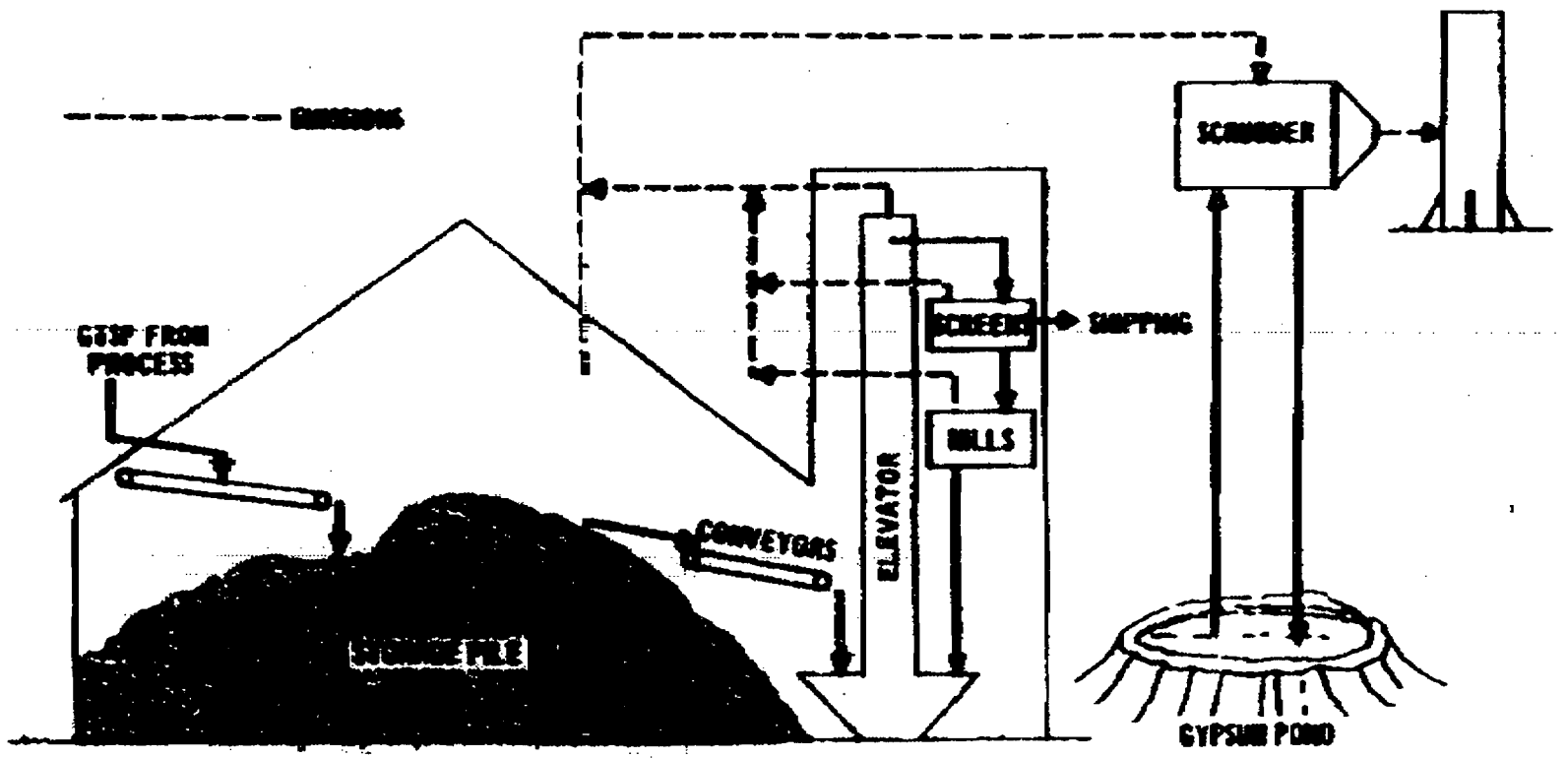

Figure 17. GRANULAR TRIPLE SUPERPHOSPHATE STORAGE

to a predetermined area in the building by conveyors. After 3 to 5 days, during which fluorides evolve from the storage pile, the product is considered cured and ready for shipping. Front-end loaders move the GTSP to elevators or hoppers where it is conveyed to screens for size separation. Oversize material is rejected, pulverized, and returned to the screen. Undersize material is returned to the GTSP production plant. Material within specification is shipped as product.

EMISSIONS AND METHODS OF CONTROL

Emissions from GTSP storage are limited to fluorides and particulates. The fluorides are emitted both in the gaseous form and as a constituent of the particulate emissions. Emissions of gaseous and solid particulate fluorides are greater during periods when the GTSP product is being rearranged rather than when it is in piles where it has lain undisturbed.

Some poorly controlled GTSP storage facilities can release as much as 15×10^{-4} pound of fluoride per hour per ton of P_2O_5 in storage. Such a storage facility with 1,500 tons of P_2O_5 could emit 58 pounds of fluoride each day of storage. Well-controlled GTSP storage facilities can restrict fluoride emissions to less than 5×10^{-4} pound fluoride per hour per ton of P_2O_5 stored (see Figure 18). A well-controlled 1,500-ton P_2O_5 storage facility achieving 5×10^{-4} pound of fluoride per hour per ton of P_2O_5 stored would emit about 18 pounds of fluoride each day of storage.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

4APT-AEB AUG 23 1995

Mr. C.H. Fancy, P.E.
Chief
Bureau of Air Regulation
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: New Source Performance Standard Applicability to the IMC Agrico Company (IMC) Big Bend Terminal, Hillsborough County, Florida

Dear Mr. Fancy:

The purpose of this memorandum is to provide you with a determination regarding the applicability of 40 C.F.R. Part 60, Subpart X (Standards of Performance for the Phosphate Fertilizer Industry: Granular Triple Superphosphate Storage Facilities) to the referenced facility. A determination regarding the applicability of these regulations was requested by IMC in the enclosed letter received by Region 4 on June 19, 1994. Our final determination is being provided to you since the authority to implement Subpart X in the state of Florida has been delegated to your agency.

In their request for a determination, IMC took the position that the Big Bend Terminal is a distribution facility, rather than a storage facility and is not subject to Subpart X. To support its position, IMC referenced portions of the background information document (BID) for Subpart X and maintained that the regulation was intended to regulate only the initial storage of granular triple superphosphate (GTSP) at manufacturing facilities. After reviewing information provided by IMC, the U.S. Environmental Protection Agency (EPA) has determined that if the Big Bend Terminal was constructed, reconstructed, or modified after October 25, 1974, it would be subject to Subpart X. Copies of Region 4 and EPA Headquarters correspondence regarding the applicability issues raised by IMC are also enclosed.

The basis for our conclusion regarding Subpart X applicability to the Big Bend Terminal is that the definition of GTSP storage facility in 40 C.F.R. §60.241 (i.e., any facility curing or storing granular triple superphosphate) does not restrict applicability to storage facilities at manufacturing sites. This interpretation is also consistent with June 29, 1977, and August 11, 1977, EPA determinations summarized in the enclosed document downloaded from the Applicability Determination

Index located on the Office of Air Quality Planning and Standards Technology Planning and Standards Technology Transfer Network.

Although the Big Bend Terminal may be subject to Subpart X, it is possible that IMC qualifies for a waiver of emission testing. Under the provisions of 40 C.F.R.§60.244(a), testing should be conducted only when the stored GTSP occupies at least 10 percent of the building capacity and at least 20 percent of the stored GTSP is fresh (i.e., is less than 10 days old). In order to qualify for a testing waiver, however, IMC must maintain records of the building capacity, the amount of GTSP stored, and the proportion of the stored GTSP that is fresh.

If you have any questions about the determination provided in this letter, please contact Mr. David McNeal of my staff at 404/347-3555, extension 4158.

Sincerely yours,

Jewell A. Harper, Chief
Air Enforcement Branch
Air, Pesticides and Toxics
Management Division

Enclosures

cc: Iwan Choronenko, Director
Air Pollution Control Division
Hillsborough County Environmental
Protection Commission
1410 North 21st Street
Tampa Florida 33605

IMC AGRICO

Via Fax - 9 pages
404-347-3059

And Regular Mail

Mr. David McNeal
United States Environmental Protection Agency
Region IV
345 Courtland St. N.E.
Atlanta, Georgia, 30365

RE: IMC-Agrico Company, Big Bend Terminal
Applicability of NSPS - Subpart X

Dear Mr. McNeal:

As we discussed today, attached is a copy of a letter sent by Mr. Sellers of Holland and Knight to Mr. Steve Howie, EPA, Washington. Attachments to the letter explains why the new source performance standards in Subpart X are not applicable to the Big Bend distribution facility. Mr. Howie has not yet responded to this letter.

Our air operating permit for this non-Title V facility is currently in renewal with the Environmental Protection Commission of Hillsborough County (EPCHC). Three 90-day waivers have been granted to the EPCHC to issue the permit in an attempt to resolve the NSPS applicability issue. The current waiver expires on July 10, 1995. Both EPCHC and IMC-Agrico wish to resolve this matter. Please review this matter with Mr. Howie as soon as possible. If you have any questions, please do not hesitate to call me at 813-634-3922, ext. 3616.

Sincerely,

Jeffrey M. Stewart

Jeffrey M. Stewart
Environmental Programs Coordinator

cc: w/o attachments
Ben Kalra - EPCHC, Fax - 272-5605
R. F. Kobosky, Fax - 677-8407
S. L. Presnell
L. Sellers - Holland & Knight, Fax - 904-224-8832
W. H. Simpson
G. G. Williams

LAW OFFICES

HOLLAND & KNIGHT

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SPECIAL COUNSEL
SHAW, LICITRA, PARENTE, ESERNIO & SCHWARTZ, P.C.
GARDEN CITY, NY
NEW YORK, NY

phone 564-4146

VIA TELECOPY -- 202/564-0029 -

MEMORANDUM -- October 6, 1994

TO: Mr. Steve Howie
U.S. Environmental Protection Agency

FROM: Lawrence E. Sellers, Jr.

RE: IMC-Agrico Company; Big Bend Terminal;
Renewal of Air Permit AO29-161400;
Applicability of Subpart X.

This will follow up on our telephone conversation of Thursday, October 6, regarding the applicability of Subpart X to IMC-Agrico Company's distribution facility at the Big Bend Terminal in Hillsborough County, Florida.

Enclosed is a copy of a letter dated July 20, 1994, from IMC-Agrico Company to the Environmental Protection Commission of Hillsborough County. This letter explains why the new source performance standards in Subpart X are not applicable to these distribution facilities.

Also enclosed is a copy of a letter dated August 22, 1994, from IMC-Agrico Company to Mr. David McNeal at Region IV. This letter transmits the pages from the background information document that are referenced in the July 20 letter to the County.

Please give me a call after you have had the opportunity to review these materials.

LES/kfs
Enclosures

cc: J. M. Stewart, IMC-Agrico Company
(w/enclosures)

IMC AGRICO

Via Hand Delivery

July 20, 1994

Mr. Ben Kalra
Air Permit Engineer
Environmental Protection Commission of Hillsborough County
1410 North 21st Street
Tampa, Florida 33605

RE: Big Bend Terminal, Renewal of Air Permit AO29-161400, FDEP File No. AO29-252389

Dear Mr. Kalra:

As you know, we have submitted an application for the renewal of the referenced air permit. This permit authorizes certain activities at our Big Bend Terminal. On June 20, we received your letter dated June 17 requesting certain additional information regarding this application. The purpose of this correspondence is to respond to that request.

Applicability of Subpart X.

You first asked that we confirm the applicability of the new source performance standards (NSPS) in 40 CFR, Part 60, Subpart X, Standards of Performance for the Phosphate Fertilizer Industry: Granular Triple Super Phosphate (GTSP) Storage Facilities. You correctly note that no prior permit for this facility has ever referred to, or required compliance with, these NSPS.

No prior permit has required compliance with these NSPS because these provisions do not apply to the subject distribution facilities.

Subpart X applies only to GTSP "storage facilities," EPA's background information document (BID) explains the development of Subpart X, and it makes clear that the term "storage facility" includes only the initial storage location (which is usually adjacent to the manufacturing process), where emissions of fluorides are expected due to the curing process:

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Bid at p. 61.

The description of the process also makes clear that EPA intended the NSPS to apply only to storage facilities associated with a manufacturing operation:

> After manufacture, GTSP is moved to a storage building where it remains until the reaction is completed or the product is "cured." *** The GTSP is distributed to a predetermined area in the building by conveyors. After 3 to 5 days, during which fluorides evolve from the storage pile, the product is considered cured and ready for shipping. Front-end loaders move the GTSP to elevators or hoppers where it is conveyed to screens for size separation. Oversize material is rejected, pulverized, and returned to the screen. Undersized material is returned to the GTSP production plant. Material within specification is shipped as product.

BID at pp. 61-63.

jms/c:/wpwin/bbdadd.wp

Significantly, the graphic description of the process presented in the BID also does not identify any off-site distribution facilities. BID at p. 2. EPA has it made clear that sources not listed are not covered by the standard. 40 Fed. Reg. 33152 (August 6, 1975).

The described processes (curing, screening for size separation, and return of oversized and undersized material to the process) all occur at manufacturing locations such as our South Pierce facility. Only after all BID defined processes are complete is the cured GTSP transported to the Big Bend Terminal for distribution.

In other words, the Big Bend Terminal is properly characterized as a "distribution" facility and not a "storage" facility subject to Subpart X.

In addition, the above interpretation is consistent with the purpose of the Subpart X regulations, which is to control major sources of fluoride emissions. As noted in the BID, significant emissions of fluorides are reasonably expected only during the curing stage; they are not expected during the distribution phase and for this reason monitoring is not required.

Based on all the above, it is clear that the NSPS in Subpart X are not applicable to our distribution facilities at the Big Bend Terminal. Consequently, our prior permits correctly omitted any references or requirements based in compliance with these NSPS. Likewise, our renewal permit should not require compliance with , or otherwise refer to, the NSPS in Subpart X.

Usage of Dust Suppressant.

GTSP is coated with dust suppressant in the unloading hopper system to effectively control dust. Typically we apply dust suppressant at a rate of one gallon per ton of GTSP and unload 500,000 tons of GTSP per year. Our annual dust suppressant usage is approximately 500,000 gallons per year. This rate of application is sufficient to effectively control dust and comply with permitted visible emission limits. It is our experience that the application of dust suppressant does not cause objectionable odors and that the process complies with Rule 17-296.320, F. A. C. which states: "The permittee shall not cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor".

Please be advised that Mr. Lee F. Thurner's title is Vice-President, Minerals - Florida. If you have any questions regarding the above, or wish to schedule a meeting to discuss these issues further, please do not hesitate to call me at 813-634-3922, ext. 3616.

Sincerely,

Jeffrey M. Stewart

Jeffrey M. Stewart
Environmental Programs Coordinator

cc: J. N. Allen, Jr.
E. J. Armbrister
D. R. Case
R. F. Kobosky
L. Sellers, Holland & Knight
W. H. Simpson
L. F. Thurner
G. G. Williams

Via Fax - 1-404-347-3059

August 22, 1994

Mr. David McNeal
United States Environmental Protection Agency
Region IV

RE: NSPS (Subpart X) Applicability to GTSP Distribution Facilities
Background Information Document (BID) Pages

Dear Mr. McNeal:

Attached are copies of pages from the BID (EPA-450/2-74-019a) that are referenced in our letter to the Environmental Protection Commission of Hillsborough County dated July 20, 1994, faxed to you last week.

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Jeffrey M. Stewart
Environmental Programs Coordinator

cc: w/o attachment
J. N. Allen, Jr.
L. Sellers, Holland & Knight (Fax)
G. G. Williams

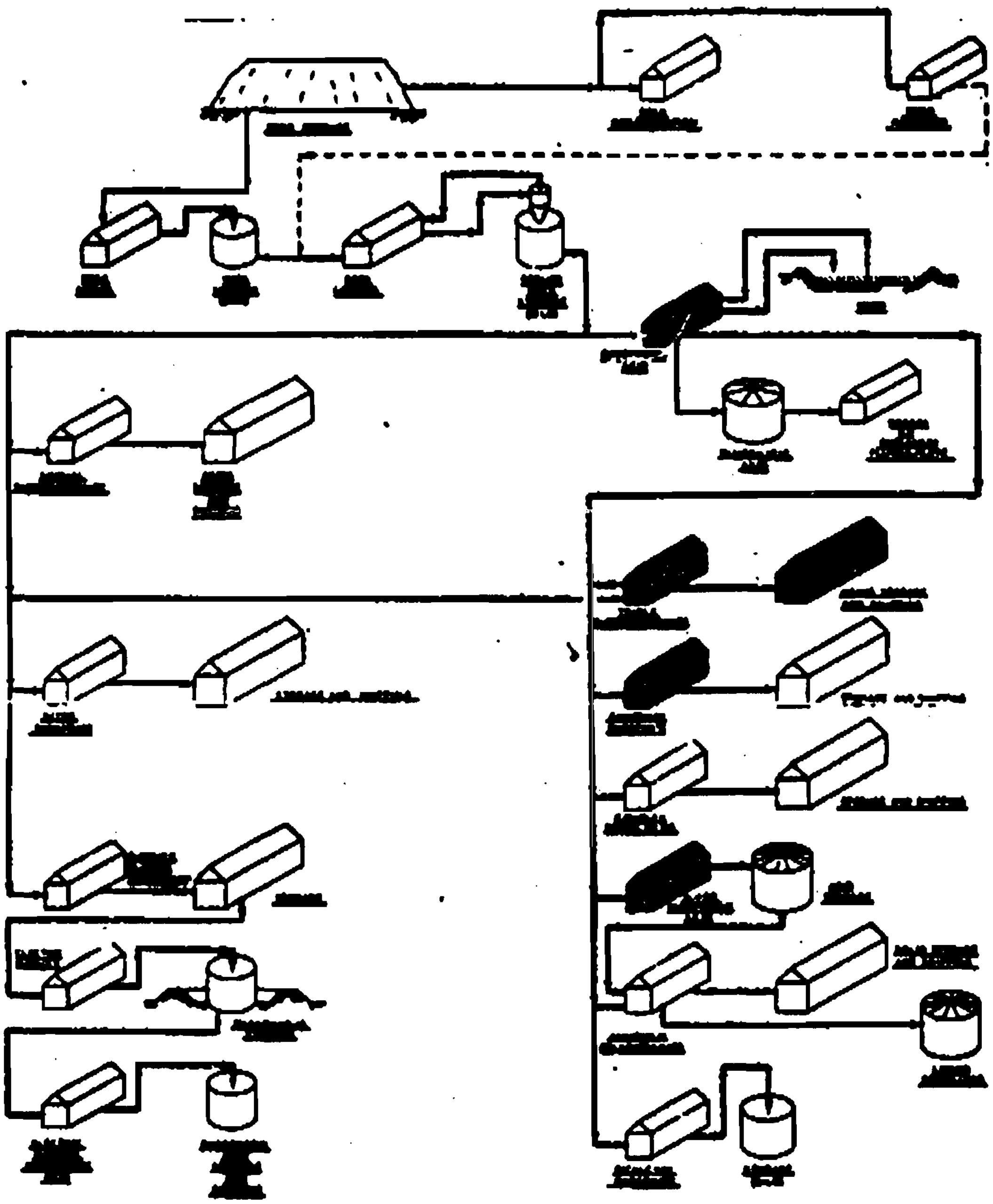

FIGURE 1
PHOSPHATE ROCK PROCESSING INDUSTRY

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SUMMARY OF PROPOSED STANDARDS

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Visible emissions shall be less than 20 percent opacity.

DESCRIPTION OF PROCESS

After manufacture, GTSP is moved to a storage building where it remains until the reaction is completed or the product is "cured." Figure 17 illustrates the activities in the storage building. The GTSP is distributed

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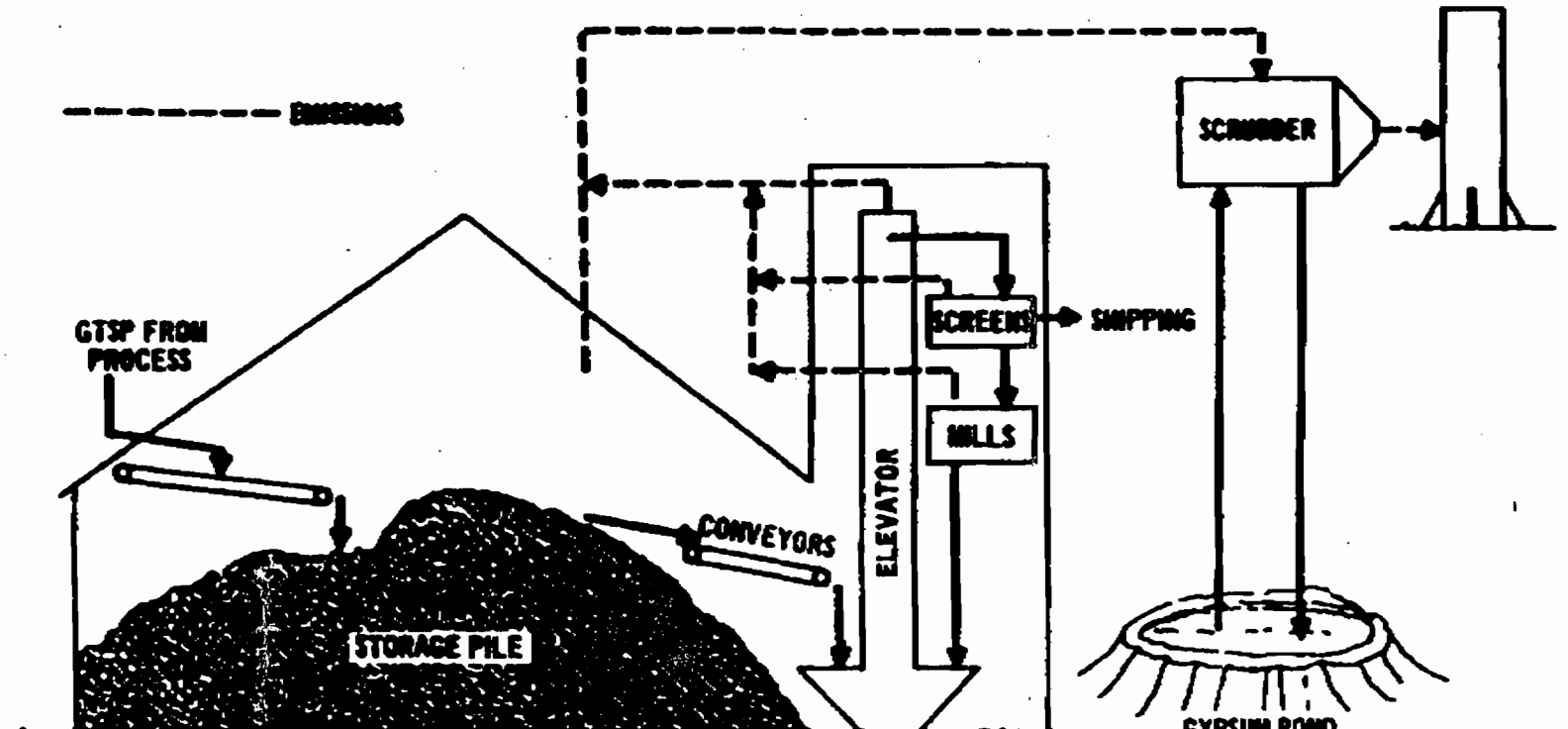

Figure 17. GRANULAR TRIPLE SUPERPHOSPHATE STORAGE

to a predetermined area in the building by conveyors. After 3 to 5 days, during which fluorides evolve from the storage pile, the product is considered cured and ready for shipping. Front-end loaders move the GTSP to elevators or hoppers where it is conveyed to screens for size separation. Oversize material is rejected, pulverized, and returned to the screen. Undersize material is returned to the GTSP production plant. Material within specification is shipped as product.

EMISSIONS AND METHODS OF CONTROL

Emissions from GTSP storage are limited to fluorides and particulates. The fluorides are emitted both in the gaseous form and as a constituent of the particulate emissions. Emissions of gaseous and solid particulate fluorides are greater during periods when the GTSP product is being rearranged rather than when it is in piles where it has lain undisturbed.

Some poorly controlled GTSP storage facilities can release as much as 15×10^{-4} pound of fluoride per hour per ton of P_2O_5 in storage. Such a storage facility with 1,800 tons of P_2O_5 could emit 55 pounds of fluoride each day of storage. Well-controlled GTSP storage facilities can restrict fluoride emissions to less than 5×10^{-4} pound fluoride per hour per ton of P_2O_5 stored (see Figure 18). A well-controlled 1,500-ton P_2O_5 storage facility achieving 5×10^{-4} pound of fluoride per hour per ton of P_2O_5 stored would emit about 18 pounds of fluoride each day of storage.

4APT-AEB

JUN 26 1995

MEMORANDUM

SUBJECT: Applicability of 40 C.F.R. Part 60, Subpart X (Standards of Performance for the Phosphate Fertilizer Industry: Granular Triple Superphosphate Storage Facilities)

FROM: Winston A. Smith, Director
Air, Pesticides and Toxics
Management Division

TO: John Rasnic, Director
Manufacturing, Energy and
Transportation Division (2223A)
Office of Enforcement and
Compliance Assurance

Rick Colbert, Director
Agriculture and Ecosystems
Division (2225A)
Office of Enforcement and
Compliance Assurance

The purpose of this memorandum is to seek assistance with responding to the applicability determination requested in the attached letter that Region 4 received on June 19, 1995. In their letter, the IMC Agrico Company (IMC) is requesting a determination regarding applicability of Subpart X to their Big Bend distribution facility located near Tampa, Florida. Granular triple superphosphate (GTSP) produced at two IMC facilities in Polk County, Florida is stored at this terminal prior to distribution, and the production facilities are located approximately 30 to 50 miles from the distribution terminal.

After reviewing all relevant information, Region 4 believes that GTSP storage at the Big Bend terminal is subject to Subpart X. The Region is asking for a determination from your office, however, because IMC has reviewed the same materials as Region 4 and has arrived at a different conclusion regarding applicability. Listed below are the reasons Region 4 believes that the IMC terminal in Tampa is subject to Subpart X:

1. On August 11, 1977, the U.S. Environmental Protection Agency (EPA) issued a determination (summary attached) indicating that GTSP storage facilities do not have to be located at manufacturing facilities in order to be subject to Subpart X. The basis for this determination

is that the definition of GTSP storage facility in 40 C.F.R. §60.241(a) (i.e., any facility curing or storing granular triple superphosphate) does not state that storage facilities must be located at manufacturing facilities in order to be subject to Subpart X. Since IMC stores GTSP at the Big Bend terminal, the facility appears to be a storage facility as defined in 40 C.F.R. §60.241(a).

2. According to information provided to Mr. David McNeal of my staff by IMC via telephone on June 19, 1995, some GTSP stored at the Big Bend terminal is less than 10 days old. GTSP that is less than 10 days old is classified as fresh GTSP according to the definitions in 40 C.F.R. §60.241, and under the provisions of 40 C.F.R. §60.244(a) emission testing is required when the amount of GTSP stored is at least ten percent of building capacity and the proportion of fresh material is at least twenty percent of the total GTSP stored. Since the Big Bend facility has the potential to store GTSP in quantities that would require emission testing for an affected facility, it does not seem appropriate to consider the terminal exempt from Subpart X. Furthermore, even if IMC intended to store only GTSP that was more than ten days old at the Big Bend terminal, it might still be necessary to consider the facility subject to Subpart X in order to ensure the company maintains proper records to verify that emission testing is not required.

In their letter, IMC argues that Subpart X was intended to cover GTSP storage at manufacturing facilities and not distribution facilities. In order to support their position, the company referenced the background information document for proposal of Subpart X, and the material that IMC used to support their position is included with the attached request IMC sent to Region 4. The company is also aware of the August 11, 1977, EPA determination regarding applicability to storage facilities that are not located at manufacturing facilities.

Since the company is aware of the August 11, 1977, determination but still believes that the Big Bend facility is not subject to Subpart X, Region 4 requests that you review the information contained in this memo and provide us with an applicability determination. If you concur with our determination that the terminal is subject to Subpart X because it is currently used for storing fresh GTSP, please provide guidance regarding whether the determination would be any different if the facility were used only for storing GTSP that is more than ten days old.

Issuance of an air operating permit for the Big Bend terminal is being delayed pending resolution of Subpart X applicability questions. The current extension regarding issuance of the permit expires on July 10, 1995, and Region 4 would appreciate it if you could finalize a determination prior to this expiration date.

If you have any questions or need additional information, please contact Mr. David McNeal of my staff at 404/347-3555, extension 4158. If necessary, a determination can be faxed to Mr. McNeal at 404/347-3059.

Attachments

cc: Mr. Iwan Choronenko, Director
Air Pollution Control Division
Hillsborough County Environmental
Protection Commission
1410 North 21st Street
Tampa, Florida 33605

Issuance of an air operating permit for the Big Bend terminal is being delayed pending resolution of Subpart X applicability questions. The current extension regarding issuance of the permit expires on July 10, 1995, and Region 4 would appreciate it if you could finalize a determination prior to this expiration date.

If you have any questions or need additional information, please contact Mr. David McNeal of my staff at 404/347-3555, extension 4158. If necessary, a determination can be faxed to Mr. McNeal at 404/347-3059.

Attachments

cc: Mr. Iwan Choronenko, Director
Air Pollution Control Division
Hillsborough County Environmental
Protection Commission
1410 North 21st Street
Tampa, Florida 33605

bcc: Sharon Porter
Sally Mitoff, OECA (2223A)
Stephen Howie, OECA (2225A)

D.MCNEAL/bmg:4APT-AEB/vmx4158:06-20-95:IMC-1.WP5
10.9.10

CONCURRENCES			
MCNEAL	BEALS	GRUBBS	LOVETT
DHMc 6/20/95		6/20/95	
HARPER	FOX	MILLER	SMITH
6/26/95	6/26/95	X	6/26/95

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

AUG - 1 1995

MEMORANDUM

SUBJECT: Applicability of 40 CFR Part 60, Subpart X

FROM: Rick Colbert, Director
Agriculture and Ecosystems Division (2225A)
Office of Compliance

TO: Winston Smith, Director
Air, Pesticides, and Toxics Management Division
EPA Region IV

This is in response to your memorandum of June 26, 1995, in which you requested assistance responding to an applicability determination with respect to 40 CFR Part 60, Subpart X. Specifically, the request came from a letter submitted by IMC Agrico Company (IMC) on June 19, 1995.

The company is requesting an applicability determination with respect to their Big Bend distribution facility near Tampa, Florida, where granular triple superphosphate (GTSP) produced at two IMC facilities is stored prior to distribution. The production facilities are located 30 to 50 miles from this distribution terminal.

It is Region IV's position that the Big Bend terminal is covered by Subpart X. You requested a determination by my office considering that IMC has reached a different conclusion. You asked also for clarification with respect to the issue of whether the age of the material stored would affect the determination.

IMC argues that Subpart X is intended to cover GTSP storage at manufacturing facilities but not at distribution facilities such as their Big Bend facility. To support their claim they refer to a Background Information Document (EPA-450/2-74-019a, October 1974) which in part describes the GTSP storage process. IMC claims that the process description (pages 61-63) of that document makes it clear that the term "storage facility" applies only to initial storage facilities and to storage facilities associated with a manufacturing operation. In describing the manufacturing process the BID describes movement of GTSP after manufacture to a storage building where the product is cured.

The BID further states that "after 3 to 5 days" during which fluorides evolve from the storage pile, the product is considered cured and ready for shipping.

We are in agreement with Region IV's opinion that the terminal is subject to Subpart X. First, the plain-English reading of the regulation would make the terminal subject to Subpart X, whether the purpose of the storage terminal was product curing or distribution; 40 CFR 60.241(a) defines a GTSP facility as "any facility curing or storing GTSP." Second, this reading of the regulation is consistent with and supported by the Background Information Document. The language quoted by IMC does indicate that GTSP is ready for shipping after 3-5 days of curing, but the document clearly indicates that the rule applies to storage of the GTSP after this point since emission of fluorides is not limited to uncured GTSP or storage of uncured or curing GTSP (see BID at 68). Monitoring is required in accordance with 40 CFR 60.243 and performance testing is required under the conditions of 40 CFR 60.244. If, as described at 40 CFR 60.244(a), the stored GTSP is more than ten days old then performance testing at the storage facility is not required. The storage facility must be able to indicate through its records that its stored GTSP is older than ten days in order to claim that this performance testing requirement does not apply.

Finally, please note that although the BID does describe GTSP product as "considered cured and ready for shipping" 3 to 5 days following manufacture (page 63), the BID is also very clear (pages 66-68) that ten days of aging is the relevant criteria for determining whether GTSP is considered "fresh" with respect to performance testing requirements. While GTSP may thus be shipped before it has been aged for ten days, the facility where it is stored following shipment will be subject to performance testing as provided at 40 CFR 60.244(a).

In summary, IMC's Big Bend facility is subject to 40 CFR Part 60 Subpart X. The facility must perform monitoring as required at 40 CFR 60.243 and performance testing as required at 40 CFR 60.244.

If you have any questions concerning this response, please contact Steve Howie of my staff at (202) 564-4146.

cc: John Rasnic (2223A)
David McNeal (Region 4)

August 11 1977

MEMORANDUM

SUBJECT: NSPS Determination - Subpart X

FROM: Director, DSSE

TO: Earl J. Stephenson, Director
Enforcement Division, Region VII

This is an addendum to an NSPS determination on Subpart X dated June 29, 1977.

Most fluoride emissions from granular triple superphosphate occur only in the first ten days following manufacture. For this reason, if the granular triple superphosphate contained in a storage facility is more than ten days old, then the performance test may be waived under 60.8(b)(4).

If you should have any further questions on this determination, please contact Craig Cobert (FTS 755-2546) of my staff.

Edward E. Reich

(signed)

cc: Larry Jones, OAQPS

DSSE:CCobert:PAH 8/9/77 rm3202 ext52564

DOWNLOAD REPORT

Selection Criteria:
SUBPART = X

Control Number: X001
Title: DETERMINATION SUBPART X

Recipient: STEPHENSON, EARL J., ENFORCEMENT DIVISION REGION VII

Author: REICH, EDWARD E., DSSE

Date: 08/11/77
Comments:

Keywords:
EMISSIONS, FLUORIDE
GRANULAR TRIPLE SUPERPHOSPHATE
PERFORMANCE TEST

Subparts:
X

References:
60.240
60.8(b)(4)

1. Does Subpart X apply to granular triple superphosphate storage facilities which are not located at manufacturing plants?

2. If the granular triple superphosphate contained in a storage facility is more than 10 days old, can performance testing be waived under 60.8(b)(4)?

1. Yes, the regulation does not specify a size cutoff nor does it state that these facilities must be located at the same site as the manufacturing facility.

2. Most fluoride emissions from granular triple superphosphate occur in the first 10 days following manufacture, therefore the performance test is not required.

file

Department of
Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

July 17, 1995

Mr. Lawrence E. Sellers, Jr.
Holland & Knight
P.O. Drawer 810
Tallahassee, Florida 32301

Dear Mr. Sellers:

This is in reply to your June 26 letter requesting the Department's interpretation of Subpart X applicability to the IMC-Agrico granular triple superphosphate storage facility at their Big Bend terminal in Hillsborough County.

Our understanding is that this company stores cured product for shipping from the terminal location and therefore it is not the type of curing/storage facility covered by the EPA's new source performance standard. Nonapplicability of Subpart X is evident from the requirement that the performance test must be conducted with a minimum of 20% or 5 day's production of "fresh" (uncured) product in the storage pile. As long as there is no fresh product (or amounts below the minimum required for Subpart X applicability) stored at the Big Bend facility, the performance test could not be conducted as required.

Of course, the Department must defer to the EPA for a final determination. If further discussion is needed on this, please call John Reynolds of our staff at 904-488-1344.

Sincerely,

C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/JR

c: A. A. Linero, BAR
Ben Kalra, EPCHC
David McNeal, EPA Region IV
Bill Thomas, SWD
Michael Hewett, OPAPM

Is your RETURN ADDRESS completed on the reverse side?

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Mr. Lawrence E. Sellers Jr.
Holland & Knight
P.O. Drawer 810
Tallahassee, FL 32301

4a. Article Number Z 392 979 060

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery 7-21-95

5. Signature (Addressee)

6. Signature (Agent) [signature]

8. Addressee's Address (Only if requested and fee is paid)

PS Form 3811, December 1991 ☆U.S. GPO: 1993—352-714 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

Z 392 979 060

Receipt for Certified Mail
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

PS Form 3800, March 1993

Sent to Lawrence E. Sellers, Jr.	
Street and No. PPO Drawer 810	
P.O., State and ZIP Code Tallahassee, FL 32301	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$

Postmark or Date
7/17/95 Sent.
Re: Imc-AGRICO
Subpart-x applicability

al

CLAIR,
SELLERS SENT ME ANOTHER FAX CONCERNING IMC-AGRICO. PLEASE ADD THIS INFO TO MY LAST MEMO ON THE SUBJECT.
Michael

TO: Clair Fancy

FROM: Michael Hewett

DATE: ~~June 23, 1995~~ JUNE 29, 1995

SUBJ: IMC-Agrico Company; Big Bend Terminal; Applicability of Subpart X

I was recently contacted by Larry Sellers concerning the renewal of Air Permit AO29-161400, for IMC-Agrico. This is apparently the second or third time the permit has been renewed and Subpart X has never been applied before. However, this time, Hillsborough County EPC is considering applying the EPA standards.

It is IMC-Agrico's contention that, even though the intent of Subpart X is not clear, EPA's background information document states that the Subpart X standards should only be applied to **initial** storage of granular triple super phosphate.

Mr. Sellers has already contacted the EPA in an effort to obtain clarification on the subject. He would also like the Department to interpret the applicability of Subpart X. I am completely unfamiliar with the subject material and I know we have permitting engineers that have dealt with phosphate storage facilities before. If you think a response is warranted, could you have someone in your section look at the information attached and give an opinion on the subject?

we defer these to EPA

Thank you.

Attachment

Law Offices
HOLLAND & KNIGHT

315 South Calhoun Street
P.O. Drawer 810 (ZIP 32302-0810)
Tallahassee, Florida 32301

904-224-7000
FAX 904-224-8832

A Partnership Including Professional Corporations

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Jacksonville	Tampa
Lakeland	Washington, D.C.
Miami	West Palm Beach

FACSIMILE

TO:

MIKE HEWITT	**DEP**
NAME	COMPANY/FIRM
TALLAHASSEE	**FL**
CITY	STATE
922-6979	**488-0114**
FAX NUMBER	TELEPHONE NUMBER

If you did not receive all of the pages or find that they are illegible, please call

(904) 425-5645

FROM:

LARRY SELLERS	**425-5671**
NAME	TELEPHONE NUMBER
9	
TOTAL NUMBER OF PAGES	

CONFIDENTIALITY NOTE:

The following facsimile is intended solely for the use of the individual to whom it is addressed and may contain information that is privileged, confidential, or otherwise exempt from disclosure under applicable law. If the reader of this message is not the intended recipient or the employee or agent responsible for delivering the message to the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this communication is strictly prohibited. If you have received this communication in error, please immediately notify us by telephone and return the original message to us at the above address via the U.S. Postal service. Thank you.

MESSAGE:

PLEASE ALSO DELIVER A COPY TO CLAIR FANCY AND HOWARD RHODES. THANK YOU.

FOR THE RECORD:

DATE: **6/26/95**

URGENCY: ☐ SUPER RUSH ☐ RUSH ☐ REGULAR

FAXED BY: AMOUNT:

FILE #: CLIENT NAME:

CONFIRMED: ☐ YES ☐ NO NAME: TIME:

Law Offices
HOLLAND & KNIGHT

315 South Calhoun Street
Suite 600
P.O. Drawer 810 (ZIP 32302-0810)
Tallahassee, Florida 32301
904-224-7000
FAX 904-224-8832

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Tampa
Washington, D.C.
West Palm Beach

VIA TELECOPY

MEMORANDUM -- June 26, 1995

TO: Mike Hewitt
Department of Environmental Protection

FROM: Lawrence E. Sellers, Jr.

RE: IMC-Agrico Company; Big Bend Terminal;
Renewal of Air Permit AO29-161400;
Applicability of Subpart X.

This will follow up on our telephone conversation last week.

As we discussed, we will be grateful if you will ask the appropriate person in the Department to provide us with a determination regarding whether the NSPS in Subpart X apply to the referenced facility.

Thank you for your cooperation.

LES/kfs

cc: Clair Fancy, DEP
Howard Rhodes, DEP
(w/enclosure)

TAL-65513

Law Offices
HOLLAND & KNIGHT

A Partnership Including Professional Corporations

315 South Calhoun Street
Suite 600
P.O. Drawer 810 (ZIP 32302-0810)
Tallahassee, Florida 32301
904-224-7000
FAX 904-224-8832

Atlanta
Fort Lauderdale
Jacksonville
Lakeland
Miami
Orlando
St. Petersburg
Tampa
Washington, D.C.
West Palm Beach

VIA TELECOPY

MEMORANDUM -- June 21, 1995

TO: Mike Hewitt
Department of Environmental Protection

FROM: Lawrence E. Sellers, Jr.

RE: IMC-Agrico Company; Big Bend Terminal;
Renewal of Air Permit AO29-161400;
Applicability of Subpart X.

A question has arisen regarding the applicability of Subpart X to IMC-Agrico Company's distribution facility at the Big Bend Terminal in Hillsborough County, Florida.

Enclosed is a copy of a letter dated July 20, 1994, from IMC-Agrico Company to the Environmental Protection Commission of Hillsborough County. This letter explains why the new source performance standards in Subpart X are not applicable to these distribution facilities.

Also enclosed is a copy of a letter dated August 22, 1994, from IMC-Agrico Company to Mr. David McNeal at Region IV. This letter transmits the pages from the background information document that are referenced in the July 20 letter to the County.

Please give me a call at 425-5671 after you have had the opportunity to review these materials.

LES/kfs
Enclosures

cc: J. M. Stewart, IMC-Agrico Company
(w/enclosures)

FAXED 6/21/95

TAL-65270

IMC AGRICO

Via Hand Delivery

July 20, 1994

Mr. Ben Kalra
Air Permit Engineer
Environmental Protection Commission of Hillsborough County
1410 North 21st Street
Tampa, Florida 33605

RE: Big Bend Terminal, Renewal of Air Permit AO29-161400, FDEP File No. AO29-252389

Dear Mr. Kalra:

As you know, we have submitted an application for the renewal of the referenced air permit. This permit authorizes certain activities at our Big Bend Terminal. On June 20, we received your letter dated June 17 requesting certain additional information regarding this application. The purpose of this correspondence is to respond to that request.

Applicability of Subpart X.

You first asked that we confirm the applicability of the new source performance standards (NSPS) in 40 CFR, Part 60, Subpart X, Standards of Performance for the Phosphate Fertilizer Industry: Granular Triple Super Phosphate (GTSP) Storage Facilities. You correctly note that no prior permit for this facility has ever referred to, or required compliance with, these NSPS.

No prior permit has required compliance with these NSPS because these provisions do not apply to the subject distribution facilities.

Subpart X applies only to GTSP "storage facilities," EPA's background information document (BID) explains the development of Subpart X, and it makes clear that the term "storage facility" includes only the initial storage location (which is usually adjacent to the manufacturing process), where emissions of fluorides are expected due to the curing process:

> The proposed standard would limit emissions of fluorides from the storage building, which is the affected facility. Major sources includes but are not limited to the product pile, transfer conveyors and elevators, screens, and mills. The standards apply at the point(s) where emissions are discharged from the air pollution control system or from the affected facility if no air pollution system is utilized.

Bid at p. 61.

The description of the process also makes clear that EPA intended the NSPS to apply only to storage facilities associated with a manufacturing operation:

> After manufacture, GTSP is moved to a storage building where it remains until the reaction is completed or the product is "cured." *** The GTSP is distributed to a predetermined area in the building by conveyors. After 3 to 5 days, during which fluorides evolve from the storage pile, the product is considered cured and ready for shipping. Front-end loaders move the GTSP to elevators or hoppers where it is conveyed to screens for size separation. Oversize material is rejected, pulverized, and returned to the screen. Undersized material is returned to the GTSP production plant. Material within specification is shipped as product.

BID at pp. 61-63.

jms/c:/wpwin/bbdadd.wp

Via Fax - 1-404-347-3059

August 22, 1994

Mr. David McNeal
United States Environmental Protection Agency
Region IV

RE: NSPS (Subpart X) Applicability to GTSP Distribution Facilities
Background Information Document (BID) Pages

Dear Mr. McNeal:

Attached are copies of pages from the BID (EPA-450/2-74-019a) that are referenced in our letter to the Environmental Protection Commission of Hillsborough County dated July 20, 1994, faxed to you last week.

If you have any questions or need additional information, please do not hesitate to call me at 813-634-3922, ext. 3616.

Jeffrey M. Stewart
Environmental Programs Coordinator

cc: w/o attachment
J. N. Allen, Jr.
L. Sellers, Holland & Knight (Fax)
G. G. Williams

Best Available Copy

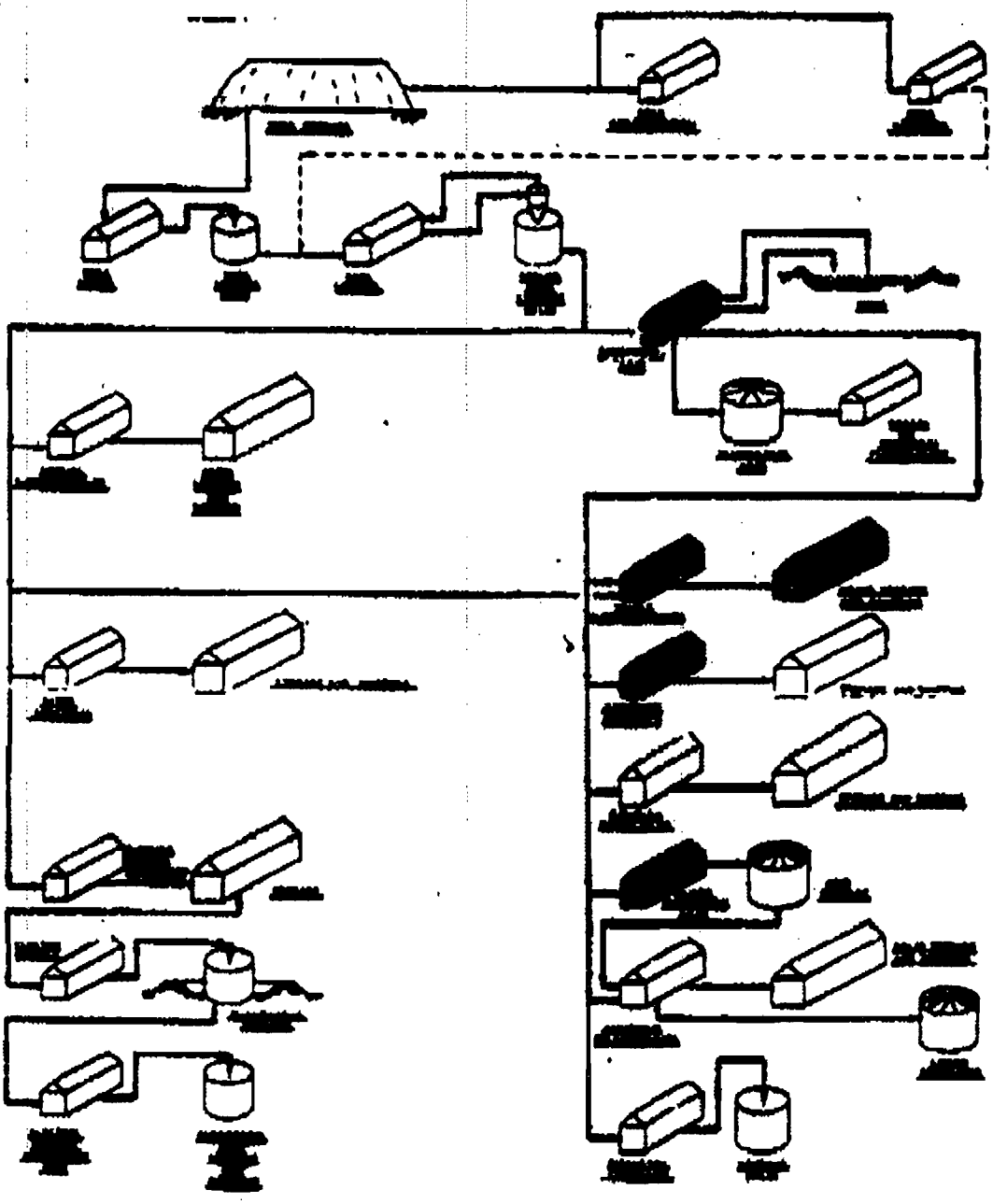

FIGURE 1
PHOSPHATE ROCK PROCESSING INDUSTRY

GRANULAR TRIPLE SUPERPHOSPHATE STORAGE

SUMMARY OF PROPOSED STANDARDS

Standards of performance are being proposed for new granular triple superphosphate (GTSP) storage facilities. The proposed standard would limit emissions of fluorides from the storage building, which is the affected facility. Major sources include but are not limited to the product pile, transfer conveyors and elevators, screens, and mills. The standards apply at the point(s) where emissions are discharged from the air pollution control system or from the affected facility if no air pollution control system is utilized.

The proposed standards would limit emissions to the atmosphere as follows:

Total Fluorides

No more than 0.25 gram total fluoride per hour per metric ton of P_2O_5 in storage (5×10^{-4} pound per hour per ton).

Visible Emissions

Visible emissions shall be less than 20 percent opacity.

DESCRIPTION OF PROCESS

After manufacture, GTSP is moved to a storage building where it remains until the reaction is completed or the product is "cured." Figure 17 illustrates the activities in the storage building. The GTSP is distributed

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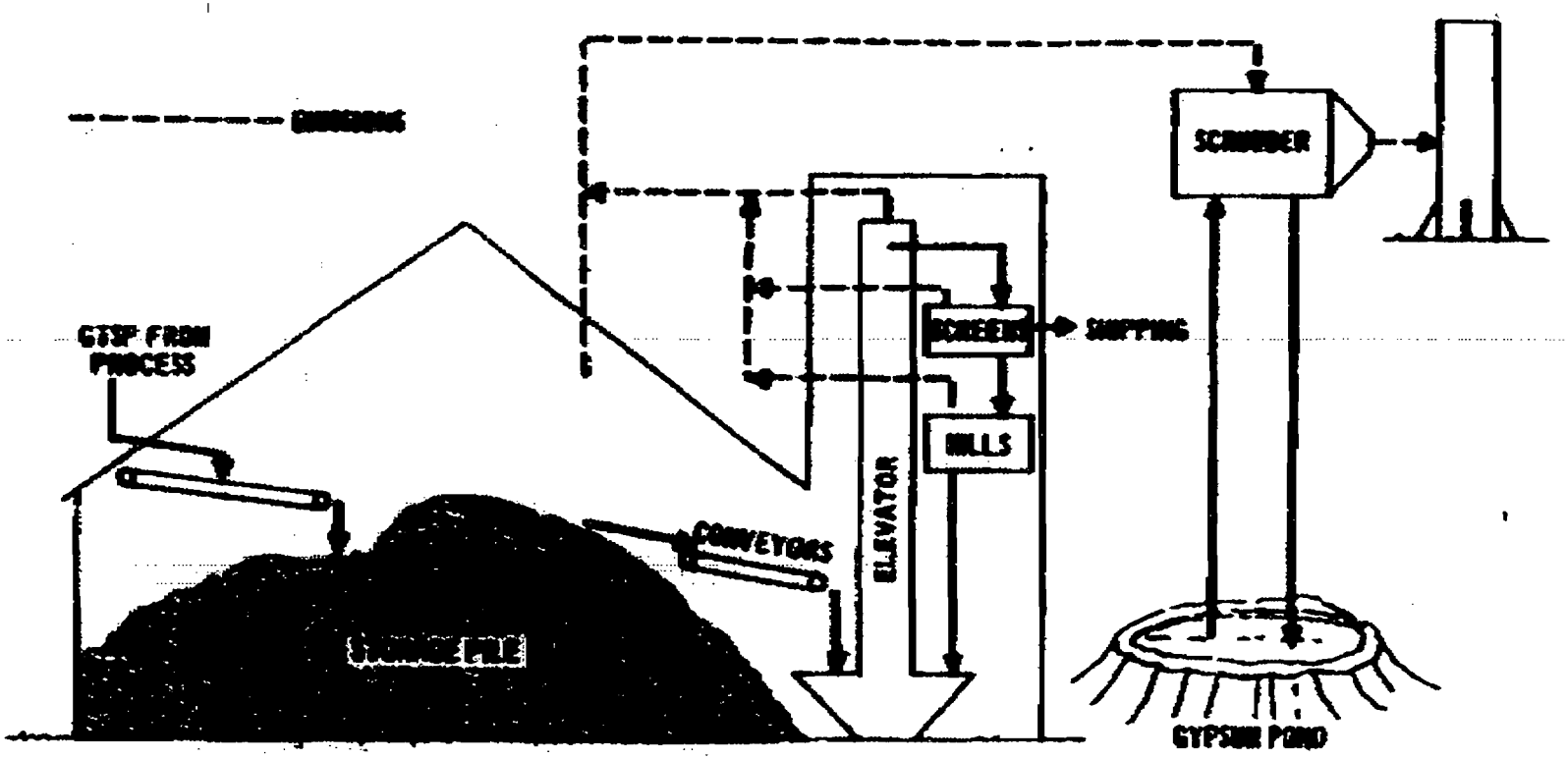


Figure 17. GRANULAR TRIPLE SUPERPHOSPHATE STORAGE

to a predetermined area in the building by conveyors. After 3 to 5 days, during which fluorides evolve from the storage pile, the product is considered cured and ready for shipping. Front-end loaders move the GTSP to elevators or hoppers where it is conveyed to screens for size separation. Oversize material is rejected, pulverized, and returned to the screen. Undersize material is returned to the GTSP production plant. Material within specification is shipped as product.

EMISSIONS AND METHODS OF CONTROL

Emissions from GTSP storage are limited to fluorides and particulates. The fluorides are emitted both in the gaseous form and as a constituent of the particulate emissions. Emissions of gaseous and solid particulate fluorides are greater during periods when the GTSP product is being rearranged rather than when it is in piles where it has lain undisturbed.

Some poorly controlled GTSP storage facilities can release as much as 15×10^{-4} pound of fluoride per hour per ton of P_2O_5 in storage. Such a storage facility with 1,500 tons of P_2O_5 could emit 55 pounds of fluoride each day of storage. Well-controlled GTSP storage facilities can restrict fluoride emissions to less than 5×10^{-4} pound fluoride per hour per ton of P_2O_5 stored (see Figure 18). A well-controlled 1,500-ton P_2O_5 storage facility achieving 5×10^{-4} pound of fluoride per hour per ton of P_2O_5 stored would emit about 18 pounds of fluoride each day of storage.

TWIN TOWERS OFFICE BUILDING
2600 BLAIRSTONE ROAD
TALLAHASSEE, FLORIDA 32301

BOB GRAHAM
GOVERNOR

JACOB D. VARN
SECRETARY

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

November 9, 1979

Mr. Harold Long
P. O. Box 1110
Mulberry, Florida 33860

Dear Mr. Long:

This is to acknowledge receipt and transaction of your "Application to Construct an Air Pollution Source" fee check(s).

The permit number(s) assigned are as follows:

AC 25142- Rotary railcar dump
AC 25149- Phosphate rock conveyors
AC 25160- Dry phosphate rock storage
AC 25161- Fertilizer and phosphate conveyors
AC 25162- Ship loader
AC 25163- Truck and railcar receiving
AC 25164- Fertilizer conveyors

Date received, November 1, 1979

If we may be of further assistance please call me at (904) 488-1344.

Sincerely,

M. G. Hodges
FDER/BAQM

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

Nº 33519

RECEIPT FOR APPLICATION FEES AND MISCELLANEOUS REVENUE

Received from ACRICO CHEMICAL COMPANY Date 1 NOVEMBER 1979

Address ONE WILLIAMS CENTER, TULSA, OK. Dollars $ 140.00

Applicant Name & Address HAROLD LONG, BOX 1110, MULBERRY, FLA., 33860

Source of Revenue

Revenue Code C161 Application Number AC25M2, 25149, 25160, 25161, 25162, 25163, 25164

By

DER PERMIT APPLICATION TRACKING SYSTEM MASTER RECORD

FILE#0000000025142 COE# DER PROCESSOR:THOMAS DER OFFICE:TLH
FILE NAME:AGRICO CHEMICAL DATE FIRST REC: 11/01/79 APPLICATION TYPE:AC
APPL NAME:LONG, HAROLD W. APPL PHONE:(813)428-1413 PROJECT COUNTY:29
ADDR:P.O.BOX 1110 CITY:MULBERRY ST:FLZIP:33860
AGNT NAME:SCHNEIDER, R.T. AGNT PHONE:(813)665-1151
ADDR:P.O. BOX 2008 CITY:LAKELAND ST:FLZIP:33803

ADDITIONAL INFO REQ: / / / / / / REC: / / / / / /
APPL COMPLETE DATE: / / COMMENTS REC:Y DATE REQ: / / DATE REC: / /
LETTER OF INTENT REC:Y DATE WHEN INTENT ISSUED: / / WAIVER DATE: / /

HEARING REQUEST DATES: / / / / / /
HEARING WITHDRAWN/DENIED/ORDER -- DATES: / / / / / /
HEARING ORDER OR FINAL ACTION DUE DATE: / / MANUAL TRACKING DESIRED:N
*** RECORD HAS BEEN SUCCESSFULLY UPDATED *** 01/31/80 14:40:36
FEE PD DATE#1:11/01/79 $0020 RECEIPT#00033519 REFUND DATE: / / REFUND $
FEE PD DATE#2: / / $ RECEIPT# REFUND DATE: / / REFUND $
APPL:ACTIVE/INACTIVE/DENIED/WITHDRAWN/TRANSFERRED/EXEMPT/ISSUED:IS DATE:01/29/80
REMARKS:DRY PHOSPHATE ROCK ROTARY RAILCAR DUMP, SEE BAGHOUSE "A". UTM = ZONE 17, LAT/LON = 27-48-15 N / 82-23-57 W., UTM = 361689 E / 3076178 N. BIG BEND TERMINAL.

25142
60
61
62
23

DER PERMIT APPLICATION TRACKING SYSTEM MASTER RECORD

FILE#0000000025149 COE# DER PROCESSOR:THOMAS DER OFFICE:TLH
FILE NAME:AGRICO CHEMICAL DATE FIRST REC: 11/01/79 APPLICATION TYPE:AC
APPL NAME:AGRICO CHEMICAL APPL PHONE:(813)428-1431 PROJECT COUNTY:29
ADDR:P.O. BOX 1110 CITY:MULBERRY ST:FLZIP:33860
AGNT NAME:SCHNEIDER, R.T. AGNT PHONE:(813)665-1511
ADDR:P.O. BOX 2008 CITY:LAKELAND ST:FLZIP:33806

ADDITIONAL INFO REQ: / / / / / / REC: / / / / / /
APPL COMPLETE DATE: / / COMMENTS REC:Y DATE REQ: / / DATE REC: / /
LETTER OF INTENT REC:Y DATE WHEN INTENT ISSUED: / / WAIVER DATE: / /

HEARING REQUEST DATES: / / / / / /
HEARING WITHDRAWN/DENIED/ORDER -- DATES: / / / / / /
HEARING ORDER OR FINAL ACTION DUE DATE: / / MANUAL TRACKING DESIRED:N
*** RECORD HAS BEEN SUCCESSFULLY UPDATED *** 01/31/80 14:41:42
FEE PD DATE#1:11/01/79 $0020 RECEIPT#00033519 REFUND DATE: / / REFUND $
FEE PD DATE#2: / / $ RECEIPT# REFUND DATE: / / REFUND $
APPL:ACTIVE/INACTIVE/DENIED/WITHDRAWN/TRANSFERRED/EXEMPT/ISSUED:IS DATE:01/29/80
REMARKS:DRY PHOSPHATE ROCK CONVEYING SYSTEM, 5 BAGHOUSES, "B", "C", "G", "H" AND "L". UTM ZONE = 17, UTM = 361869E / 3076178N, LAT/LON = 27-48-18 N. 82-24-12 W. LOCATED AT BIG BEND TERMINAL.

DER PERMIT APPLICATION TRACKING SYSTEM MASTER RECORD

FILE#0000000025160 COE# DER PROCESSOR:THOMAS DER OFFICE:TLH
FILE NAME:AGRICO CHEMICAL DATE FIRST REC: 11/01/79 APPLICATION TYPE:AC
APPL NAME:LONG, HAROLD W. APPL PHONE:(813)428-1431 PROJECT COUNTY:29
ADDR:P.O. BOX 1110 CITY:MULBERRY ST:FLZIP:33860
AGNT NAME:SCHEIDER, R.T. AGNT PHONE:(813)665-1511
ADDR:P.O. BOX 2008 CITY:LAKELAND ST:FLZIP:33806

ADDITIONAL INFO REQ: / / / / / / REC: / / / / / /
APPL COMPLETE DATE: / / COMMENTS REC:Y DATE REQ: / / DATE REC: / /
LETTER OF INTENT REC:Y DATE WHEN INTENT ISSUED: / / WAIVER DATE: / /

HEARING REQUEST DATES: / / / / / /
HEARING WITHDRAWN/DENIED/ORDER -- DATES: / / / / / /
HEARING ORDER OR FINAL ACTION DUE DATE: / / MANUAL TRACKING DESIRED:N
*** RECORD HAS BEEN SUCCESSFULLY UPDATED *** 01/31/80 14:42:48
FEE PD DATE#1:11/01/79 $0020 RECEIPT#00033519 REFUND DATE: / / REFUND $
FEE PD DATE#2: / / $ RECEIPT# REFUND DATE: / / REFUND $
APPL:ACTIVE/INACTIVE/DENIED/WITHDRAWN/TRANSFERRED/EXEMPT/ISSUED:IS DATE:01/29/80
REMARKS:DRY PHOSPHATE ROCK STORAGE, 2 VENTURI SCRUBBERS, "J" AND "K". UTM ZONE=
17, UTM = 361544 E / 3076238 N. LAT/LON = 27-48-20 N /82-24-17 W. LOCATED AT
BIG BEND TERMINAL.

DER PERMIT APPLICATION TRACKING SYSTEM MASTER RECORD

FILE#00000000251G1 COE# DER PROCESSOR:THOMAS DER OFFICE:TLH
FILE NAME:AGRICO CHEMICAL DATE FIRST REC: 11/01/79 APPLICATION TYPE:AC
APPL NAME:LONG, HAROLD W. APPL PHONE:(813)428-1431 PROJECT COUNTY:29
ADDR:P.O. BOX 1110 CITY:MULBERRY ST:FLZIP:33860
AGNT NAME:SCHEIDER, R.T. AGNT PHONE:(813)665-1511
ADDR:P.O. BOX 2008 CITY:LAKELAND ST:FLZIP:33806

ADDITIONAL INFO REQ: / / / / / / REC: / / / / / /
APPL COMPLETE DATE: / / COMMENTS REC:Y DATE REQ: / / DATE REC: / /
LETTER OF INTENT REC:Y DATE WHEN INTENT ISSUED: / / WAIVER DATE: / /

HEARING REQUEST DATES: / / / / / /
HEARING WITHDRAWN/DENIED/ORDER -- DATES: / / / / / /
HEARING ORDER OR FINAL ACTION DUE DATE: / / MANUAL TRACKING DESIRED:N
*** RECORD HAS BEEN SUCCESSFULLY UPDATED *** 01/31/80 14:44:07
FEE PD DATE#1:11/01/79 $0020 RECEIPT#00033519 REFUND DATE: / / REFUND $
FEE PD DATE#2: / / $ RECEIPT# REFUND DATE: / / REFUND $
APPL:ACTIVE/INACTIVE/DENIED/WITHDRAWN/TRANSFERRED/EXEMPT/ISSUED:AC DATE:01/29/80
REMARKS:GRANULAR FERTILIZER AND DRY PHOSPHATE ROCK CONVEYING, BAGHOUSES "D" AND "E". UTM ZONE = 17, UTM = 361339 E / 3076219 N. LAT/LON = 27-48-19 N / 82-24-25 W. LOCATED AT BIG BEND TERMINAL

DER PERMIT APPLICATION TRACKING SYSTEM MASTER RECORD

FILE#0000000025162 COE# DER PROCESSOR:THOMAS DER OFFICE:TLH
FILE NAME:AGRICO CHEMICAL DATE FIRST REC: 11/01/79 APPLICATION TYPE:AC
APPL NAME:LONG, H.W. APPL PHONE:(813)428-1431 PROJECT COUNTY:29
ADDR:P.O. BOX 1110 CITY:MULBERRY ST:FLZIP:33860
AGNT NAME:SCHEIDER, R.T. AGNT PHONE:(813)665-1511
ADDR:P.O. BOX 2008 CITY:MULBERRY ST:FLZIP:33806

ADDITIONAL INFO REQ: / / / / / / REC: / / / / / /
APPL COMPLETE DATE: / / COMMENTS REC:Y DATE REQ: / / DATE REC: / /
LETTER OF INTENT REC:Y DATE WHEN INTENT ISSUED: / / WAIVER DATE: / /

HEARING REQUEST DATES: / / / / / /
HEARING WITHDRAWN/DENIED/ORDER -- DATES: / / / / / /
HEARING ORDER OR FINAL ACTION DUE DATE: / / MANUAL TRACKING DESIRED:N
*** RECORD HAS BEEN SUCCESSFULLY UPDATED *** 01/31/80 14:46:06
FEE PD DATE#1:11/01/79 $0020 RECEIPT#00033519 REFUND DATE: / / REFUND $
FEE PD DATE#2: / / $ RECEIPT# REFUND DATE: / / REFUND $
APPL:ACTIVE/INACTIVE/DENIED/WITHDRAWN/TRANSFERRED/EXEMPT/ISSUED:IS DATE:01/29/80
REMARKS:GRANULAR FERTILIZER AND DRY PHOSPHATE ROCK SHIP LOADER, BAGHOUSE "F".
UTM ZONE = 17, UTM = 361125 E / 3076284 N. LAT/LON = 27-48-22 N. / 82-24-33 W.
LOCATED AT BIG BEND TERMINAL.

DER PERMIT APPLICATION TRACKING SYSTEM MASTER RECORD

FILE#0000000025163 COE# DER PROCESSOR:THOMAS DER OFFICE:TLH
FILE NAME:AGRICO CHEMICAL DATE FIRST REC: 11/01/79 APPLICATION TYPE:AC
APPL NAME:LONG, H.W. APPL PHONE:(813)428-1431 PROJECT COUNTY:29
ADDR:P.O. BOX 1110 CITY:MULBERRY ST:FL ZIP:33860
AGNT NAME:SCHEIDLR, R.T. AGNT PHONE:(813)665-1511
ADDR:P.O. BOX 2098 CITY:LAKELAND ST:FL ZIP:33806

ADDITIONAL INFO REQ: / / / / / / REC: / / / / / /
APPL COMPLETE DATE: / / COMMENTS NEC:Y DATE REQ: / / DATE REC: / /
LETTER OF INTENT NEC:Y DATE WHEN INTENT ISSUED: / / WAIVER DATE: / /

HEARING REQUEST DATES: / / / / / /
HEARING WITHDRAWN/DENIED/ORDER -- DATES: / / / / / /
HEARING ORDER OR FINAL ACTION DUE DATE: / / MANUAL TRACKING DESIRED:N
*** RECORD HAS BEEN SUCCESSFULLY UPDATED *** 01/31/80 14:47:14
FEE PD DATE#1:11/01/79 $0020 RECEIPT#00033519 REFUND DATE: / / REFUND $
FEE PD DATE#2: / / $ RECEIPT# REFUND DATE: / / REFUND $
APPL:ACTIVE/INACTIVE/DENIED/WITHDRAWN/TRANSFERRED/EXEMPT/ISSUED:IS DATE:01/29/80
REMARKS:GRANULAR FERTILIZER TRUCK AND RAIL RECIEVING, BAGHOUSE "A". UTM ZONE = 17, UTM = 361171 E / 3076118 N. LAT/ LON = 27-48-16 N / 82-24-31 W.

DER PERMIT APPLICATION TRACKING SYSTEM MASTER RECORD

FILE#000000025164 COE# DER PROCESSOR:THOMAS DER OFFICE:TLH
FILE NAME:AGRICO CHEMICAL DATE FIRST REC: 11/01/79 APPLICATION TYPE:AC
APPL NAME:LONG, H.W. APPL PHONE:(813)428-1431 PROJECT COUNTY:29
ADDR:P.O. BOX 1110 CITY:MULBERRY ST:FLZIP:33860
AGNT NAME:SCHEIDER, R.T. AGNT PHONE:(813)665-1511
ADDR:P.O. BOX 2008 CITY:LAKELAND ST:FLZIP:33806

ADDITIONAL INFO REQ: / / / / / / REC: / / / / / /
APPL COMPLETE DATE: / / COMMENTS REC:Y DATE REQ: / / DATE REC: / /
LETTER OF INTENT REC:Y DATE WHEN INTENT ISSUED: / / WAIVER DATE: / /

HEARING REQUEST DATES: / / / / / /
HEARING WITHDRAWN/DENIED/ORDER -- DATES: / / / / / /
HEARING ORDER OR FINAL ACTION DUE DATE: / / MANUAL TRACKING DESIRED:N
*** RECORD HAS BEEN SUCCESSFULLY UPDATED *** 01/31/80 14:48:32
FEE PD DATE#1:11/01/79 $0020 RECEIPT#00033519 REFUND DATE: / / REFUND $
FEE PD DATE#2: / / $ RECEIPT# REFUND DATE: / / REFUND $
APPL:ACTIVE/INACTIVE/DENIED/WITHDRAWN/TRANSFERRED/EXEMPT/ISSUED:IS DATE:01/29/80
REMARKS:GRANULAR FERTILIZER CONVEYING SYSTEM, BAGHOUSES "B", "C", "D" AND "E".
UTM ZONE = 17, UTM = 361689 E / 3076178 N. LAT/LON = 27-48-17 N / 82-24-33 W.
LOCATED AT BIG BEND TERMINAL.

AC29-21702

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: _____ [X] New[1] [ ] Existing[1]

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

COMPANY NAME: Agrico Chemical Company COUNTY: Hillsborough

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Granular Fertilizer Conveying System - 4 Baghouses "B', C', D', E'"

SOURCE LOCATION: Street P. O. Box 445 City Gibsonton, FL 33534

UTM: East 361127 M North 3076 145 M

Latitude 27 ° 48 ' 17 "N Longitude 82 ° 24 ' 33 "W

APPLICANT NAME AND TITLE: Harold W. Long, Jr., Manager, Environmental Control

APPLICANT ADDRESS: P. O. Box 1110, Mulberry, FL 33860

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Agrico Chemical Company

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, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: Hal Long

Harold W. Long, Jr., Mgr., Environmental Contro
Name and Title (Please Type)

Date: 10/17/79 Telephone No. (813) 428-1431

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

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

Signed: R T Schneider

Raymond T. Schneider
Name (Please Type)

(Affix Seal)

Jacobs Engineering Group, Pridgen Engrg. Div.
Company Name (Please Type)

P.O.Box 2008, Lakeland, FL 33803
Mailing Address (Please Type)

Florida Registration No. 12008 Date: 10/17/79 Telephone No. (813) 665-1511

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

SECTION II: GENERAL PROJECT INFORMATION

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

Expansion of existing conveyor transfer system and storage building capacity for handling and storage of ~~Granular Fertilizer product. Existing storage capacity will be increased by 40,000~~ tons to a total of 70,000 tons. Existing conveyor system will be expanded to handle additional load. Four new dust collectors will be installed at conveyor belt transfer points. These dust collectors will be in full compliance with existing regulations. Existing source is in full compliance with regulations and will continue to operate at present capacity (400,000 TPY).

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

Start of Construction February, 1980* Completion of Construction May, 1981*

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

Dust Collectors	$222,000	Paint	$ 2,500
Structure	40,000	Piping	4,000
Ducts	25,600	TOTAL	$378,100
Electrical & Controls	84,000		

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

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

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr ____ ; if seasonal, describe: Operation will be intermittent, depending on demand. Receiving and shiploading can be around-the-clock activities.

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

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

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

SECTION II FOOTNOTES

* Preliminary and subject to delay in DER, EPA and local administrative proceedings.

** This new project is only associated with a DRI for which approval was granted by Hillsborough County on 3/27/74, and that it was specifically envisioned in Agrico's Supplemental Application of Development Approval of a DRI approved on 7/16/75 and extended on 9/6/78.

*** Source is within the area of influence of a non-attainment area as that term is defined in Rule 17-2.02 (11). However, the source is exempted from the provisions of 17-2.17 (5) through (7) by 17-2.17 (3)(a) 1.a. (ii).

**** It is Agrico's position that this source is not a "Major Emitting Facility" as that term is defined in the Clean Air Act and incorporated in Chapter 17-2. However, without waiving this position, Agrico will complete this application as if both BACT and PSD apply.

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

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

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Granular Fertilizer	Particulate	100	1,000,000	DC - B', C', D', E'

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

1. Total Process Input Rate (lbs/hr): 1,000,000

2. Product Weight (lbs/hr): 999,993

C. Airborne Contaminants Emitted: 400,000 TPY/500 TPH = 800 Operating Hours

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Particulate	1.53	0.61	1.53 lb./hr.	1.53	766	306.5	DC-B'
	1.53	0.61	1.53 lb./hr.	1.53	766	306.5	DC-C'
	1.53	0.61	1.53 lb./hr.	1.53	766	306.5	DC-D'
	1.53	0.61	1.53 lb./hr.	1.53	766	306.5	DC-E'

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]
Mikro-Pulsaire	Particulate	99.8%	<50	Supp.No.2 & 5
Bag-Type Dust				
Collectors (4)				
Model 196TRH-8-20				

[1] See Section V, Item 2.

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

[3] Calculated from operating rate and applicable standard

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

[5] If Applicable

E. Fuels N.A.

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

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

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lbs/gal Typical Percent Nitrogen: _____

Heat Capacity: _____ BTU/lb _____ BTU/gal

Other Fuel Contaminants (which may cause air pollution): _____

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

G. Indicate liquid or solid wastes generated and method of disposal. None. Baghouse product discharges onto next conveyor in line.

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

Stack Height: B'=40,C'=60,D'=130,E'=50 above grade ft. Stack Diameter: 2.25 (each) ft.

Gas Flow Rate: 10,000 (each) ACFM Gas Exit Temperature: 105 °F.

Water Vapor Content: 4.7 % Velocity: 41.92 (each) FPS

SECTION IV: INCINERATOR INFORMATION N.A.

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste _____

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

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

Manufacturer _____

Date Constructed _____ Model No. _____

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

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

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

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

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

Brief description of operating characteristics of control devices: _____

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

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

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

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
[ ] Yes [x] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [X] No

Contaminant	Rate or Concentration

C. What emission levels do you propose as best available control technology?

Contaminant	Rate or Concentration
Particulate	1.53 lbs./hr. each dust collector,
	for a total of 6.12 lbs./hr.

D. Describe the existing control and treatment technology (if any). New Installation

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:
5. Useful Life:
6. Operating Costs:
7. Energy:
8. Maintenance Cost:
9. Emissions:

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

10. Stack Parameters

a. Height: ft. b. Diameter: ft.

c. Flow Rate: ACFM d. Temperature: °F

e. Velocity: FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1.

a. Control Device: Electrostatic Precipitators

b. Operating Principles: Charged particles are attracted to electrodes and shaken loose periodically.

c. Efficiency*: Unknown d. Capital Cost: Very High

e. Useful Life: Unknown f. Operating Cost: Unknown

g. Energy*: Unknown h. Maintenance Cost: Unknown

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes: No known installation in this area for this type operation.

k. Ability to construct with control device, install in available space, and operate within proposed levels: Space not available.

2.

a. Control Device: Venturi Scrubber

b. Operating Principles: Wet particles are captured in recirculated scrubber water.

c. Efficiency*: 95-99.9% d. Capital Cost: Unknown

e. Useful Life: Rated: Long Service f. Operating Cost: Unknown

g. Energy**: Depends on $\triangle P$ h. Maintenance Costs: Unknown

i. Availability of construction materials and process chemicals: Available

j. Applicability to manufacturing processes: $\triangle P$ High for desired removal efficiency.

k. Ability to construct with control device, install in available space, and operate within proposed levels: Recirculating ponds would present a problem.

*Explain method of determining efficiency.

**Energy to be reported in units of electrical power – KWH design rate.

3.

a. Control Device: Baghouse Dust Collector

b. Operating Principles: Pull air through multiple bags to filter out particles. Reverse air pulse periodically cleans and empties each bag to hopper below.

c. Efficiency*: Rated to 99.99+% d. Capital Cost: High

e. Life: Rated: Long Service f. Operating Cost: Low

g. Energy: Medium h. Maintenance Cost: Low

*Explain method of determining efficiency above. Manufacturers Data

i. Availability of construction materials and process chemicals: Available

j. Applicability to manufacturing processes: Good

k. Ability to construct with control device, install in available space and operate within proposed levels: Good

4.

a. Control Device

b. Operating Principles:

c. Efficiency*:

d. Capital Cost:

e. Life:

f. Operating Cost:

g. Energy:

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected:

1. Control Device: Four Mikro-Pulsaire Dust Collector, Model
2. Efficiency*: 99.8%
3. Capital Cost: $378,100
4. Life: Long Service
5. Operating Cost: Unknown
6. Energy: 57.5 KWH/each collector
7. Maintenance Cost: Unknown
8. Manufacturer: Mikro-Pulsaire Corp.
9. Other locations where employed on similar processes:

a.

(1) Company: Eastern Associated Terminals

(2) Mailing Address:

(3) City: Tampa

(4) State: Florida

(5) Environmental Manager:

(6) Telephone No.:

*Explain method of determining efficiency above.

(7) Emissions*:

Contaminant	Rate or Concentration
Particulate	0.0139 GR/CF

(8) Process Rate*:

b.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

*Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

10. Reason for selection and description of systems: Efficiency is excellent; cost is reasonable; no waste products generated.

*Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data Not applicable - ambient data survey has been submitted to FDER.

1. _____ no sites _____ TSP _____( ) SO^2* _____ Wind spd/dir

Period of monitoring ___/___/___ to ___/___/___
month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? ____ Yes ____ No

b) Was instrumentation calibrated in accordance with Department procedures? ____ Yes ____ No ____ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. 5 Year(s) of data from 1 / 1 / 71 to 12 / 31 / 75
month day year month day year

2. Surface data obtained from (location) Tampa Airport

3. Upper air (mixing height) data obtained from (location) Tampa Airport

4. Stability wind rose (STAR) data obtained from (location) Tampa Airport

C. Computer Models Used

1. Single Source (CRSTER) Modified? If yes, attach description.

2. Point Multiple (PTMTP-W) Modified? If yes, attach description.

3. Air Quality Display Model (AQDM) Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	0.772 grams/sec
SO^2	NA grams/sec

E. Emission Data Used in Modeling

Attach list of emission sources. Emission data required is source name, description on point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

F. Attach all other information supportive to the PSD review.

*Specify bubbler (B) or continuous (C).

G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

Little or no difference in social impact. Environmental impact will be 2.44 TPY particulate matter added to plant ambient air.

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.

B', C', D', E'

SUPPLEMENT NO. 1

Total Process Input Rate	-	1,000,000 lbs/hr.
Stack Emissions	-	7 lbs./hr.
Product Weight	-	999,993 lbs./hr.

SUPPLEMENT NO. 2

FROM DESIGN DATA:

All dust collectors are designed to operate under maximum conditions of 10 grains/standard cubic foot inlet loading, approximately 15°F above ambient temperature and a maximum absolute humidity of 0.03 lbs. water/lb. air to yield maximum emissions outlet loadings of 0.02 grains/standard cubic foot. Outlet loading based on actual tests made on same product, collectors and processes.

The absolute humidity is the dew point for 90°F air, the maximum expected in this location. The approximately 15°F temperature gain for the ambient air induced to transport the dust and collect it in the baghouse is estimated from the fan heat of compression and heat from the warm product being transported.

From Psychrometric Chart or Table:

Volume at 90°F 1 lb. dry air = 13.85 CF

Volume at 90°F 1 lb. dry and vapor to saturate it - 14.55 CF

$$\frac{14.55-13.85}{14.55} \times 100 = 4.7\% \ H_2O$$

Dust Collectors Nos. B', C', D', E'

$$(10,000)(1-.047)\ \frac{530}{565} = 8,939 \text{ SCFM Dry}$$

$$(8,939)\ \frac{10}{7000} = 12.77 \text{ Lb/Min Inlet Particulate}$$

$$(8,939)\ \frac{0.02}{7000} = 0.0255 \text{ Lb/Min Outlet Particulate}$$

$$\frac{13-0.03}{13} \times 100 = 99.8\% \text{ Efficiency}$$

8.18 PHOSPHATE ROCK PROCESSING

8.18.1 Process Description[1]

Phosphate rock preparation involves beneficiation to remove impurities, drying to remove moisture, and grinding to improve reactivity. Usually, direct-fired rotary kilns are used to dry phosphate rock. These dryers burn natural gas or fuel oil and are fired counter-currently. The material from the dryers may be ground before storage in large storage silos. Air-swept ball mills are preferred for grinding phosphate rock.

8.18.2 Emissions and Controls[1]

Although there are no significant emissions from phosphate rock beneficiation plants, emissions in the form of fine rock dust may be expected from drying and grinding operations. Phosphate rock dryers are usually equipped with dry cyclones followed by wet scrubbers. Particulate emissions are usually higher when drying pebble rock than when drying concentrate because of the small adherent particles of clay and slime on the rock. Phosphate rock grinders can be a considerable source of particulates. Because of the extremely fine particle size, baghouse collectors are normally used to reduce emissions. Emission factors for phosphate rock processing are presented in Table 8.18-1.

Table 8.18-1. PARTICULATE EMISSION FACTORS FOR PHOSPHATE ROCK PROCESSING WITHOUT CONTROLS[a]
EMISSION FACTOR RATING: C

Type of source	Emissions	
	lb/ton	kg/MT
Drying[b,c]	15	7.5
Grinding[b,d]	20	10
Transfer and storage[d,e]	2	1
Open storage piles[e]	40	20

[a] Emission factors expressed as units per unit weight of phosphate rock.

[b] References 2 and 3.

[c] Dry cyclones followed by wet scrubbers can reduce emissions by 95 to 99 percent.

[d] Dry cyclones followed by fabric filters can reduce emissions by 99.5 to 99.9 percent.

[e] Reference 3.

AGRICO NOTE: Due to low reliability of emission factor rating: C, used best engineering judgment in determining efficiency.

SUPPLEMENT NO. 4

See Tab "J" - supplemental backup documents for design details listed on manufacturer's data sheets and price and equipment sizing quotes.

Point	Vendor	Model	CFM	Fan H.P.	Ratio
G.F.					
A'	MikroPulsaire	720KTR-10	60,000	200	7.08
B'	"	196TRH-8-20	10,000	25	5.41
C'	"	"	"	"	"
D'	"	"	"	"	"
E'	"	"	"	"	"
D.R					
A	MikroPulsaire	720KTRH-10	100,000	300	11.8
B	"	221STRH-8-20	15,000	40	7.2
C	"	"	"	"	7.2
D	"	289TRH-8-20	"	"	5.51
E	"	"	"	"	5.51
F	"	720KTR-10	50,000	150	5.9
G	"	221STRH-8-20	15,000	40	7.2
H	"		"	"	7.2
J	Ducon	45/102	30,000	200	-
K	"	"	"	200	-
L	MikroPulsaire	221 STRH-8-20	15,000	40	7.2

Supplement No. 4

AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL

SUPPLEMENT NO. 5

DUST COLLECTORS - B', C', D', E'

Manufacturer Data Sheet

10 Grains/SCF Maximum Input

0.02 Grains/SCF Maximum Output

$\frac{(10-0.02)}{10}$ (100) = 99.8% Efficiency

FROM SUPPLEMENT NO. 2:

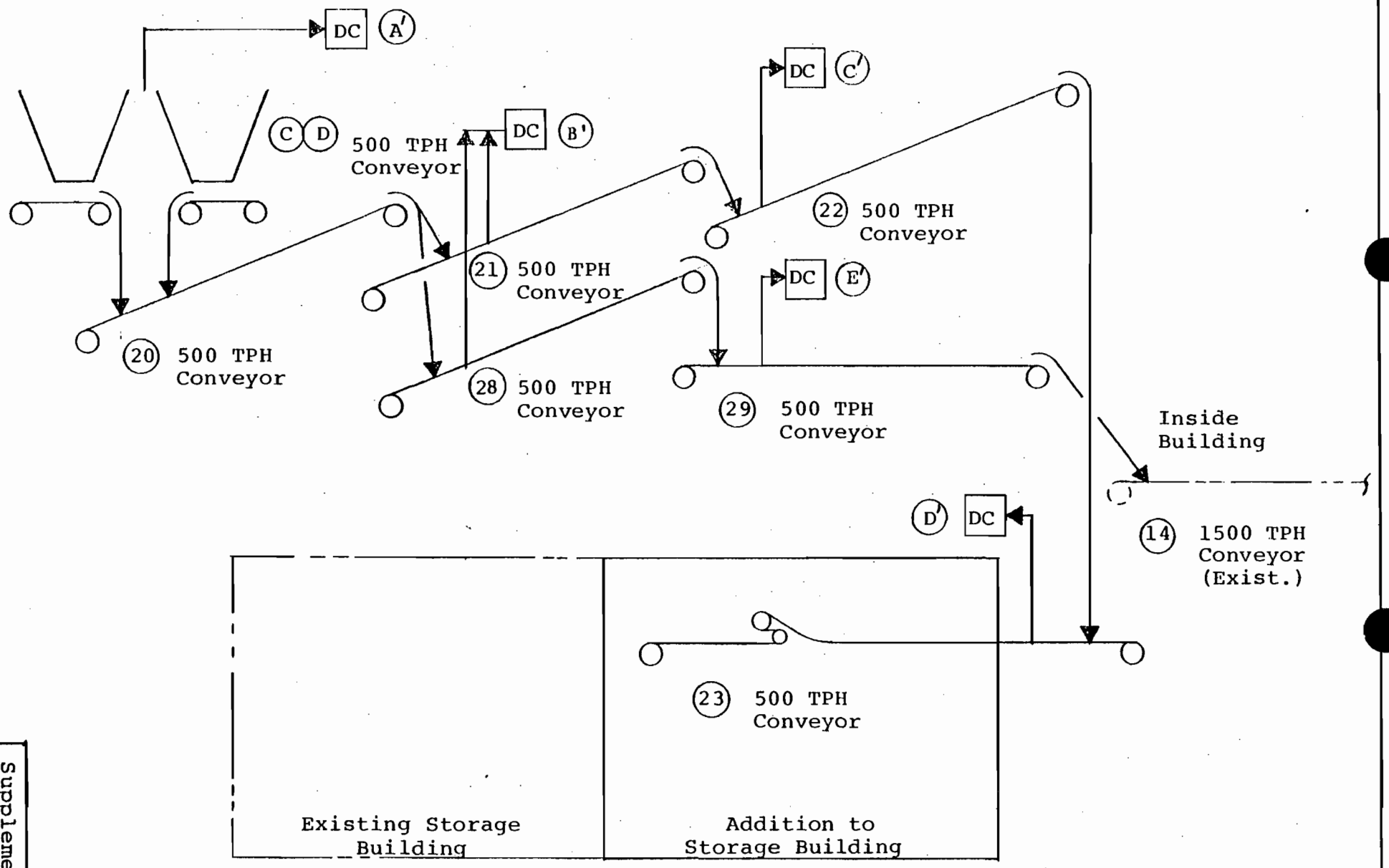
Input = 12.77/lb./minute/collector

(12.77)(60) = 766 lb./hr. Potential Emission

Actual Emission = Potential (1 - Efficiency)

= (766) (1 - 0.998)

= 1.53 lb./hr.

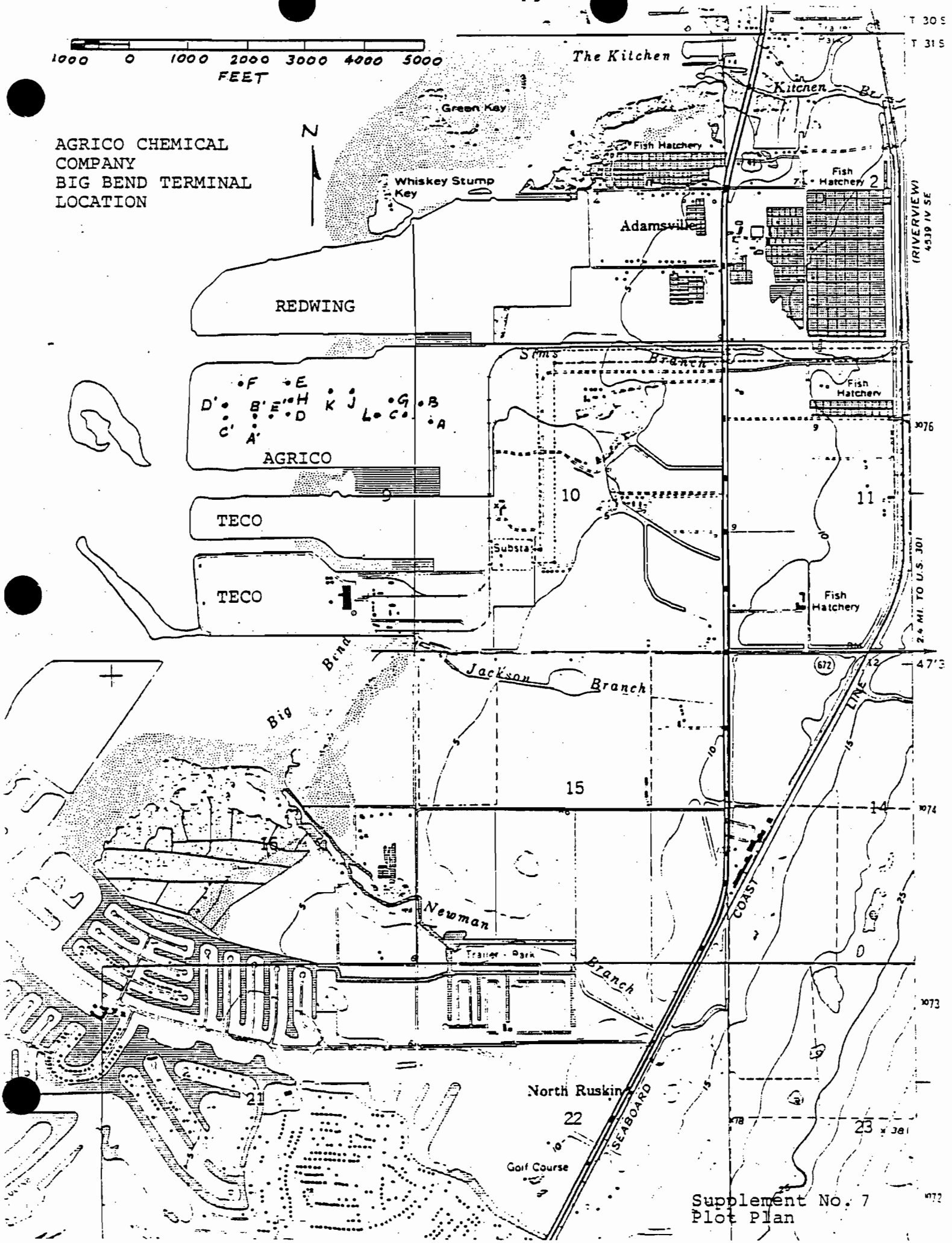


FERTILIZER FLOW DIAGRAM

AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL

Supplement No. 6

Best Available Copy



Supplement No. 7
Plot Plan

AC29-~~21698~~
25160

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: _____ [X] New[1] [ ] Existing[1]

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

COMPANY NAME: Agrico Chemical Company COUNTY: Hillsborough

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Dry phosphate rock storage - 2 Venturi Scrubbers "J and K"

SOURCE LOCATION: Street P. O. Box 445 City Gibsonton, FL 33534

UTM: East 361544 M North 3076238 M

Latitude 27 ° 48 ' 20 "N Longitude 82 ° 24 ' 17 "W

APPLICANT NAME AND TITLE: Harold W. Long, Jr., Manager, Environmental Control

APPLICANT ADDRESS: P. O. Box 1110, Mulberry, FL 33860

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Agrico Chemical Company

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, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: H. W. Long

Harold W. Long, Jr., Manager, Envir. Control
Name and Title (Please Type)

Date: 10/17/79 Telephone No. (813)428-1431

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

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

Signed: R T Schneider

Raymond T. Schneider
Name (Please Type)

(Affix Seal)

Jacobs Engineering Group, Pridgen Eng. Div.
Company Name (Please Type)

P. O. Box 2008, Lakeland, FL 33803
Mailing Address (Please Type)

Florida Registration No. 12008 Date: 10/17/79 Telephone No. (813)665-1511

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

SECTION II: GENERAL PROJECT INFORMATION

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

Construction of dry phosphate rock storage facility, 100,000 tons storage capacity. Venting of 12 silos during receiving, storage and shipping dry rock is controlled by two wet scrubbers. Scrubber water is recirculated from 2 closed-circuit settling ponds which will have no discharge. Proposed facility will meet all compliance requirements.

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

Start of Construction February, 1980* Completion of Construction May, 1981*

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

Scrubbers	$112,000	Electrical & Controls	$ 74,800
Pumps & Piping	61,500	Foundation	8,600
Site Work & Ponds	10,000	Structural	2,000
Ducts	145,000	Paint	11,200
		TOTAL	$425,600

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

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

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr ____ ; if seasonal, describe: Operation will be intermittent, depending on demand. Receiving and shiploading can be around-the-clock activities.

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

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

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

SECTION II FOOTNOTES

* Preliminary and subject to delay in DER, EPA and local administrative proceedings.

** This new project is only associated with a DRI for which approval was granted by Hillsborough County on 3/27/74, and that it was specifically envisioned in Agrico's Supplemental Application of Development Approval of a DRI approved on 7/16/75 and extended on 9/6/78.

*** Source is within the area of influence of a non-attainment area as that term is defined in Rule 17-2.02 (11). However, the source is exempted from the provisions of 17-2.17 (5) through (7) by 17-2.17 (3)(a) 1.a. (ii).

**** It is Agrico's position that this source is not a "Major Emitting Facility" as that term is defined in the Clean Air Act and incorporated in Chapter 17-2. However, without waiving this position, Agrico will complete this application as if both BACT and PSD apply.

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

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

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Dry Phosphate Rock	Particulate	100	5,400,000	Scrubbers "J & K"

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

1. Total Process Input Rate (lbs/hr): 5,400,000

2. Product Weight (lbs/hr): 5,397,721

C. Airborne Contaminants Emitted: 2,800,000 TPY/2,700 TPH = 1,037 Operating Hours

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Particulate	6.84	3.55	6.84	6.84	2279	1182	SCR. "J"
Particulate	6.84	3.55	6.84	6.84	2279	1182	SCR. "K"

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]
Ducon Venturi	Particulate	99.7%	<50	Supp.Nos.2 & 5
Scrubbers (2), Size				
45/102, Type VVO				

[1] See Section V, Item 2.

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

[3] Calculated from operating rate and applicable standard

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

[5] If Applicable

E. Fuels N.A.

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

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

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lbs/gal Typical Percent Nitrogen: _____

Heat Capacity: _____ BTU/lb _____ BTU/gal

Other Fuel Contaminants (which may cause air pollution): _____

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

G. Indicate liquid or solid wastes generated and method of disposal. Entrained scrubber water solids are settled out in two ponds and water is recirculated back to scrubbers.

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

Stack Height: "J" and "K" 125 (Each) ft. Stack Diameter: 4.0 (Each) ft.

Gas Flow Rate: 30,000 (Each ACFM Gas Exit Temperature: 105 °F.

Water Vapor Content: 5.5 % Velocity: 39.79 (Each) FPS

SECTION IV: INCINERATOR INFORMATION N.A.

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste _____

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

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

Manufacturer _____

Date Constructed _____ Model No. _____

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

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

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

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

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

Brief description of operating characteristics of control devices: _____

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

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

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

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
[ ] Yes [X] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [X] No

Contaminant	Rate or Concentration

C. What emission levels do you propose as best available control technology?

Contaminant	Rate or Concentration
Particulate	6.84 lbs./Hr. each scrubber or
	13.68 lbs./Hr. Total

D. Describe the existing control and treatment technology (if any). New Installation

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:
5. Useful Life:
6. Operating Costs:
7. Energy:
8. Maintenance Cost:
9. Emissions:

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

10. Stack Parameters

a. Height: ft. b. Diameter: ft.

c. Flow Rate: ACFM d. Temperature: °F

e. Velocity: FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1.

a. Control Device: Electrostatic Precipitator

b. Operating Principles: Charged particles are attracted to electrodes. Particles shaken loose periodically for removal.

c. Efficiency*: Unknown d. Capital Cost: Very High

e. Useful Life: Unknown f. Operating Cost: Unknown

g. Energy*: Unknown h. Maintenance Cost: Unknown

i. Availability of construction materials and process chemicals: Unknown

j. Applicability to manufacturing processes: No known application in area for this type operation.

k. Ability to construct with control device, install in available space, and operate within proposed levels: Unknown

2.

a. Control Device: Venturi Scrubber

b. Operating Principles: Wet particles are captured in recirculated scrubber water.

c. Efficiency*: 95-99.9% d. Capital Cost: High

e. Useful Life: Rated - long service f. Operating Cost: Unknown

g. Energy**: Depends on ΔP h. Maintenance Costs: Unknown

i. Availability of construction materials and process chemicals: Available

j. Applicability to manufacturing processes: Due to moist air conditions, this device is most applicable.

k. Ability to construct with control device, install in available space, and operate within proposed levels: Good

*Explain method of determining efficiency. Mfg.'s Data

**Energy to be reported in units of electrical power – KWH design rate.

3.

a. Control Device: Baghouse Dust Collector

b. Operating Principles: Pull air through multiple bags to filter out particles. Reverse air pulse periodically cleans and empties each bag to hopper below.

c. Efficiency*: Rated to 99.99+% d. Capital Cost: High

e. Life: Rated - Long service f. Operating Cost: Low

g. Energy: Medium h. Maintenance Cost: Low

*Explain method of determining efficiency above. Mfg.'s Data

i. Availability of construction materials and process chemicals: Available

j. Applicability to manufacturing processes: Not applicable due to moist air conditions.

k. Ability to construct with control device, install in available space and operate within proposed levels: Good

4.

a. Control Device

b. Operating Principles:

c. Efficiency*:

d. Capital Cost:

e. Life:

f. Operating Cost:

g. Energy:

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected:

1. Control Device: Ducon Venturi Scrubbers
2. Efficiency*: 99.7%
3. Capital Cost: $425,600
4. Life: Long Service
5. Operating Cost: Unknown
6. Energy: 230 KWH
7. Maintenance Cost: Unknown
8. Manufacturer: The Ducon Co.
9. Other locations where employed on similar processes:

a.

(1) Company: I.M.C. Port Sutton

(2) Mailing Address:

(3) City: Tampa

(4) State: Florida

(5) Environmental Manager:

(6) Telephone No.:

*Explain method of determining efficiency above. Best engineering judgment

(7) Emissions*:

Contaminant	Rate or Concentration
Particulate	0.029 Gr./SCF

(8) Process Rate*: 975 TPH

b.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

*Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

10. Reason for selection and description of systems: Warm moist air precluded selection of Baghouse Dust Collector for this application.

*Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data Not applicable - ambient data survey has been submitted to FDER.

1. _____ no sites _____ TSP _____( ) SO^2* _____ Wind spd/dir

Period of monitoring ___/___/___ to ___/___/___
month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? ____ Yes ____ No

b) Was instrumentation calibrated in accordance with Department procedures? ____ Yes ____ No ____ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. 5 Year(s) of data from 1 / 1 / 71 to 12 / 31 / 75
month day year month day year

2. Surface data obtained from (location) Tampa Airport

3. Upper air (mixing height) data obtained from (location) Tampa Airport

4. Stability wind rose (STAR) data obtained from (location) Tampa Airport

C. Computer Models Used N.A.

1. Single Source (CRSTER) Modified? If yes, attach description.
2. Point Multiple (PTMTP-W) Modified? If yes, attach description.
3. Air Quality Display Model (AQDM) Modified? If yes, attach description.
4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	1.723 grams/sec
SO^2	NA grams/sec

E. Emission Data Used in Modeling

Attach list of emission sources. Emission data required is source name, description on point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

F. Attach all other information supportive to the PSD review.

*Specify bubbler (B) or continuous (C).

G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

Little or no difference in social impact.
Environmental impact will be 7.09 TPY particulate matter added to plant ambient air.

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.

SUPPLEMENT NO. 1

Total Process Input Rate	-	5,400,000 lbs./hr.
In Scrubber Water to Pond	-	2,265 lbs./hr.
Stack Emission	-	14 lbs./hr.
Product Weight	-	5,397,721 lbs./hr.

SUPPLEMENT NO. 2

FROM DESIGN DATA:

Two wet collectors (venturi-cyclonic separator) are designed to operate under maximum conditions of 10 grains/standard cubic foot inlet loading, approximately 15°F above ambient temperature to yield a maximum emissions outlet loading of 0.03 grains/standard cubic foot. Outlet loading based on manufacturer's and engineering consultant's recommendation and based on experience with similar installations.

Scrubbing water maximum temperature - 95°F

Vapor Pressure 95°F water = 1.659 inches Hg

Therefore: $\% H_2O = \frac{1.659}{29.92} \times 100 = 5.5\%$

The approximately 15°F above ambient temperature gain for the ambient air induced to transport the dust to the venturi-cyclonic separator scrubber for collection is estimated from the fan heat of compression. The heat gain from the warm product is absorbed by the scrubbing water. The volume percent water in the stack must be determined by a stack test procedure. The percent water vapor can vary from 2 to 10 percent in the exhaust air from wet scrubbers in this service and location.

Wet Scrubbers Nos. J, K

$(30,000)(1-.055)\ \frac{530}{565} = 26,594$ SCFM Dry

$(26,594)\ \frac{10}{7000} = 38$ Lb/Min Inlet Particulates

$(26,594)\ \frac{0.03}{7000} = 0.114$ Lb/Min Outlet Particulates

$\frac{38-.114}{38} \times 100 = 99.7\%$ Efficiency

8.18 PHOSPHATE ROCK PROCESSING

8.18.1 Process Description[1]

Phosphate rock preparation involves beneficiation to remove impurities, drying to remove moisture, and grinding to improve reactivity. Usually, direct-fired rotary kilns are used to dry phosphate rock. These dryers burn natural gas or fuel oil and are fired counter-currently. The material from the dryers may be ground before storage in large storage silos. Air-swept ball mills are preferred for grinding phosphate rock.

8.18.2 Emissions and Controls[1]

Although there are no significant emissions from phosphate rock beneficiation plants, emissions in the form of fine rock dust may be expected from drying and grinding operations. Phosphate rock dryers are usually equipped with dry cyclones followed by wet scrubbers. Particulate emissions are usually higher when drying pebble rock than when drying concentrate because of the small adherent particles of clay and slime on the rock. Phosphate rock grinders can be a considerable source of particulates. Because of the extremely fine particle size, baghouse collectors are normally used to reduce emissions. Emission factors for phosphate rock processing are presented in Table 8.18-1.

Table 8.18-1. PARTICULATE EMISSION FACTORS FOR PHOSPHATE ROCK PROCESSING WITHOUT CONTROLS[a]
EMISSION FACTOR RATING: C

Type of source	Emissions	
	lb/ton	kg/MT
Drying[b,c]	15	7.5
Grinding[b,d]	20	10
Transfer and storage[d,e]	2	1
Open storage piles[e]	40	20

[a] Emission factors expressed as units per unit weight of phosphate rock.

[b] References 2 and 3.

[c] Dry cyclones followed by wet scrubbers can reduce emissions by 95 to 99 percent.

[d] Dry cyclones followed by fabric filters can reduce emissions by 99.5 to 99.9 percent.

[e] Reference 3.

AGRICO NOTE: Due to low reliability of emission factor rating: C, used best engineering judgment in determining efficiency.

SUPPLEMENT NO. 4

See Tab "J" - supplemental backup documents for design details listed on manufacturer's data sheets and price and equipment sizing quotes.

POINT	VENDOR	MODEL	CFM	FAN H.P.	RATIO
G.F.					
A'	MIKROPULSAIRE	720KTR-10	60,000	200	7.08
B'	"	196TRH-8-20	10,000	25	5.41
C'	"	"	"	"	"
D'	"	"	"	"	"
E'	"	"	"	"	"
D.R					
A	MIKROPULSAIRE	720KTRH-10	100,000	300	11.8
B	"	221STRH-8-20	15,000	40	7.2
C	"	"	"	"	7.2
D	"	289TRH-8-20	"	"	5.51
E	"	"	"	"	5.51
F	"	720KTR-10	50,000	150	5.9
G	"	221STRH-8-20	15,000	40	7.2
H	"		"	"	7.2
J	DUCON	45/102	30,000	200	-
K	"	"	"	200	-
L	MIKROPULSAIRE	221 STRH-8-20	15,000	40	7.2

Supplement No. 4

AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL

SUPPLEMENT NO. 5

Venturi Scrubbers - J, K

Best Engineering Judgment

10 Grains/SCF Maximum Input
0.03 Grains/SCF Maximum Output

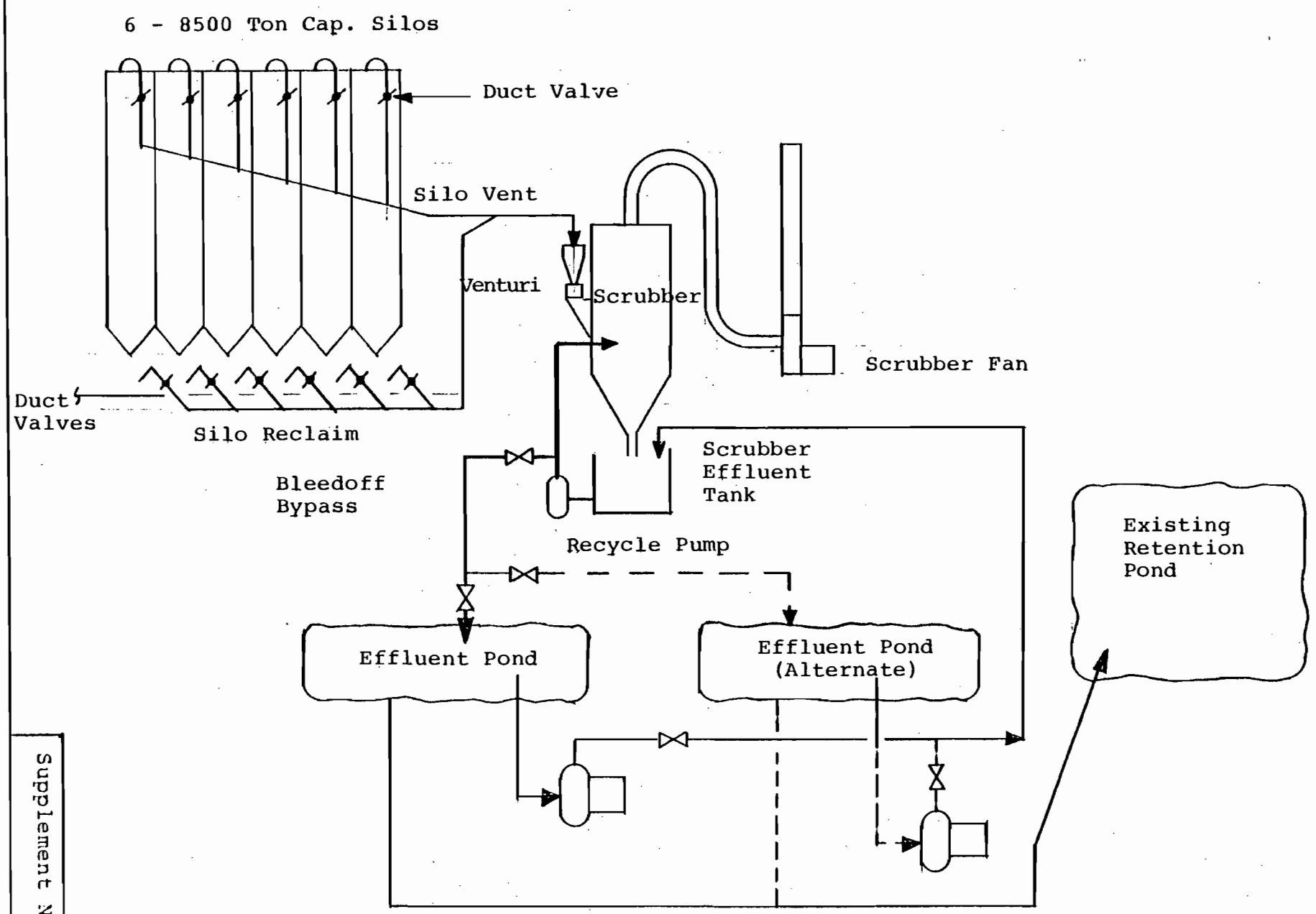
$\left(\frac{10-0.03}{10}\right)(100) = 99.7\%$ Efficiency

From Supplement No. 2:

Input = 37.99 Lb/Minute/Scrubber

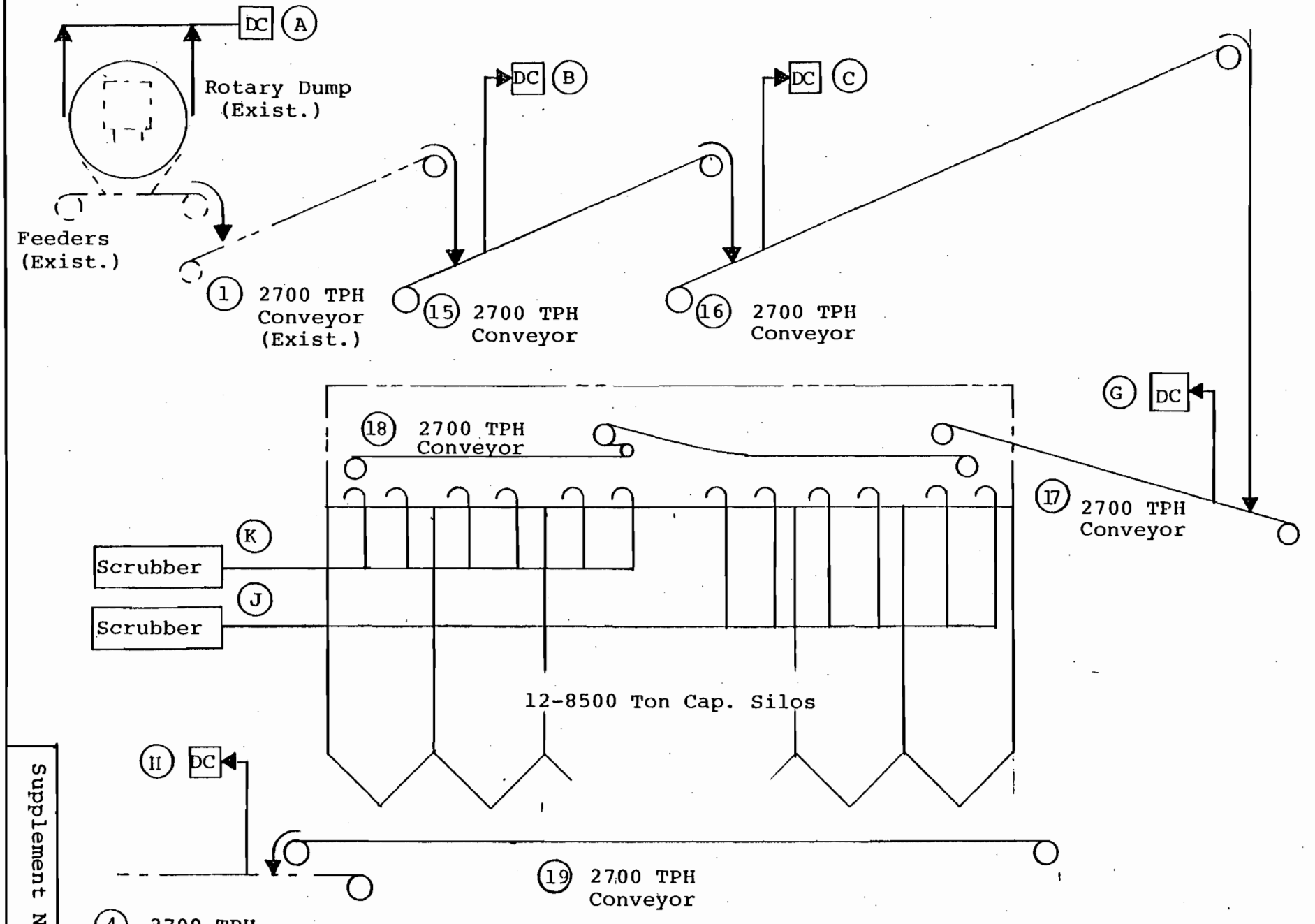
(37.99)(60) = 2279 Lb/Hr. - Potential Emission

Actual Emission = Potential (1-Efficiency)
= (2279)(1-0.997)
= 6.84 Lb/Hr.



Supplement No. 6

AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL

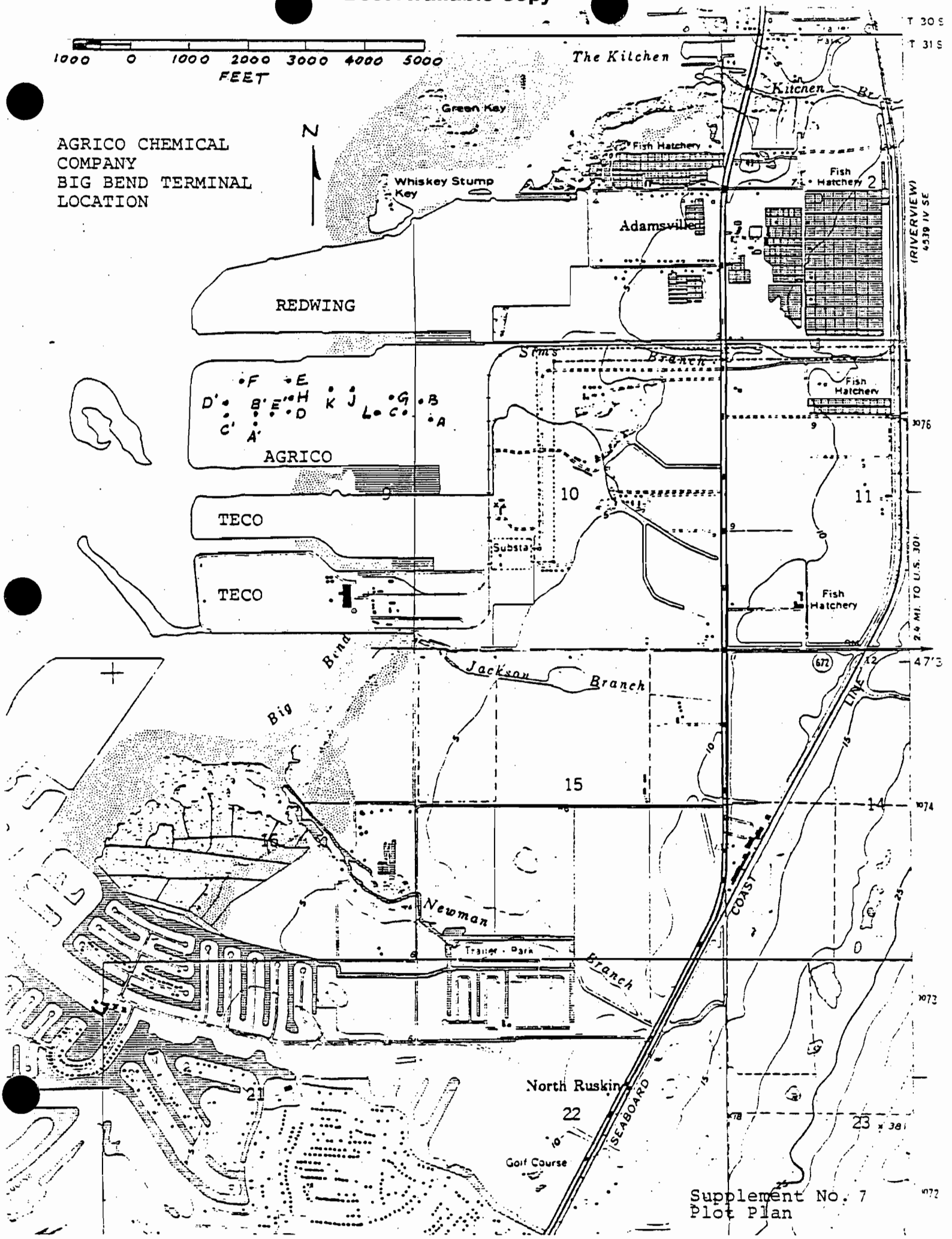


Supplement No. 6

LOADING TO
STORAGE SYSTEM

AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL

Best Available Copy



Supplement No. 7
Plot Plan

AC29-21699
25161

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: _____ [ ] New[1] [X] Existing[1]

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

COMPANY NAME: Agrico Chemical Company COUNTY: Hillsborough

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Granular Fertilizer & Dry Phosphate Rock Conveying - 2 Baghouses "D & E"

SOURCE LOCATION: Street P. O. Box 445 City Gibsonton, FL 33534

UTM: East 361339 M North 3076219 M

Latitude 27 ° 48 ' 19 "N Longitude 82 ° 24 ' 25 "W

APPLICANT NAME AND TITLE: Harold W. Long, Jr., Manager, Environmental Control

APPLICANT ADDRESS: P. O. Box 1110, Mulberry, FL 33860

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Agrico Chemical Company

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, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: H. W. Long Jr.

Harold W. Long, Jr., Manager, Envir. Control
Name and Title (Please Type)

Date: 10/15/79 Telephone No. (813) 428-1431

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

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

Signed: R T Schneider

Raymond T. Schneider
Name (Please Type)

(Affix Seal)

Jacobs Engineering Group, Pridgen Eng. Div.
Company Name (Please Type)

P. O. Box 2008, Lakeland, FL 33803
Mailing Address (Please Type)

Florida Registration No. 12008 Date: 10/17/79 Telephone No. (813) 665-1511

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

SECTION II: GENERAL PROJECT INFORMATION

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

Initially, until silo route is operable, dry phosphate rock will be shipped directly via conveyor belts 1,2,3,4 & 5 to shiploader. Existing dust collectors DC-2 & 3 (A029-12987) will be replaced by dust collectors DC-"D & E" respectively. These dust collectors will service both dry rock and granular fertilizer at transfer to conveyor belts 4 & 5. These dust collectors will be in compliance with existing regulations.

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

Start of Construction February 1980* Completion of Construction May 1981*

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

Dust Collectors	$144,400	Paint	$ 1,400
Structure	28,000	Piping	2,400
Ducts	17,000	TOTAL	$281,600
Electrical	88,400		

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

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

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr ____ ; if seasonal, describe: Operation will be intermittent, depending on demand, receiving and shiploading can be around-the-clock activities.

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

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

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

SECTION II FOOTNOTES

* Preliminary and subject to delay in DER, EPA and local administrative proceedings.

** This new project is only associated with a DRI for which approval was granted by Hillsborough County on 3/27/74, and that it was specifically envisioned in Agrico's Supplemental Application of Development Approval of a DRI approved or 7/16/75 and extended on 9/6/78.

*** Source is within the area of influence of a non-attainment area as that term is defined in Rule 17-2.02 (11). However, the source is exempted from the provisions of 17-2.17 (5) through (7) by 17-2.17 (3)(a) 1.a. (ii).

**** It is Agrico's position that this source is not a "Major Emitting Facility" as that term is defined in the Clean Air Act and incorporated in Chapter 17-2. However, without waiving this position, Agrico will complete this application as if both BACT and PSD apply.

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

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

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Dry Phosphate Rock	Particulate	100	5,400,000	DC-"D & E"
Granular Fertilizer	"	100	3,000,000	DC-"D & E"

B. Process Rate, if applicable: (See Section V, Item 1) Dry Rock 5,400,000 lbs./hr.

1. Total Process Input Rate (lbs/hr): Granular Fertilizer 3,000,000 lbs./hr.

2. Product Weight (lbs/hr): Dry Rock - 5,399,995 lbs./hr. Gr. Fertilizer 2,999,995 lbs./hr.

C. Airborne Contaminants Emitted: Rock: 2,800,000 TPY/2,700 TPH = 1,037 Operating Hours
Fertz: 800,000 TPY/1,500 TPH = 533 Operating Hours

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Particulate:							
Dry Rock	2.30	1.19	2.30 lb./hr.	2.30	1149	596	DC-"D"
" "	2.30	1.19	2.30 "	2.30	1149	596	DC-"E"
Gran. Fertilizer	2.30	0.61	2.30 "	2.30	1149	306	DC-"D"
" "	2.30	0.61	2.30 "	2.30	1149	306	DC-"E"

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]
Mikro-Pulsaire	Particulate	99.8	< 50	Supp. 2 & 5
Bag-Type Dust				
Collectors (2)				
Model 289TRH-8-20				

[1] See Section V, Item 2.

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

[3] Calculated from operating rate and applicable standard

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

[5] If Applicable

E. Fuels N.A.

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

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

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lbs/gal Typical Percent Nitrogen: _____

Heat Capacity: _____ BTU/lb _____ BTU/gal

Other Fuel Contaminants (which may cause air pollution): _____

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

G. Indicate liquid or solid wastes generated and method of disposal. None. Baghouse product discharges onto next conveyor in line.

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

Stack Height: 45 above grade (each) ft. Stack Diameter: 2.75 (each) ft.

Gas Flow Rate: 15,000 (each) ACFM Gas Exit Temperature: 105 °F.

Water Vapor Content: 4.7 % Velocity: 42.09 (each) FPS

SECTION IV: INCINERATOR INFORMATION N.A.

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste _____

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

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

Manufacturer _____

Date Constructed _____ Model No. _____

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

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

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

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

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

Brief description of operating characteristics of control devices: _____

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

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

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

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
[ ] Yes [X] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [X] No

Contaminant	Rate or Concentration

C. What emission levels do you propose as best available control technology?

Contaminant	Rate or Concentration
Particulate	2.30 lbs./hr. each dust collector, for eac product handled, or a total of 9.2 lbs./hr.

D. Describe the existing control and treatment technology (if any).

1. Control Device/System: Mikro-Pulsaire Dust Collector - Model 495-8-20
2. Operating Principles:
3. Efficiency:* 0% Opacity-Visible emissions
4. Capital Costs: $56,567
5. Useful Life: Indefinite
6. Operating Costs: N/A
7. Energy: N/A
8. Maintenance Cost: N/A
9. Emissions:

Contaminant	Rate or Concentration
Particulate	Est. 1 lb./hr.

*Explain method of determining D 3 above.

10. Stack Parameters

a. Height: 25 above grade ft. b. Diameter: 1.333 ft.

c. Flow Rate: 2,750 ACFM d. Temperature: 15^0 above ambient °F

e. Velocity: 34.4 FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1.

a. Control Device: Electrostatic Precipitator

b. Operating Principles: Charged particles are attracted to electrodes. Particles shaken loose periodically for removal.

c. Efficiency*: Unknown d. Capital Cost: Very high

e. Useful Life: Unknown f. Operating Cost: Unknown

g. Energy*: Unknown h. Maintenance Cost: Unknown

i. Availability of construction materials and process chemicals: Unknown

j. Applicability to manufacturing processes: No known application in this area for this type operation.

k. Ability to construct with control device, install in available space, and operate within proposed levels: Unknown.

2.

a. Control Device: Venturi Scrubber

b. Operating Principles: Wet particles are captured in recirculated scrubber water.

c. Efficiency*: 95-99.9% d. Capital Cost: Varies

e. Useful Life: Rated - Long Service f. Operating Cost: Unknown

g. Energy**: Depends on $\triangle$ P h. Maintenance Costs: Unknown

i. Availability of construction materials and process chemicals: Available

j. Applicability to manufacturing processes: $\triangle$ P High for desired removal efficiency.

k. Ability to construct with control device, install in available space, and operate within proposed levels: Recirculating ponds would be a problem.

*Explain method of determining efficiency. Manufacturers Data

**Energy to be reported in units of electrical power – KWH design rate.

3.

a. Control Device: Baghouse Dust Collector

b. Operating Principles: Pull air through multiple bags to filter out particles. Reverse air pulse periodically cleans and empties each bag to hopper below.

c. Efficiency*: Rated to 99.99+ % d. Capital Cost: High

e. Life: Rated - Long Service f. Operating Cost: Low

g. Energy: Medium h. Maintenance Cost: Low

*Explain method of determining efficiency above. Manufacturers Data

i. Availability of construction materials and process chemicals: Available

j. Applicability to manufacturing processes: Good

k. Ability to construct with control device, install in available space and operate within proposed levels: Good

4.

a. Control Device

b. Operating Principles:

c. Efficiency*:

d. Capital Cost:

e. Life:

f. Operating Cost:

g. Energy:

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected:

1. Control Device: Two Mikro-Pulsaire Dust Collectors, Model 289STRH-8-20
2. Efficiency*: 99.8%
3. Capital Cost: $281,600
4. Life: Long Service
5. Operating Cost: Unknown
6. Energy: 82.5 KWH/Each Coll.
7. Maintenance Cost: Unknown
8. Manufacturer: Mikro-Pulsaire Corp.
9. Other locations where employed on similar processes:

a.

(1) Company: Eastern Associated Terminals

(2) Mailing Address:

(3) City: Tampa (4) State: Florida

(5) Environmental Manager:

(6) Telephone No.:

*Explain method of determining efficiency above. Best engineering judgment.

(7) Emissions*:

Contaminant	Rate or Concentration
Particulate	0.0139 GR/SCF

(8) Process Rate*: 1500 TPH

b.

(1) Company:

(2) Mailing Address:

(3) City: (4) State:

*Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

10. Reason for selection and description of systems: Efficiency is excellent; cost is reasonable; no waste products generated.

*Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data Not applicable - ambient data survey has been submitted to FDER.

1. _____ no sites _____ TSP _____ ( ) SO^2* _____ Wind spd/dir

Period of monitoring ___/___/___ to ___/___/___
month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? ____ Yes ____ No

b) Was instrumentation calibrated in accordance with Department procedures? ____ Yes ____ No ____ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. 5 Year(s) of data from 1 / 1 / 71 to 12 / 31 / 75
month day year month day year

2. Surface data obtained from (location) Tampa Airport

3. Upper air (mixing height) data obtained from (location) Tampa Airport

4. Stability wind rose (STAR) data obtained from (location) Tampa Airport

C. Computer Models Used

1. Single Source (CRSTER) Modified? If yes, attach description.

2. Point Multiple (PTMTP-W) Modified? If yes, attach description.

3. Air Quality Display Model (AQDM) Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	1.159 grams/sec
SO^2	NA grams/sec

E. Emission Data Used in Modeling

Attach list of emission sources. Emission data required is source name, description on point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

F. Attach all other information supportive to the PSD review.

*Specify bubbler (B) or continuous (C).

G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

Little or no difference in social impact. Environmental impact will be 3.60 TPY particulate matter added to plant ambient air.

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.

D, E

SUPPLEMENT NO. 1

Granular Fertilizer:

Total Process Input Rate	-	3,000,000 lbs./hr.
Stack Emission	-	5 lbs./hr.
Product Weight	-	2,999,995 lbs./hr.

Dry Phosphate Rock:

Total Process Input Rate	-	5,400,000 lbs./hr.
Stack Emission	-	5 lbs./hr.
Product Weight	-	5,399,995 lbs./hr.

NOTE: These dust collectors service transfer of either Granular Fertilizer or Dry Phosphate Rock, whichever is being conveyed to shiploader.

SUPPLEMENT NO. 2

FROM DESIGN DATA:

All dust collectors are designed to operate under maximum conditions of 10 grains/standard cubic foot inlet loading, approximately 15°F above ambient temperature and a maximum absolute humidity of 0.03 lbs. water/lb. air to yield maximum emissions outlet loadings of 0.02 grains/standard cubic foot. Outlet loading based on actual tests made on same product, collectors and processes.

The absolute humidity is the dew point for 90°F air, the maximum expected in this location. The approximately 15°F temperature gain for the ambient air induced to transport the dust and collect it in the baghouse is estimated from the fan heat of compression and heat from the warm product being transported.

From Psychrometric Chart or Table:

Volume at 90°F 1 lb. dry air = 13.85 CF

Volume at 90°F 1 lb. dry and vapor to saturate it - 14.55 CF

$\frac{14.55-13.85}{14.55} \times 100 = 4.7\%\ H_2O$

Dust Collector Nos. D, E

(15,000) (1-.047) $\frac{530}{565}$ - 13,409 SCFM Dry (70°F)

(13,409) $\frac{10}{7000}$ = 19.16 Lb./Min. Inlet Particulate

(13,409) $\frac{0.02}{7000}$ = .0383 Lb./Min. Outlet Particulate

$\frac{19-.04}{19} \times 100 = 99.8\%$ Efficiency

8.18 PHOSPHATE ROCK PROCESSING

8.18.1 Process Description[1]

Phosphate rock preparation involves beneficiation to remove impurities, drying to remove moisture, and grinding to improve reactivity. Usually, direct-fired rotary kilns are used to dry phosphate rock. These dryers burn natural gas or fuel oil and are fired counter-currently. The material from the dryers may be ground before storage in large storage silos. Air-swept ball mills are preferred for grinding phosphate rock.

8.18.2 Emissions and Controls[1]

Although there are no significant emissions from phosphate rock beneficiation plants, emissions in the form of fine rock dust may be expected from drying and grinding operations. Phosphate rock dryers are usually equipped with dry cyclones followed by wet scrubbers. Particulate emissions are usually higher when drying pebble rock than when drying concentrate because of the small adherent particles of clay and slime on the rock. Phosphate rock grinders can be a considerable source of particulates. Because of the extremely fine particle size, baghouse collectors are normally used to reduce emissions. Emission factors for phosphate rock processing are presented in Table 8.18-1.

Table 8.18-1. PARTICULATE EMISSION FACTORS FOR PHOSPHATE ROCK PROCESSING WITHOUT CONTROLS[a]
EMISSION FACTOR RATING: C

Type of source	Emissions	
	lb/ton	kg/MT
Drying[b,c]	15	7.5
Grinding[b,d]	20	10
Transfer and storage[d,e]	2	1
Open storage piles[e]	40	20

[a] Emission factors expressed as units per unit weight of phosphate rock.

[b] References 2 and 3.

[c] Dry cyclones followed by wet scrubbers can reduce emissions by 95 to 99 percent.

[d] Dry cyclones followed by fabric filters can reduce emissions by 99.5 to 99.9 percent.

[e] Reference 3.

AGRICO NOTE: Due to low reliability of emission factor rating: C, used best engineering judgment in determining efficiency.

SUPPLEMENT NO. 4

See Tab "J" - supplemental backup documents for design details listed on manufacturer's data sheets and price and equipment sizing quotes.

Point	Vendor	Model	CFM	Fan H.P.	Ratio
G.F.					
A'	MikroPulsaire	720KTR-10	60,000	200	7.08
B'	"	196TRH-8-20	10,000	25	5.41
C'	"	"	"	"	"
D'	"	"	"	"	"
E'	"	"	"	"	"
D.R					
A	MikroPulsaire	720KTRH-10	100,000	300	11.8
B	"	221STRH-8-20	15,000	40	7.2
C	"	"	"	"	7.2
D	"	289TRH-8-20	"	"	5.51
E	"	"	"	"	5.51
F	"	720KTR-10	50,000	150	5.9
G	"	221STRH-8-20	15,000	40	7.2
H	"		"	"	7.2
J	Ducon	45/102	30,000	200	-
K	"	"	"	200	-
L	MikroPulsaire	221 STRH-8-20	15,000	40	7.2

Supplement No. 4

AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL

SUPPLEMENT NO. 5

Dust Collectors - D, E

Manufacturer Data Sheet

10 Grains/SCF Maximum Input

0.02 Grains/SCF Maximum Output

$\left(\frac{10-0.02}{10}\right)(100) = 99.8\%$ Efficiency

From SUPPLEMENT NO. 2:

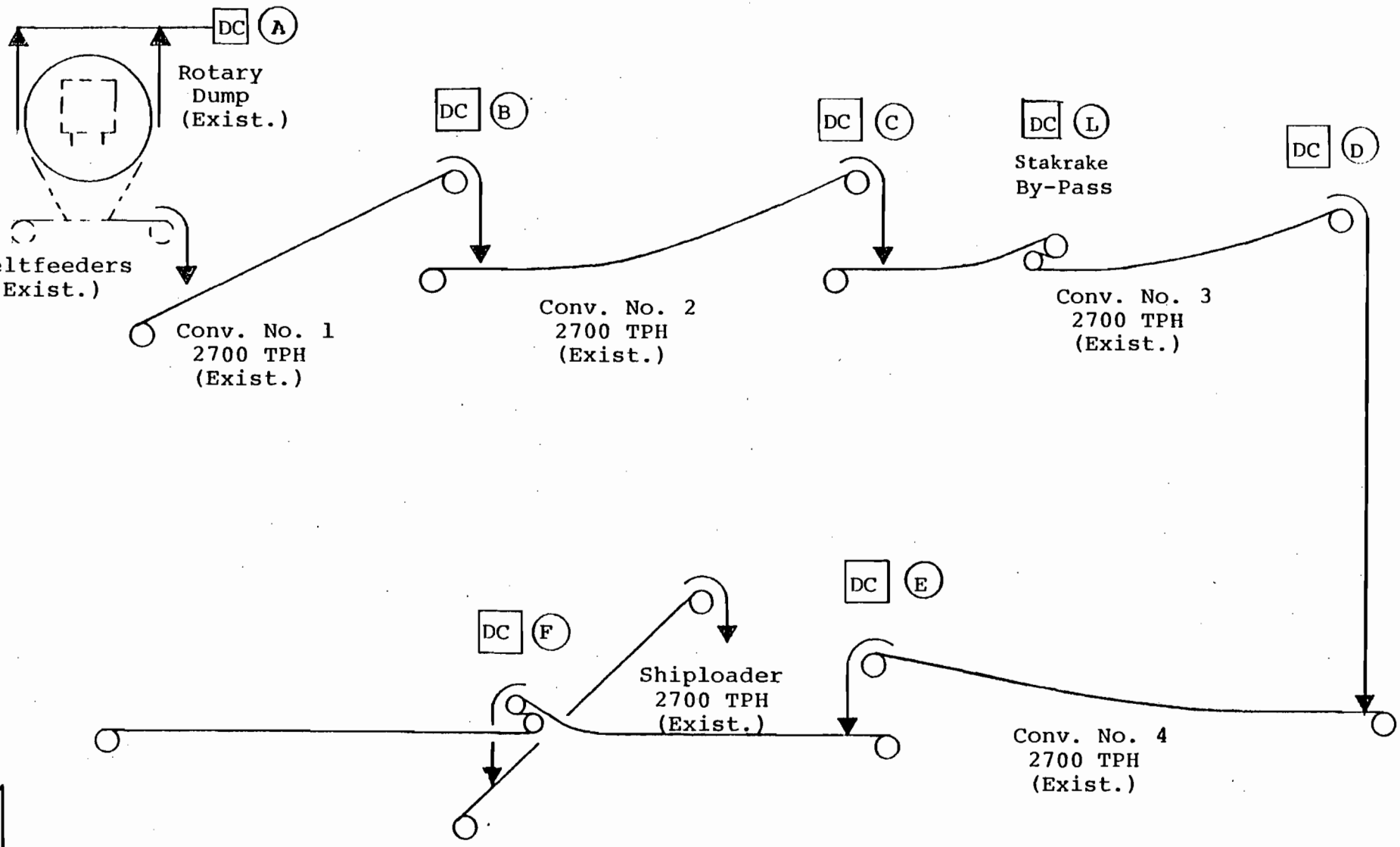
Input = 19.16 lb./Minute/Dust Collector

(19.16)(60) = 1149 lb./hr. Potential Emission

Actual Emission = Potential (1-Efficiency)

= (1149)(1-0.998)

= 2.30 lb./hr.

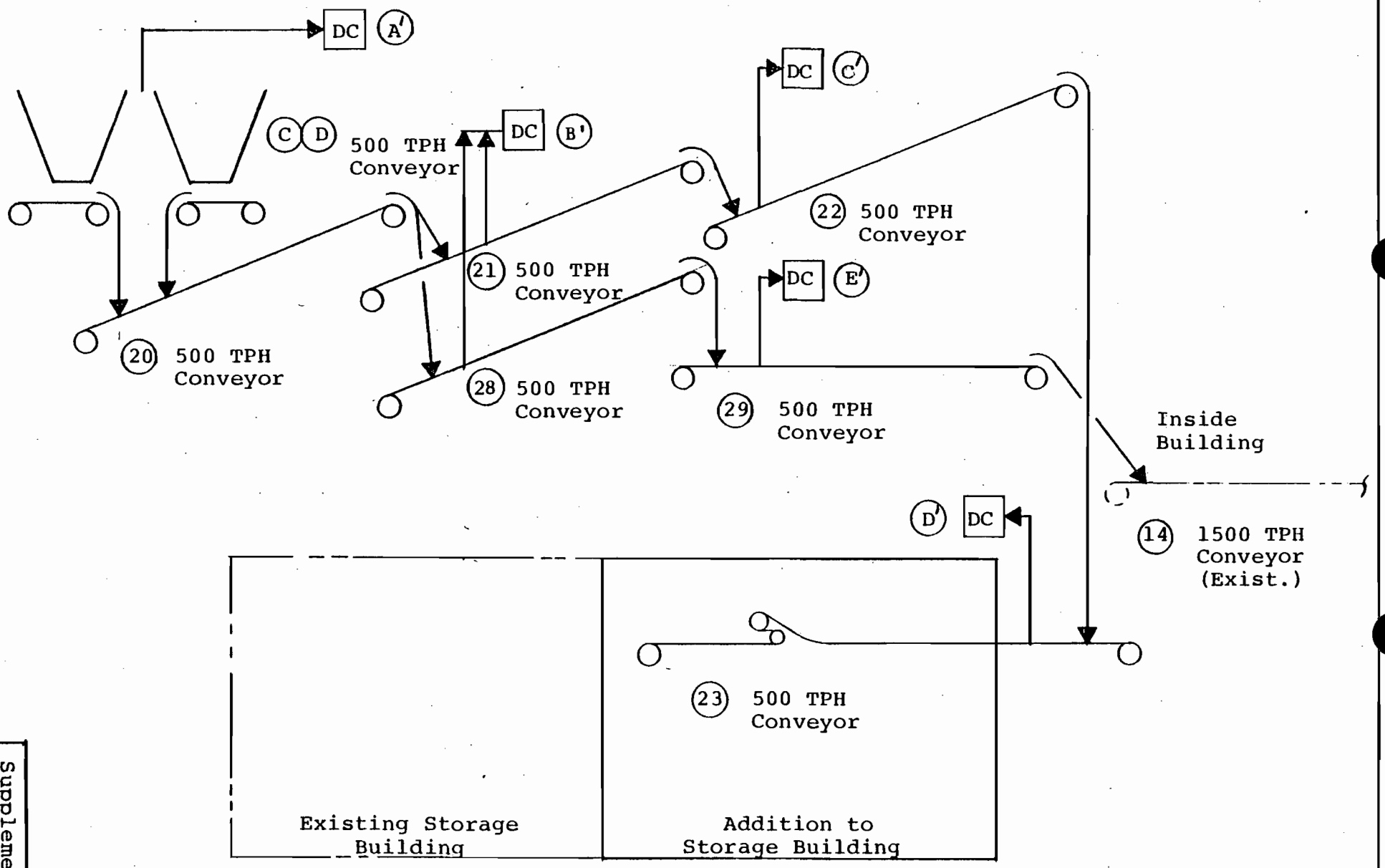


Dust Collectors
D, E & F will replace
existing Dust collectors

DIRECT LOADING
TO SHIP

AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL

Supplement No. 6
Flow Diagram

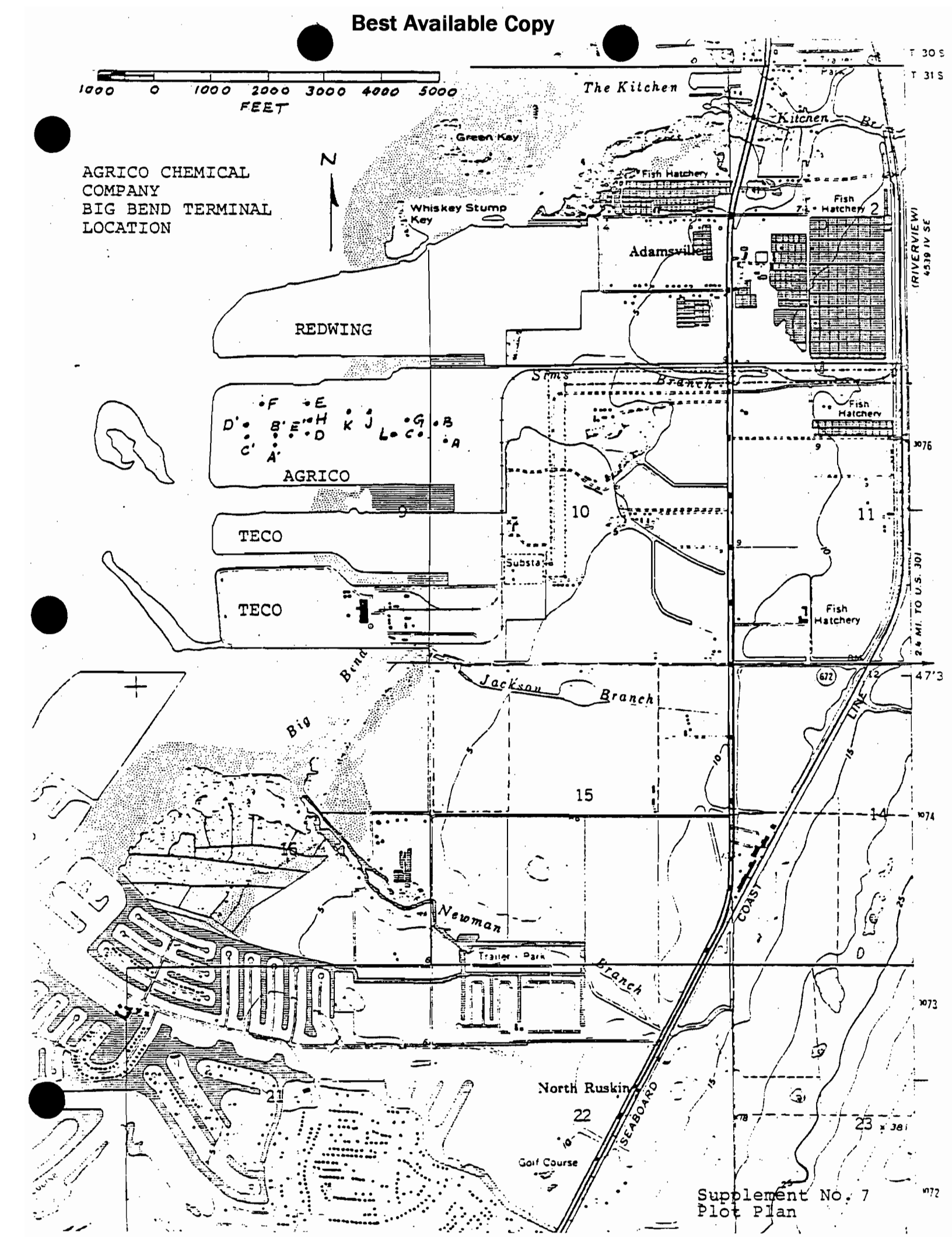


FERTILIZER FLOW DIAGRAM

AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL

Supplement No. 6

Best Available Copy



Supplement No. 7
Plot Plan

AC29-~~21700~~
25162

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: _____ [ ] New[1] [X] Existing[1]

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

COMPANY NAME: Agrico Chemical Company COUNTY: Hillsborough

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Granular Fertilizer & Dry Phosphate Rock Shiploader - Baghouse "F"

SOURCE LOCATION: Street P. O. Box 445 City Gibsonton, FL 33534

UTM: East 361125 M North 3076284 M

Latitude 27 ° 48 ' 22 "N Longitude 82 ° 24 ' 33 "W

APPLICANT NAME AND TITLE: Harold W. Long, Jr., Manager, Environmental Control

APPLICANT ADDRESS: P. O. Box 1110, Mulberry, FL 33860

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Agrico Chemical Company

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, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: H. W. Long

Harold W. Long, Jr., Mgr., Envir. Control
Name and Title (Please Type)

Date: 10/15/79 Telephone No. (813) 428-1431

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

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

Signed: R T Schneider

Raymond T. Schneider
Name (Please Type)

(Affix Seal)

Jacobs Engineering Group, Pridgen Engrg. Div.
Company Name (Please Type)

P. O. Box 2008, Lakeland, FL 33803
Mailing Address (Please Type)

Florida Registration No. 12008 Date: 10/17/79 Telephone No. (813) 665-1511

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

SECTION II: GENERAL PROJECT INFORMATION

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

Shiploader and conveyor transfer point for dry phosphate rock and granular fertilizer. Dust collector "F" will replace present DC-4. Proposed facility will meet all compliance requirements.

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

Start of Construction February, 1980* Completion of Construction May, 1981*

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

Dust Collector	$181,000	Ducts	$150,000
Piping	2,000	Electrical & Controls	30,000
Paint	4,000		$407,000
Structural	40,000		

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

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

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr ____ ; if seasonal, describe: Operation will be intermittent, depending on demand. Receiving and shiploading can be around-the-clock activities.

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

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

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

SECTION II FOOTNOTES

* Preliminary and subject to delay in DER, EPA and local administrative proceedings.

** This new project is only associated with a DRI for which approval was granted by Hillsborough County on 3/27/74, and that it was specifically envisioned in Agrico's Supplemental Application of Development Approval of a DRI approved on 7/16/75 and extended on 9/6/78.

*** Source is within the area of influence of a non-attainment area as that term is defined in Rule 17-2.02 (11). However, the source is exempted from the provisions of 17-2.17 (5) through (7) by 17-2.17 (3)(a) 1.a. (ii).

**** It is Agrico's position that this source is not a "Major Emitting Facility" as that term is defined in the Clean Air Act and incorporated in Chapter 17-2. However, without waiving this position, Agrico will complete this application as if both BACT and PSD apply.

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

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

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Dry Phosphate Rock	Particulate	100	5,400,000	DC - "F"
Granular Fertilizer	"	100	3,000,000	DC - "F"

B. Process Rate, if applicable: (See Section V, Item 1) Dry Rock 5,400,000 lbs./hr.

1. Total Process Input Rate (lbs/hr): Granular Fertilizer 3,000,000 lbs./hr.

2. Product Weight (lbs/hr): Dry Rock - 5,399,992 lbs./hr.; Granular Fertz. - 2,999,992 lbs./hr.

C. Airborne Contaminants Emitted: Rock: 2,800,000 TPY/2,700 TPH = 1,037 Operating Hours
Fertz: 800,000 TPY/1,500 TPH = 533 Operating Hours

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Particulate:							
Dry Rock	7.66	3.97	7.66 lb./hr.	7.66	3831	1987	DC - "F"
Gran. Fertz.	7.66	2.04	7.66 lb./hr.	7.66	3831	1022	DC - "F"

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5])
Mikro-Pulsaire	Particulate	99.8%	< 50	Supp.No.2&5
Bag-Type Dust				
Collector				
Model 720 KTR-10				

[1] See Section V, Item 2.

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

[3] Calculated from operating rate and applicable standard

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

[5] If Applicable

E. Fuels N.A.

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

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

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lbs/gal Typical Percent Nitrogen: _____

Heat Capacity: _____ BTU/lb _____ BTU/gal

Other Fuel Contaminants (which may cause air pollution): _____

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

G. Indicate liquid or solid wastes generated and method of disposal. None. Baghouse product discharges onto next conveyor in line.

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

Stack Height: 75 above grade ft. Stack Diameter: 5 ft.

Gas Flow Rate: 50,000 ACFM Gas Exit Temperature: 105 °F.

Water Vapor Content: 4.7 % Velocity: 42.44 FPS

SECTION IV: INCINERATOR INFORMATION

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste _____

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

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

Manufacturer _____

Date Constructed _____ Model No. _____

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

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

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

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

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

Brief description of operating characteristics of control devices: _____

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

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

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

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
[ ] Yes [ ] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [ ] No

Contaminant	Rate or Concentration

C. What emission levels do you propose as best available control technology?

Contaminant	Rate or Concentration
Particulate	7.66 lbs./hr. for each product handled, or a total of 15.32 lbs./hr.

D. Describe the existing control and treatment technology (if any).

1. Control Device/System: Mikro-Pulsaire Dust Collector Model 384K-8
2. Operating Principles:
3. Efficiency:* 0% Opacity-Visible Emissions
4. Capital Costs: $98,993
5. Useful Life: Indefinite
6. Operating Costs: N/A
7. Energy: N/A
8. Maintenance Cost: N/A
9. Emissions:

Contaminant	Rate or Concentration
Particulate	Est. 3 lb./hr.

*Explain method of determining D 3 above.

10. Stack Parameters

a. Height: 30 above grade ft. b. Diameter: 2.17 ft.

c. Flow Rate: 20,000 ACFM d. Temperature: 15^0 above ambient ^oF

e. Velocity: 90 FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1.

a. Control Device: Electrostatic Precipitators

b. Operating Principles: Charged particles are attracted to electrodes and shaken loose periodically.

c. Efficiency*: Unknown d. Capital Cost: Very high

e. Useful Life: Unknown f. Operating Cost: Unknown

g. Energy*: Unknown h. Maintenance Cost: Unknown

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes: No known installation in this area for this type operation.

k. Ability to construct with control device, install in available space, and operate within proposed levels: Space not available.

2.

a. Control Device: Venturi Scrubber

b. Operating Principles: Wet particles are captured in recirculated scrubber water.

c. Efficiency*: 95-99.9% d. Capital Cost: Unknown

e. Useful Life: Rated: Long Service f. Operating Cost: Unknown

g. Energy**: Depends on Δ P h. Maintenance Costs: Unknown

i. Availability of construction materials and process chemicals: Available

j. Applicability to manufacturing processes: Δ P high for desired removal efficiency.

k. Ability to construct with control device, install in available space, and operate within proposed levels: Recirculating ponds would present a problem.

*Explain method of determining efficiency.

**Energy to be reported in units of electrical power – KWH design rate.

3.

a. Control Device: Baghouse Dust Collector

b. Operating Principles: Pull air through multiple bags to filter out particles. Reverse air pulse periodically cleans and empties each bag to hopper below.

c. Efficiency*: Rated to 99.99+% d. Capital Cost: High

e. Life: Rated: Long Service f. Operating Cost: Low

g. Energy: Medium h. Maintenance Cost: Low

*Explain method of determining efficiency above. Manufacturers Data

i. Availability of construction materials and process chemicals: Available

j. Applicability to manufacturing processes: Good

k. Ability to construct with control device, install in available space and operate within proposed levels: Good

4.

a. Control Device

b. Operating Principles:

c. Efficiency*:

d. Capital Cost:

e. Life:

f. Operating Cost:

g. Energy:

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected:

1. Control Device: Mikro-Pulsaire Dust Collector Model 720K-10-TRH
2. Efficiency*: 99.8%
3. Capital Cost: $407,000
4. Life: Long Service
5. Operating Cost: Unknown
6. Energy: 249.5 KWH
7. Maintenance Cost: Unknown
8. Manufacturer: Mikro-Pulsaire Corp.
9. Other locations where employed on similar processes:

a.

(1) Company: Eastern Associated Terminals

(2) Mailing Address:

(3) City: Tampa (4) State: Florida

(5) Environmental Manager:

(6) Telephone No.:

*Explain method of determining efficiency above.

(7) Emissions*:

Contaminant	Rate or Concentration
Particulate	0.023 GR/SCF

(8) Process Rate*:

b.

(1) Company:

(2) Mailing Address:

(3) City: (4) State:

*Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

10. Reason for selection and description of systems: Efficiency is excellent; cost is reasonable; no waste products generated.

*Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data Not applicable - ambient data survey has been submitted to FDER.

1. _____ no sites _____ TSP _____( )SO^2* _____ Wind spd/dir

Period of monitoring ___/___/___ to ___/___/___
month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? ____ Yes ____ No

b) Was instrumentation calibrated in accordance with Department procedures? ____ Yes ____ No ____ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. 5 Year(s) of data from 1 / 1 / 71 to 12 / 31 / 75
month day year month day year

2. Surface data obtained from (location) Tampa Airport

3. Upper air (mixing height) data obtained from (location) Tampa Airport

4. Stability wind rose (STAR) data obtained from (location) Tampa Airport

C. Computer Models Used

1. Single Source (CRSTER) Modified? If yes, attach description.

2. Point Multiple (PTMTP-W) Modified? If yes, attach description.

3. Air Quality Display Model (AQDM) Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	1.930 grams/sec
SO^2	NA grams/sec

E. Emission Data Used in Modeling

Attach list of emission sources. Emission data required is source name, description on point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

F. Attach all other information supportive to the PSD review.

*Specify bubbler (B) or continuous (C).

G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

Little or no difference in social impact. Environmental impact will be 6.01 TPY particulate matter added to plant ambient air.

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.

SUPPLEMENT NO. 1

Granular Fertilizer:

Total Process Input Rate	-	3,000,000 lbs./hr.
Stack Emission	-	8 lbs./hr.
Product Weight	-	2,999,992 lbs./hr.

Dry Phosphate Rock:

Total Process Input Rate	-	5,400,000 lbs./hr.
Stack Emission	-	8 lbs./hr.
Product Weight	-	5,399,992 lbs./hr.

NOTE: This dust collector services shiploading of either Granular Fertilizer or Dry Phosphate Rock, whichever is being shipped.

SUPPLEMENT NO. 2

FROM DESIGN DATA:

All dust collectors are designed to operate under maximum conditions of 10 grains/standard cubic foot inlet loading, approximately 15°F above ambient temperature and a maximum absolute humidity of 0.03 lbs. water/lb. air to yield maximum emissions outlet loadings of 0.02 grains/standard cubic foot. Outlet loading based on actual tests made on same product, collectors and processes.

The absolute humidity is the dew point for 90°F air, the maximum expected in this location. The approximately 15°F temperature gain for the ambient air induced to transport the dust and collect it in the baghouse is estimated from the fan heat of compression and heat from the warm product being transported.

From Psychrometric Chart or Table:

Volume at 90°F 1 lb. dry air = 13.85 CF

Volume at 90°F 1 lb. dry and vapor to saturate it - 14.55 CF

$$\frac{14.55-13.85}{14.55} \times 100 = 4.7\% \ H_2O$$

Dust Collector No. F

$$(50,000)(1-.047)\ \frac{530}{565} = 44,698 \text{ SCFM Dry}$$

$$(44,698)\ \frac{10}{7000} = 63.85 \text{ Lb/Min Inlet Particulate}$$

$$(44,698)\ \frac{0.02}{7000} = 0.128 \text{ Lb/Min Outlet Particulate}$$

$$\frac{64-0.13}{13} \times 100 = 99.8\% \text{ Efficiency}$$

8.18 PHOSPHATE ROCK PROCESSING

8.18.1 Process Description[1]

Phosphate rock preparation involves beneficiation to remove impurities, drying to remove moisture, and grinding to improve reactivity. Usually, direct-fired rotary kilns are used to dry phosphate rock. These dryers burn natural gas or fuel oil and are fired counter-currently. The material from the dryers may be ground before storage in large storage silos. Air-swept ball mills are preferred for grinding phosphate rock.

8.18.2 Emissions and Controls[1]

Although there are no significant emissions from phosphate rock beneficiation plants, emissions in the form of fine rock dust may be expected from drying and grinding operations. Phosphate rock dryers are usually equipped with dry cyclones followed by wet scrubbers. Particulate emissions are usually higher when drying pebble rock than when drying concentrate because of the small adherent particles of clay and slime on the rock. Phosphate rock grinders can be a considerable source of particulates. Because of the extremely fine particle size, baghouse collectors are normally used to reduce emissions. Emission factors for phosphate rock processing are presented in Table 8.18-1.

Table 8.18-1. PARTICULATE EMISSION FACTORS FOR PHOSPHATE ROCK PROCESSING WITHOUT CONTROLS[a] EMISSION FACTOR RATING: C

Type of source	Emissions	
	lb/ton	kg/MT
Drying[b,c]	15	7.5
Grinding[b,d]	20	10
Transfer and storage[d,e]	2	1
Open storage piles[e]	40	20

[a] Emission factors expressed as units per unit weight of phosphate rock.

[b] References 2 and 3.

[c] Dry cyclones followed by wet scrubbers can reduce emissions by 95 to 99 percent.

[d] Dry cyclones followed by fabric filters can reduce emissions by 99.5 to 99.9 percent.

[e] Reference 3.

AGRICO NOTE: Due to low reliability of emission factor rating: C, used best engineering judgment in determining efficiency.

SUPPLEMENT NO. 4

See Tab "J" - supplemental backup documents for design details listed on manufacturer's data sheets and price and equipment sizing quotes.

POINT	VENDOR	MODEL	CFM	FAN H.P.	RATIO
G.F.					
A'	MIKROPULSAIRE	720KTR-10	60,000	200	7.08
B'	"	196TRH-8-20	10,000	25	5.41
C'	"	"	"	"	"
D'	"	"	"	"	"
E'	"	"	"	"	"
D.R					
A	MIKROPULSAIRE	720KTRH-10	100,000	300	11.8
B	"	221STRH-8-20	15,000	40	7.2
C	"	"	"	"	7.2
D	"	289TRH-8-20	"	"	5.51
E	"	"	"	"	5.51
F	"	720KTR-10	50,000	150	5.9
G	"	221STRH-8-20	15,000	40	7.2
H	"		"	"	7.2
J	DUCON	45/102	30,000	200	-
K	"	"	"	200	-
L	MIKROPULSAIRE	221 STRH-8-20	15,000	40	7.2

Supplement No. 4

AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL

SUPPLEMENT NO. 5

DUST COLLECTOR - F

Manufacturer Data Sheet

10 Grains/SCF Maximum Input

0.02 Grains/SCF Maximum Output

$\left(\frac{10-0.02}{10}\right)(100) = 99.8\%$ Efficiency

FROM SUPPLEMENT NO. 2:

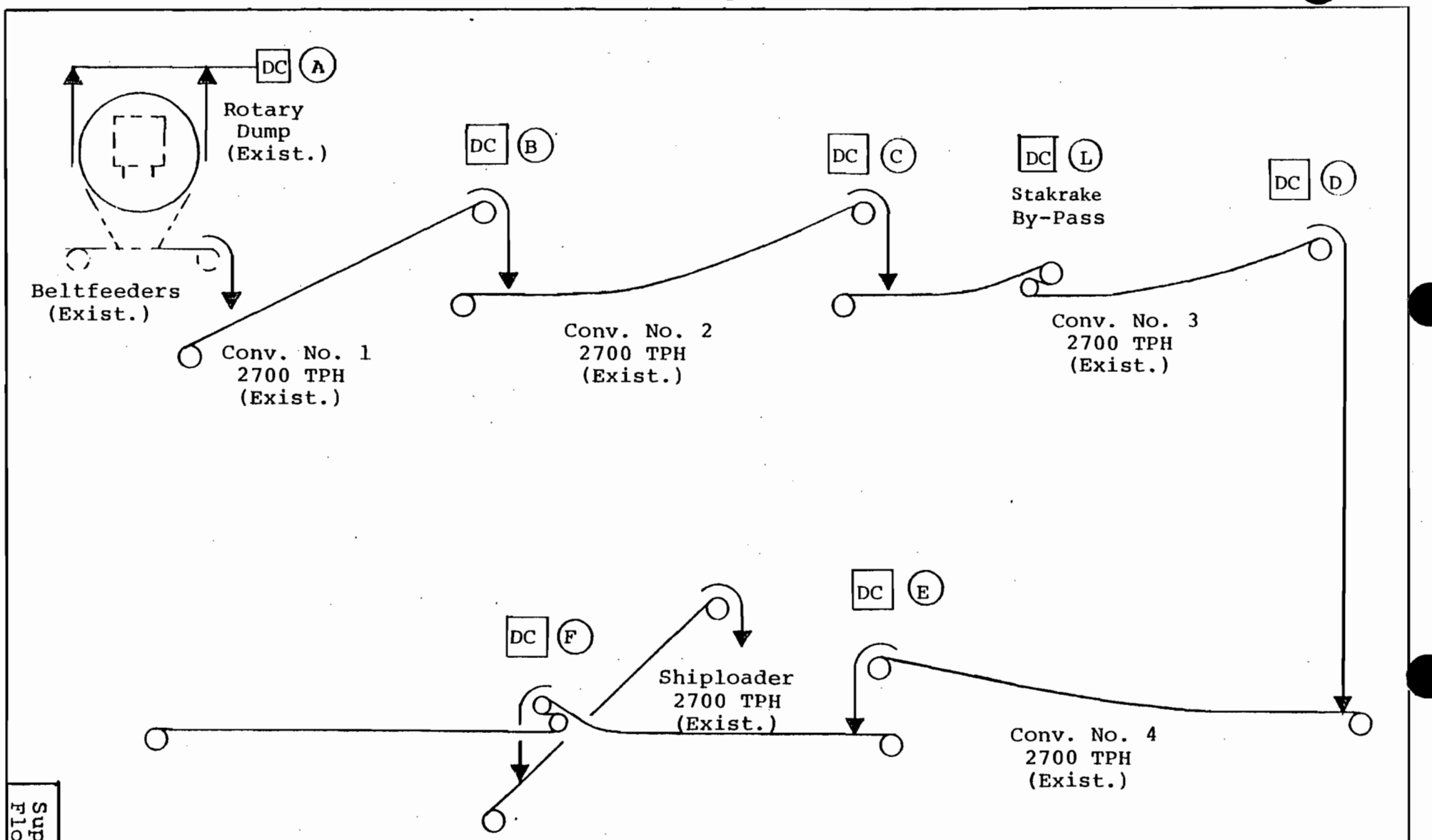
Input = 63.85 lb/minute

(63.85)(60) = 3831 lb/hr. Potential Emission

Actual Emission = Potential (1 - Efficiency)

= (3831)(1-0.998)

= 7.66 lb/hr.

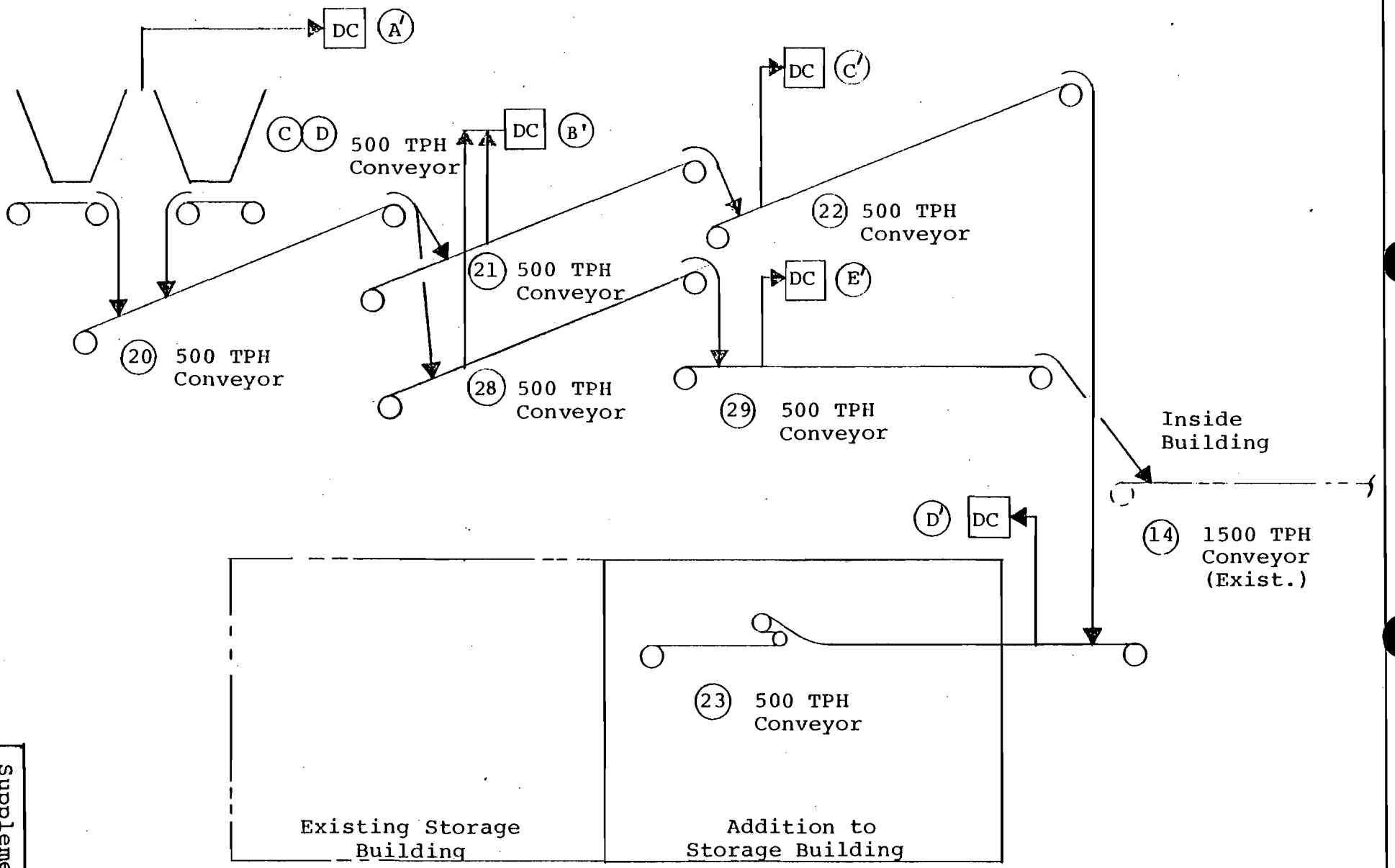


Dust Collectors
D, E & F will replace
existing Dust collectors

DIRECT LOADING
TO SHIP

AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL

Supplement No. 6
Flow Diagram



FERTILIZER FLOW DIAGRAM

AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL

Supplement No. 6

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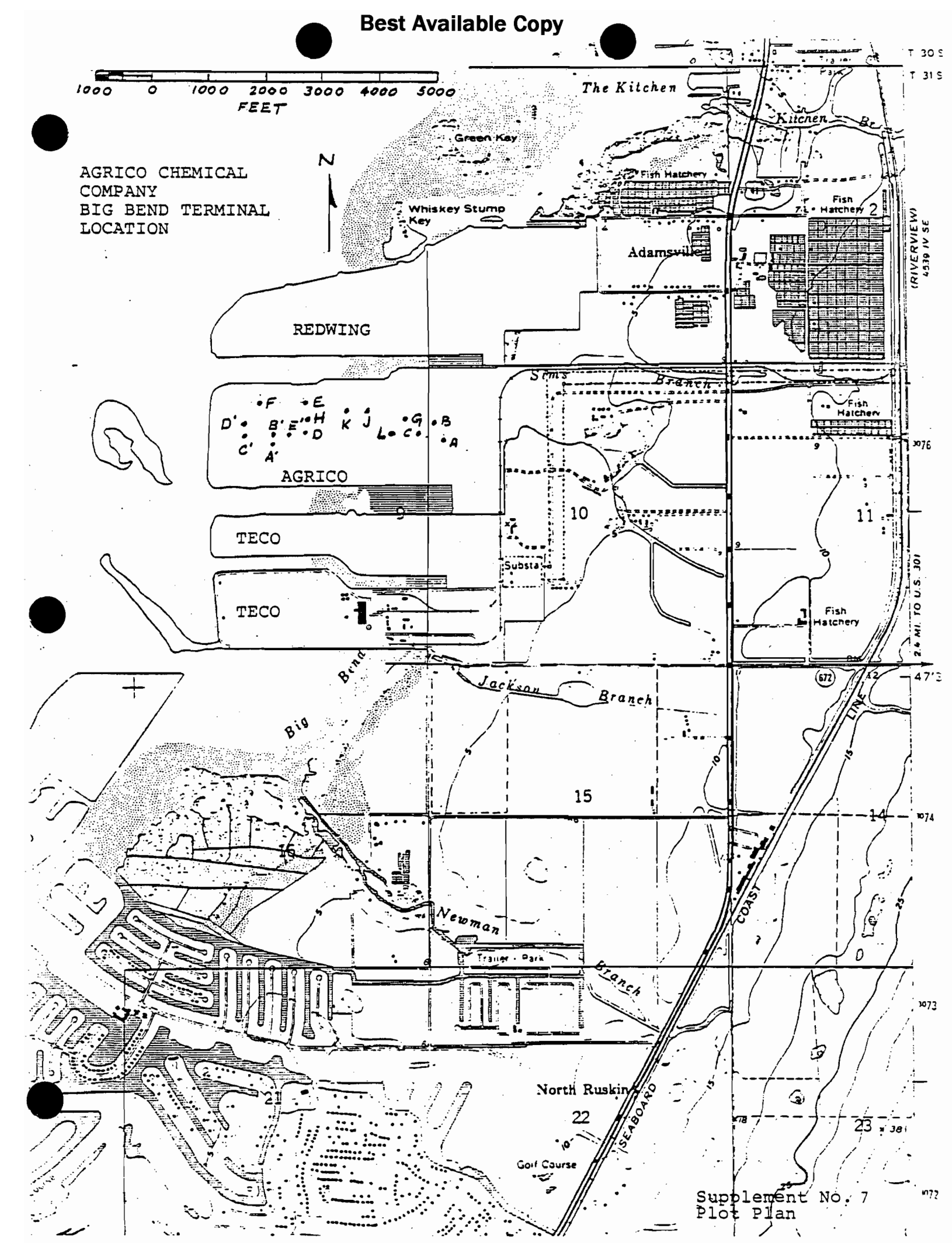


Supplement No. 7
Plot Plan

AC29-~~21701~~
25163

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: _____ [X] New[1] [ ] Existing[1]

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

COMPANY NAME: Agrico Chemical Company COUNTY: Hillsborough

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peeking Unit No. 2, Gas Fired) Granular Fertilizer Rail & Truck Receiving - Baghouse "A"

SOURCE LOCATION: Street P. O. Box 445 City Gibsonton, FL 33534

UTM: East 361171 M North 3076118 M

Latitude 27 ° 48 ' 16 "N Longitude 82 ° 24 ' 31 "W

APPLICANT NAME AND TITLE: Harold W. Long, Jr., Manager, Environmental Control

APPLICANT ADDRESS: P. O. Box 1110, Mulberry, Florida 33860

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Agrico Chemical Company

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, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: H. W. Long

Harold W. Long, Jr., Mgr. Environmental Control
Name and Title (Please Type)

Date: 10/17/79 Telephone No. (813) 428-1431

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

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

Signed: R T Schneider

Raymond T. Schneider
Name (Please Type)

(Affix Seal)

Jacobs Engineering Group, Pridgen Engr. Div.
Company Name (Please Type)

P. O. Box 2008, Lakeland, FL 33803
Mailing Address (Please Type)

Florida Registration No. 12008 Date: 10/17/79 Telephone No. (813) 665-1511

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

SECTION II: GENERAL PROJECT INFORMATION

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

Construction of new railcar and truck dump facility to expand existing 400,000 TPY capacity to 800,000 TPY. New facility will operate at 500 TPH, compared with 350 TPH capacity at existing facility which will continue to operate. New facility will be controlled by a baghouse which will result in full compliance.

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

Start of Construction February, 1980* Completion of Construction May, 1981*

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

Dust Collector	$191,000	Electrical & Controls	$ 33,700
Foundation	10,000	Paint	2,000
Structure	20,000	Piping	1,000
Ducts	71,800	TOTAL	$330,000

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

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

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ; if power plant, hrs/yr ____ ; if seasonal, describe: Operation will be intermittent, depending on demand, receiving, and ship loading can be around-the-clock activities.

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

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

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

SECTION II FOOTNOTES

* Preliminary and subject to delay in DER, EPA and local administrative proceedings.

** This new project is only associated with a DRI for which approval was granted by Hillsborough County on 3/27/74, and that it was specifically envisioned in Agrico's Supplemental Application of Development Approval of a DRI approved on 7/16/75 and extended on 9/6/78.

*** Source is within the area of influence of a non-attainment area as that term is defined in Rule 17-2.02 (11). However, the source is exempted from the provisions of 17-2.17 (5) through (7) by 17-2.17 (3)(a) 1.a. (ii).

**** It is Agrico's position that this source is not a "Major Emitting Facility" as that term is defined in the Clean Air Act and incorporated in Chapter 17-2. However, without waiving this position, Agrico will complete this application as if both BACT and PSD apply.

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

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

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Granular Fertilizer	Particulate	100	1,000,000	DC- "A'"

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

1. Total Process Input Rate (lbs/hr): 1,000,000

2. Product Weight (lbs/hr): 999,990

C. Airborne Contaminants Emitted: 400,000 TYP/ 500 TPH = 800 Operating Hours

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Particulate	9.20	3.68	9.20 lb/hr.	9.20	4598	1839	DC-"A'"

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]
Mikro-Pulsaire Bag-type	Particulate	99.8%	< 50	Supp.No.2 &
Dust Collector				5
Model 720 KTR-10				

[1] See Section V, Item 2.

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

[3] Calculated from operating rate and applicable standard

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

[5] If Applicable

E. Fuels N.A.

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

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

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lbs/gal Typical Percent Nitrogen: _____

Heat Capacity: _____ BTU/lb _____ BTU/gal

Other Fuel Contaminants (which may cause air pollution): _____

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

G. Indicate liquid or solid wastes generated and method of disposal. None. Baghouse product discharges onto next conveyor in line.

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

Stack Height: 125 above grade ft. Stack Diameter: 5.5 ft.

Gas Flow Rate: 60,000 ACFM Gas Exit Temperature: 105 °F.

Water Vapor Content: 4.7 % Velocity: 42.09 FPS

SECTION IV: INCINERATOR INFORMATION N.A.

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste _____

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

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

Manufacturer _____

Date Constructed _____ Model No. _____

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

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

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

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

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

Brief description of operating characteristics of control devices: _____

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

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

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

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. The check should be made payable to the Department of Environmental Regulation.

10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
[ ] Yes [X] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [X] No

Contaminant	Rate or Concentration

C. What emission levels do you propose as best available control technology?

Contaminant	Rate or Concentration
Particulate	9.20 lbs./hr.

D. Describe the existing control and treatment technology (if any). New Installation

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:
5. Useful Life:
6. Operating Costs:
7. Energy:
8. Maintenance Cost:
9. Emissions:

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

10. Stack Parameters

a. Height: ft. b. Diameter: ft.

c. Flow Rate: ACFM d. Temperature: °F

e. Velocity: FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1.

a. Control Device: Electrostatic Precipitators

b. Operating Principles: Charged particles are attracted to electrodes and shaken loose periodically.

c. Efficiency*: Unknown d. Capital Cost: Very High

e. Useful Life: Unknown f. Operating Cost: Unknown

g. Energy*: Unknown h. Maintenance Cost: Unknown

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes: No known installation in this area for this type operation.

k. Ability to construct with control device, install in available space, and operate within proposed levels: space not available.

2.

a. Control Device: Venturi Scrubber

b. Operating Principles: Wet particles are captured in recirculated scrubber water.

c. Efficiency*: 95-99.9% d. Capital Cost: Unknown

e. Useful Life: Rated - Long Service f. Operating Cost: Unknown

g. Energy**: Depends on ΔP h. Maintenance Costs: Unknown

i. Availability of construction materials and process chemicals: Available

j. Applicability to manufacturing processes: ΔP high for desired removal efficiency

k. Ability to construct with control device, install in available space, and operate within proposed levels: Recirculating ponds would present a problem.

*Explain method of determining efficiency.

**Energy to be reported in units of electrical power – KWH design rate.

3.

a. Control Device: Baghouse Dust Collector

b. Operating Principles: Pull air through multiple bags to filter out particles. Reverse the air pulse periodically cleans and empties each bag to hopper below.

c. Efficiency*: Rated to 99.99+% d. Capital Cost: High

e. Life: Rated - Long Service f. Operating Cost: Low

g. Energy: Medium h. Maintenance Cost: Low

*Explain method of determining efficiency above. Mfg.'s Data

i. Availability of construction materials and process chemicals: Available

j. Applicability to manufacturing processes: Good

k. Ability to construct with control device, install in available space and operate within proposed levels: Good

4.

a. Control Device

b. Operating Principles:

c. Efficiency*:

d. Capital Cost:

e. Life:

f. Operating Cost:

g. Energy:

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected:

1. Control Device: Mikro-Pulsaire Dust Collector Model 720KTR-10
2. Efficiency*: 99.8%
3. Capital Cost: 330,000
4. Life: Long Service
5. Operating Cost: Unknown
6. Energy: 299.5 KWH
7. Maintenance Cost: Unknown
8. Manufacturer: Mikro-Pul Corp.
9. Other locations where employed on similar processes:

a.

(1) Company: C. F. Industries

(2) Mailing Address:

(3) City: Tampa

(4) State: Florida

(5) Environmental Manager:

(6) Telephone No.:

*Explain method of determining efficiency above.

(7) Emissions*:

Contaminant	Rate or Concentration
Particulate	Meets visible emission requirement

(8) Process Rate*:

b.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

*Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

10. Reason for selection and description of systems:

Efficiency is excellent; cost is reasonable; no waste products generated.

*Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

SECTION VII – PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data Not applicable - ambient data survey has been submitted to FDER.

1. _____ no sites _____ TSP _____ ( ) SO^2* _____ Wind spd/dir

Period of monitoring ___/___/___ to ___/___/___
month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

2. Instrumentation, Field and Laboratory

a) Was instrumentation EPA referenced or its equivalent? ____ Yes ____ No

b) Was instrumentation calibrated in accordance with Department procedures? ____ Yes ____ No ____ Unknown

B. Meteorological Data Used for Air Quality Modeling

1. 5 Year(s) of data from 1 / 1 / 71 to 12 / 31 / 75
month day year month day year

2. Surface data obtained from (location) Tampa Airport

3. Upper air (mixing height) data obtained from (location) Tampa Airport

4. Stability wind rose (STAR) data obtained from (location) Tampa Airport

C. Computer Models Used

1. Single Source (CRSTER) Modified? If yes, attach description.
2. Point Multiple (PTMTP-W) Modified? If yes, attach description.
3. Air Quality Display Model (AQDM) Modified? If yes, attach description.
4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	1.159 grams/sec
SO^2	NA grams/sec

E. Emission Data Used in Modeling

Attach list of emission sources. Emission data required is source name, description on point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

F. Attach all other information supportive to the PSD review.

*Specify bubbler (B) or continuous (C).

G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

Little or no difference in social impact. Environmental impact will be 3.68 TPY particulate matter added to plant ambient air.

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.

SUPPLEMENT NO. 1

Total Process Input Rate	-	1,000,000 lbs./hr.
Stack Emission	-	10 lbs./hr.
Product Weight	-	999,990 lbs./hr.

SUPPLEMENT NO. 2

FROM DESIGN DATA:

All dust collectors are designed to operate under maximum conditions of 10 grains/standard cubic foot inlet loading, approximately 15°F above ambient temperature and a maximum absolute humidity of 0.03 lbs. water/lb. air to yield maximum emissions outlet loadings of 0.02 grains/standard cubic foot. Outlet loading based on actual tests made on same product, collectors and processes.

The absolute humidity is the dew point for 90°F air, the maximum expected in this location. The approximately 15°F temperature gain for the ambient air induced to transport the dust and collect it in the baghouse is estimated from the fan heat of compression and heat from the warm product being transported.

From Psychrometric Chart or Table:

Volume at 90°F 1 lb. dry air = 13.85 CF

Volume at 90°F 1 lb. dry and vapor to saturate it - 14.55 CF

$$\frac{14.55-13.85}{14.55} \times 100 = 4.7\% \ H_2O$$

Dust Collector No. A'

$$(60{,}000)\ (1-.047)\ \frac{530}{565} = 53{,}637 \text{ SCFM Dry}$$

$$(53{,}637)\ \frac{10}{7000} = 76.63 \text{ lb/min. Inlet Particulate}$$

$$(53{,}637)\ \frac{0.02}{7000} = 0.153 \text{ lb/min. Outlet Particulate}$$

$$\frac{77-0.15}{77} \times 100 = 99.8\% \text{ Efficiency}$$

8.18 PHOSPHATE ROCK PROCESSING

8.18.1 Process Description[1]

Phosphate rock preparation involves beneficiation to remove impurities, drying to remove moisture, and grinding to improve reactivity. Usually, direct-fired rotary kilns are used to dry phosphate rock. These dryers burn natural gas or fuel oil and are fired counter-currently. The material from the dryers may be ground before storage in large storage silos. Air-swept ball mills are preferred for grinding phosphate rock.

8.18.2 Emissions and Controls[1]

Although there are no significant emissions from phosphate rock beneficiation plants, emissions in the form of fine rock dust may be expected from drying and grinding operations. Phosphate rock dryers are usually equipped with dry cyclones followed by wet scrubbers. Particulate emissions are usually higher when drying pebble rock than when drying concentrate because of the small adherent particles of clay and slime on the rock. Phosphate rock grinders can be a considerable source of particulates. Because of the extremely fine particle size, baghouse collectors are normally used to reduce emissions. Emission factors for phosphate rock processing are presented in Table 8.18-1.

Table 8.18-1. PARTICULATE EMISSION FACTORS FOR PHOSPHATE ROCK PROCESSING WITHOUT CONTROLS[a]
EMISSION FACTOR RATING: C

Type of source	Emissions	
	lb/ton	kg/MT
Drying[b,c]	15	7.5
Grinding[b,d]	20	10
Transfer and storage[d,e]	2	1
Open storage piles[e]	40	20

[a] Emission factors expressed as units per unit weight of phosphate rock.

[b] References 2 and 3.

[c] Dry cyclones followed by wet scrubbers can reduce emissions by 95 to 99 percent.

[d] Dry cyclones followed by fabric filters can reduce emissions by 99.5 to 99.9 percent.

[e] Reference 3.

AGRICO NOTE: Due to low reliability of emission factor rating: C, used best engineering judgment in determining efficiency.

SUPPLEMENT NO. 4

See Tab "J" - supplemental backup documents for design details listed on manufacturer's data sheets and price and equipment sizing quotes.

POINT	VENDOR	MODEL	CFM	FAN H.P.	RATIO
G.F.					
A'	MIKROPULSAIRE	720KTR-10	60,000	200	7.08
B'	"	196TRH-8-20	10,000	25	5.41
C'	"	"	"	"	"
D'	"	"	"	"	"
E'	"	"	"	"	"
D.R					
A	MIKROPULSAIRE	720KTRH-10	100,000	300	11.8
B	"	221STRH-8-20	15,000	40	7.2
C	"	"	"	"	7.2
D	"	289TRH-8-20	"	"	5.51
E	"	"	"	"	5.51
F	"	720KTR-10	50,000	150	5.9
G	"	221STRH-8-20	15,000	40	7.2
H	"		"	"	7.2
J	DUCON	45/102	30,000	200	-
K	"	"	"	200	-
L	MIKROPULSAIRE	221 STRH-8-20	15,000	40	7.2

Supplement No. 4

AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL

SUPPLEMENT NO. 5

Dust Collector A'

Manufacturer Data Sheet

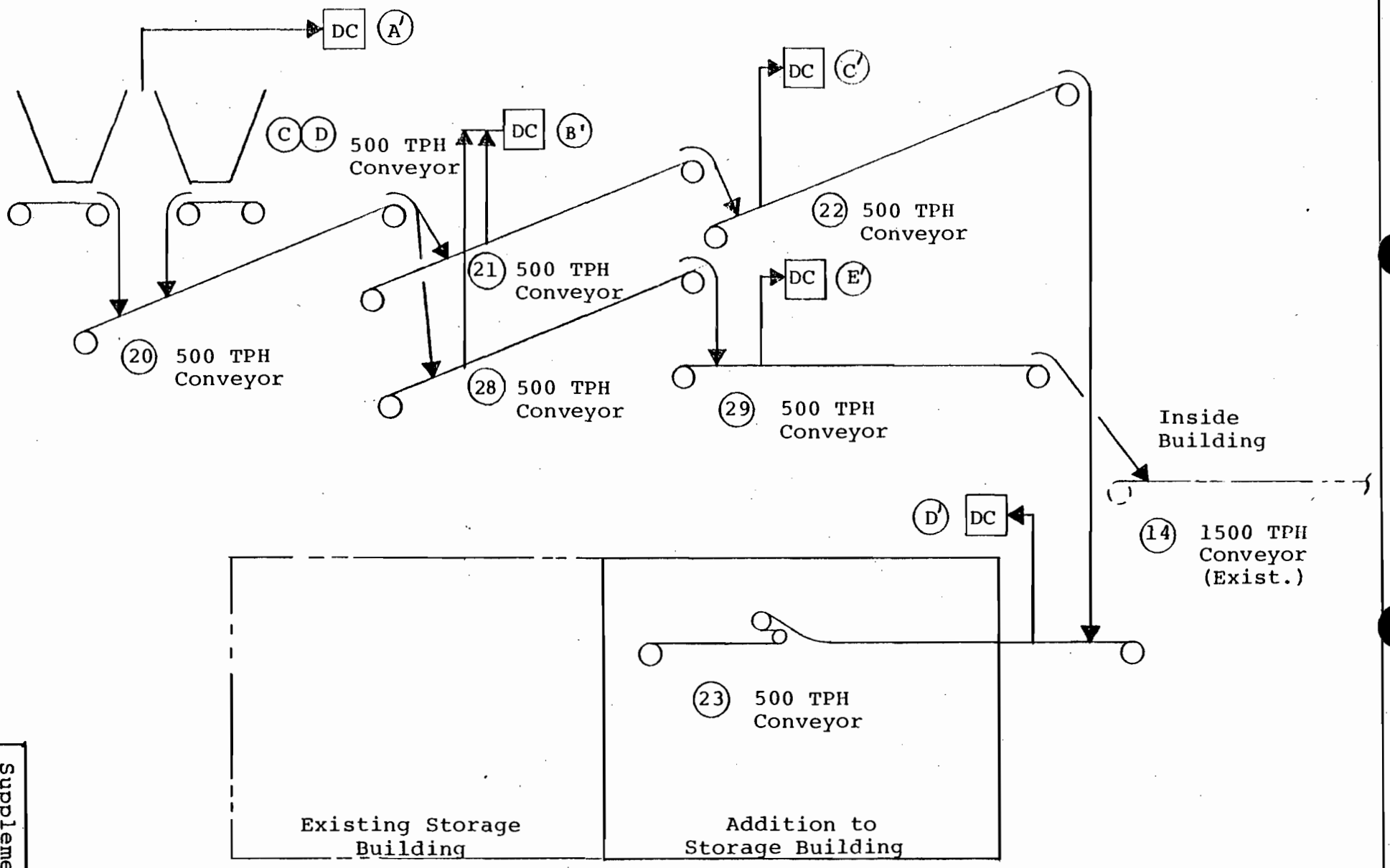
10 grains/SCF Maximum Input
0.02 grains/SCF Maximum Output

$$\left(\frac{10-0.02}{10}\right)(100) = 99.8\% \text{ Efficiency}$$

From Supplement No. 2:

Input = 76.63 lb/min.
(76.63)(60) = 4598 lb/hr. Potential Emission

Actual Emission = Potential (1-Efficiency)
= (4598)(1-0.998)
= 9.20 lb/hr.

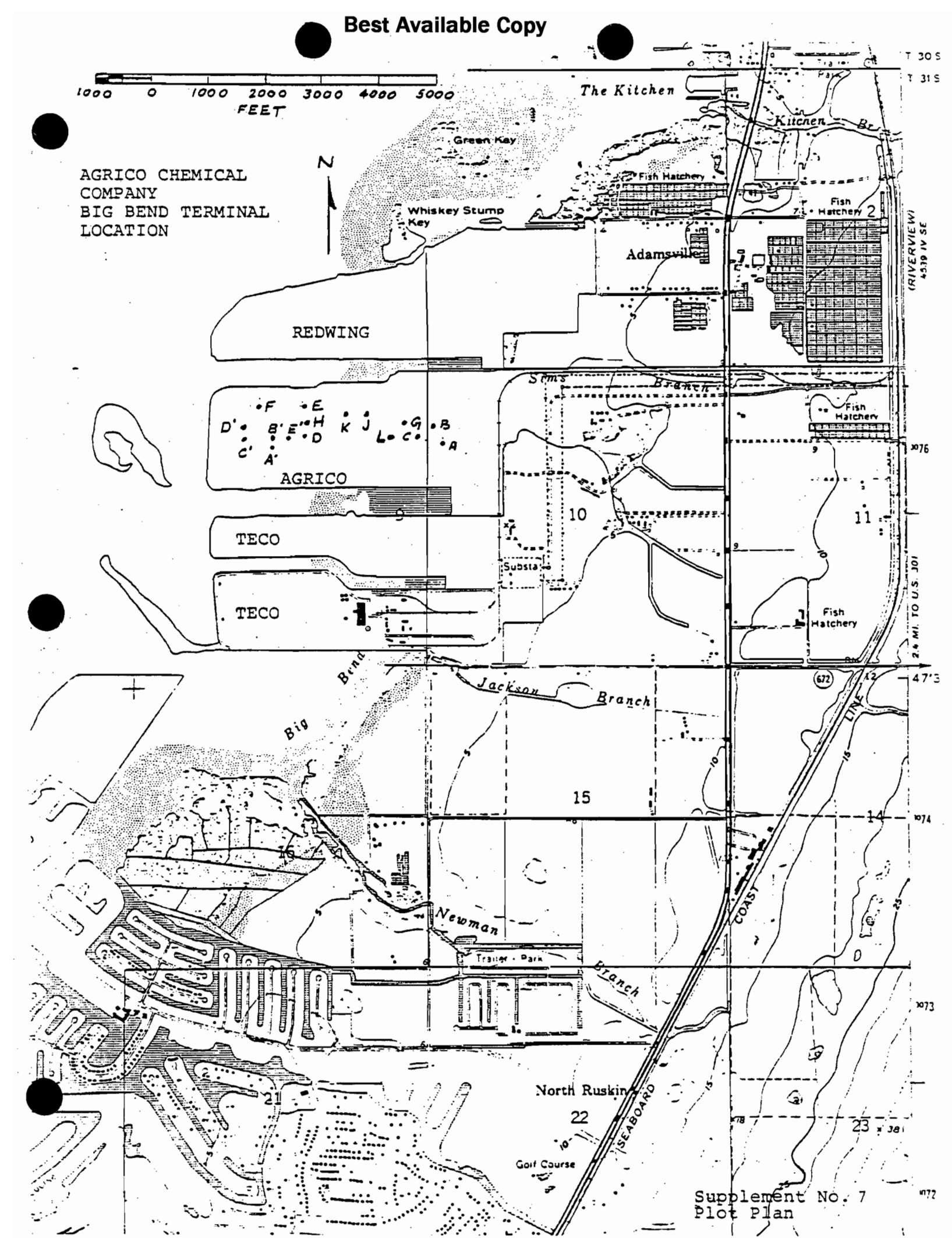


FERTILIZER FLOW DIAGRAM

AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL

Supplement No. 6

Best Available Copy



Supplement No. 7
Plot Plan

PREVENTION OF SIGNIFICANT DETERIORATION ANALYSIS

AGRICO BIG BEND TERMINAL EXPANSION

Prepared by

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.
Gainesville, Florida

October 1979

Project Manager
David A. Buff, P.E.

Project No. 79-160-001

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(Continued, page 2 of 2)

1.0 INTRODUCTION

Agrico Chemical Company of Tulsa, Oklahoma is proposing to expand their existing granular fertilizer and phosphate rock receiving, storage and shipping facilities at the Big Bend terminal in Hillsborough County, Florida. The expansion will include facilities for dry phosphate rock receiving, storage and shipping, as well as an additional granular fertilizer receiving, storage and shipping facility. Dust control equipment will increase from the presently existing four (4) baghouse dust collectors to a total of two (2) venturi scrubbers and fifteen (15) baghouse dust collectors. Particulate matter will be the only pollutant emitted by the expanded facilities. The Big Bend terminal is located just north of the Tampa Electric Company Big Bend generating station, on Tampa Bay (see Figure 1-1).

Before construction begins, air pollution construction permits must be obtained from the Florida Department of Environmental Regulation (FDER). Because the proposed facility qualifies as a "major emitting facility" under Chapter 17-2.02(70), Florida Administrative Code (FAC), a Prevention of Significant Deterioration (PSD) review must be conducted as specified in F.A.C. Chapter 17-2.04(6)(a):

> "An applicant for a permit to construct a facility shall affirmatively provide the Department with reasonable assurance based on plans, test results, or other information that the facility will not cause a violation of the applicable maximum allowable increases or the applicable ambient air quality standards".

In addition, there presently exists a designated total suspended particulate matter (TSP) nonattainment area approximately 4.5 km to the north of the Big Bend terminal (Figure 1-2). In order to be exempted from the nonattainment requirements of F.A.C. Chapter 17-2.17, it must be shown that certain significance of impact levels are not exceeded within the nonattainment area due to a major modification. Thus, the proposed emission sources at the terminal must be evaluated for air quality impact on the nonattainment area.

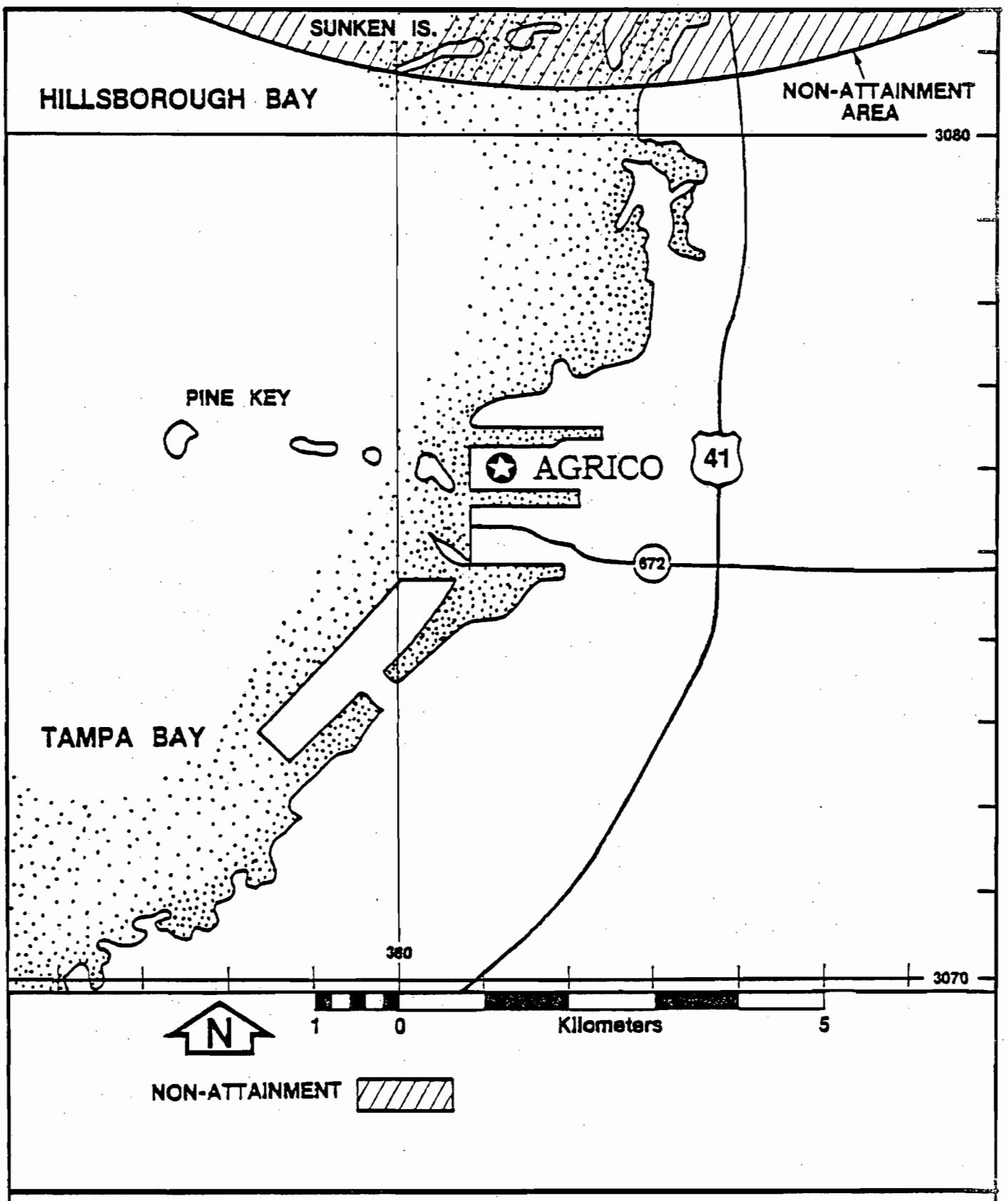


Figure 1-1. Location of Agrico Big Bend Terminal, Hillsborough County, Florida.

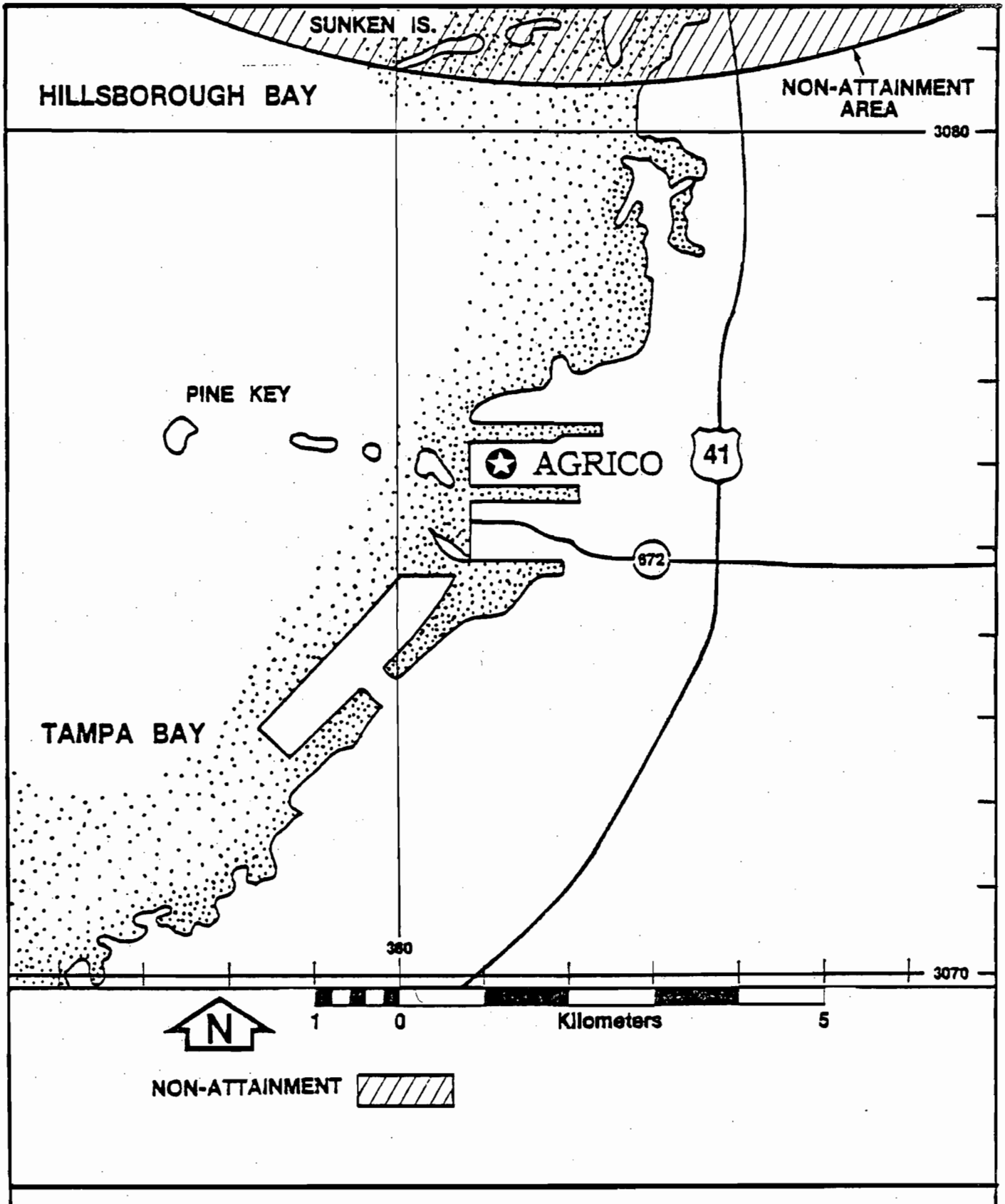


Figure 1-2. Location of Designated Total Suspended Particulate Matter Nonattainment Area, Hillsborough County, Florida.

The applicable allowable PSD increments, Ambient Air Quality Standards (AAQS) and significance of impact levels for TSP are shown in Table 1-1. For PSD purposes, all areas within approximately 90 km of Agrico are designated as Class II.

In response to these requirements, Agrico Chemical Company retained the services of Environmental Science and Engineering, Inc. (ESE) of Gainesville, Florida, to conduct an air quality modeling evaluation of emissions from the proposed expansion. This report, which evaluates compliance with all applicable air quality requirements, is being submitted to the FDER in support of, and as part of, the Application to Construct Air Pollution Sources, which was submitted to the FDER by Agrico.

Table 1-1. Air Quality Standards for Particulate Matter Applicable to the Proposed Agrico Big Bend Terminal Expansion

Standard	Concentration (ug/m^3) Averaging Time		
	Annual Geometric Mean	24-Hour Maximum	Second-Highest 24-Hour*
State of Florida Ambient Air Quality Standards	60	—	150
PSD Allowable Increments			
Class I	5	—	10
Class II	19	—	37
Class III	37	—	75
Significance of Impact Levels	1	5	—

* Denotes standard can be exceeded once per year at each receptor

Source: Code of Federal Regulations, Title 40, Parts 50, 51, and 52.

2.0 SOURCE DESCRIPTION

Existing facilities at the Big Bend terminal consist of a granular fertilizer receiving, storage and shipping system. Granular fertilizer is received by either rail or truck within an enclosed building, and is transported to an enclosed storage building via belt conveyors. A baghouse dust collector controls transfer points for this operation (DC-1). From the storage building, fertilizer is transferred to a ship via belt conveyors. These three dust collectors (DC-2, DC-3 and DC-4) control particulate emissions from this operation. Wet phosphate rock is also brought into the terminal and loaded onto ships; however, this process is entirely wet and does not generate atmospheric emissions.

Agrico is proposing to construct and operate a dry phosphate rock receiving, storage and shipping facility and an additional granular fertilizer receiving, storage and shipping facility. The dry phosphate rock system will include provisions for receiving via rail within an enclosed building, conveying to storage silos, transfer from the storage silos to ships, and transport of rock directly from the receiving station to the ship with no intermediate storage process. The new granular system will include an additional rail/truck receiving station (enclosed building), conveying to either a storage building or directly to ship, and transfer from the storage building to ship.

As part of the proposed expansion, the existing baghouse dust collectors Nos. 2, 3, and 4 will be upgraded to handle an increased throughput of material and increased air volume. These upgraded dust collectors correspond to dust collectors D, E, and F presented in this evaluation. As part of the expansion, the present allowable emissions for these sources, based on the process weight table, will be significantly reduced to represent maximum expected emissions. The existing dust collector No. 1 servicing the Granular Fertilizer System No. 1 will be retained, with an increased stack height. However, the allowable emission limit for this source will also be significantly reduced.

Presented in Table 2-1 are source parameters for all of the dust collectors and scrubbers which will be in operation at the Big Bend terminal after the proposed modification is completed. Figure 2-1 shows the plant layout for the terminal. Table 2-2 presents a summary of the individual process operations that the terminal will be capable of, after modification, and the air emission sources operating for each.

A review of Table 2-2 resulted in the identification of the following worst-case scenario (Case 1), for a 24-hour operating condition: Dry phosphate rock receiving/transfer to silos/transfer to ship/receive granular fertilizer on both systems No. 1 and No. 2. The following dust collectors will be operating for such a situation:

DC - A, B, C, G, H, E, F, 1, A', B', C', and D'

SCR - J, and K

A second 24-hour worst-case (Case 2) was identifed as follows: Dry phosphate rock receiving/transfer to silos/receive granular fertilizer on both systems No. 1 and No. 2/transfer granular from either system No. 1 or No. 2 to ship. The following dust collectors will be operating for such a situation:

DC - A, B, C, G, 1, D, E, F, A', B', C', and D'

SCR - J

All sources at the terminal will be permitted to operate 24 hours per day. As a result, the short-term modeling evaluation will reflect these conditions. Annual emissions, also shown in Table 2-1, are based upon the maximum annual product tonnage throughput, and reflect the annual hours of operation each control device is expected to experience.

Table 2-1. Agrico Big Bend Terminal Expansion Source Parameters

Source	Particulate Emission Rate (lb/hr)	Stack Height (ft)	Flow Rate (acfm)	Stack Velocity (ft/sec)	Stack Temperature* (°F)	Stack Diameter (ft)	Annual Particulate Matter Emissions (Tons/Yr)
DC-A	15.33	125	100,000	41.6	105	7.14	7.95
DC-B	2.30	75	15,000	42.1	105	2.75	1.19
DC-C	2.30	75	15,000	42.1	105	2.75	1.19
DC-D	2.30	45	15,000	42.1	105	2.75	2.38
DC-E	2.30	45	15,000	42.1	105	2.75	1.22
DC-F	7.66	75	50,000	42.4	105	5.0	6.01
DC-G	2.30	75	15,000	42.1	105	2.75	1.19
DC-H	2.30	60	15,000	42.1	105	2.75	1.19
SCR-J	6.84	125	30,000	39.8	105	4.0	7.09
SCR-K	6.84	125	30,000	39.8	105	4.0	7.09
DC-L	2.30	60	15,000	42.1	105	2.75	1.19
DC-A'	9.20	125	60,000	42.1	105	5.5	3.68
DC-B'	1.53	40	10,000	41.9	105	2.25	0.61
DC-C'	1.53	60	10,000	41.9	105	2.25	0.61
DC-D'	1.53	130	10,000	41.9	105	2.25	0.61
DC-E'	1.53	50	10,000	41.9	105	2.25	0.61
DC-I	5.00	75	4,500	42.9	105	1.49	3.57

* Stack temperature is estimated at 15°F above ambient

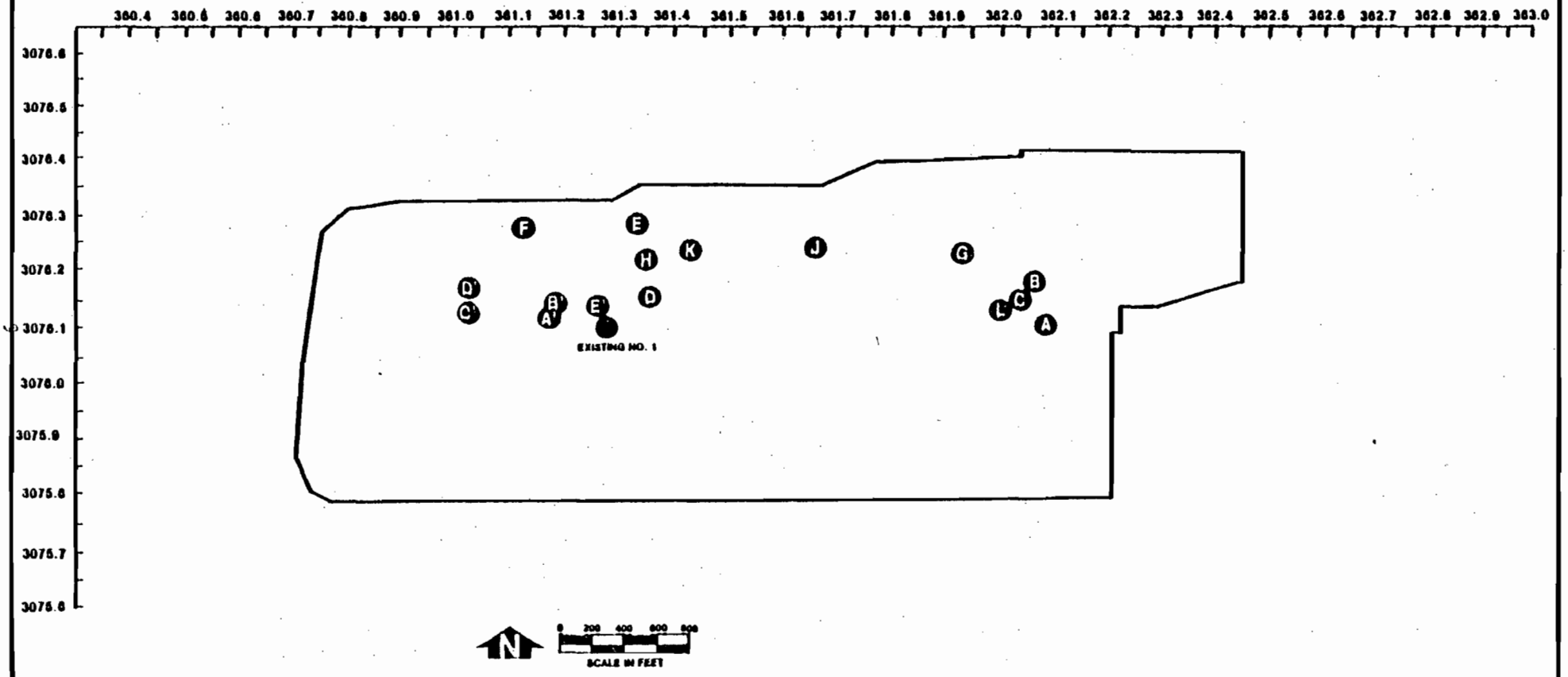


Figure 2-1. Location of Agrico Big Bend Terminal Property Boundaries and Particulate Matter Emission Sources.

Table 2-2. Agrico Big Bend Terminal Process Operations and Operating Sources

Process Operation	Operating Sources
1. Receive Dry Phosphate Rock/ Transfer to Storage Silos	DC - A,B,C,G SCR - J
2. Receive Dry Phosphate Rock/ Transfer Direct to Ship	DC - A,B,C,L,D,E,F
3. Transfer Dry Phosphate Rock from Storage Silos to Ship	DC - H,E,F SCR - K
4. Granular Fertilizer System No. 1 Receiving and Storage	DC - 1
5. Granular Fertilizer System No. 2 Receiving and Storage	DC - A',B', C', D'
6. Transfer Granular Fertilizer from Storage Buildings No.1 or No. 2 to Ship	DC - D,E,F
7. Receive Granular Fertilizer (System No. 2) Transfer Direct to Ship	DC - A',E',D,E,F

3.0 METHODOLOGY

3.1 GENERAL

The air quality impact evaluation methodology follows closely the guidelines presented in "Guideline on Air Quality Models", published by the U.S. Environmental Protection Agency (EPA) in April 1978, and the "Guidelines on Prevention of Significant Deterioration-PSD Review", published by FDER, October 1978. U.S. EPA and FDER suggested and approved atmospheric dispersion models were utilized in this study. These consisted of the Single Source (CRSTER) model and Point Multiple (PTMTP-W) model for the 24-hour evaluation, and the Air Quality Display Model (AQDM) for the annual average evaluation. The annual average output tables from the CRSTER were also utilized in certain cases, as described in this section. These models were applied without modification, and model outputs were not adjusted (i.e., a calibration factor of 1.0 was utilized). A description of the dispersion models utilized in this evaluation is contained in Appendix A.

3.2 PSD INCREMENT ANALYSIS

3.2.1 Long-Term Evaluation

The FDER guideline on PSD review specifies that PSD increment consumption is to be based upon all construction permits granted after December 31, 1974. Baseline air quality consists of the allowable emissions from all sources either holding an operating or construction permit as of January 1975. Therefore, in order to determine increment consumption, two particulate matter emission inventories were developed: one consisting of allowable emissions for all January 1, 1975 sources; the second consisting of allowable emission for all sources currently holding a construction or operating permit and including the proposed Agrico sources. Where a particular source did not possess an allowable emission rate, the permitted or actual emission rate was used.

Emissions and stack parameters for non-Agrico sources were obtained from data supplied from FDER or available in their permitting files. It is noted that all sources at Agrico Big Bend received construction

permits after January 1, 1975, and thus consume PSD increments. All permitted sources in Hillsborough, Manatee, Pinellas, and Pasco Counties were included in the AQDM inventories, including the proposed Tampa Electric Company Big Bend 4 generating unit.

Background TSP levels were not considered in the PSD evaluation. Background consists of natural TSP levels plus those levels due to fugitive and area source emissions not included in the AQDM emission inventory. Below is presented a summary of TSP annual geometric means recorded during 1974 (the baseline year) and 1978 (most current annual period of record) at the two stations closest to Agrico. Both these stations are within 5 km of Agrico:

	Annual Geometric Mean (ug/m^3)	
	1974	1978
HCEPC Station 54	41	44
HCEPC Station 88 (TECO Station 17)	36	33

These data are inconclusive in establishing whether TSP levels have risen or declined. However, it does appear that if an increase has occurred in TSP levels, this increase is relatively small (only a few ug/m^3) compared to the allowable PSD increment of 19 ug/m^3. Since these measured levels reflect the influence of point sources, actual background levels would be somewhat less than measured levels.

An 11 x 11 km grid with a 1.0 km grid spacing and the Agrico facility centered within the grid was established for the annual evaluation (Figure 3-1). In addition, a reduced receptor grid of generally 0.1 km spacing was established in the immediate vicinity of Agrico, with additional receptors placed along the Agrico property boundary. Receptor grids were placed to the north, east, south, and west of Agrico (Figure 3-2).

As shown in Figure 3-1, two of the large grid receptors fall within the Agrico property boundaries. These receptors were not considered in determining PSD increment consumption, since they are not receptors

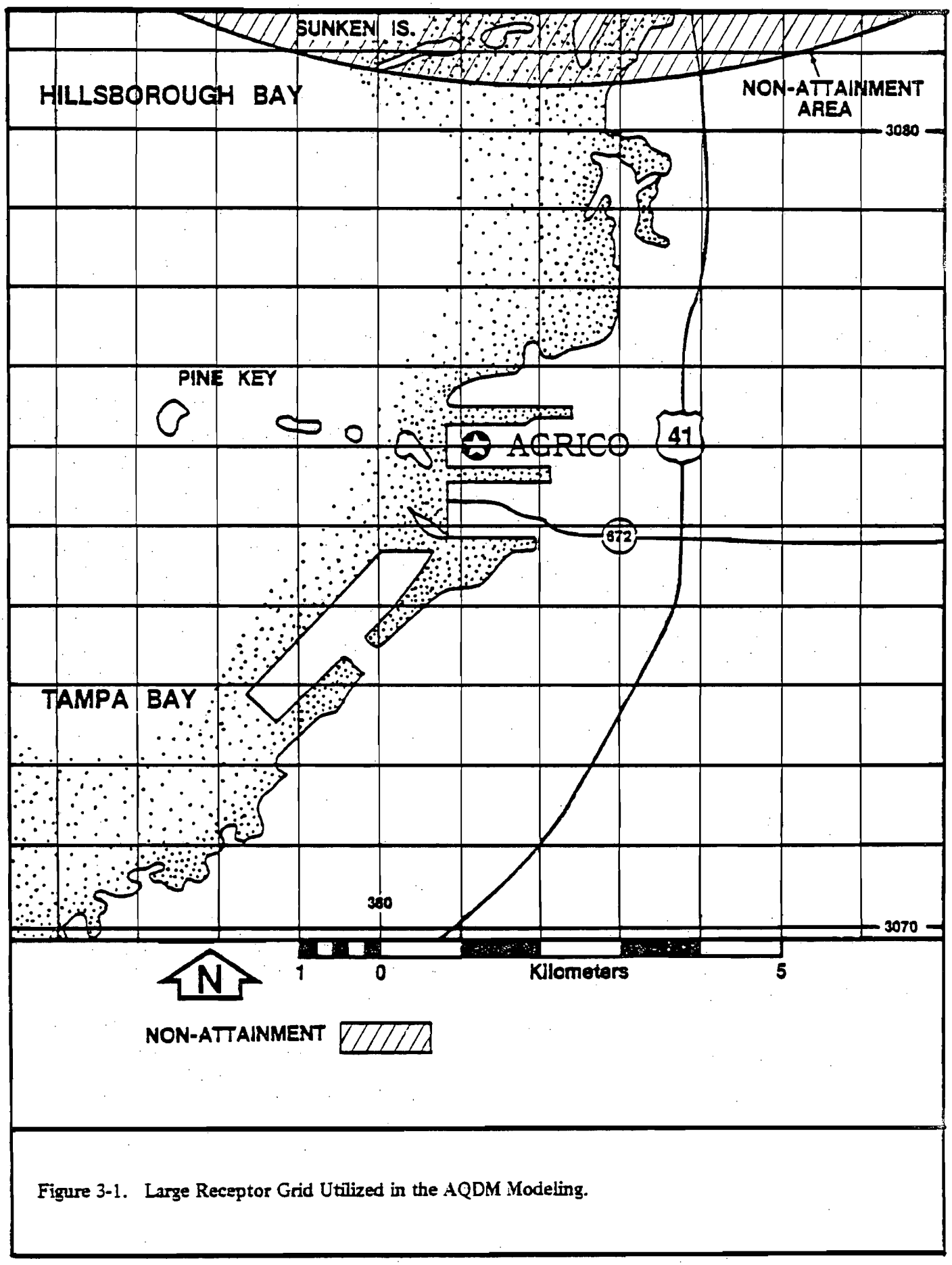


Figure 3-1. Large Receptor Grid Utilized in the AQDM Modeling.

where the general public has access or would be exposed. In order to reduce computer time for the model executions, however, the contribution to annual average levels at these receptors due to non-Agrico sources were utilized to represent such contributions from these non-Agrico sources to all of the reduced grid receptors (Figure 3-2). In this manner, only Agrico sources were modeled in the AQDM for the reduced receptor grid. This methodology is considered adequate in that the nearest major impacting particulate matter source is located about 4 km to the north of Agrico. See Section 4.0 for further identification of this technique.

Meteorological data utilized in the annual average model consisted of Tampa Airport 1971-1975 annual stability wind rose data. The wind rose reflective of these data is shown in Figure 3-3.

3.2.2 Short-Term Evaluation

The short-term (24-hour) PSD evaluation was conducted utilizing the CRSTER and PTMTP-W models. The CRSTER model was executed for the identified worst (Case 1) and second worst-case (Case 2) Agrico emission scenarios, as described in Section 2.0. Agrico sources were assumed to operate 24 hours per day, even though such a situation would be unlikely. To save computer execution time, several similar stacks were combined in the CRSTER (see CRSTER Output in Appendix C). A five-year meteorological data base from Tampa Airport, 1971-1975, was utilized. These data included both surface observations and mixing height data. The EPA wind randomization scheme was utilized to adjust reported wind directions.

The CRSTER model was utilized to identify 24-hour meteorological conditions associated with predicted highest, second highest concentrations. Because the spatial distribution of sources at Agrico is quite large, and the sources have a general east-west alignment, several worst case periods were identified (see Section 4.0). These worst case periods were then input into the PTMTP-W model, which allowed accurate

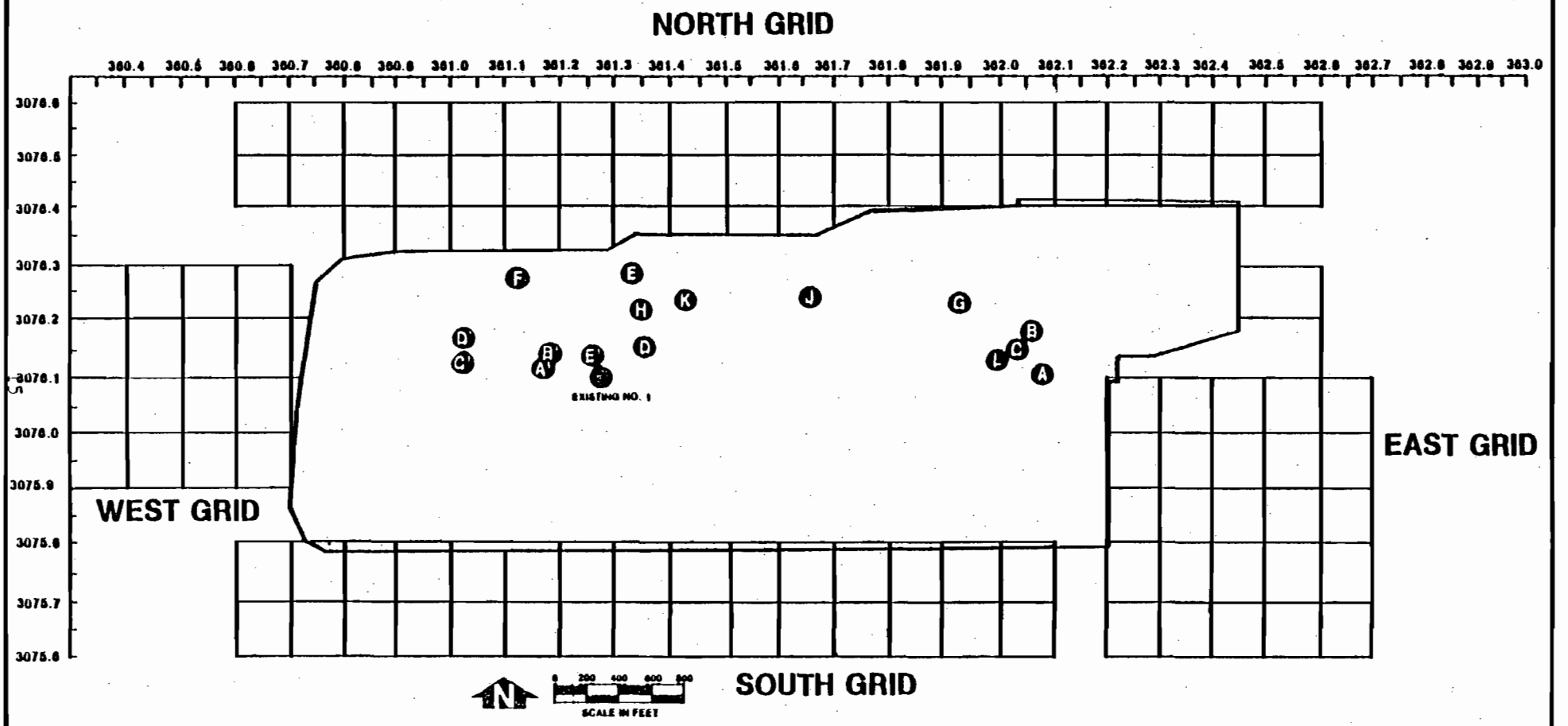


Figure 3-2. Reduced Receptor Grids Utilized in the AQDM Modeling.

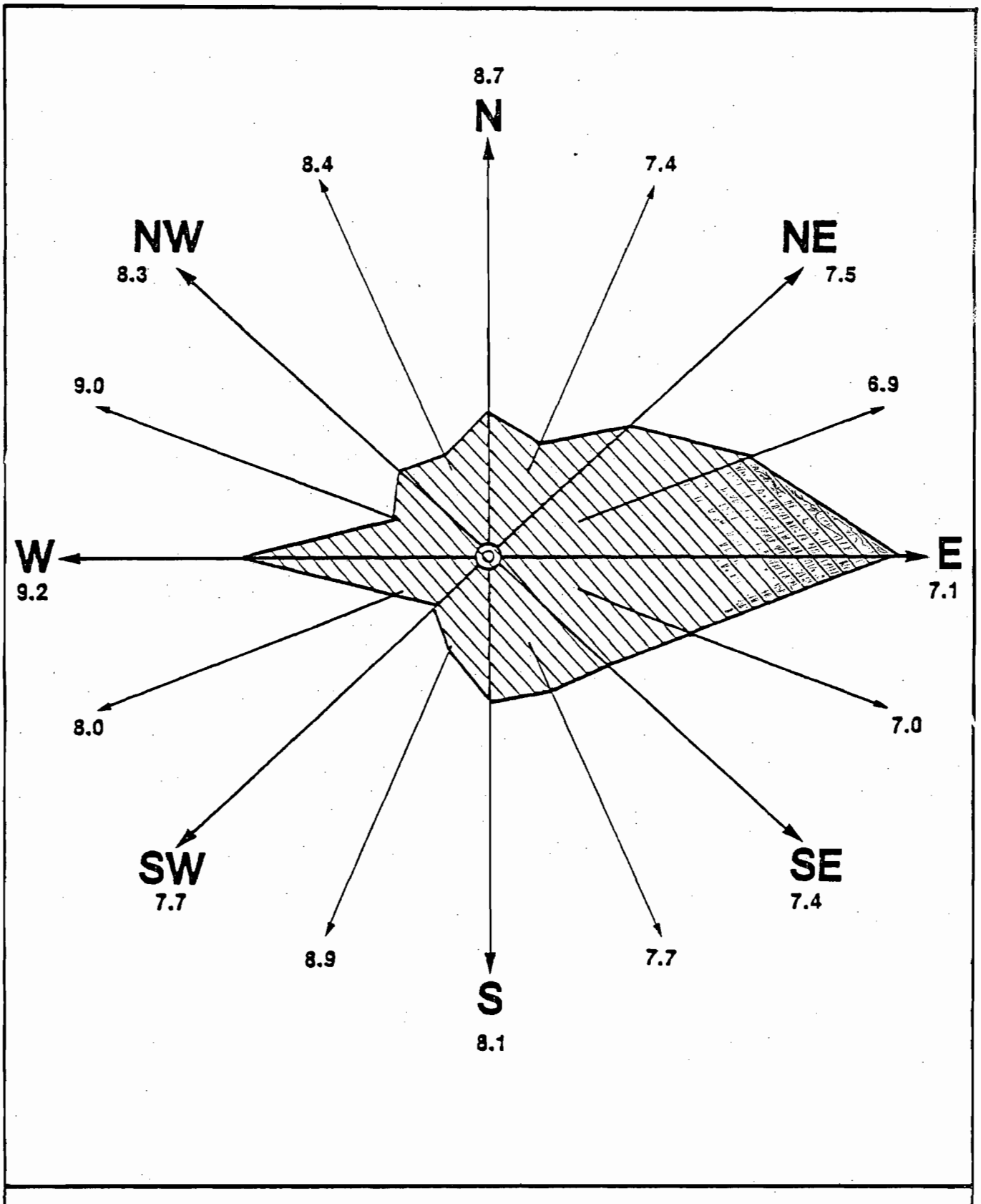


Figure 3-3. Five-Year Averaged Wind Rose for Tampa International Airport 1971-1975. Scale: 1"=5%, Calm=4.4%. Average Speeds Given in Knots.

specifications of the geographic distribution of sources, a more dense array of receptors as well as receptors placed at property boundaries, individual source parameter specification and adjustment of stack temperatures to reflect 15°F above ambient conditions. In making the stack temperature adjustment, the average temperature for the 24-hour period was determined, and all stacks set at 15°F above this temperature.

Shown in Figure 3-4 are the three PTMTP-W receptor grids, identified as east, north-west and south grids, respectively. The grids are generally honeycombed with a 0.1 km spacing along rows and columns, with additional receptors placed along Agrico property boundaries.

As in the long-term evaluation, background TSP levels were not used in determining PSD increment consumption. All point sources within 15 km of Agrico were considered in the short-term PSD increment consumption analysis. Total increment consumption due to these sources and Agrico were determined by aligning the major sources with respect to wind direction and using the PTMTP-W model. Since Agrico is the largest increment consuming source within several kilometers of its property boundaries, Agrico's worst-case meteorological conditions were utilized, with winds directed from the major sources towards Agrico. Both a projected allowable and a 1974 baseline allowable PTMTP-W was executed, and increment consumption determined by difference at respective receptor points. Projected case 24-hour meteorological conditions were also utilized for the 24-hour baseline determination. Since Agrico is not part of the baseline, however, baseline concentrations could be underestimated for the 24-hour conditions, resulting in a conservative analysis.

3.3 AAQS ANALYSIS

3.3.1 Long Term Evaluation

The long-term AAQS evaluation was conducted in much the same manner as the PSD evaluation. The projected allowable particulate matter emissions inventory was utilized to predict point source contributions

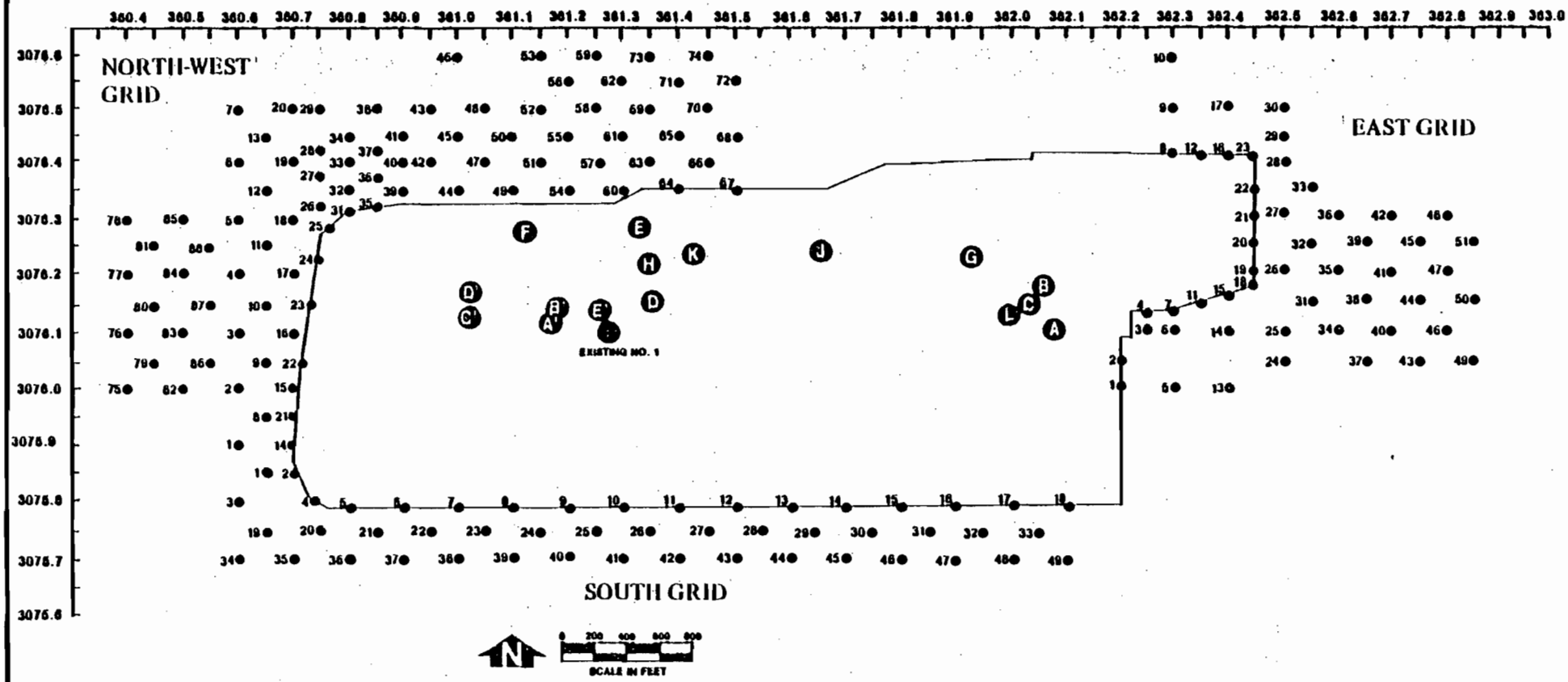


Figure 3-4. RECEPTOR GRIDS UTILIZED IN THE PTMTP-W MODEL SHORT-TERM IMPACT EVALUATION.

to total air quality levels, as was performed for the PSD analysis. An annual average background concentration was then added to the point source results.

Ambient monitoring data from the Agrico area have been previously submitted to the FDER, and their conclusion was that Tampa Electric Company (TECO) Station 17 data were appropriate for the Big Bend terminal. The 1978 annual average recorded at this station was 35 ug/m ^{3}. This level reflects contributions from point sources as well as area and natural background sources. Determination of point source contributions to this receptor for 1978 would require detailed inventories of actual emissions for calendar year 1978, which were not available for this study. As a result, and in order to be conservative, the measured value at TECO Station 17 of 35 ug/m^3 was utilized for the annual average background TSP concentration in this study.

Geometric mean TSP levels are typically lower than arithmetic mean levels. Because the annual AAQS is in terms of geometric mean, a method of conversion from arithmetic to geometric mean is needed. TECO Station 17 displayed an annual average of 35 ug/m^3 and a geometric mean concentration of 33 ug/m^3 in 1978. The geometric/arithmetic mean ratio is 0.94, and this factor was utilized to convert annual average TSP levels to geometric means for comparison to AAQS.

3.3.2 Short-Term Evaluation

The short-term AAQS evaluation also utilized the results of the PSD increment consumption analysis. That analysis identified worst-case 24-hour meteorological conditions associated with Agrico at maximum operation. Source interactions were evaluated based upon major sources within 15 km and utilizing the projected allowable emission inventory developed for the AQDM. Agrico worst-case meteorological conditions were utilized for source interactions, with winds directed from nearby

major sources toward Agrico. Agrico's maximum impacts are located within about 0.5 km of their facility.

A short-term background concentration was added to all 24-hour TSP point source concentrations for comparison to AAQS. Based on FDER's recommendation to utilize ambient data from TECO Station 17, these data were reviewed for determination of background levels. In order to develop a conservative short-term TSP background concentration, the methodology utilized in "Analysis of the Air Quality Impact Resulting from a Particulate Matter Emission Rule Change for Fossil-Fuel Steam Generators in Florida" (ESE, 1979) was used in this analysis. The 84th percentile TSP concentration, corresponding to one standard deviation from the mean TSP value, is used as the 24-hour background level. This calculation is based upon the assumption of log-normally distributed TSP concentrations, which is typical of TSP data in Florida.

Based on this assumption, the 84th percentile concentration can be calculated from the equation (Larsen, 1971):

$$C = M \times Sg^{(Z - 0.5 \ln Sg)}$$

where

C = 84th percentile concentration

Sg = Geometric standard geometric deviation

Z = 1.0, number of standard deviations from mean for 84th percentile

M = Arithmetic mean

Utilizing the 1978 measured TSP data from TECO Station 17, where Sg = 1.37 and M = 35, the resulting value is C = 46 ug/m^3.

3.4 NONATTAINMENT AREA IMPACTS

Impacts of the proposed new and modified Agrico sources on the designated Hillsborough County nonattainment area were determined by placing receptors along the southern boundary (closest to Agrico) of the non-

attainment area. The CRSTER model was utilized to identify worst-case (highest) 24-hour meteorological conditions associated with operation of Agrico at the nonattainment receptors. The worst-case emission scenarios identified in Section 2.0 (Case 1 and Case 2) were evaluated, with the exception that DC-1 was not included since this source is existing and will not increase potential or allowable emissions due to the modification and therefore does not require evaluation for nonattainment impacts.

It is noted that this analysis is considered conservative in that the total impact of the upgraded dust collectors D, E, and F were modeled instead of their expected increase in actual emissions. The allowable emissions for these collectors as a result of the modification will significantly decrease. Several similar stacks were again combined in the CRSTER to reduce computer time. Figure 3-5 portrays the CRSTER radials and distances to the nonattainment boundaries.

Annual average TSP impacts on the nonattainment area were taken directly from the CRSTER output. Highest 24-hour impacts were further refined utilizing the CRSTER identified worst-case meteorological conditions and the PTMTP-W model. Receptors were spaced approximately every 0.4 km along the nonattainment boundary in these refined executions, corresponding to 5° radial arcs emanating from Agrico.

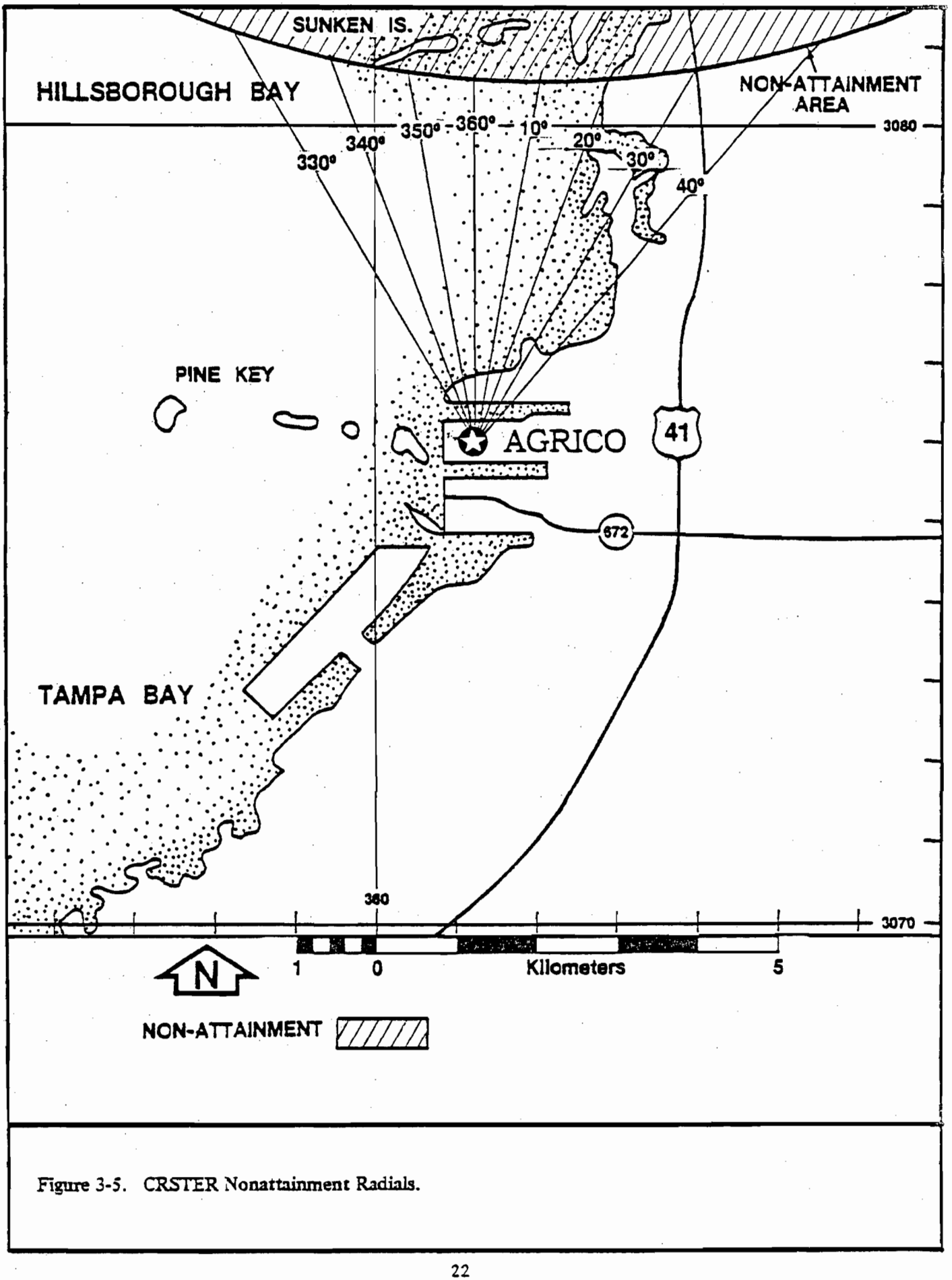


Figure 3-5. CRSTER Nonattainment Radials.

4.0 AIR QUALITY IMPACT RESULTS

4.1 PSD INCREMENT ANALYSIS

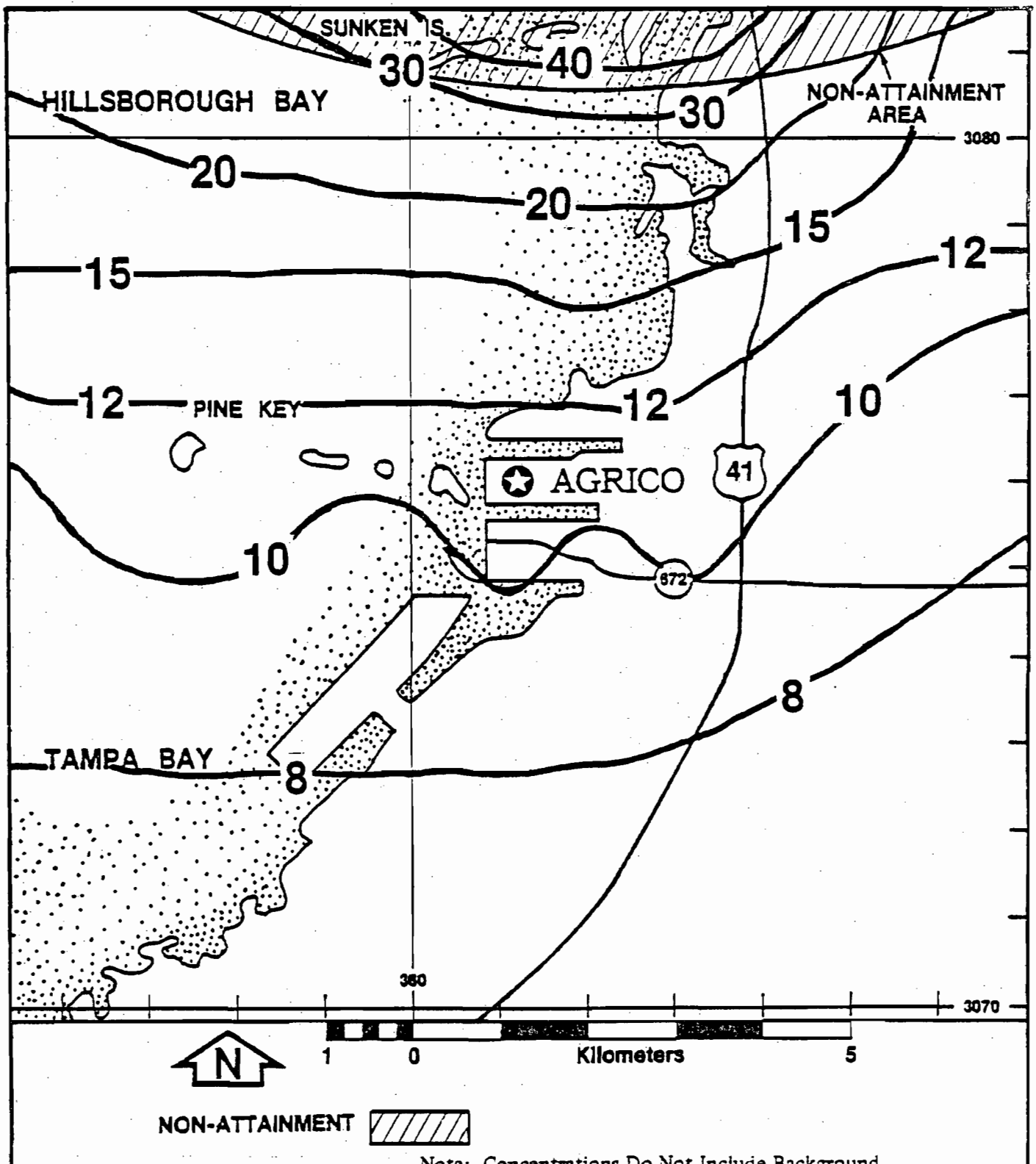
4.1.1 Long-Term Evaluation

The results of the annual average FDER TSP baseline determination are shown in Figure 4-1 for the large receptor grid. The concentrations reflect contributions due to allowable emissions from all known point sources in Hillsborough, Manatee, Pinellas, and Pasco Counties which either held an operating or construction permit on January 1, 1975. As described earlier, Agrico sources, both existing and proposed, are not part of the baseline.

Shown in Figure 4-2 are projected annual average TSP concentrations due to all known point sources currently holding either a construction or operating permit, and including the proposed Agrico sources. The stack temperatures for all Agrico Big Bend sources were set equal to 15°F above the annual ambient temperature utilized in the AQDM.

Figure 4-3 displays the FDER annual average TSP increment consumption, obtained by subtracting receptor point by receptor point, the baseline and projected annual concentrations. The two receptor points falling within the Agrico property boundaries were not considered for increment consumption since the public would not have access or be exposed to these locations. As shown, there is projected to be a general decrease in annual average TSP concentrations since the baseline year, even with all sources emitting at maximum allowable emission rates. Little or no annual increment consumption is predicted in the area of Agrico. Maximum increment consumption shown on the base map is 0 ug/m^3.

FDER baseline and projected annual TSP concentrations for the reduced receptor grids in the immediate vicinity of Agrico Big Bend are shown in Figure 4-4 and 4-5, respectively. As described in the methodology section, the contributions of all non-Agrico sources to these receptors, for both the baseline and projected cases, were determined based on the large grid results.



Note: Concentrations Do Not Include Background

Figure 4-1. Isopleths of Estimated Baseline 1974 Annual Average Total Suspended Particulate Matter Concentrations (ug/m^3), Hillsborough County, Florida.

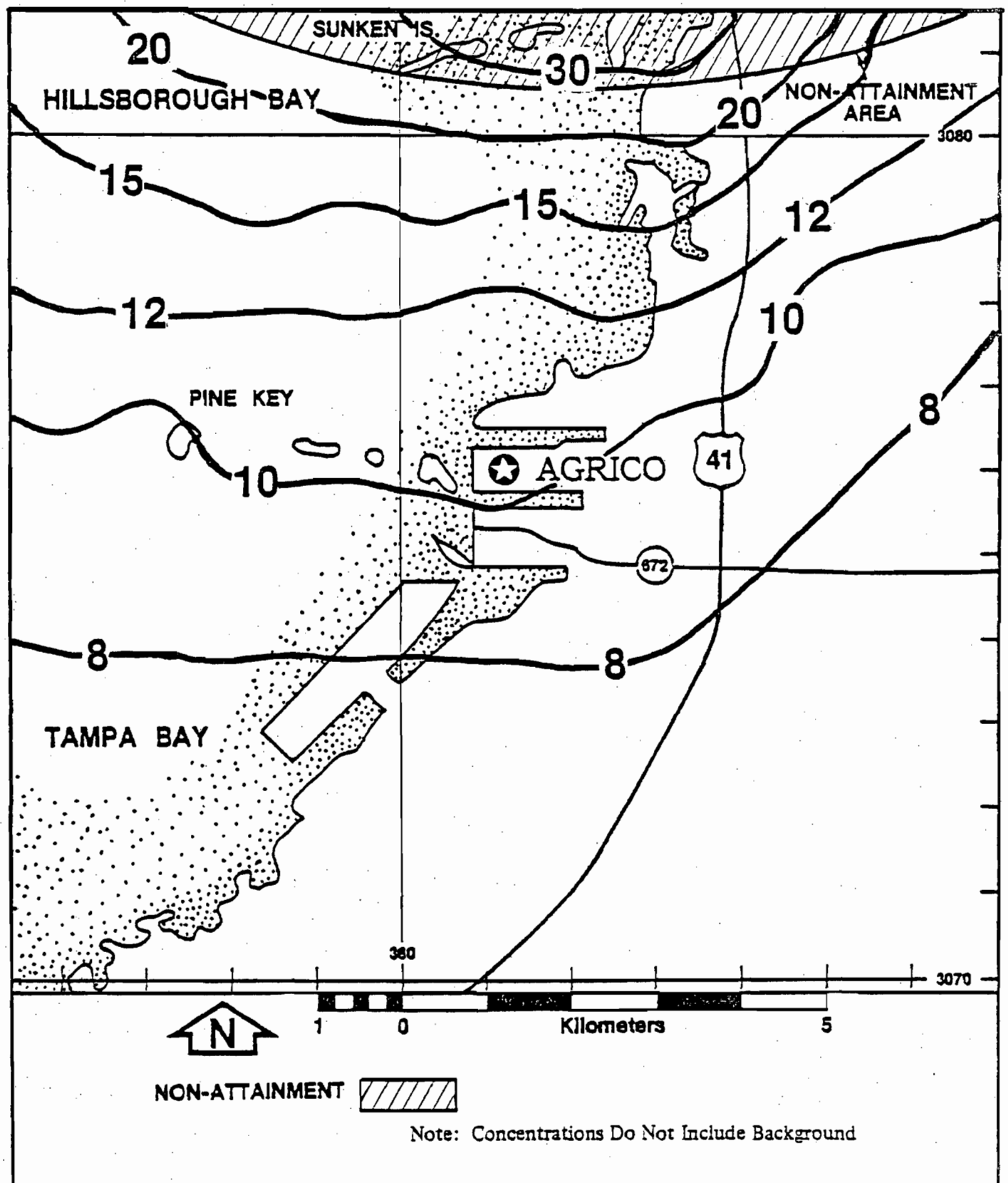


Figure 4-2. Isopleths of Predicted Projected Annual Average Total Suspended Particulate Matter Concentrations (ug/m^3), with Agrico in Operation, Hillsborough County, Florida.

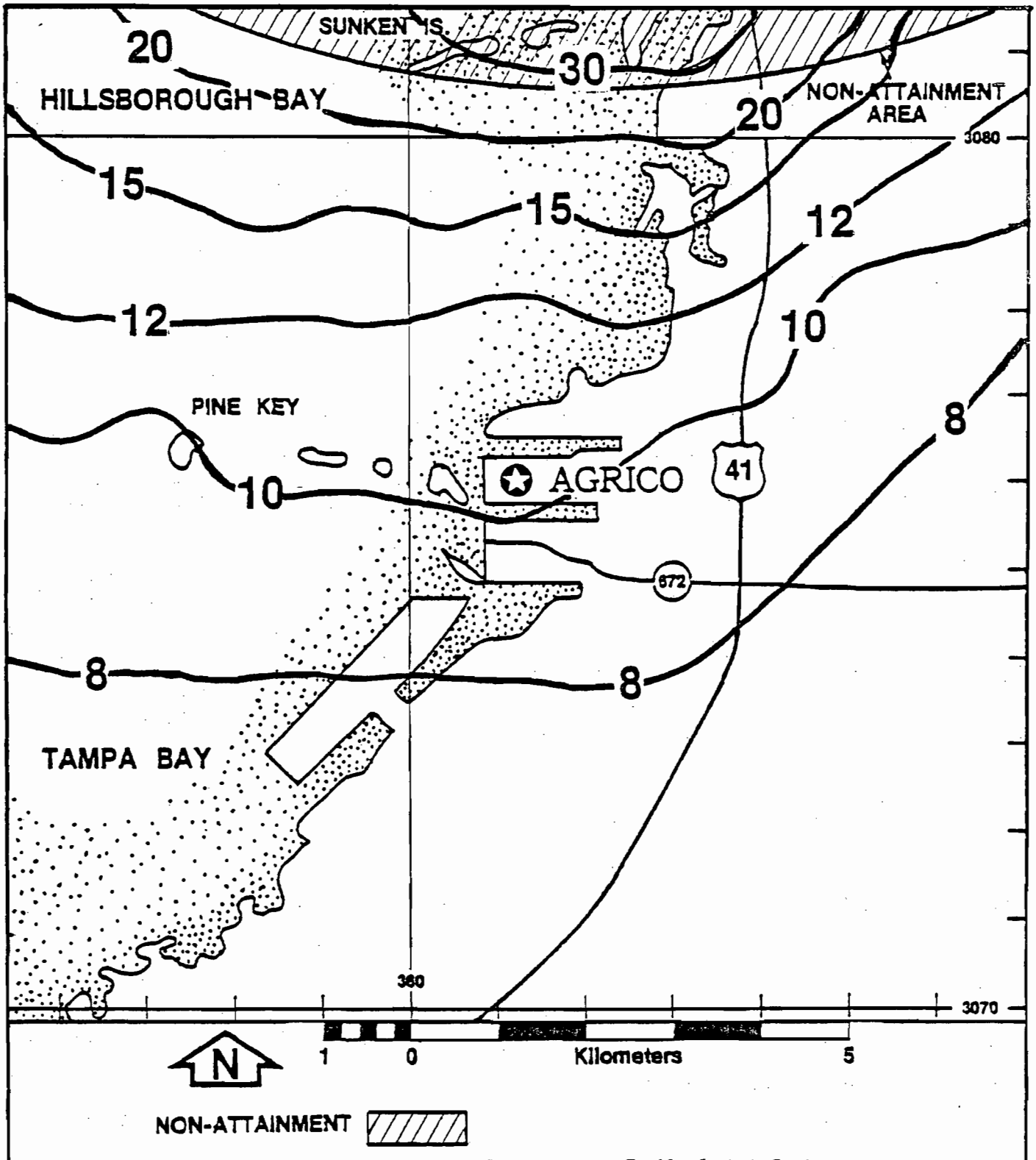


Figure 4-2. Isopleths of Predicted Projected Annual Average Total Suspended Particulate Matter Concentrations (ug/m^3), with Agrico in Operation, Hillsborough County, Florida.

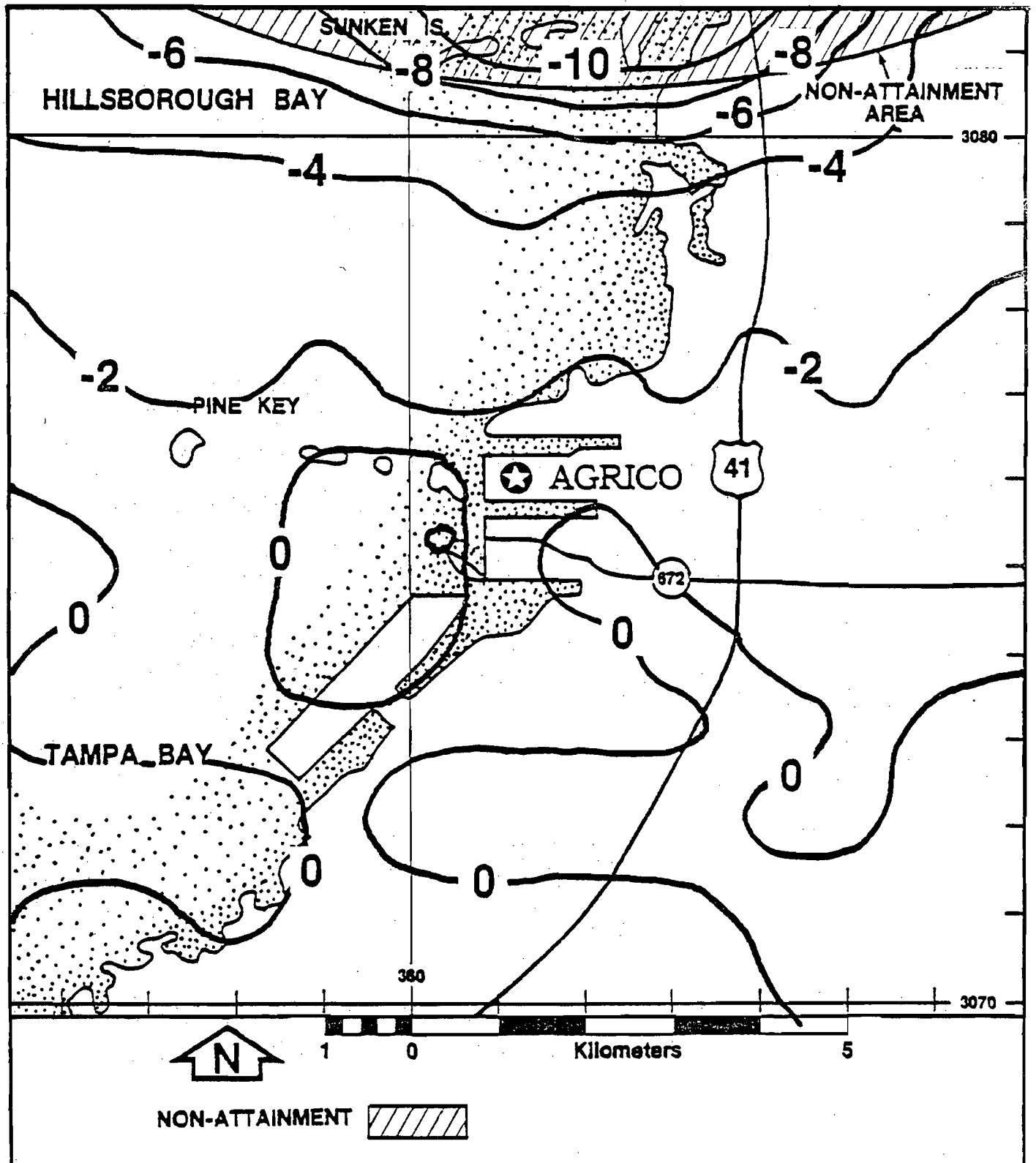
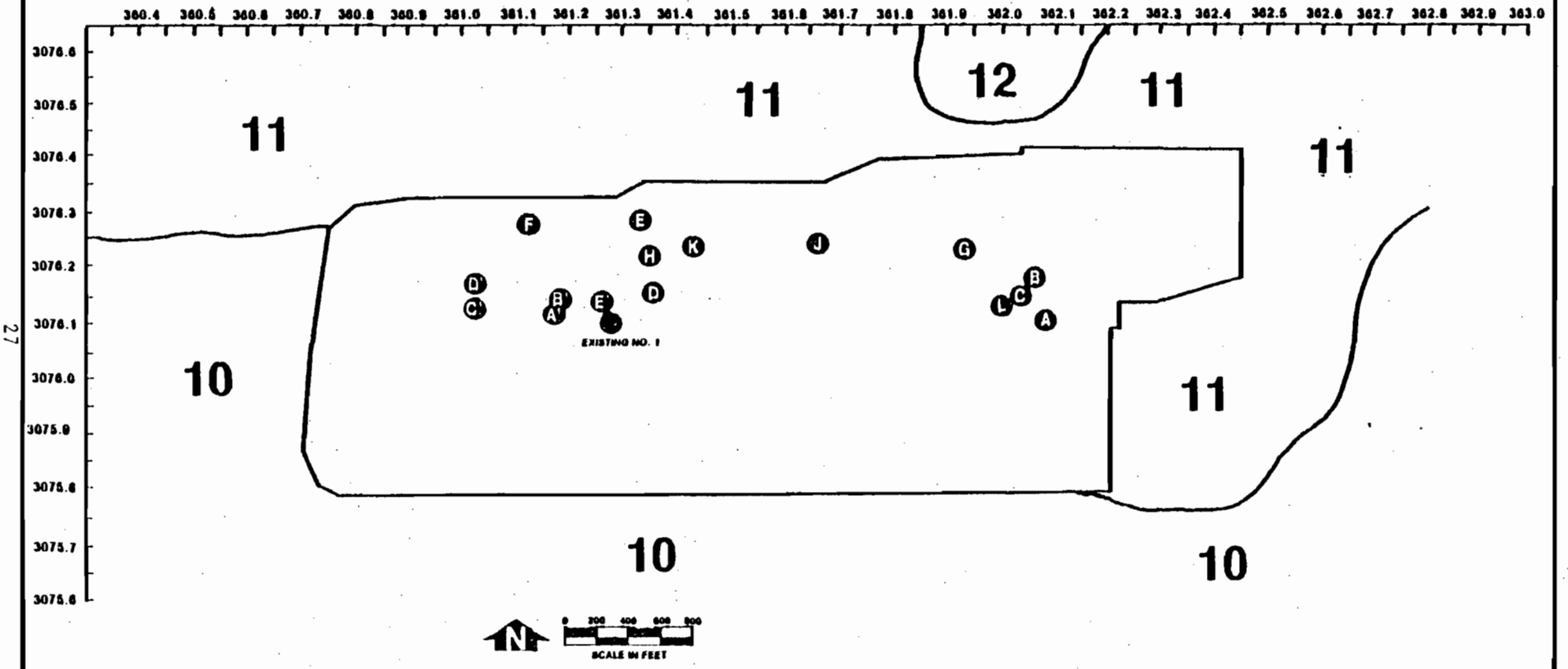
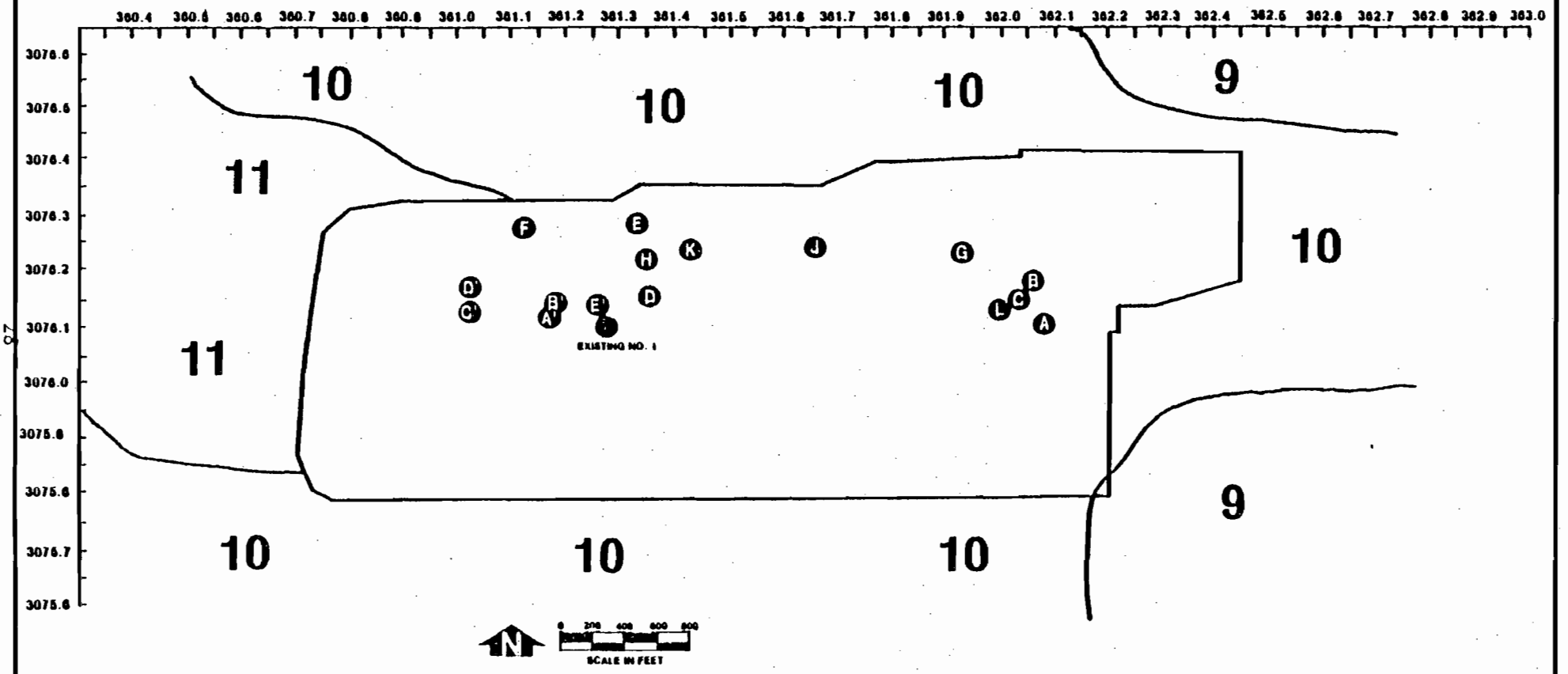


Figure 4-3. Isopleths of Predicted Annual Average Total Suspended Particulate Matter Increment Consumption (ug/m^3), with Agrico in Operation, Hillsborough County, Florida.



Note: Concentrations Do Not Include Background

Figure 4-4. Isopleths of Estimated 1974 Baseline Total Suspended Particulate Matter Concentrations (ug/m^3), Reduced Receptor Grid, Hillsborough County, Florida.



Note: Concentrations Do Not Include Background

Figure 4-5. Isopleths of Predicted Projected Annual Average Total Suspended Particulate Matter Concentrations (ug/m^3), with Agrico in Operation, Reduced Receptor Grid, Hillsborough County, Florida.

For the baseline estimations, Agrico is not included, and therefore concentrations shown in Figure 4-1 are due entirely to non-Agrico sources. Utilizing the receptors falling on the Agrico property (see Receptors Nos. 61 and 72 of the large grid AQDM output) and the receptors immediately adjacent to these, baseline concentrations were determined for the reduced receptor grid (Figure 4-4). Linear interpolation between receptors was utilized.

For the projected concentrations, the non-Agrico sources contribution to Receptor No. 61 of the large grid AQDM (UTM 361.0, 3076.0; see Figure 4-2) was utilized for all of the reduced grid receptors. The resulting non-Agrico sources contribution is 9 ug/m^3. Agrico's annual average impacts (Figure 4-6) were then added to this level to obtain total projected TSP concentrations for the projected case.

Increment consumption was again determined by subtracting, grid point by grid point, the baseline concentrations from the projected concentrations. The resulting increment consumption is portrayed in Figure 4-7. The maximum annual TSP increment consumption for the reduced receptor grid is 1 ug/m^3, and occurs to the west of the terminal. This result reflects the predominant easterly wind on an annual basis in Tampa.

4.1.2 Short-Term Evaluation

Maximum highest, second highest 24-hour Agrico impacts were determined by utilizing the CRSTER to identify meteorological conditions associated with such maximum impacts and then utilizing the PTMTP-W model to more specifically quantify these impacts. The two worst-case Agrico emission scenarios were evaluated, as described in Section 3.0. Table 4-1 lists the identified worst-case meteorological periods and the maximum impacts associated with each. As shown in Table 4-1, the Case 1 emission scenario results in higher predicted impacts than Case 2, for respective

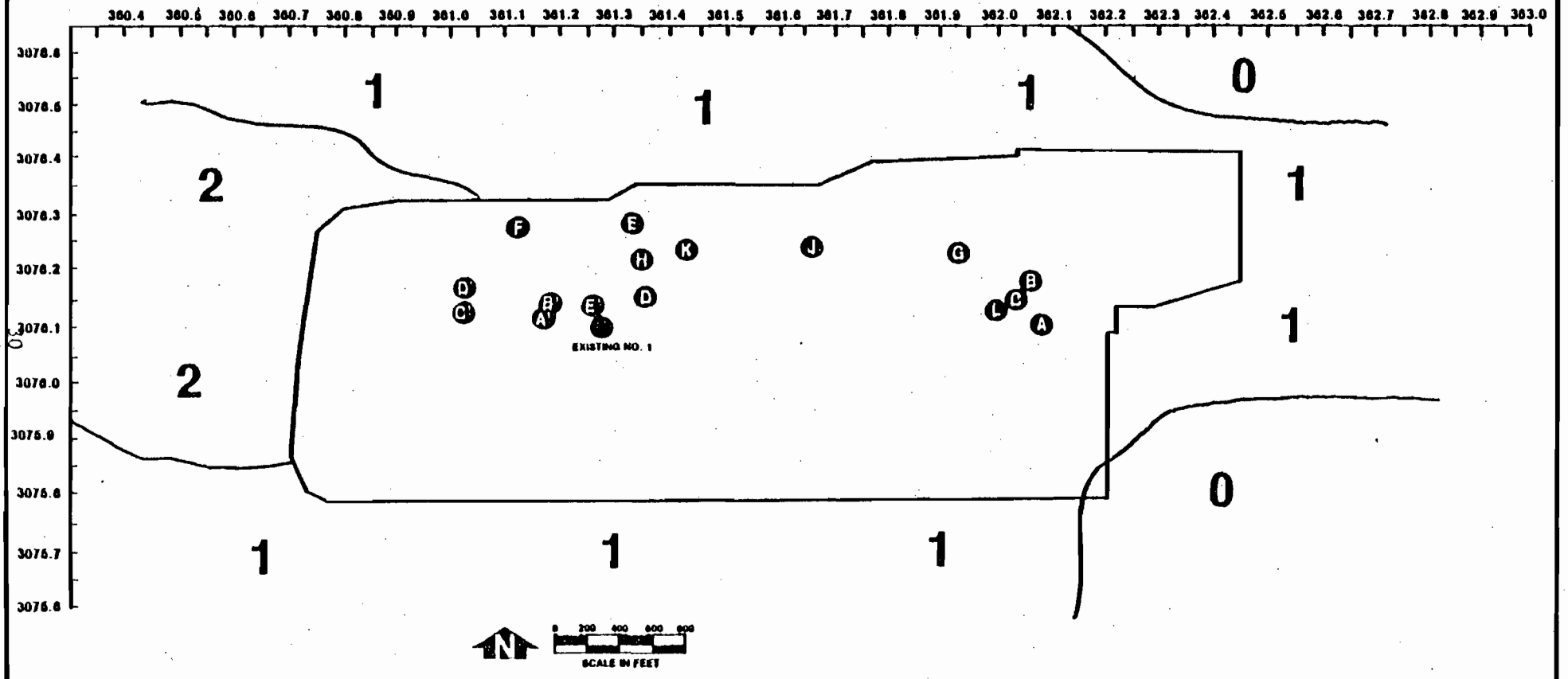


Figure 4-6. Isopleths of Predicted Annual Average Total Suspended Particulate Matter Concentrations (ug/m^3), Agrico Sources Only, Hillsborough County, Florida.

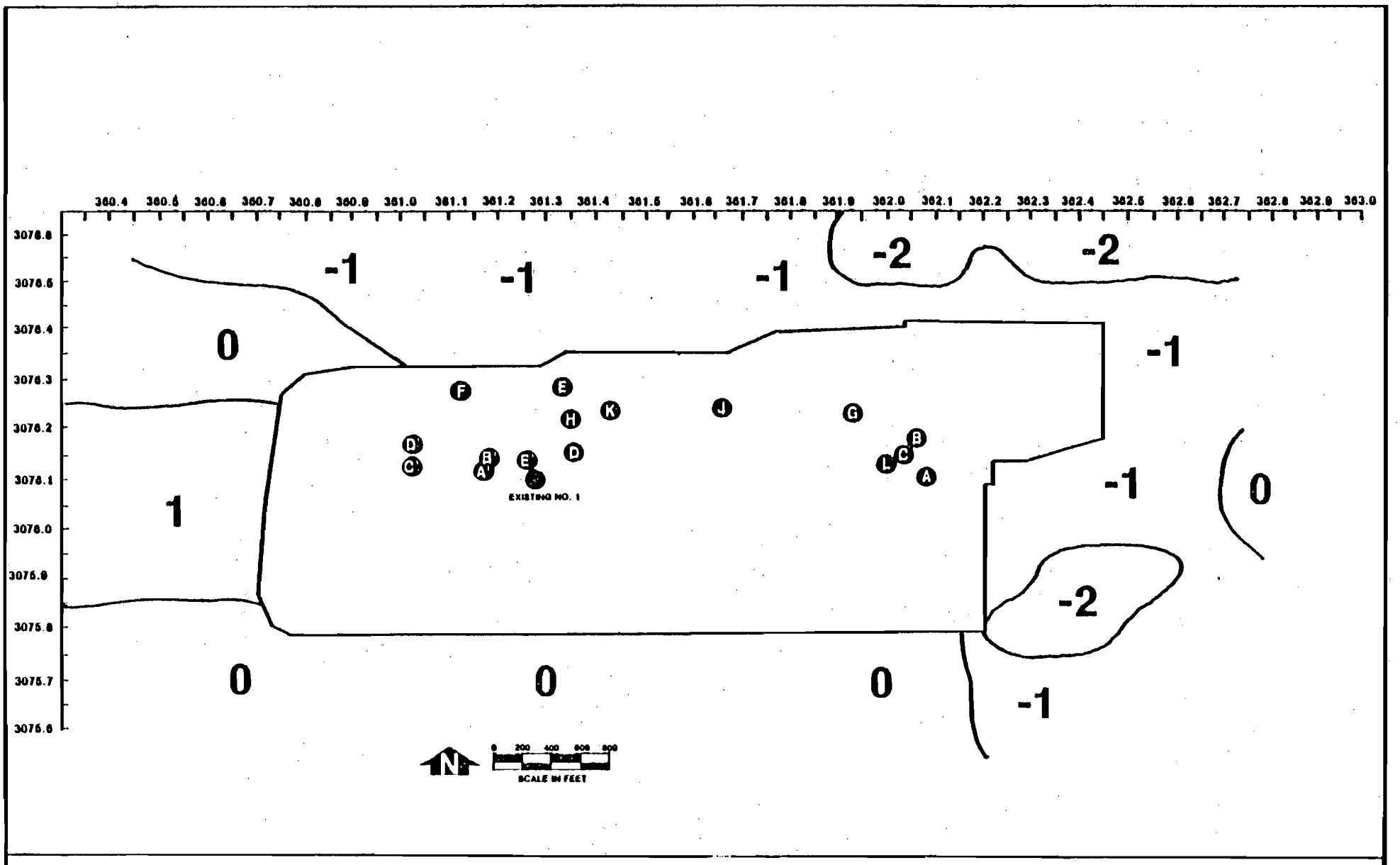


Figure 4-7. Isopleths of Predicted Annual Average Total Suspended Particulate Matter Increment Consumption (ug/m^3), with Agrico in Operation, Hillsborough County, Florida.

Table 4-1. Worst 24-Hour Meterological Conditions for the Agrico Big Bend Terminal Facility

Emission Scenario	Day/Year	Radial Direction	Second-Highest 24-Hour TSP (ug/m^3)
Case 1	174/1972	90°	30
Case 1	66/1975	20°	16
Case 1	121/1972	280°	30
Case 1	202/1972	270°	30
Case 1	284/1974	240°	19
Case 2	174/1972	90°	28
Case 2	66/1975	20°	14
Case 2	121/1972	280°	26
Case 2	286/1974	240°	20

directions from the source, except for the radial direction of 240°.

The locations and magnitude of the Case 1 impacts are portrayed in Figure 4-8. The maximum highest, second highest 24-hour TSP impact due to Agrico sources only is predicted to be 30 ug/m ^{3}, and occurred under Day 174/1972 meteorological conditions (Hurricane Agnes' influence) and is located due east of Agrico. Supportive PTMTP-W computer model outputs are contained in Appendix D.

Short-term increment consumption was determined by executing a baseline and projected PTMTP-W with all sources within 15 km included. Model executions were performed for the worst-case scenarios identified for Agrico sources only (Table 4-1), as well as for worst-case meteorological conditions aligning Agrico with Gardinier, the major particulate source within 15 km of Agrico. Interactions with the TECO Big Bend generating station were not performed since previous studies have shown that this source does not impact 24-hour ground-level TSP concentrations by greater than 4 ug/m^3 ("Prevention of Significant Deterioration Application," Tampa Electric Company, September 1979).

Baseline model executions were made utilizing the worst-case meteorological conditions identified for Agrico sources (and the projected model executions). Because Agrico sources are not in the baseline, this could result in an underestimation of baseline levels (highest, second highest concentrations at each receptor for baseline conditions), since other meteorological conditions could result in higher impacts at Agrico from sources such as Gardinier. Therefore, this analysis is considered to be conservative in nature.

Shown in Figure 4-9 are the resulting 24-hour baseline, projected, and increment consumption concentrations at the points of maximum increment consumption. Maximum short-term increment consumption was determined to be 30 ug/m^3 and occurred east of Agrico. At this point of maximum

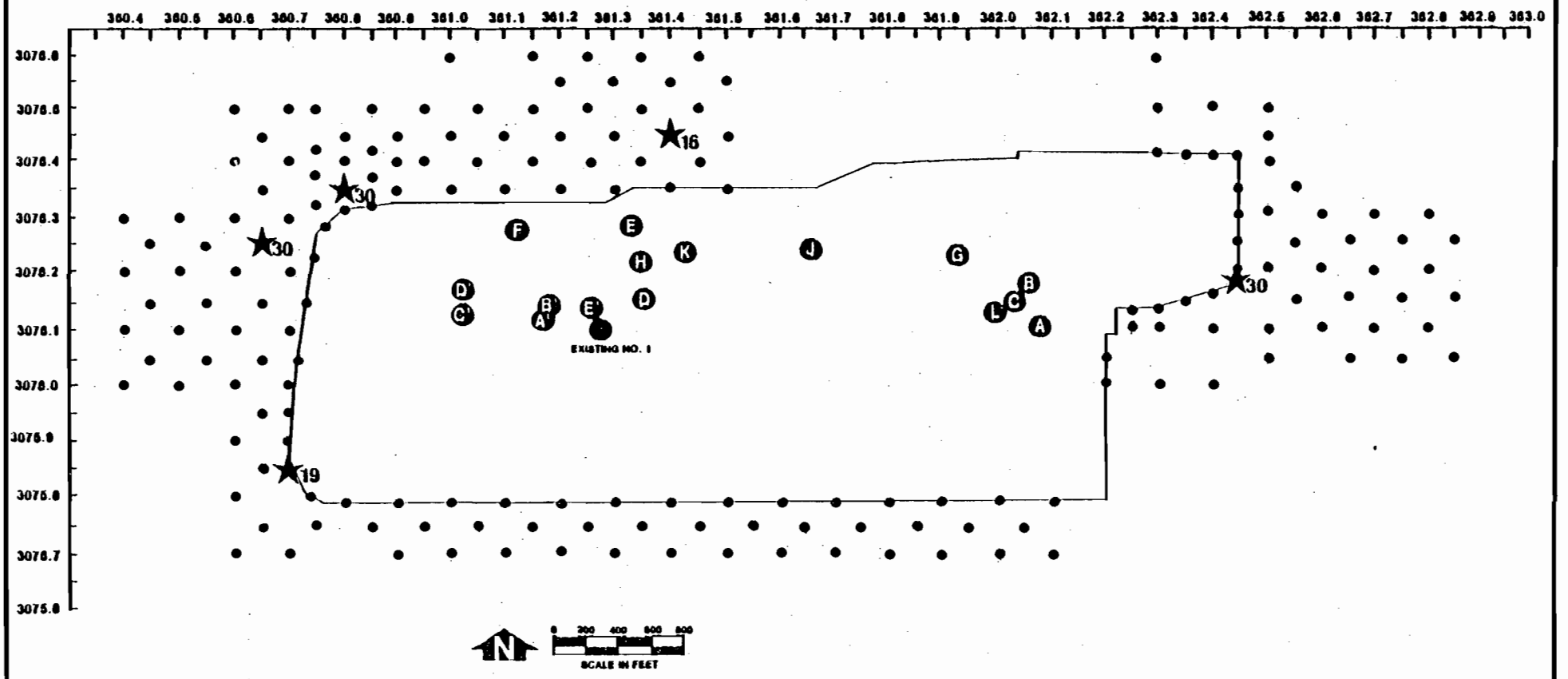
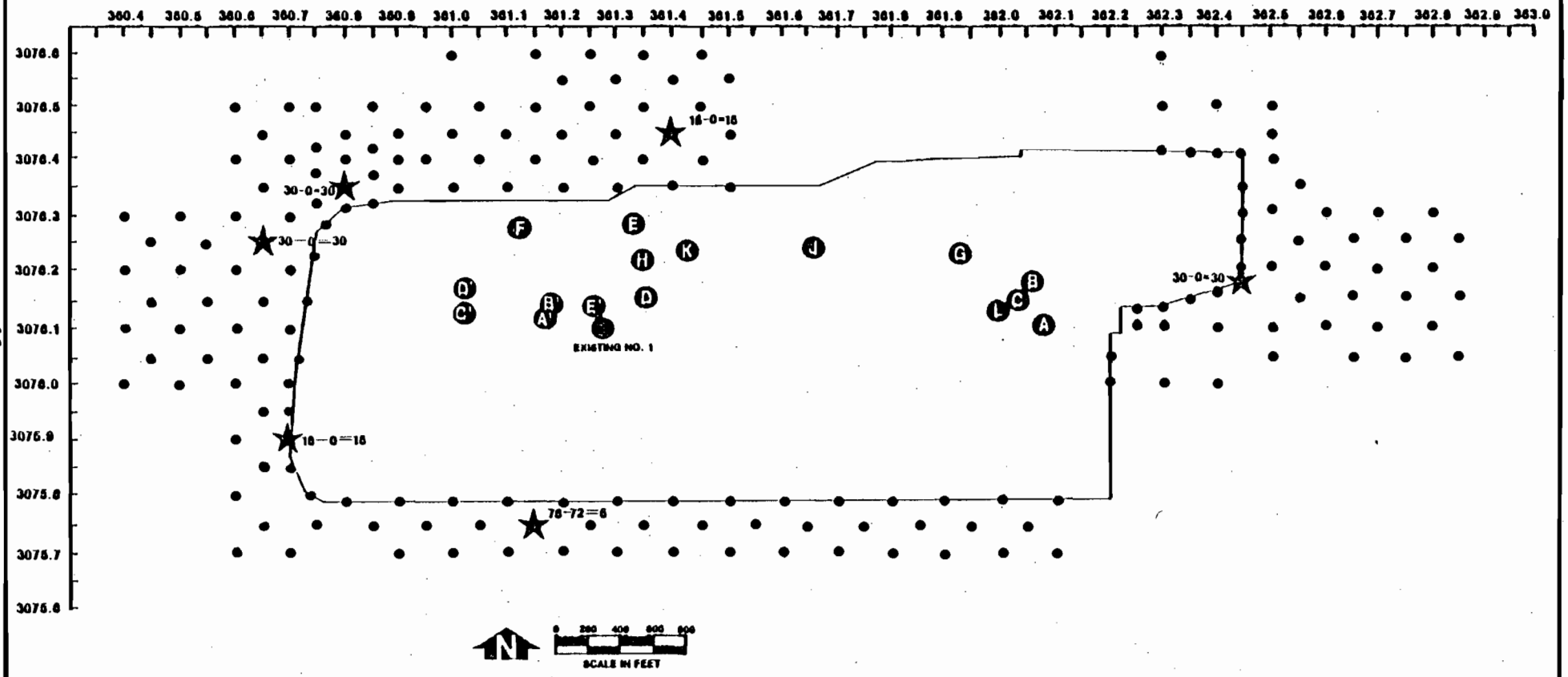


Figure 4-8. Highest, Second-Highest Predicted 24-Hour TSP Impacts, Agrico Sources Only (Case 1).



Note: Concentrations Do Not Include Background

Figure 4-9. Predicted Baseline, Projected and Increment Consumption of Highest, Second-Highest 24-Hour TSP Impacts (ug/m^3), Agrico Sources in Operation.

increment consumption, Agrico contributed 30 ug/m^3 to the consumption.

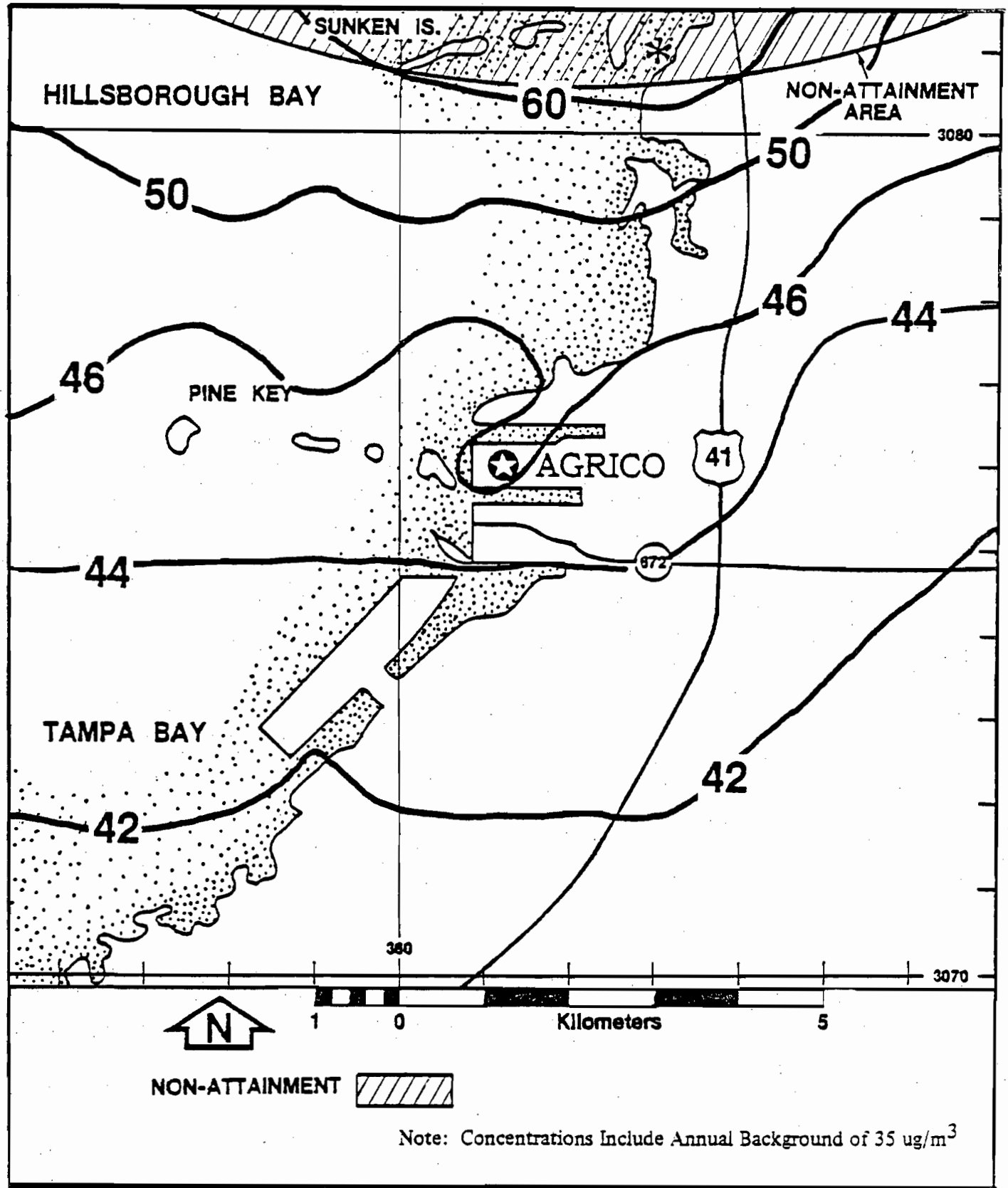
It is noted that the baseline concentrations were determined to be 0.5 ug/m^3 for nearly all worst-days and receptors. This is a result of the majority of sources being located 5 km or more from Agrico, Agrico not being in the baseline, and the wind directions for worst-case meteorological conditions in general not being directed from major nearby sources. Therefore, increment consumption is due almost explicitly to Agrico. More refined analysis of other nearby sources not performed in this analysis could increase the baseline concentrations and therefore reduce total increment consumption. Supportive PTMTP-W model outputs are included in Appendix D.

4.2 AAQS ANALYSIS

4.2.1 Long-Term Evaluation

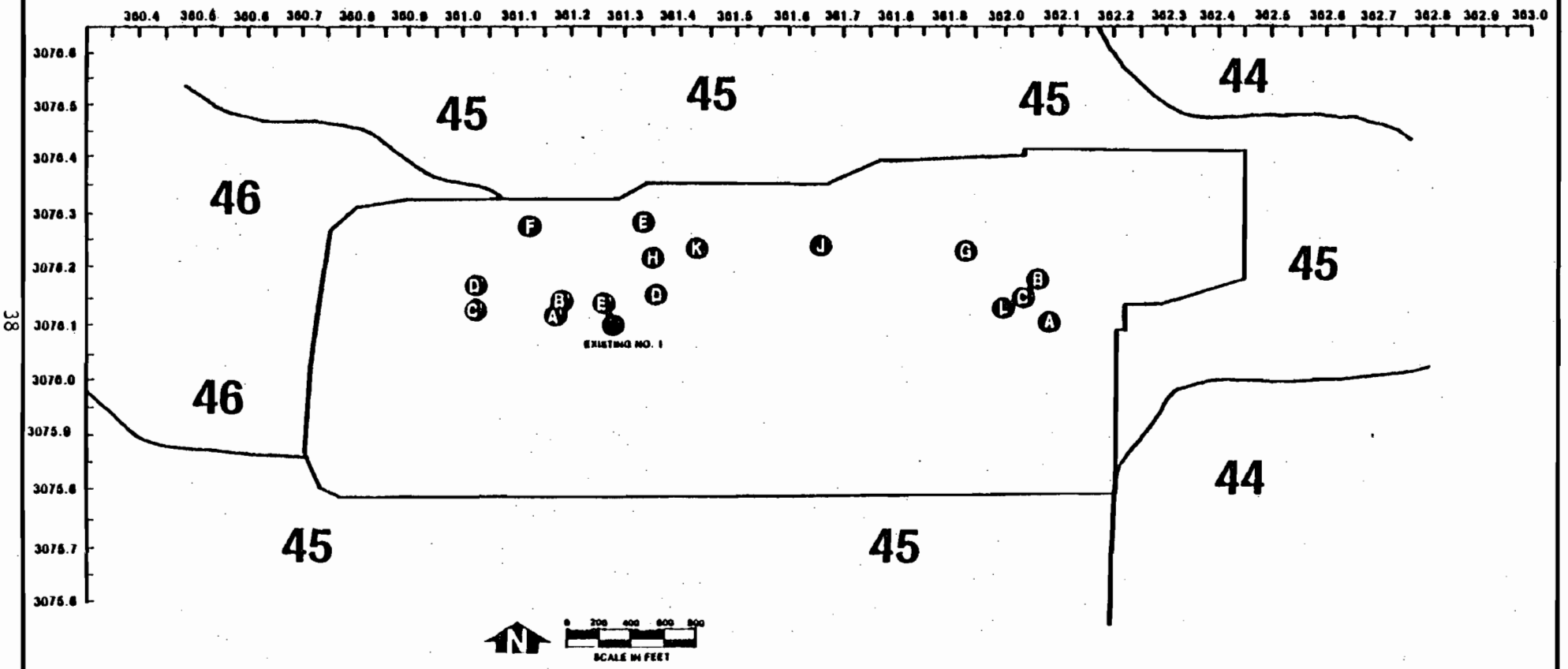
The annual average AAQS TSP evaluation utilized the results of the annual increment consumption analysis. In that analysis, projected point source contributions to the site area, due to all permitted sources in Hillsborough, Manatee, Pinellas, and Pasco Counties, including the proposed Agrico sources, were determined. To these values, therefore, the estimted annual average background TSP concentration of 35 ug/m^3 was added. The resulting annual average isopleths and point of maximum predicted annual concentration is shown in Figure 4-10 for the large receptor grid, and isopleths for the reduced receptor grids are shown in Figure 4-11.

The maximum annual average TSP concentration predicted to occur with Agrico in operation is 70 ug/m^3 for the large receptor grid, and 46 ug/m^3 for the reduced receptor grid. These correspond to geometric mean levels of 66 ug/m^3 and 43 ug/m^3, respectively, using the 0.94 conversion factor. The location of the 66 ug/m^3 geometric mean level, however, is located about 5 km north of Agrico



Note: Concentrations Include Annual Background of 35 ug/m^3

Figure 4-10. Isopleths of Predicted Projected Total Suspended Particulate Matter Concentrations (ug/m^3), Agrico Sources in Operation, Hillsborough County, Florida.



Note: Concentrations Include Annual Background of 35 ug/m^3.

Figure 4-11. Isopleths of Predicted Projected Total Suspended Particulate Matter Concentrations, Reduced Receptor Grid (ug/m^3), Agrico Sources in Operation, Hillsborough County, Florida.

within the designated nonattainment area and well beyond Agrico's area of influence (1 ug/m^3 annual impact level--see Section 4.3.1). Maximum annual averages of less than 47 ug/m^3 (44 ug/m^3 geometric mean) are predicted within 2 km of Agrico. These TSP levels reflect all permitted sources emitting at maximum allowable emission rates.

4.2.2 Short-Term Evaluation

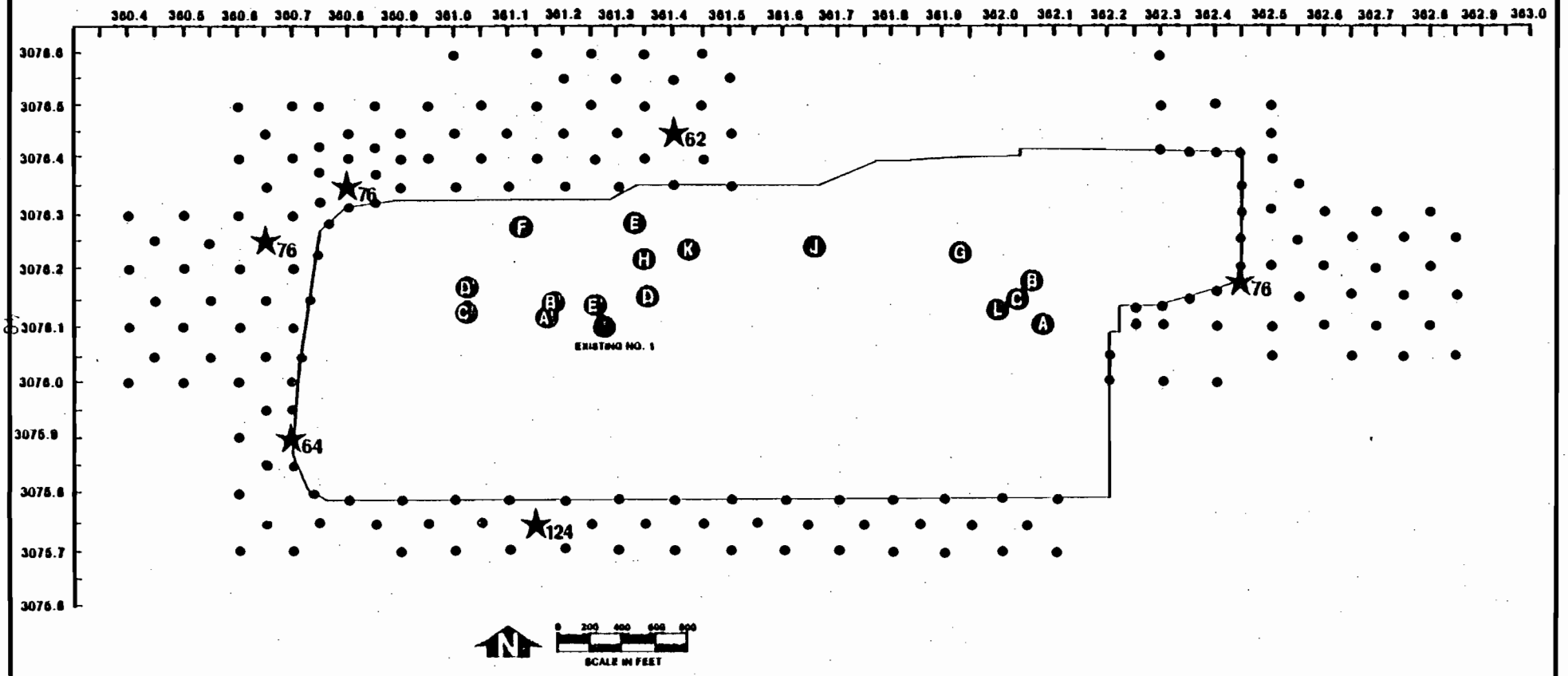
The short-term AAQS evaluation also utilized the results of the short-term increment consumption analysis. The projected highest, second-highest predicted 24-hour concentration for the projected case was found to be 78 ug/m^3. This 24-hour impact was due to Gardinier at maximum allowable emissions contributing to worst-case Agrico impacts for the wind direction aligning the two sources (Day 24/1973). The estimated 24-hour background TSP concentration of 46 ug/m^3 was added to this result to obtain the total projected 24-hour TSP concentration. The resulting value, 124 ug/m^3, represents about 80 percent of the State of Florida AAQS of 150 ug/m^3, not to be exceeded more than once per year. This maximum concentration occurs just south of the Agrico property boundary. Figure 4-12 displays the magnitude and location of projected highest, second-highest 24-hour TSP concentrations with Agrico operating. It is noted that the predicted 24-hour maximum impaxt of 124 ug/m^3 represents a very conservative scenario consisting of the simultaneous occurrence of:

1. All sources emitting at maximum allowable emissions for a 24-hour period;
2. 24-hour meteorological conditions causing maximum Agrico impacts, and
3. A conservative 24-hour background TSP concentration.

4.3 NONATTAINMENT IMPACTS ANALYSIS

4.3.1 Long-Term Evaluation

As described in Section 3.0, Methodology, the annual output tables of the CRSTER model were utilized to determine annual average TSP impacts



Note: Concentrations Include 24-Hour Background of 46 ug/m^3.

Figure 4-12. Predicted Highest, Second-Highest 24-Hour TSP Concentrations (ug/m^3), with Agrico Sources in Operation, Hillsborough County, Florida.

due to the new and modified Agrico sources (excluding DC-1) at the nonattainment area boundary. These impacts are overestimated in that the CRSTER model assumes all point sources to be geographically located at the same point, when in fact the sources will display a rather large spatial distribution. The maximum annual average impact, along the CRSTER radials at the appropriate distance (see Figure 3-5), is predicted to be less than 1.0 ug/m^3. These maximum impacts are below the annual TSP significance of impact level of 1 ug/m^3.

4.3.2 Short-Term Evaluation

The CRSTER model was utilized to identify meteorological conditions associated with highest 24-hour impacts at the nonattainment boundary. Table 4-2 summarizes these meteorological conditions for the Case 1 and Case 2 emission scenarios. The PTMTP-W model was then used to further refine the CRSTER results. As with the PSD increment and AAQS analysis, Agrico stack temperatures were adjusted to 15°F above the average 24-hour ambient temperature.

Table 4-2 also presents the highest 24-hour TSP impact on the nonattainment area for each meteorological situation. The maximum 24-hour impact for any meteorological condition is 4.7 ug/m^3, which is below the significance of impact level for nonattainment area. For reasons discussed previously, this analysis is considered conservative since the full impact of emissions from dust collectors D, E, and F were modeled instead of only the increase (in actual emissions) in emissions.

4.4 SUMMARY OF RESULTS

Presented in Table 4-3 is a summary of all maximum TSP impacts determined for the Agrico Big Bend terminal proposed expansion. Presented are maximum impacts due to Agrico sources only, total PSD increment consumption for Class II and Class I areas, maximum ambient TSP concentrations, and maximum nonattainment impacts. Comparing these maximum impacts to the applicable regulations shows that Agrico's proposed expansion is expected to meet all regulations governing

Table 4-2. Worst 24-Hour Meterological Conditions Associated with Nonattainment Impacts for the Agrico Big Bend Facility and Maximum Impact Concentrations

Emission Scenario	Day/Year	Radial Direction	Highest 24-Hour TSP Impact (ug/m^3)
Case 1	79/1974	10°	3.7
Case 1	351/1975	0°	4.7
Case 1	257/1973	350°	2.2
Case 1	113/1974	340°	1.6
Case 1	209/1975	340°	3.2
Case 1	165/1974	330°	3.3
Case 1	134/1975	320°	4.6
Case 2	351/1975	0°	4.1
Case 2	257/1973	350°	2.1
Case 2	209/1975	340°	2.9
Case 2	165/1974	330°	3.0
Case 2	134/1975	320°	4.3

Table 4-3. Summary of Air Quality Impact Analysis Results, Total Suspended Particulate Matter, Agrico Big Bend Terminal Facility

Impact Case	Maximum Impact TSP Concentration (ug/m^3)	
	Annual Geometric Mean	24-Hour Average*
Agrico Sources Only	2	30
Maximum Class II PSD Increment Consumption	0	30
FDER Allowable Class II Increment	19	37
Maximum Class I PSD Increment Consumption	<< 1	<< 5
FDER Allowable Class I Increment	5	10
Maximum Projected Concentrations from all Sources (Immediate Vicinity of Agrico)	43†	124**
FDER AAQS	60	150
Maximum Nonattainment Area Impacts	<1	4.7
FDER Significance Levels	1	5

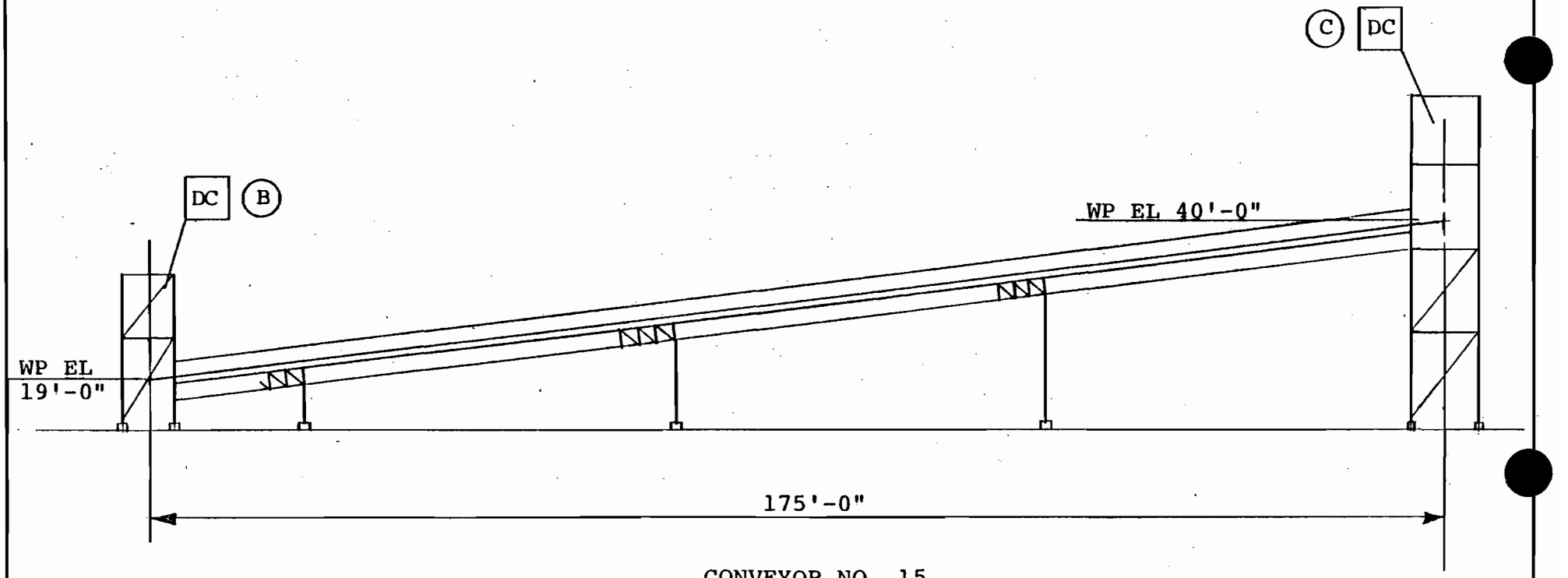
* Highest, second-highest impacts shown for all cases except nonattainment impacts, for which highest impacts are presented.

† Includes annual average background level of 35 ug/m^3. Conversion of 0.94 from annual arithmetic mean to geometric mean utilized.

** Includes short-term background concentration of 46 ug/m^3.

emissions from the facility. This conclusion is based upon state-of-the-art atmospheric dispersion modeling results and a number of conservative modeling assumptions. Most conservative of all assumptions utilized was that of continuous 24-hour operation of Agrico sources (which can operate simultaneously) in conjunction with worst-case meteorological conditions. Such a situation is highly improbable.

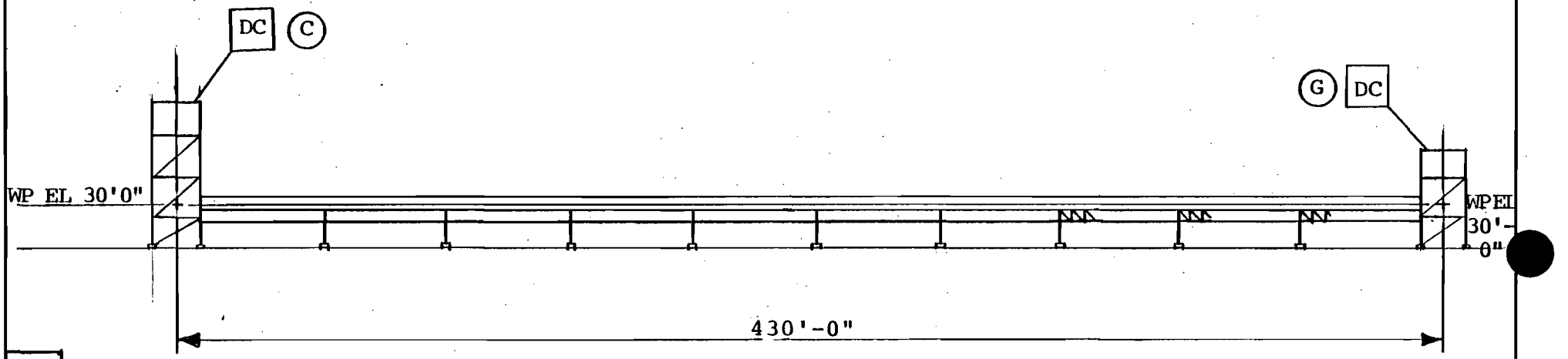
The nearest Class I PSD area to Agrico is the Chassahowitzka National Wildlife Refuge located about 90 km to the north-northwest of the Big Bend terminal. Because of this large distance to the Class I area, and the nonattainment analysis showing that highest 24-hour impacts due to all Agrico sources operating (except DC-1) are below 1 ug/m^3 annual mean and 5 ug/m^3 maximum 24-hour average, maximum impacts in the Class I area are expected to be near 0 ug/m^3 and well below the Class I PSD increments.



CONVEYOR NO. 15
(2700 TPH)

Supplement No.

AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL



CONVEYOR NO. 16
(2700 TPH)

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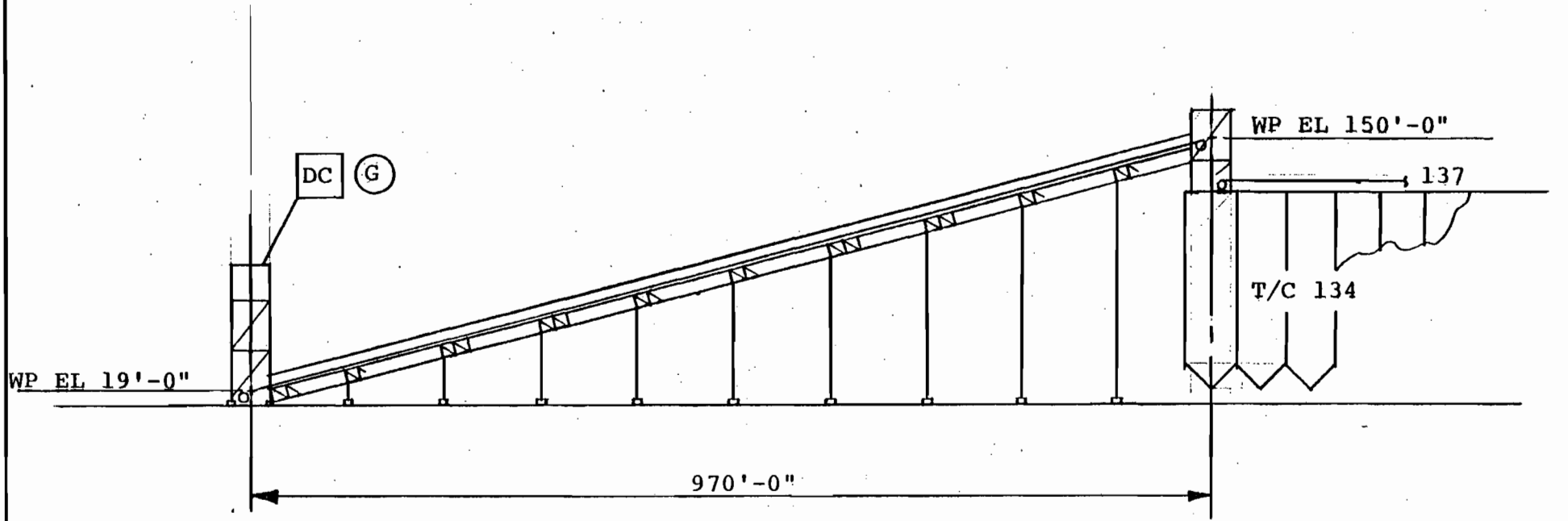
BIG BEND TERMINAL



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(2700 TPH)

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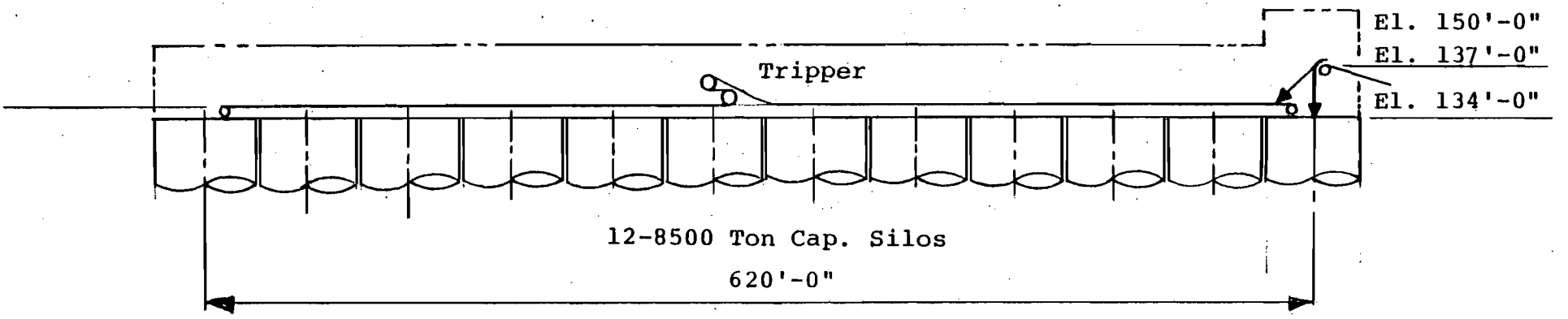

CONVEYOR NO. 18

(2700 TPH)

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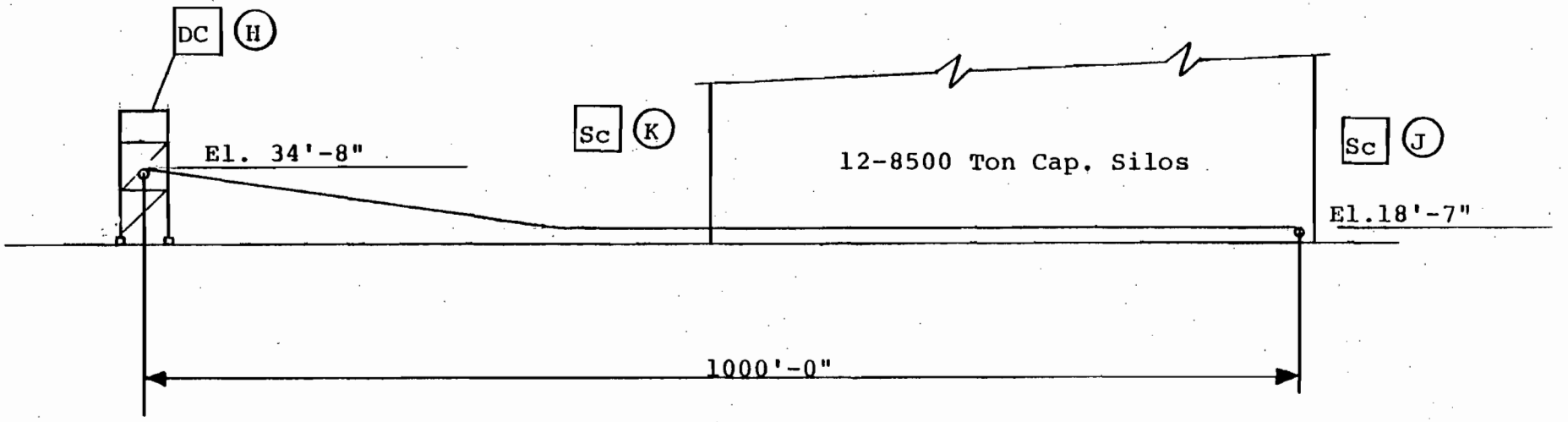
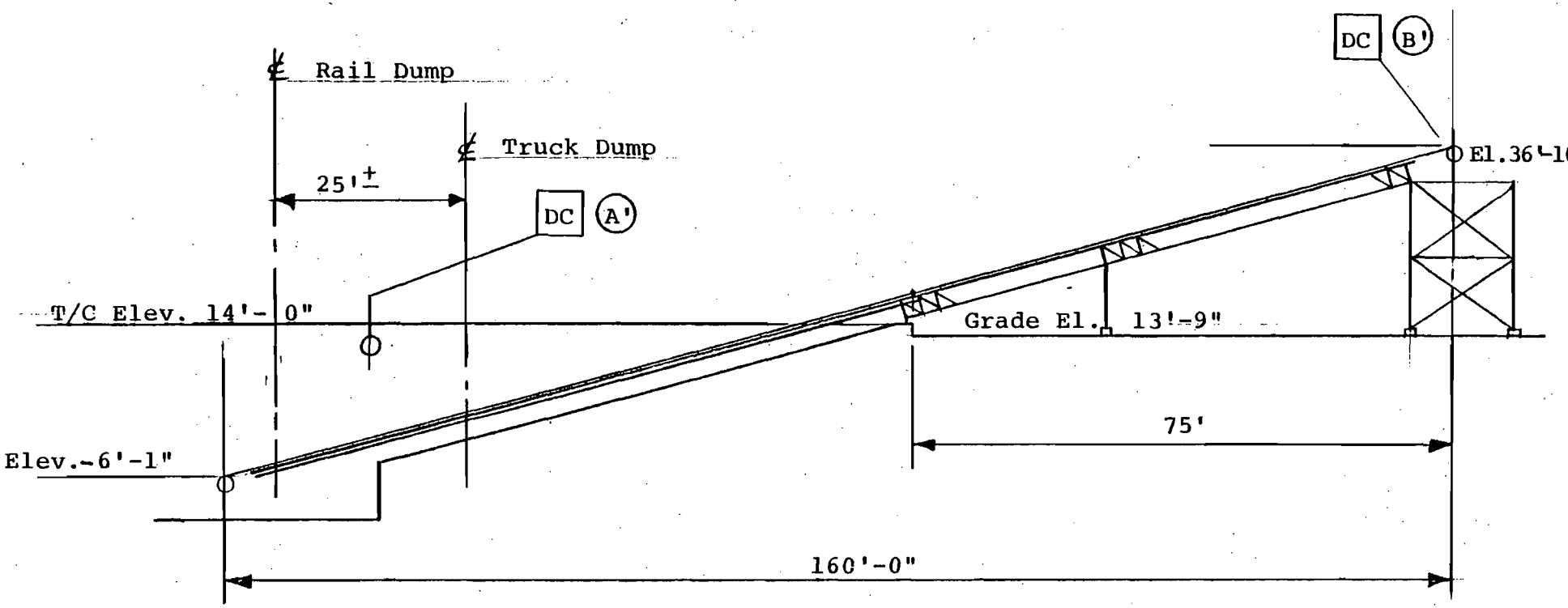


CONVEYOR NO. 19
(2700 TPH)

Supplement No.

AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL



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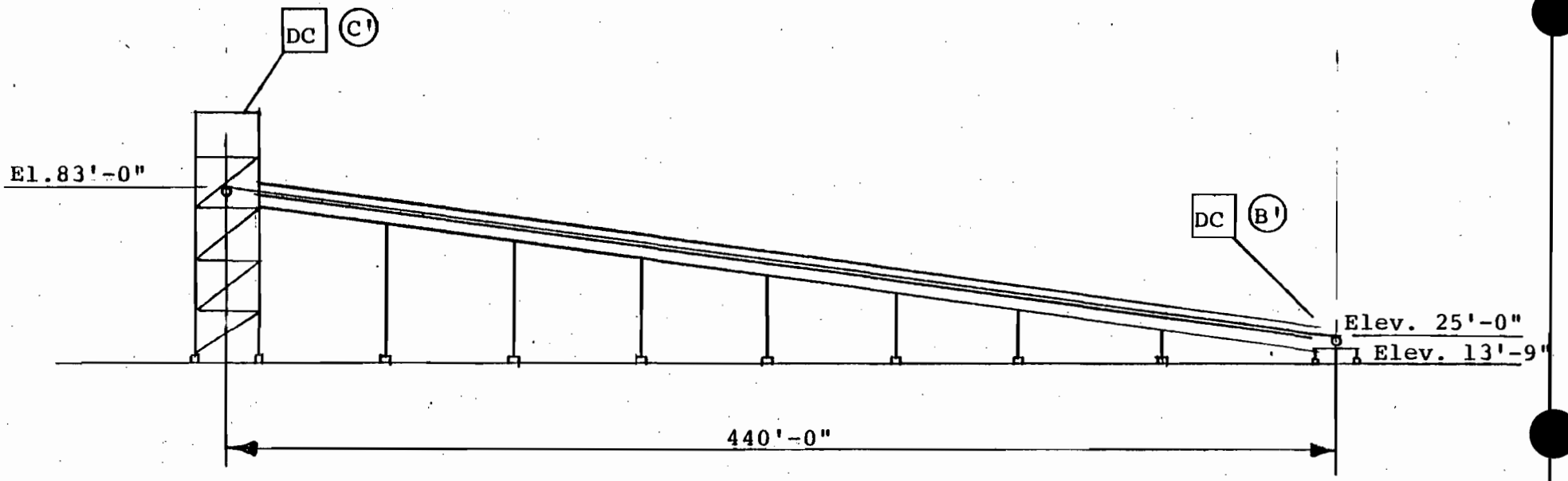
BIG BEND TERMINAL



CONVEYOR NO. 21
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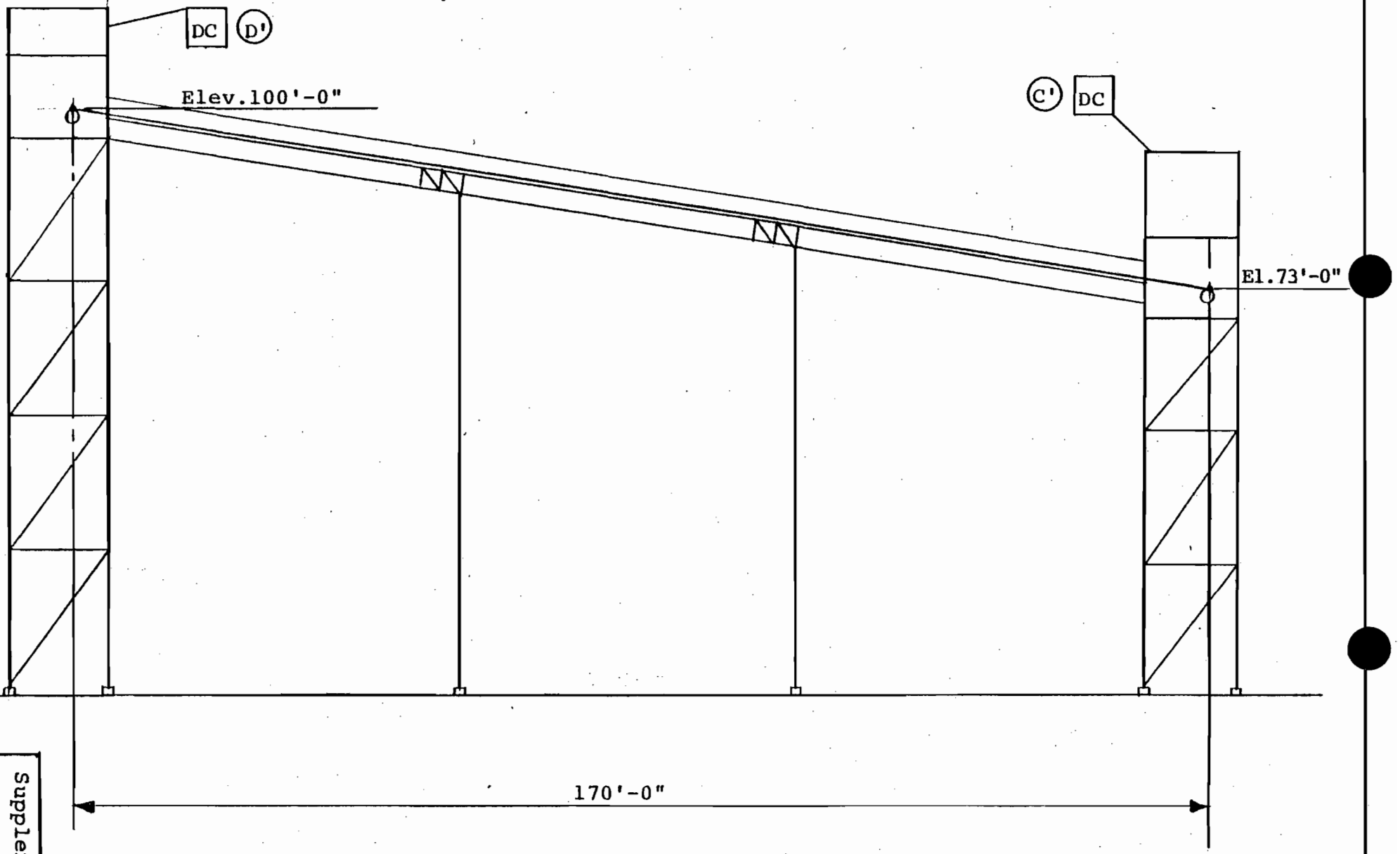
BIG BEND TERMINAL



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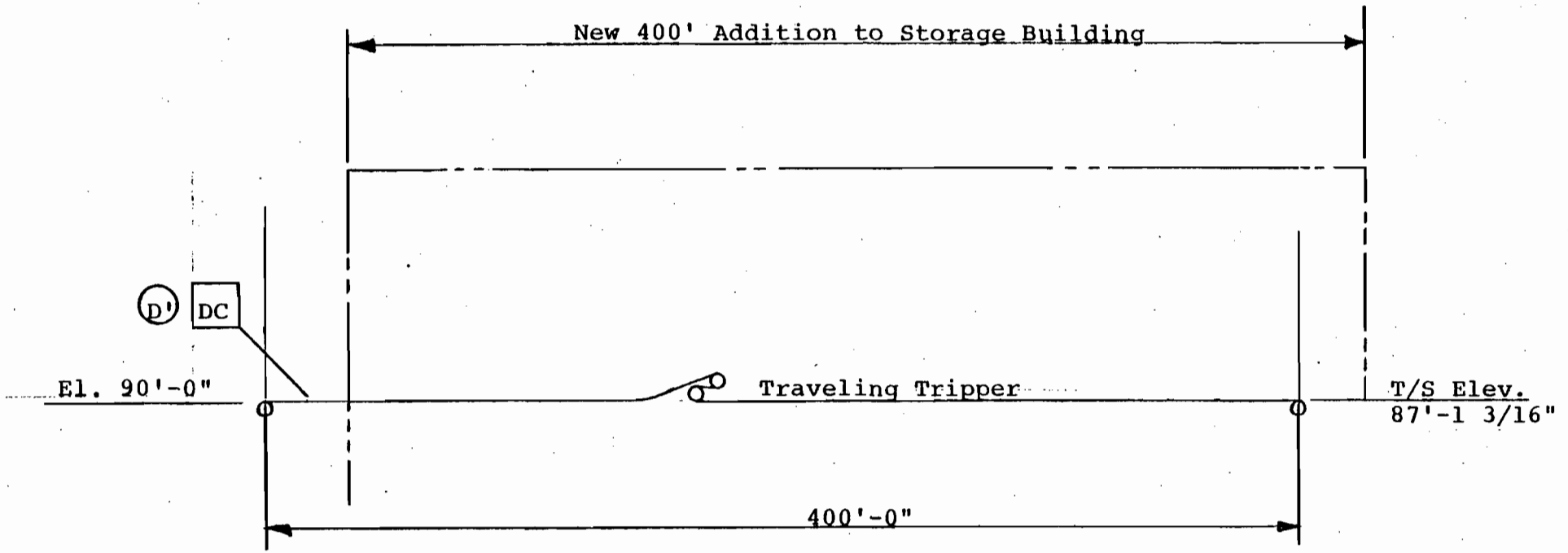
BIG BEND TERMINAL



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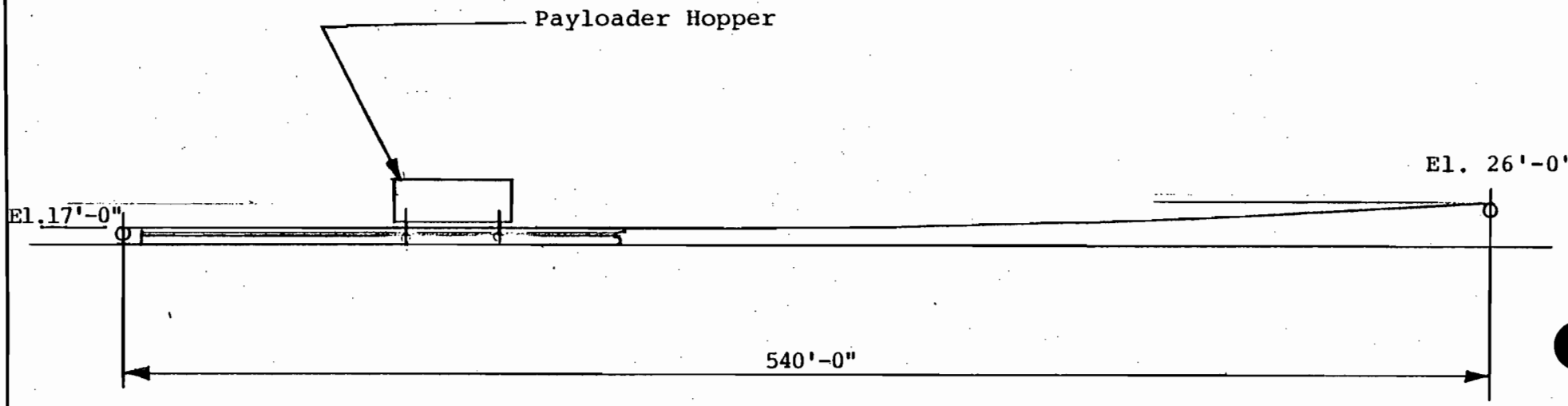
Supplement No.

AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL

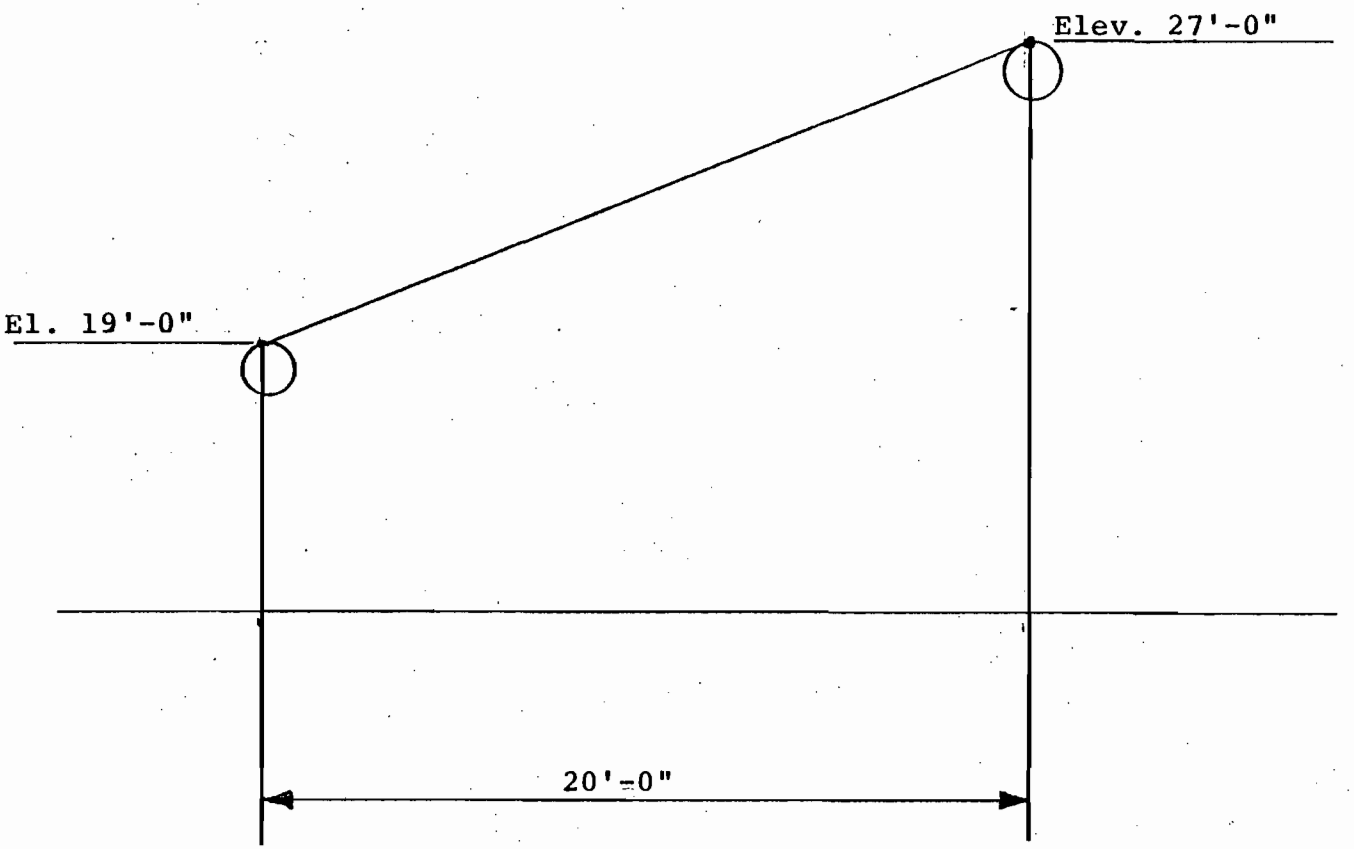


CONVEYOR NO. 24
(1000 TPH)

CONVEYOR NO. 26
(1500 TPH)

Supplement No.

AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL

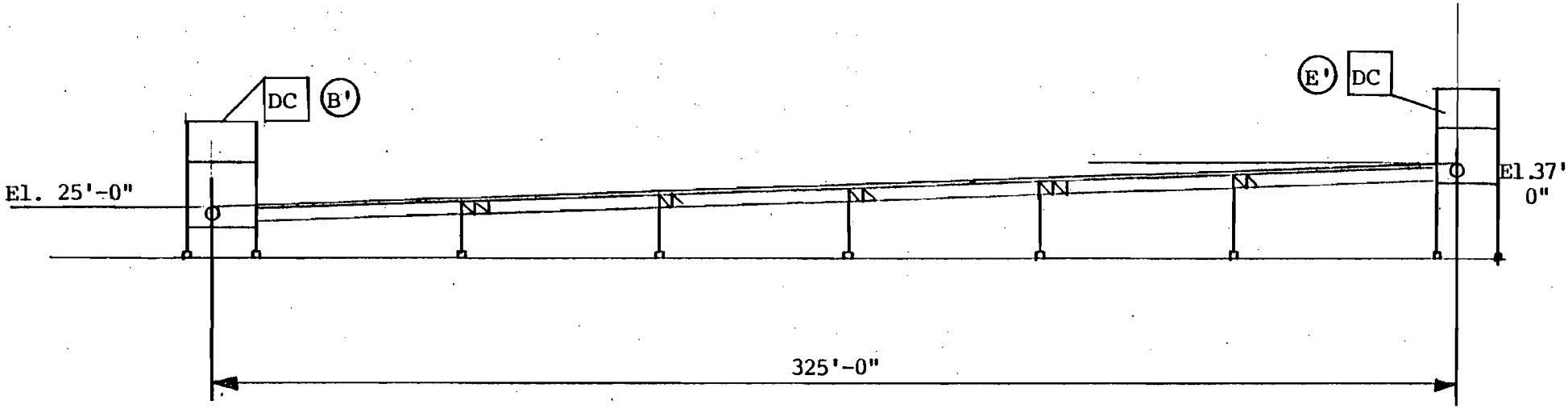


CONVEYOR NO. 25
(1000 TPH)

CONVEYOR NO. 27
(1500 TPH)

Supplement No.

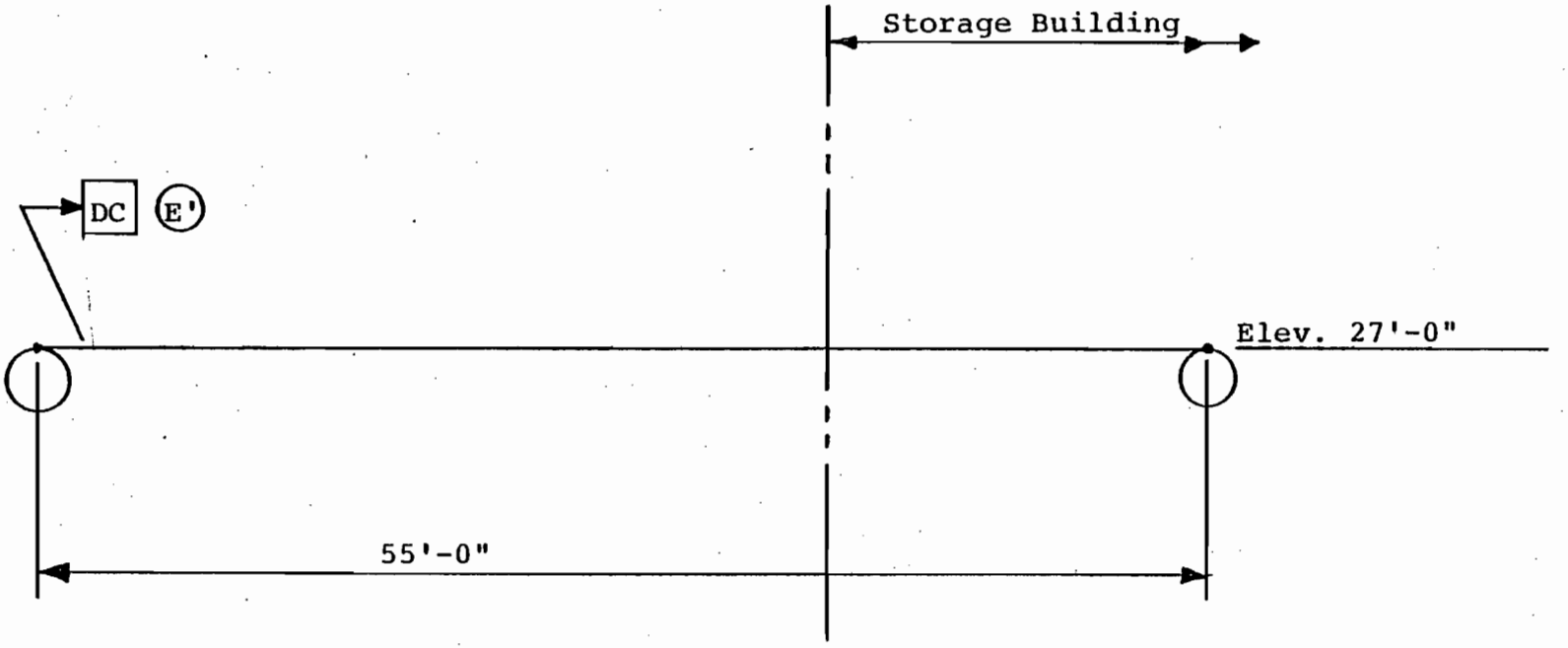
AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL



CONVEYOR NO. 28
(500 TPH)

Supplement No.

AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL



CONVEYOR NO. 29
(500 TPH)

Supplement No.

AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL

February 2, 1979

COPY

Jacobs Engineering Group, Inc.
P.O. Box 2008
Lakeland, Florida 33803

ATTENTION: Mr. F.E. Cape, Purchasing Agent

SUBJECT: Your Project #28-2312
Agrico Big Bend Terminal

Dear Francis:

In accordance with information received from your Norm Curran, we are pleased to offer preliminary equipment sizing and budget pricing covering sixteen (16) Mikro-Pulsaire dust collector equipment packages. Each package consists of the following:

DAP SERVICE - DUST COLLECTORS

(4) UNITS @ 10,000 CFM 5.41:1

B', C'
D', E'
Model 196TRH-8-20 Mikro-Pulsaire (insulated) 70° Slope Hopper
Polypropylene Hi-Gloss Filter Bags (1846 sq.ft. cloth area)
24 KW Heater System with 3 HP Blower
8" Rotary Airlock with 1/2 HP Drive
Exhauster with 25 HP Drive
Air Compressor with 5 HP Drive

PRICE ---------- $39,626.00 EACH -------- ~~$118,878.00~~

(2) UNIT @ 15,000 CFM 5.51:1

D, E
Model 289TRH-8-20 Mikro-Pulsaire (insulated) 70° Slope Hopper
Polypropylene Hi-Gloss Filter Bags (2722 sq.ft. cloth area)
24 KW Heater System with 3 HP Blower
8" Rotary Airlock with 1/2 HP Drive
Exhauster with 40 HP Drive
Air Compressor with 15 HP Drive

PRICE ---------- $ ~~51,527.00~~

(1) UNIT @ 50,000 CFM 5.9:1 SHIP LOADER

F Model 720KTR-10 Mikro-Pulsaire (insulated) 60° Trough Hopper
Polypropylene Hi-Gloss Filter Bags (8474 sq.ft. cloth area)
(2) 24 KW Heater Systems - each unit with 3 HP Blower
8" Rotary Airlock with 1/2 HP Drive
9" dia. Screw Conveyor with 5 HP Drive
Exhauster with 150 HP Drive west 437
Air Compressor with 40 HP Drive

PRICE ---------- $129,275.00

(1) UNIT @ 60,000 CFM 7.08:1 RAIL CAR UNLOADING

A' Model 720KTR-10 Mikro-Pulsaire (insulated) 60° Trough Hopper
Polypropylene Hi-Gloss Filter Bags (8474 sq.ft. cloth area)
(2) KW Heater Systems - each with 3 HP Blower
8" Rotary Airlock with 1/2 HP Drive
9" dia. Screw Conveyor with 5 HP Drive
Exhauster with 200 HP Drive
Air Compressor with 40 HP Drive

PRICE ---------- $136,599.00

NOTE: All above units include the following:

-316 stainless steel bag retainers
-Factory standard surface preparation and prime coat painting.
-All pricing F.O.B. shipping point. Add freight.
-Service platform with handrailings and access ladders
-Standard support legs and bracing
-Timers for bag cleaning cycle, single phase, 60 Hz.,110 volt
-NEMA #4 enclosures

All motor starters by others.

PHOSPHATE DRY ROCK SERVICE - DUST COLLECTORS

4
(8) UNITS @ 15,000 CFM 7.2:1

B, C, G Model 221TRH-8-20 Mikro-Pulsaire (st'd 60° Slope Hopper)
H 8" Rotary Airlock with 1/2 HP Drive
316 Stainless Steel Bag Retainers
Polyester Filter Bags (2082 sq.ft. cloth area)
NEMA #4 enclosures
Access Platform and Caged Ladder
Standard Support Legs with Bracing
Exhauster with 40 HP Drive Chicago Sqc 27B Design 20
Air Compressor with 10 HP Drive

PRICE ---------- $31,324.00 EACH -------- $281,916.00

(1) UNIT @ 100,000 CFM 11.8:1 RAIL CAR ROLL-OVER DUMPER

A Model 720KTRH-10 Mikro-Pulsaire (st'd 60° Trough Type Hopper)
316 Stainless Bag Retainers
Polyester Filter Bags (8474 sq.ft. cloth area)
NEMA #4 Enclosures
9" dia. Screw Conveyor with 5 HP Drive
Access platform with Caged Ladder
Standard Support Legs with Bracing
8" Mikro-Rotary Airlock with 1/2 HP Drive
Exhauster with 300 HP Drive westfig 92F1 or 95F1 90F1
Air Compressor with 40 HP Drive

PRICE ---------- $113,650.00

An approximate list of items not covered in our budget pricing for supply and installation by other include the following:

1 - All foundations.
2 - Provide for and do all erection.
3 - Freight charges from ship point to destination.
4 - All duct system required.
5 - All compressed air piping from air compressors to collector manifolds.
6 - All electrical wiring, push button stations and motor starters.
7 - All equipment testing if required by local and/or state for operating permits.

We appreciate the opportunity of supplying this budget quotation and hope that you are successful in securing this contract. If you have any questions concerning our equipment selection, or if we could be of further service, please call.

Best regards.

Very truly yours,
LINDER INDUSTRIAL MACHINERY COMPANY

D.L. Heckman
Vice President, Process Equipment

DLH/mlp

cc: Terry Wheeler - Linder

LINDER INDUSTRIAL MACHINERY COMPANY

SERVICE WITH WINGS

717 SOUTH FLORIDA AVENUE · P. O. BOX 5330 · LAKELAND, FLORIDA 33803

PHONE (813) 646-5711

TAMPA (813) 229-7277
ORLANDO (305) 843-5451
SARASOTA (813) 366-5473
BROOKSVILLE (904) 796-3467
MIAMI (305) 635-7312
JACKSONVILLE (904) 786-6710
FT. MYERS (813) 481-2403
TWX (810) 867-0466

February 5, 1979

Jacobs Engineering
P. O. Box 2008
Lakeland, Florida 33803

ATT: Mr. Norm Curran

REF: Project No. 28-2312
Agrico Big Bend Terminal

Dear Norm:

The following will confirm our preliminary equipment sizing and budget pricing covering four (4) Ducon Venturi Scrubbers for silo venting of phosphate rock dust at the rate of 30,000 CFM.

(4) - Ducon Oriclone Scrubber Size 45/102, Type VVO, Vertical Wet Approach Venturi with fixed Venturi throat, flooded elbow, and a cyclonic entrainment separator with vertical gas discharge. Materials of construction for the Venturi, elbow and separator would be 10 Gauge mild carbon steel. Operation is generally in accordance with Bulletin No. W-9075 with overall dimensions approximately in accordance with attached sketch.

J/K

PRICE----------$15,000.00 Ea.------$ 60,000.00

Allowing 22" W.G. pressure drop through the Ducon Scrubber and allowing an additional 3-4" W.G. external losses, we would make the following fan selection:

(4) - Westinghouse-Sturtevent Div. Size 60 TVRT-3, SWSI, Heavy-Duty Radial Tip Fan in Arrangement 1. The fan will be direct driven by 200 HP, 1200 RPM motor.

PRICE----------$25,000.00 Ea.------$100,000.00

-CONTINUED-

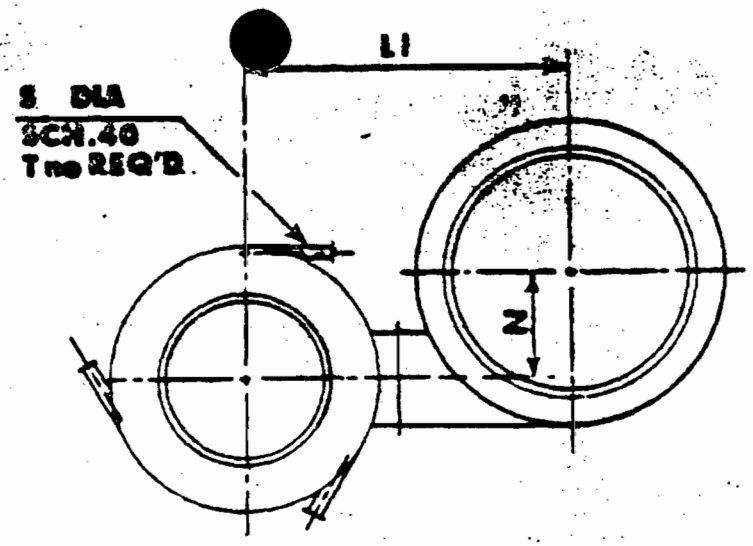
We appreciate the opportunity to furnish you with this preliminary quotation and look forward to working with you on this project. If you have any questions concerning our equipment selection or require any further information, please do not hesitate to call.

Very truly yours,

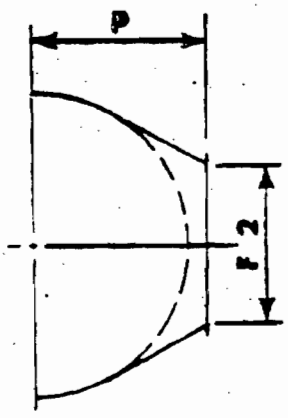
LINDER INDUSTRIAL MACHINERY COMPANY

Gary L. Allen
Sales Engineer

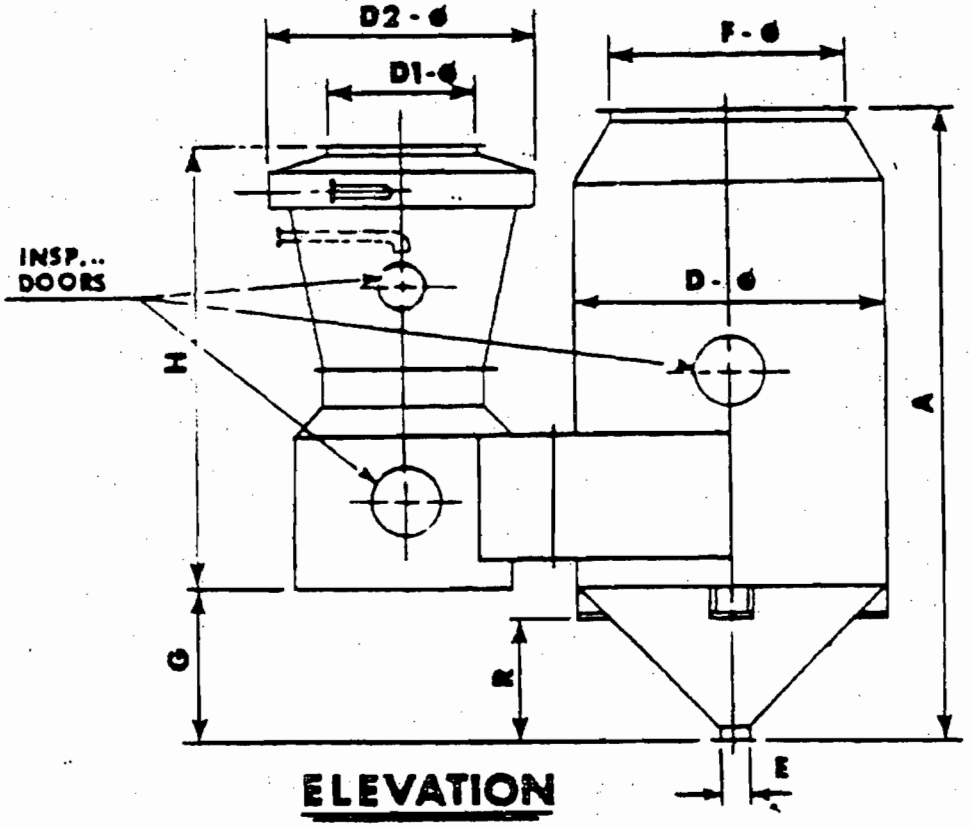
GLA:pw
cc: Terry B. Wheeler - Linder
Encl.

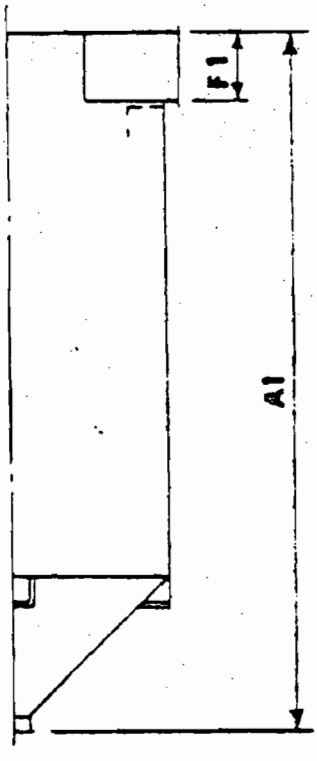


PLAN



ALT. HORIZONTAL OUTLET





ELEVATION

OVERALL DIMENSIONS FOR DUCON ORICLONE VENTURI SCRUBBER TYPE VVO

SIZE	A1	A	D	D1	D2	E	F	F1	F2	G	H	L1	N	P	R	S	T
45/102	X	222	102	45	80	10	77	X	X	71	110	103	20	X	33	2½	3

THE DUCON COMPANY, INC.
MINEOLA, N.Y.

DRAWING No. W-92/ /

cc: Terry Wheeler - Linder

LINDER INDUSTRIAL MACHINERY COMPANY

QUOTATION

PROPOSAL NO. H7-13

SERVICE WITH WINGS

4717 SOUTH FLORIDA AVENUE
(P. O. BOX 5330)
LAKELAND, FLORIDA 33803
813/646-5711

3645 N.W. NORTH RIVER DR.
(P. O. BOX 661092, 33166)
MIAMI, FLORIDA
305/635-7312

718 NORTH LANE AVE.
JACKSONVILLE, FLORIDA 32205
904/786-6710

2367 S. COMMERCIAL DR.
(P. O. BOX 186, 33902)
FT. MYERS, FLORIDA 33907
813/481-2403

TO Jacobs Engineering Group
P.O. Box 2008
Lakeland, Florida 33803
ATTN: F.E. Cape
Chief Purchaser

REFERENCE Fugitive Dust Collectors
Inquiry No. 28-2312-01-R2400-001
Agrico Big Bend

DATE August 6, 1979

GENTLEMEN:

LINDER INDUSTRIAL MACHINERY COMPANY HEREBY SUBMITS TO YOU THE FOLLOWING QUOTATION ON THE GOODS LISTED BELOW SUBJECT TO ALL THE TERMS PRINTED ON THE REVERSE HEREOF, ALL OF WHICH ARE HEREBY MADE A PART OF ANY AGREEMENT BETWEEN US. THIS QUOTATION IS SUBJECT TO IMMEDIATE ACCEPTANCE AND THE PRICE INCLUDES ONLY THE MATERIAL AS LISTED BELOW.

ITEM NO.	QUANTITY	ARTICLES AND DESCRIPTION	UNIT PRICE	TOTAL AMOUNT
		We appreciate receiving your inquiry and are pleased to quote upon MikroPul Corporation dust collectors, Westinghouse-Sturtevant Division heavy duty industrial fans, and Gardner-Denver Company air compressors in accordance with your specifications. Each of the MikroPul dust collectors will meet the following general description: MIKROPUL DUST COLLECTORS - GENERAL SPECIFICATION The Mikro-Pulsaire dust collector filter case housing, plenum and hopper will be factory welded 12 gauge carbon steel construction designed for temperatures up to 200°F. and operating pressure up to 20" W.G. (17" W.G. for "KTRH" models) and feature top removal design of filter elements with walk-in plenum. The "STRH" models feature a 60° slope pyramid type hopper with slip connection inlet and permeable diffuser with discharge flanged for mounting 8" Mikro-Airlock (see description below). The "KTRH" models include 60° sloping trough type hoppers flanged for mounting "U" trough screw conveyor and include slip connection inlet with permeable diffuser. All units include one (1) 21" x 63" hinged and clamped access door in walk-in plenum (18" x 60" opening) and one (1) 18" dia. hinged and clamped access door in the hopper. Each collector will have factory installed 3" thick mineral wool insulation on exterior surfaces with 20 gauge galvanized metal skin cover. Each collector will include supports legs and bracing with leg lengths in accordance with your specification. Each unit includes a ladder and		

This Quotation includes Pages: CONTINUED ON PAGE TWO

ABOVE PRICES ARE F.O.B. See Above

SHIPMENT See Above

LINDER INDUSTRIAL MACHINERY COMPANY

PER

ITEM NO.	QUANTITY	ARTICLES AND DESCRIPTION	UNIT PRICE	TOTAL AMOUNT

MIKROPUL DUST COLLECTORS - GENERAL SPECIFICATION-CONT'D

cage assembly (ladder height established by specified support leg lengths) providing access to an external catwalk with handrailing for servicing the solenoid valves and gaining access to the walk-in plenum. Support steel, ladder and cage, handrailing and platform painted in accordance with your Specification 6500-1.

Each collector unit will also include an Auxiliary Air Heater System, consisting of a 24KW duct heater, with circulating air fan having 5 HP, TEFC motor and drive, including interconnecting duct between the dust collector plenum and hopper. All equipment including duct shipped to field loose for field assembly by others. Customer will be required to interlock the duct heater and recirculating air blower with start-stop of collector exhaust fan. Heater system to operate only when the main exhaust is off. The heater will be supplied with NEMA 1 enclosure and duct will be painted in accordance with your paint specification. Each of the "KTRH" models will require two (2) air heater systems described above.

The Mikro-Pulsaire is an automatic self-cleaning system that utilizes momentary jets of high pressure air through a specially designed venturi to provide efficient thorough cleaning with no internal moving parts. Each collector will be furnished with one complete set of filter bags (number and materials of construction described below), top removal type cast aluminum venturies, 316L stainless steel filter bag retainers and bag clamps for mounting filter bags, all shipped loose for field installation by purchaser. Each unit will also be supplied with a Model 72 Integrated Circuit Type solid state 10 position timer (115 Volt, 1 Phase, 60 Hz.) in NEMA 4 enclosure. Models "KTRH" require (2) timers. Also furnished will be a complete set of solenoid valves prewired to terminal strip in NEMA 4 enclosure. Wiring between the timer and solenoid valve terminal strip by purchaser.

CONTINUED ON PAGE THREE

ITEM NO.	QUANTITY	ARTICLES AND DESCRIPTION	UNIT PRICE	TOTAL AMOUNT

MIKROPUL DUST COLLECTORS - GENERAL SPECIFICATION-CONT'D

Each unit will be supplied with a flanged exhaust connection located in the plenum, a 10" U tube manometer with 20' of tubing and fittings for field installation, and a venturi installation wrench. All interior surfaces of the collectors will receive standard shop surface preparation and one (1) shop coat of red oxide primer. For further detail concerning the walk-in plenum Mikro-Pulsaire refer to Bulletin TRP-3 and enclosed drawings.

Equipment specifics, operating and performance data, and pricing will be as follows:

1 1

SPECIFICATION NO. 24-001
DUST COLLECTOR

Mikro-Pulsaire dust collector, continuous automatic type Model 720K-10-TRH to operate under the following conditions:

Gas Volume:	100,000 ACFM
Temperature:	Ambient
Dust Loading:	5-10 GR/ACFM
Filter Rate:	11.8:1
Product:	Phosphate Rock Dust
Application:	Venting Rail Car Rotary Dump

The Model 720K-10-TRH will be provided with (720) 10' long filter bags fabricated with 16 oz. Polyester (Dacron) felt filter fabric to provide a total of 8474 sq.ft. of filter area.

SCREW CONVEYOR
For mounting on the collector hopper flange, a 9" diameter screw conveyor with 10" diameter x minimum 12 gauge "U"trough complete with 5 HP, 1800 RPM, TEFC motor, integrally mounted, shaft mounted gear reducer, v-belt drive and guard, and (1) flanged discharge spout drilled for standard 8" Mikro-Airlock. Screw trough supplied uninsulated, and prime coat painted.

AIRLOCK
8" Mikro-Rotary Airlock, cast iron housing, steel rotor with six (6) Delrin blades as shown on Drawing #6022. The airlock will be equipped with reducer, V-belt drive, OSHA belt guard, and

CONTINUED ON PAGE FOUR

ITEM NO.	QUANTITY	ARTICLES AND DESCRIPTION	UNIT PRICE	TOTAL AMOUNT

AIRLOCK - CONT'D
1/2 HP, 1725 RPM, T.E., 3 Phase, 60 Hz., 230 Volt motor, and factory standard prime coat painting.

SCREW CONVEYOR (YOUR INQUIRY ITEM #7)

9" diameter screw conveyor x 33'-9" from center line feed to center line discharge with 10" diameter x minimum 12 gauge "U" trough complete with 5 HP, 1800 RPM, TEFC motor, integrally mounted, shaft mounted gear reducer, v-belt drive and guard, and (1) flanged discharge spout drilled for standard 8" Nikro-Airlock. Screw trough supplied uninsulated, and prime coat painted.

EXHAUST FAN

Westinghouse-Sturtevant Division Size 9273, SWSI, Heavy Duty Industrial Fan in Arrangement 1, including 1/4" thick welded steel housing split for wheel removal, (2) 4-15/16" diameter heavy duty Fafnir Type SAOL grease lubricated anti-friction bearings, flanged inlet and discharge connections, flush type access door bolted to the fan housing, 2" drain connection, shaft seal, and channel bearing support requiring concrete base by others.

The wheel is a full shrouded type consisting of (16) 1/4" thick blades supported between a 1/4" thick sideplate and a 1/2" thick backplate. Blades are forwardly curved at the entering edge and radial at the tip, die formed and welded to the back and sideplates.

The fan will be furnished with v-belt drive, Enclosed Belt Guard, and a Westinghouse 300 HP, 1200 RPM, TEFC, 3 Ph., 60 Hz., 460 Volt Mill and Chemical duty motor complete with slide rails.

The Size 9273 will operate at 623 RPM to deliver 100,000 CFM against 12" S.P. requiring 272 BHP when handling air at 700F.

Mounting of v-belt drive, guard and motor in field by purchaser.

The performance stated is based upon the use of an evase' to be furnished by Westinghouse-Sturtevant or others. If evase is to be supplied by Westinghouse, ADD $1,513.00 to the pricing below.

CONTINUED ON PAGE FIVE

ITEM NO.	QUANTITY	ARTICLES AND DESCRIPTION	UNIT PRICE	TOTAL AMOUNT
		EXHAUST FAN CONT'D		
		An inlet box is also available for this fan. This option would require an additional $4,936.00 to the pricing below.		
		Fan exterior surfaces will be painted in accordance with your Specification 6500-1.		
		AIR COMPRESSOR		
		Compressed air requirements for Model 720K-10-TRH is 141 CFM at 100 PSIG.		
		Gardner-Denver Company Model EBEQH air cooled, base mounted screw compressor with inlet valve, heavy duty dry type inlet air filter, base for compressor and motor, V-belt drive, OSHA drive guard, 230/460 volt controls consisting of pressure switch and unloader solenoid valve, air pressure gauge, ASME air-oil reservoir with oil separator, reservoir pressure relief valve, oil cooler in fan, high temperature shutdown switch, oil filter, air and oil piping, manual air shut-off valve, NEMA 4 electrical enclosures, 30 HP, 1800 RPM, TEFC, 3 Ph., 60 Hz., 460 Volt Severe Duty motor with 1.15 S.F., and modulating control (provides capacity regulation from 0-100% in response to actual air demand, tank not required).		
		Also included will be an Air Cooled Aftercooler with 1/6 HP, 3 Ph., 60 Hz., 230/460 Volt motor, Separator and Automatic Moisture Trap, prepiped and mounted to compressor.		
		The Model EBEQH has a capacity to deliver 158 CFM at a discharge pressure of 125 PSIG.		
		TOTAL PRICE FOR ALL EQUIPMENT, ITEM 1 ----------		$172,161.00
		ESTIMATED SHIPPING WEIGHTS: Dust Collector: 52,500# Exhaust Fan: 14,750# Air Compressor: 1,750#		
2	1	**SPECIFICATION NO. 24-002** **DUST COLLECTOR**		
		Mikro-Pulsaire dust collector, continuous automatic type Model 221STRH-8-20 to operate under the following conditions:		

CONTINUED ON PAGE SIX

ITEM NO.	QUANTITY	ARTICLES AND DESCRIPTION	UNIT PRICE	TOTAL AMOUNT

DUST COLLECTOR CONT'D

Gas Volume:	15,000 CFM
Temperature:	Ambient
Dust Loading:	5-10 GR/CFM
Filter Rate:	7.2:1
Product:	Phosphate Rock Dust
Application:	Venting Nuisance Dust from Conveyor Transfer Points

The Model 221STRH-8-20 will be provided with (221) 8' long filter bags fabricated with 16 oz. Polyester (Dacron) felt filter fabric to provide a total of 2082 sq.ft.

AIRLOCK
Same description as Item 1.

EXHAUST FAN
Westinghouse-Sturtevant Division Size 3027, SWSI, Class 3, Heavy Duty Industrial Fan in Arrangement 1 including flanged inlet and discharge connections, flush type access door bolted to fan housing, drain connection, and (2) 2-3/16" grease lubricated anti-friction bearings and bearing support extended to fan base rails.

The 27" diameter wheel consists of (12) flat backwardly inclined blades riveted to a 1/4" backplate and welded to a .140" sideplate.

Fan will be furnished complete with V-belt drive, Enclosed Belt Guard, and 40 HP, 1800 RPM, TEFC, 3 Ph., 60 Hz., 460 Volt Mill and Chemical Duty Motor and Slide Base. Drive, guard and motor require field installation by purchaser.

The Size 3027 will operate at 2184 RPM to deliver 15,000 CFM against 12" S.P. requiring 35.8 BHP when handling air at 70°F.

Fan exterior surfaces will be painted in accordance with your Specification 6500-1.

AIR COMPRESSOR
Compressed air requirements for Model 221STRH-8-20 is 23 CFM at 100 PSIG.

CONTINUED ON PAGE SEVEN

ITEM NO.	QUANTITY	ARTICLES AND DESCRIPTION	UNIT PRICE	TOTAL AMOUNT
		AIR COMPRESSOR CONT'D		
		Gardner-Denver Company Model ADK Two-Stage, Air Cooled Air Compressor, horizontal tank mounted unit on 80 gallon receiver. Unit complete with oil bath inlet air filter, V-belt drive, Totally Enclosed (OSHA) Belt Guard, pressure gauge, safety valve, pressure switch, suction unloading valves and magnetic unloader for Constant Speed operation, Air Cooled Aftercooler with Separator and Automatic Moisture Trap, and 7-1/2 HP, 1800 RPM, TEFC, 3 Ph., 60 Hz., 460 Volt Mill and Chemical Duty motor. All electrical controls in NEMA 4 enclosures.		
		The Model ADK operating at 945 RPM has 26.9 CFM Net Delivery at 125 PSIG discharge pressure.		
		TOTAL PRICE FOR ALL EQUIPMENT ITEM 2 ----------		$47,862.00
		ESTIMATED SHIPPING WEIGHTS: Dust Collector: 12,800# Exhaust Fan: 1,850# Air Compressor: 1,400#		
3	1	SPECIFICATION NO. 24-003		
		ALL EQUIPMENT RELATING TO THIS SPECIFICATION WILL HAVE THE SAME PERFORMANCE AND EQUIPMENT DESCRIPTION AS DESCRIBED FOR SPECIFICATION NO. 24-002. PRICE DIFFERENCE IS REFLECTED IN THE VARIATION IN DUST COLLECTOR STAND LEGS AND LADDER AND CAGE LENGTHS.		
		TOTAL PRICE FOR EQUIPMENT ITEM 3 ----------		$50,667.00
		ESTIMATED SHIPPING WEIGHTS: Dust Collector: 13,300# Exhaust Fan: 1,850# Air Compressor: 1,400#		
4	1	SPECIFICATION NO. 24-004 DUST COLLECTOR		
		Mikro-Pulsaire dust collector, continuous automatic type Model 289STRH-8-20 to operate under the following conditions:		
		Gas Volume: 15,000 CFM Temperature: Ambient Dust Loading: 5-10 GR/CFM Filter Rate: 5.51:1 Product: Phosphate Dust, DAP, MAP, GTSP Application: Venting Nuisance Dust from Conveyor Transfer Points		
		CONTINUED ON PAGE EIGHT		

ITEM NO.	QUANTITY	ARTICLES AND DESCRIPTION	UNIT PRICE	TOTAL AMOUNT
		DUST COLLECTOR CONT'D		
		The Model 289STRH-8-20 will be provided with (289) 8' long 16 oz. Polypropylene Hi-Gloss filter bags to provide a total of 2722 sq.ft. of filter area.		
		AIRLOCK 8" Mikro-Rotary Airlock as previously described.		
		EXHAUST FAN Westinghouse-Sturtevant Size 3027 as previously described.		
		AIR COMPRESSOR Compressed air requirements for the Model 289STRH-8-20 is 45 CFM at 100 PSIG.		
		Gardner-Denver Company Model BESDA air cooled, base mounted screw compressor with 15 HP, 1800 RPM, TEFC, 3 Ph., 60 Hz., 460 Volt Severe Duty motor with 1.15 S.F. and all other equipment description will be in accordance with that provided for the Model EBEQH, Specification No. 24-001.		
		The Model BESDA has a capacity to deliver 46 CFM at a discharge pressure of 125 PSIG.		
		TOTAL PRICE FOR ALL EQUIPMENT ITEM 4 ————		$58,537.00
		ESTIMATED SHIPPING WEIGHTS: Dust Collector: 15,300# Exhaust Fan: 1,850# Air Compressor: 1,100#		
5	1	**SPECIFICATION NO. 24-005**		
		ALL EQUIPMENT RELATING TO THIS SPECIFICATION WILL HAVE THE SAME PERFORMANCE AND EQUIPMENT DESCRIPTION AS DESCRIBED FOR SPECIFICATION NO. 24-004. PRICE DIFFERENCE IS REFLECTED IN THE VARIATION IN DUST COLLECTOR STAND LEGS AND LADDER AND CAGE LENGTHS.		
		TOTAL PRICE FOR EQUIPMENT ITEM 5 ————		$59,344.00
		ESTIMATED SHIPPING WEIGHTS: Dust Collector: 15,500# Exhaust Fan: 1,850# Air Compressor: 1,100#		

CONTINUED ON PAGE NINE

ITEM NO.	QUANTITY	ARTICLES AND DESCRIPTION	UNIT PRICE	TOTAL AMOUNT
6	1	**SPECIFICATION NO. 24-086** **DUST COLLECTOR** Mikro-Pulsaire dust collector, continuous automatic type Model 720K-10-TRH to operate under the following conditions: Gas Volume: 50,000 CFM Temperature: Ambient Dust Loading: 5-10 GR/CFM Filter Rate: 5.9:1 Product: Phosphate Rock Dust, MAP, DAP, GTSP Application: Venting Fugitive Dust from Traveling Ship Loader The Model 720K-10-TRH will be provided with (720) 10' long 16 oz. Polypropylene Hi-Gloss filter bags to provide a total of 8474 sq.ft. of filter area. **SCREW CONVEYOR** For mounting on the collector hopper flange, a 9" diameter screw conveyor meeting the same specification and as described under Proposal Item No. 1. **AIRLOCK** 8" Mikro-Rotary Airlock as previously described. **EXHAUST FAN** Westinghouse-Sturtevant Division Size 3049, SWSI, Class 3, Heavy Duty Industrial Fan in Arrangement 1 including flanged inlet and discharge connections, flush type access door bolted to fan housing, drain connection and (2) 3-7/16" grease lubricated anti-friction bearings and bearing support extended to fan base rails. The 49" diameter wheel consists of (12) flat backwardly inclined blades riveted to a 3/8" backplate and welded to a 3/16" sideplate. Fan will be furnished complete with V-belt drive, Enclosed Belt Guard, and 125 HP, 1800 RPM, TEFC, 3 Ph., 60 Hz., 460 Volt Mill and Chemical Duty motor and Slide Base. Drive, guard and motor require field installation by purchaser. **CONTINUED ON PAGE TEN**		

LINDER INDUSTRIAL MACHINERY COMPANY

PAGE: TEN
QUOTATION NO: H7-13
DATE: August 6, 1979

ITEM NO.	QUANTITY	ARTICLES AND DESCRIPTION	UNIT PRICE	TOTAL AMOUNT

EXHAUST FAN CONT'D

The Size 3049 will operate at 1160 RPM to deliver 59,000 CFM against 12" S.P. requiring 118 BHP when handling air at 70°F.

Fan exterior surfaces will be painted in accordance with your Specification 6500-1.

AIR COMPRESSOR

Compressed air requirements for the Model 720K-10-TRH is 141 CFM at 100 PSIG. The compressor will be a Gardner-Denver Company Model EBEQH as previously described for Specification No. 24-001, Proposal Item No. 1.

TOTAL PRICE ALL EQUIPMENT ITEM 6 ---------- $142,192.00

ESTIMATED SHIPPING WEIGHTS:

Dust Collector:	51,500#
Exhaust Fan:	5,100#
Air Compressor:	1,750#

ALL EQUIPMENT PRICES ARE QUOTED F.O.B. SHIPPING POINTS WITH NO FREIGHT INCLUDED. PRIMARY POINTS OF SHIPMENT WILL BE AS FOLLOWS:

Dust Collectors:	F.O.B. Summit, New Jersey
Exhaust Fans:	F.O.B. Boston, Mass. & Buffalo, New York
Air Compressors:	F.O.B. Quincy, Illinois

WE WOULD ESTIMATEDTOTAL FREIGHT CHARGES WOULD BE $35,000.00.

THE PRICES QUOTED ARE FIRM FOR A PERIOD OF (30) DAYS FROM QUOTATION DATE. PRICES MAY BE CONSIDERED FIRM THROUGH SHIPMENT FOR A PERIOD OF SIX (6) MONTHS FROM THE DATE OF FIRST QUOTATION.

NOTE:

DUE TO A DEVELOPING SHORTAGE OF 316L STAINLESS STEEL, THE PORTION OF THE PRICES REFLECTING THE COST OF THE 316L S.S. BAG RETAINERS FOR THE MIKRO-PULSAIRE DUST COLLECTORS WILL BE SUBJECT TO THE PRICES IN EFFECT AT THE TIME AN ORDER IS PLACED IN PRODUCTION.

CONTINUED ON PAGE ELEVEN

ITEM NO.	QUANTITY	ARTICLES AND DESCRIPTION	UNIT PRICE	TOTAL AMOUNT

SHIPMENT COULD BE MADE IN APPROXIMATELY EIGHTEEN (18) TO TWENTY-TWO (22) WEEKS AFTER RECEIPT OF APPROVED CONTRACT DRAWINGS. APPROPRIATE APPROVAL DRAWINGS COULD BE SUPPLIED IN FROM THREE (3) TO FOUR (4) WEEKS AFTER RECEIPT OF PURCHASE ORDER. IF THE FOREGOING SHIPPING ESTIMATE DOES NOT MEET WITH YOUR REQUIREMENTS, WE WOULD APPRECIATE THE OPPORTUNITY TO REVIEW OUR VARIOUS MANUFACTURERS SHOP FABRICATION SCHEDULES IN ORDER THAT WE MIGHT IMPROVE UPON THE QUOTED TIME PERIOD, IF AT ALL POSSIBLE.

THE MIKRO-PULSAIRE DUST COLLECTORS COVERED BY THIS QUOTATION ARE GUARANTEED TO HAVE A MAXIMUM EFFLUENT DUST LOADING OF 0.02 GR/CU.FT. WITH STACK VISIBILITY CLEAR AT ALL TIMES.

THE EQUIPMENT PROPOSED IS DESIGNED IN PRINCIPLE TO MEET THE GENERAL CONDITIONS FOR SAFETY AS REQUIRED BY OSHA. HOWEVER, BECAUSE OF THE GENERAL AND SUBJECTIVE NATURE OF OSHA REQUIREMENTS AND BECAUSE OF THE PROPER INSTALLATION AND OPERATION OF THE EQUIPMENT WILL HAVE SIGNIFICANT AFFECT ON COMPLIANCE TO SUCH REQUIREMENTS, WE ARE UNABLE TO WARRANT, OR GUARANTY, EXPRESSLY OR IMPLICITLY, THAT THIS EQUIPMENT CONFORMS IN ALL RESPECTS TO OSHA REQUIREMENTS. SINCE YOU MUST PROTECT YOUR EMPLOYEES, WE WILL BE GLAD TO WORK WITH YOU TO HELP IDENTIFY RECOGNIZABLE HAZARDS.

ALL ITEMS OTHER THAN THOSE LISTED ABOVE FOR SUPPLY BY LINDER INDUSTRIAL MACHINERY COMPANY SHALL BE FURNISHED BY THE PURCHASER. AN APPROXIMATE LIST OF EQUIPMENT AND SERVICES TO BE FURNISHED BY THE PURCHASER FOLLOWS:

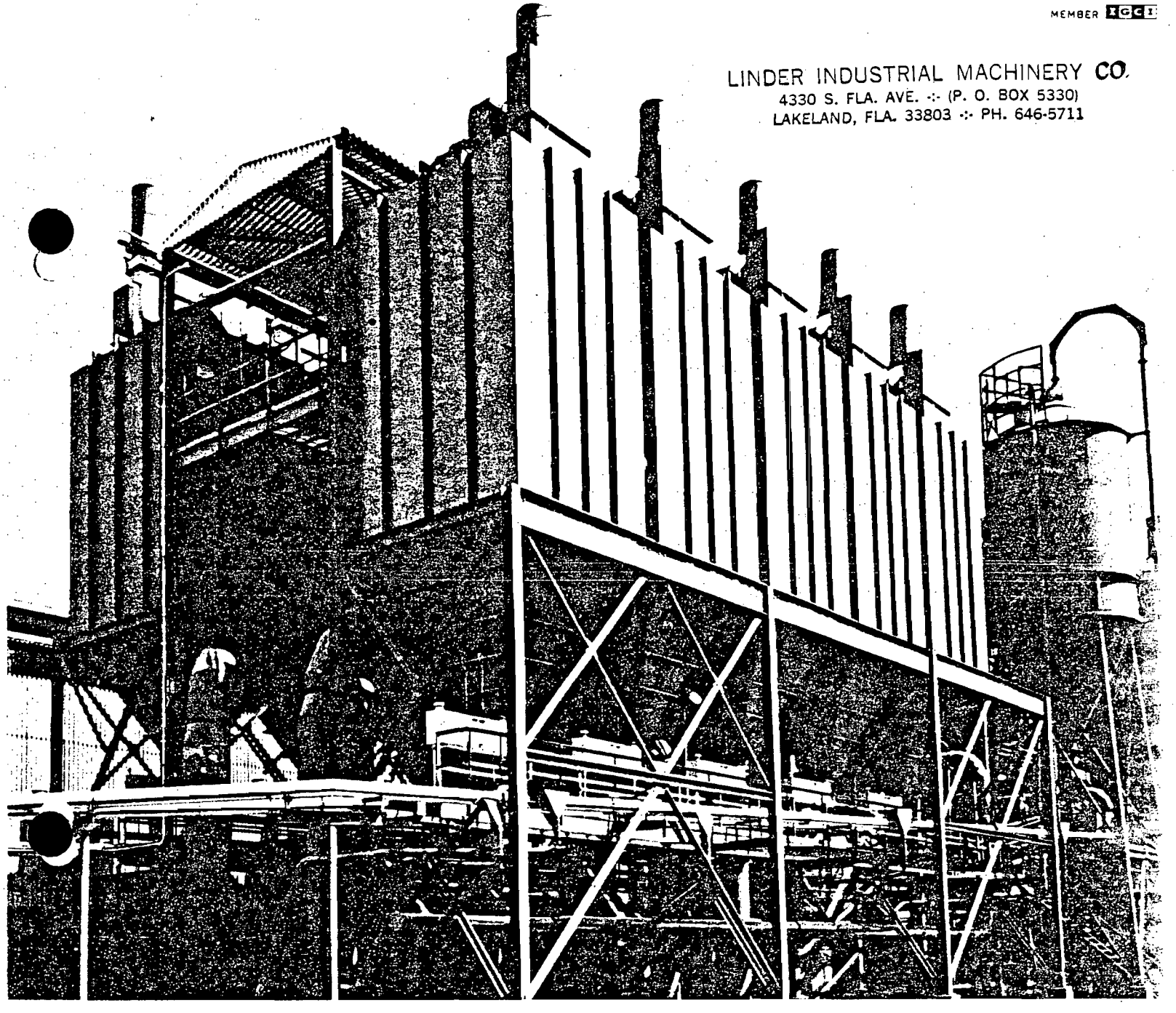
1. All foundations.
2. All electrical wiring, push button stations and motor starters.
3. Provide for and do all erection.
4. All equipment testing.
5. All compressed air piping from air compressor to collector manifold including pressure gauge and air line filter at connection to collector manifold.
6. All duct system and supports.

The Top Bag Removal Mikro-Pulsaire and the Walk-in Plenum Mikro-Pulsaire

MikroPul.

MEMBER AGCI

LINDER INDUSTRIAL MACHINERY CO.
4330 S. FLA. AVE. ·:· (P. O. BOX 5330)
LAKELAND, FLA. 33803 ·:· PH. 646-5711



MikroPul
provides the
ultimate in
filter collector
convenience
and
maintenance
ease...

The Top Bag Removal Mikro-Pulsaire and the Walk-in Plenum Mikro-Pulsaire

- Change filter bags in one-tenth the time.
- Never be forced to enter the main filter housing for routine maintenance.
- Reduce exposure of personnel to toxic or dangerous dusts.
- Simplify inspection and leak detection procedures.

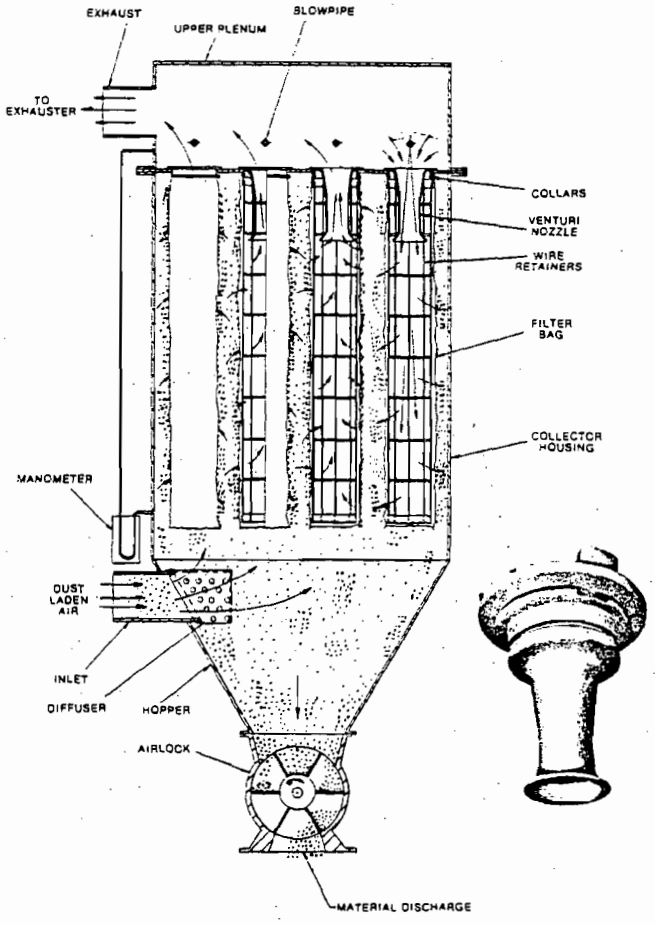
MikroPul
The Pioneer
in Dry Filter

MikroPul developed the first patented high-energy air cleaning dust collector, the first use of high-density media filtration, and the first successful synthetic fabric filters. Most important, MikroPul has 25 years of air pollution control development and application engineering behind it.

The
Mikro-Pulsaire
Filter Collector

The most popular dry filter dust collector in the world is the Mikro-Pulsaire by MikroPul, with over 80,000 installations worldwide.

- High filter rates. Felted media gives capacity at up to 15 cfm per square foot of filter area — three to four times better than conventional woven media.
- Automatic "pulse" air cleaned. MikroPul's original patented cleaning method uses momentary "pulses" of high pressure air which reverse the airflow and remove dust by a fluidizing action . . . faster, yet more thorough.
- No internal moving parts at all. The only moving parts in the entire installation are the solenoid valves which control the flow of the cleaning air. As a result, maintenance is nearly eliminated.
- Nearly perfect air cleaning. The Mikro-Pulsaire Dust Collector captures 99.99% + of all normal dust loads . . . better performance than that required by virtually all local or national air quality standards.
- Wide range of units, sizes and filter media for many types of industrial and commercial service . . . including operation at temperatures up to 425F.



The Mikro-Pulsaire dry filter dust collector incorporates the most efficient automatic cleaning system in the industry.

The heart of the Mikro-Pulsaire, the jet pump design, incorporates a venturi through which high pressure air from an orifice nozzle is directed on very short, predetermined timed intervals. These momentary bursts of high pressure air (0.1 second) induce three to five times its volume of secondary air. The combined effect of primary and secondary gas flow creates an instantaneous pressure rise inside the filter bag, causing a reverse flow of air through the filter bags sufficient for cleaning. Since only a fraction of the total filter area of the collector is cleaned at one time, continuous flow through the collector at rated capacities is assured.

Top Bag Removal Mikro-Pulsaire Dust Collector

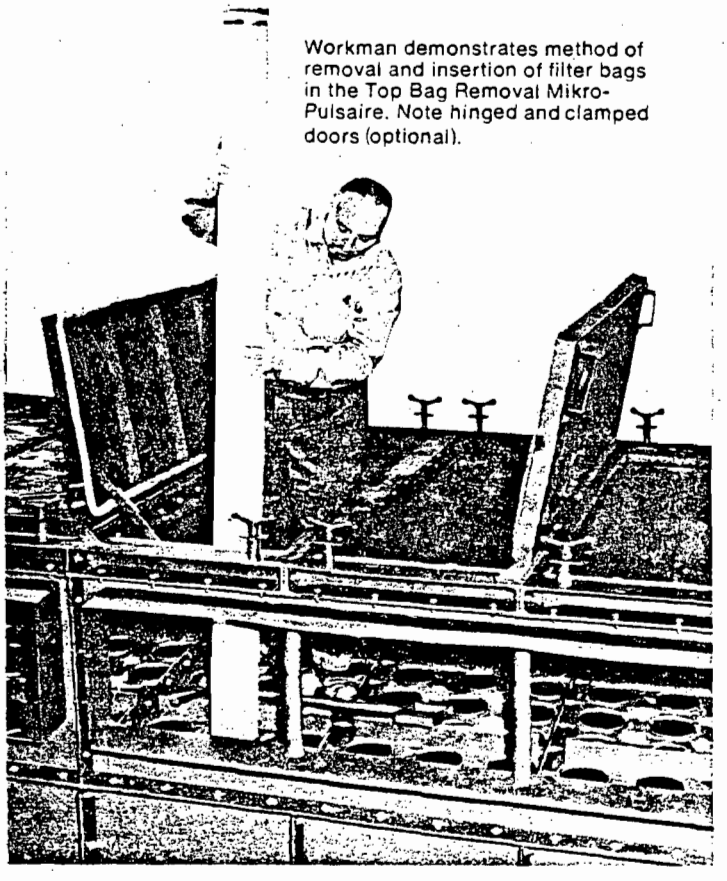
The Top Bag Removal Mikro-Pulsaire has provision for inspection, bag removal and replacement through the top of the Mikro-Pulsaire . . . in the clean air exit plenum. The plenum has quick opening gasketed doors that open outward. Bags are removed through the top of the unit.

This new concept offers many operating and maintenance advantages which are gaining wide acceptance throughout the industry.

Bag and cage removal and replacement can be accomplished in little more than two minutes, by one man. This system reduces maintenance time, and assures that the collector will be off-stream for the shortest possible time. It is especially important where the plant operates around the clock, or where local air pollution control codes prohibit even short periods of venting to the atmosphere during maintenance.

One particularly significant advantage of the Top Removal Mikro-Pulsaire Dust Collector is the ease with which leaking bags can be located.

The Top Removal Mikro-Pulsaire is ideal for use where toxic, dangerous or valuable dusts are being collected, since all routine maintenance can be accomplished from outside the main housing, on the "clean" side of the filters. Even in high temperature Mikro-Pulsaire Dust Collectors, maintenance can be carried out without cooling down the unit, merely by opening the plenum doors and interrupting the flow of hot gas.



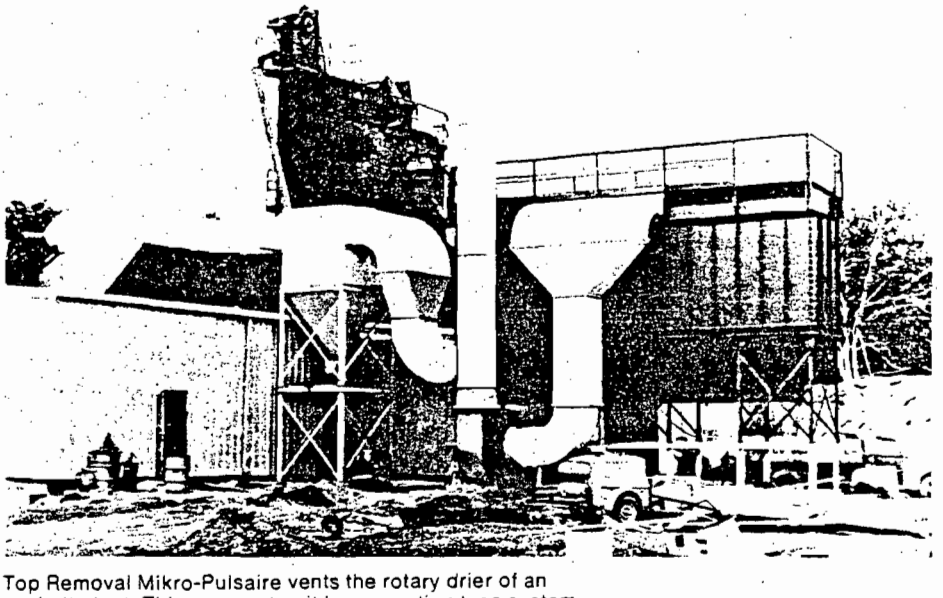
Workman demonstrates method of removal and insertion of filter bags in the Top Bag Removal Mikro-Pulsaire. Note hinged and clamped doors (optional).

Top Removal Mikro-Pulsaire Dust Collector

The Top Removal Mikro-Pulsaire is available as a single square with eight or ten foot long bags and with filter areas ranging from 151 to 1,699 square feet. The single unit Pulsaire collector has a rectangular pyramidal hopper and airlock.

The Square is also available in walk-in plenum, top removal models. It is available with eight and ten foot filter bags in units from 603 to 3,770 sq. ft. respectively. Upper limits are practically unlimited . . . 1.5 million cfm installations and more. Most modular units have trough hoppers and screw conveyors.

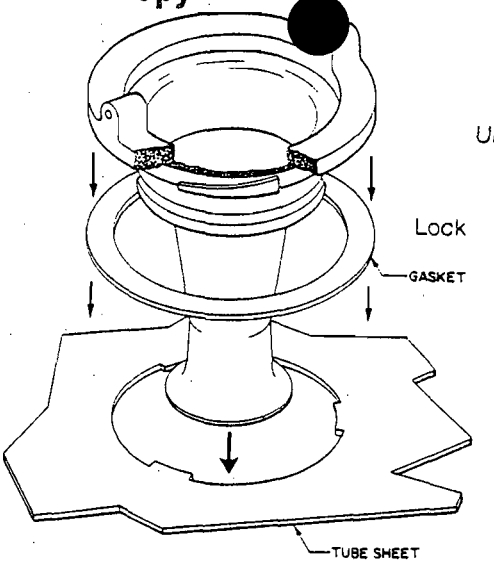
For typical model ranges, see the tables on Page 6.



Top Removal Mikro-Pulsaire vents the rotary drier of an asphalt plant. This compact unit has a suction type system, with the fan on the outlet side. Pressure type systems are also available.

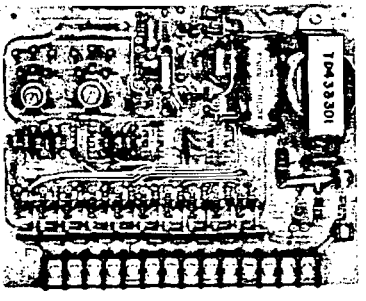
[illegible]

The air cleaning venturi, which retains the top of the filter bag assembly, is secured to the tube sheet with a unique cam-action lock. Bag removal and replacement is made even more convenient with the special tool provided. A quarter turn with the tool locks or unlocks the bag assembly in a fraction of the time required for conventional systems.



[illegible]

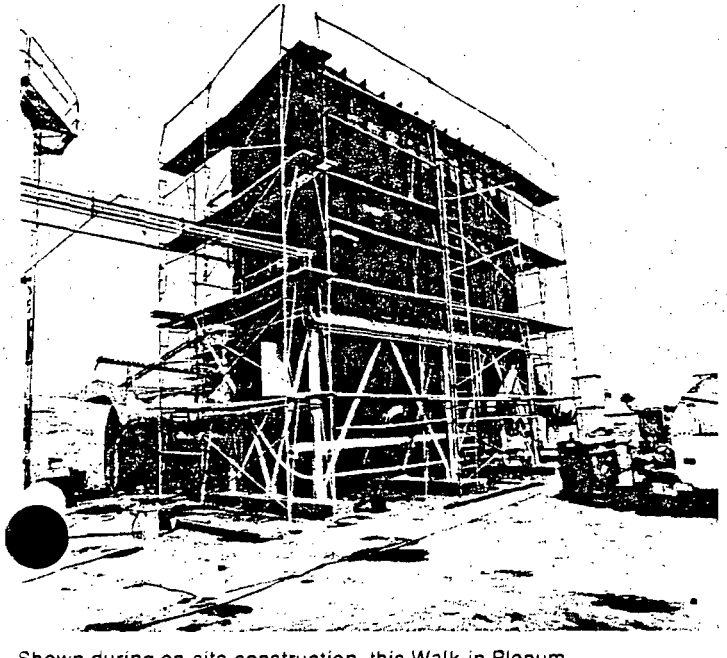
This new unit also incorporates MikroPul's all solid-state cyclic timer. The reliability of timers of this type is measured in millions of hours of operation, and is expected to almost entirely eliminate mechanical or electrical problems resulting from mechanical timers or relays.



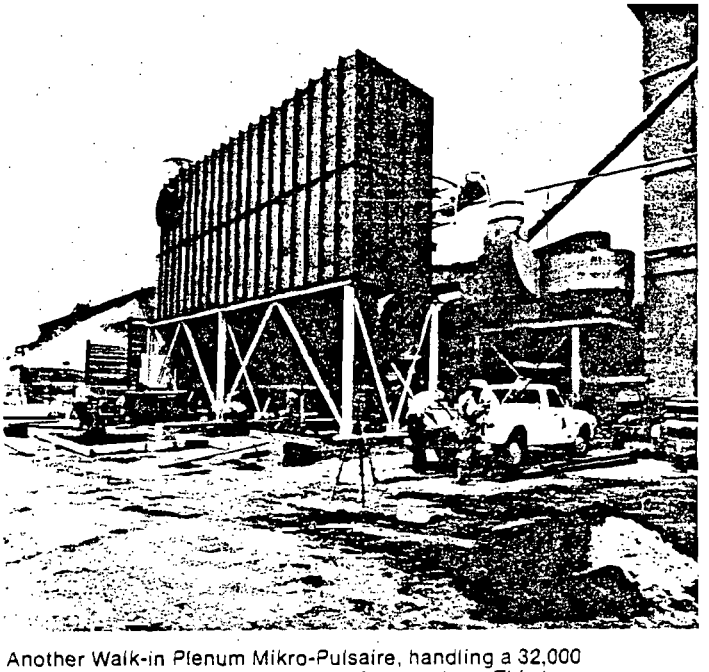
[illegible] and Installation

The modular Top Removal or Walk-in Plenum Mikro-Pulsaire models are manufactured for fast assembly procedures, using pre-fabricated panels. Sections have all necessary accessories in place, ready for erection as bolted or all welded construction. The pre-assembled models are delivered complete, ready for installation. Installation of filter bags and wiring is all that is required. In both types, compressed air headers are pre-assembled with all electricals pre-wired in the control box. Railings, grating, ladders, cages and other accessories of all Mikro-Pulsaire Dust Collectors meet applicable OSHA requirements.

MikroPul can provide complete systems, including exhaust hoods, ducts, controls, wiring, structures, foundations, conveyors, fans and stacks. All or any part of your requirements can be furnished installed, with start-up and training of your personnel for future operation and maintenance.



Shown during on-site construction, this Walk-in Plenum Mikro-Pulsaire Collector will handle an air-flow of 24,000 CFM. All maintenance and bag-changing is done inside the unit, *out of the weather.*



Another Walk-in Plenum Mikro-Pulsaire, handling a 32,000 CFM air flow, shown here shortly before start-up. This is a suction type unit, with fan at right on the outlet side.

The Walk-in Plenum Mikro-Pulsaire Dust Collector is available in the K Series with filter areas from 1,356 to 10,178 sq. ft. each. A single inverted pyramid hopper collects the dust and discharges it through an airlock.

It is also available in modular configurations, starting with 2713 sq. ft. filter area, and up to unlimited capacity . . . 1.5 million cfm and above. Most models have trough hoppers with screw conveyors.

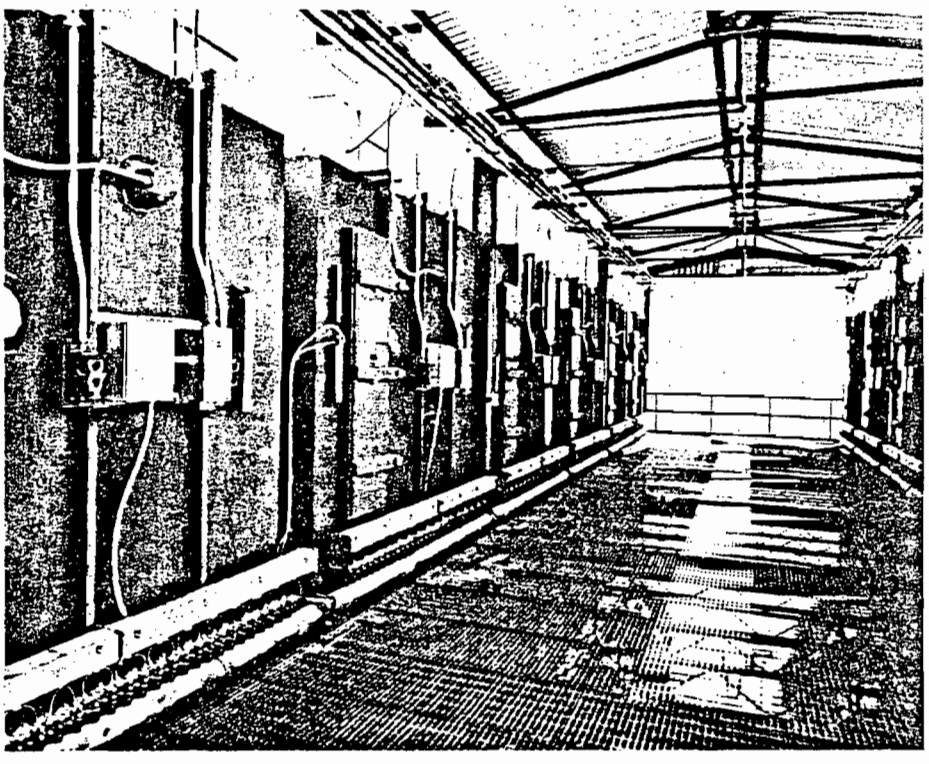
For typical model ranges, refer to the tables on page 7.

The Walk-in Plenum Mikro-Pulsaire has provision for inspection, bag removal and replacement through the top of the Mikro-Pulsaire, in the clean air exit plenum. The Plenum unit has a large housing above the air jet piping and tube sheet. This plenum housing is tall enough to allow filter change and all maintenance to be accomplished inside, out of the weather.

When a dust collector must be located outdoors, particularly in severe climates, the Walk-in Plenum Mikro-Pulsaire offers definite advantages, since all maintenance can be handled inside. This is quite important if the material being collected is hygroscopic or chemically affected by water, humidity or other atmospheric conditions.

As with the Top Removal Mikro-Pulsaire, bag and cage removal and replacement can be accomplished in little more than two minutes, by one man, reducing maintenance work, and assuring that the collector will be off-stream for the shortest possible time. All maintenance work is accomplished on the "clean" side.

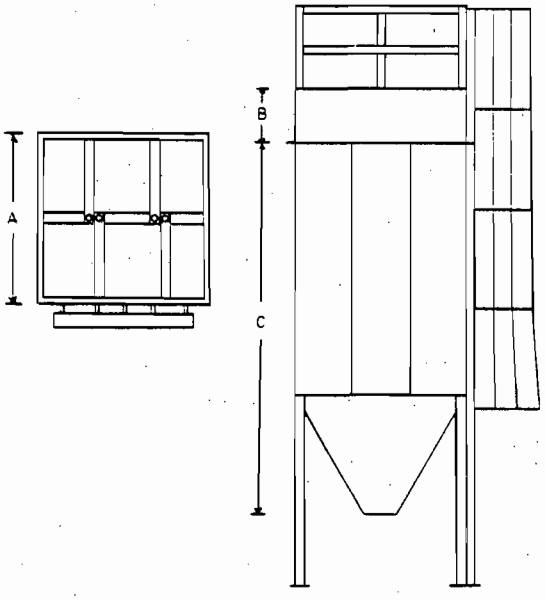
Inspection and routine maintenance is simplified, since the work platform is at the level of the compressed air header and solenoid system, with gasketed doors opening directly into the plenum itself. Large inspection ports make detection of leaking bags easy.



Work level platform of the Walk-in Plenum Mikro-Pulsaire, showing the access doors to the plenum, the round inspection ports and the air solenoid system at floor level.

Interior view of typical walk-in plenum, showing roomy area for convenient bag-changing and maintenance. Gasketed doors and ductwork are yet to be installed.

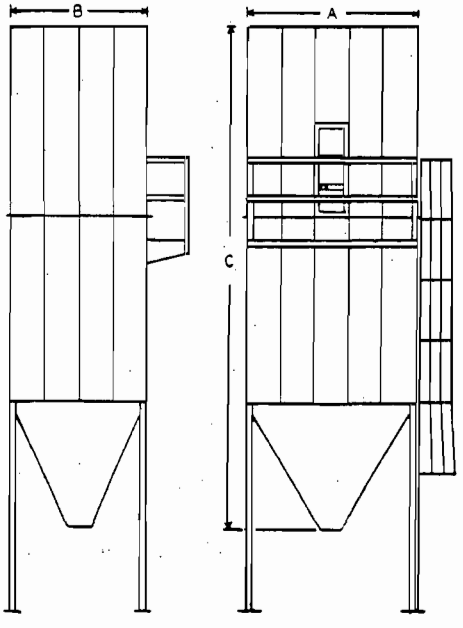
Workman demonstrates use of tool for unlocking filter bag with quarter-turn Cam-action Lock venturis. Bags are completely removable and replaceable inside the plenum itself.



8 and 10 ft. filter tubes

SPECIFICATIONS

	8 FT. FILTER TUBES					10 FT. FILTER TUBES				
MODEL	16STR	25STR	64STR	100STR	144STR	16STR	25STR	64STR	100STR	144STR
No. Valves	4	5	8	10	12	4	5	8	10	12
No. Filters	16	25	64	100	144	16	25	64	100	144
Filter Area (Ft. ²)	151	236	603	942	1356	188	295	754	1178	1694
No. Doors (Top)	1	1	2	2	2	1	1	2	2	2
Est. Wt. (Lbs.)	1300	1550	3000	4100	5600	1370	1650	3250	4460	5900
Dimension "A" (In.)	30	36	60	72	84	30	36	60	72	84
Dimension "B" (In.)	15⅜	15⅜	20⅜	20⅜	20⅜	15⅜	15⅜	20⅜	20⅜	20⅜
Dimension "C" (In.)	122	127	148	158	168	146	151	172	182	192

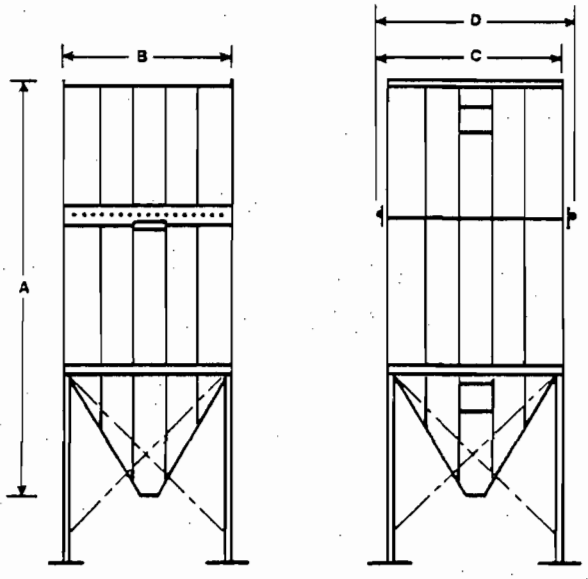


8 and 10 ft. filter tubes

SPECIFICATIONS

	8 FT. FILTER TUBES							10 FT. FILTER TUBES						
MODEL	64TRH	100TRH	144TRH	180TRH	221TRH	238TRH	320TRH	64TRH	100TRH	144TRH	180TRH	221TRH	238TRH	320TRH
No. Valves	8	10	12	15	17	17	40	8	10	12	15	34	34	40
No. Filters	64	100	144	180	221	238	320	64	100	144	180	221	238	320
Filter Area (Ft.²)	603	942	1356	1695	2082	2242	3014	754	1178	1696	2120	2603	2803	3769
Est. Wt. (Lbs.)	5668	6651	9379	11845	13097	13654	16832	6368	7856	10561	12884	14245	14940	18670
Dimension "A" (In.)	60	72	84	106	120	120	141	60	72	84	106	120	120	141
Dimension "B" (In.)	60	72	84	85	92	99	113	60	72	84	85	92	99	113
Dimension "C" (In.)	250	260	282	301	314	314	314	298	308	330	349	362	362	380

NOTE: Table above indicates representatives sizes only. Intermediate sizes available to suit any requirements.



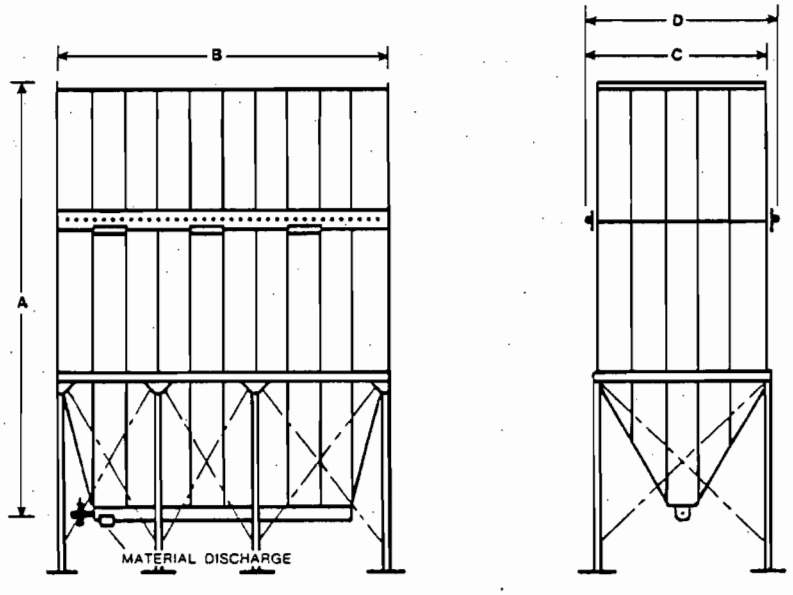
Mikro-Pulsaire Baghouse— Walk-in plenum single unit

8 and 10 ft. filter tubes

SPECIFICATIONS

	8 FT. FILTER TUBES			10 FT. FILTER TUBES		
MODEL	144K8-TRH	192K8-TRH	240K8-TRH	144K10-TRH	192K10-TRH	240K10-TRH
No. Valves	9	12	15	18	24	30
No. Filters	144	192	240	144	192	240
Filter Area (Ft.²)	1356	1809	2261	1696	2261	2827
Est. Wt. (Lbs.)	11350	13700	16050	12350	14800	17230
Dimension "A" (In.)	313	313	313	361	361	361
Dimension "B" (In.)	78	102	126	78	102	126
Dimension "C" (In.)	134	134	134	–	–	–
Dimension "D" (In.)	–	–	–	140	140	140

NOTE: Table above indicates representative sizes only. Intermediate sizes available to suit any requirements.



Mikro-Pulsaire Baghouse— Walk-in plenum single unit

8 and 10 ft. filter tubes

SPECIFICATIONS

	8 FT. FILTER TUBES					10 FT. FILTER TUBES				
MODEL	288K8-TRH	432K8-TRH	576K8-TRH	720K8-TRH	864K8-TRH	288K10-TRH	432K10-TRH	576K10-TRH	720K10-TRH	864K10-TRH
No. Valves	18	27	36	45	54	36	54	72	90	108
No. Filters	288	432	576	720	864	288	432	576	720	864
Filter Area (Ft.²)	2713	4069	5426	6782	8139	3393	5089	6785	8482	10178
Est. Wt. (Lbs.)	18400	25900	33400	40900	48400	20200	29000	37250	45500	53750
Dimension "A" (In.)	327	327	327	327	327	375	375	375	375	375
Dimension "B" (In.)	150	222	294	366	438	150	222	294	366	438
Dimension "C" (In.)	134	134	134	134	134	–	–	–	–	–
Dimension "D" (In.)	–	–	–	–	–	140	140	140	140	140

NOTE: Table above indicates representative sizes only. Intermediate and larger sizes available to suit any requirements.

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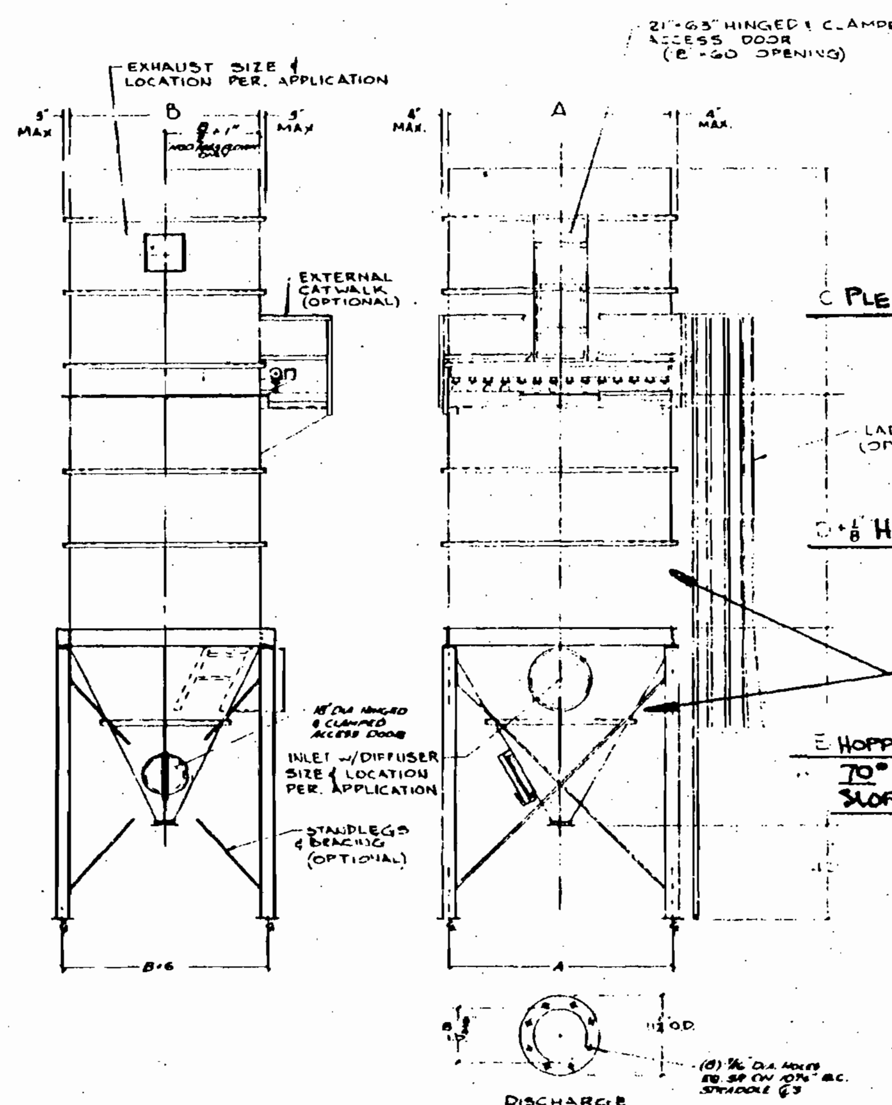
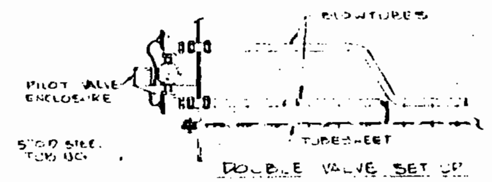
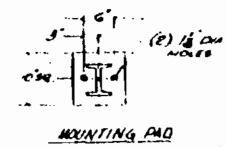
LAKELAND, FLA. 33803 -:- PH. 646-5711

N667964-D



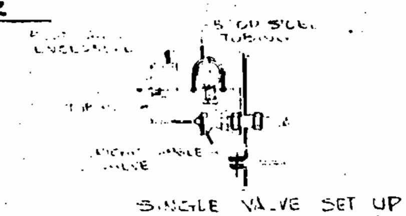




MODEL	A	B	C	D	E	QUANTITY & SIZE OF RIGHT ANGLE VALVES		FILTER AREA SQ FEET	ESTIMATED WT LBS EMPTY	COMPRESSED AIR REQ'D CFM @ 90/100 PSI & SEC AVG TIME
645 8 TRH	60	60	102	93	55	8	3/4	603	4600	8.2
645 10 TRH	60	60	126	117	55	8	3/4	754	5000	8.2
815 8 TRH	66	66	102	93	60	9	1"	763	5,100	9.6
815 10 TRH	66	66	126	117	60	9	1"	954	6,000	11.6
1005 8 TRH	72	72	102	93	65	10	1"	942	5,080	11.0
1005 10 TRH	72	72	126	117	65	10	1"	1178	6,300	12.7
1215 8 TRH	78	78	102	105	70	11	1"	1140	6,500	12.1
1215 10 TRH	78	78	126	129	70	11	1"	1425	7,300	[illegible]
1445 8 TRH	84	84	102	105	75	12	1"	1356	8,000	13.2
1445 10 TRH	84	84	126	129	75	12	1"	1696	8,300	15.2
1565 8 TRH	92	85	102	105	83	13	1"	1469	7,500	14.9
1565 10 TRH	92	85	126	129	83	13	1"	1858	8,500	16.5
1685 8 TRH	99	85	102	105	89	14	1"	1583	7,855	15.4
1685 10 TRH	99	85	126	129	89	14	1"	1979	8,900	17.8
1805 8 TRH	106	85	102	105	94	15	1"	1695	8,190	16.5
1965 8 TRH	99	99	102	105	~~X~~	14	1"	1846	8,400	15.4
2215 8 TRH	120	92	102	105	107	17	1"	2082	9,640	18.7
* 2215 10 TRH	120	92	126	129	107	34	[illegible]	2603	10,600	[illegible]
2395 8 TRH	120	99	102	105	107	17	[illegible]	2242	10,500	18.7
* 2365 10 TRH	120	99	126	129	107	34	1"	2805	11,800	43.0
* 2815 8 TRH	120	[illegible]	102	105	107	34	1"	2727	11,600	37.4
* 2845 10 TRH	120	[illegible]	126	129	107	34	1"	3404	12,800	43.0
* 3205 8 TRH	141	[illegible]	[illegible]	105	125	40	1"	3014	[illegible]	44.0
* 3205 10 TRH	141	[illegible]	126	129	125	40	1"	3769	13,200	51.0

(3) UNITS

*MUST USE DOUBLE VALVE SET UP



NOTES:
1. GAGE & MANOMETER SHIPPED LOOSE FOR INSTALLATION BY OTHERS.
2. UNIT WITH LEGS AS SHOWN DESIGNED FOR OUTDOOR INSTALLATION.
3. UNIT DESIGNED FOR DUST TIGHT OPERATION NOT GAS TIGHT.
4. CONNECTING DUCTWORK & PIPING TO BE INDEPENDENTLY SUPPORTED.

10,000 CFM - ON DAP SERVICE

ARRANGEMENT OF MIKRO-PULSAIRE SQUARE TRH

AUG 1977

MikroPul Corporation

N667964 D

JACOBS PROJECT # 28-2312

SUBFILE: AGRICO - BIG BEND FERTILIZER COMPLEX

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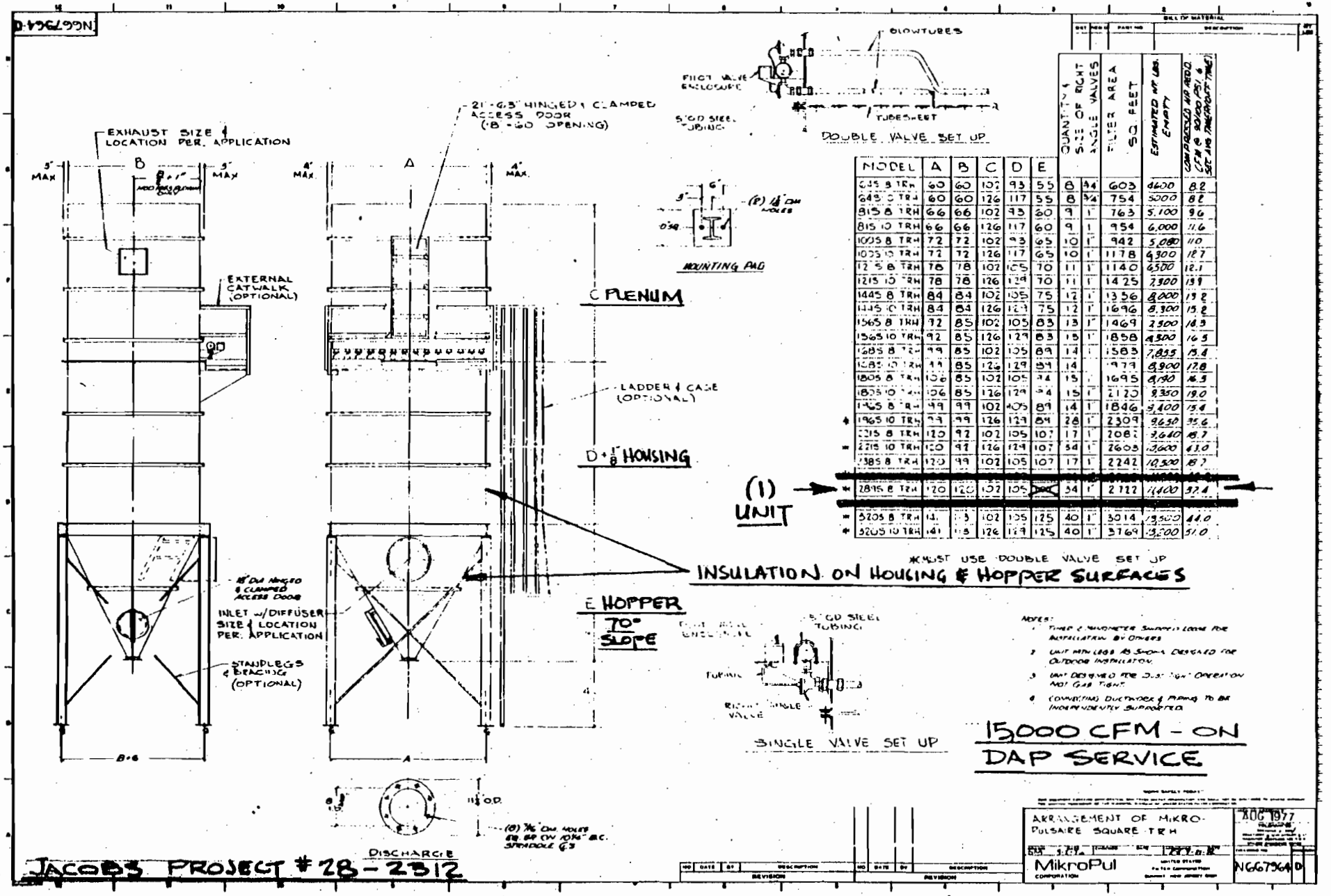
LINDER INDUSTRIAL MACHINERY CO.
4330 S. FLA. AVE. -:- (P. O. BOX 5330)
LAKELAND, FLA. 33803 -:- PH. 646-5711



MODEL	A	B	C	D	E	QUANTITY & SIZE OF RIGHT ANGLE VALVES		FILTER AREA SQ. FEET	ESTIMATED WT. LBS. EMPTY	COMPRESSED AIR REQ'D CFM @ 90 PSI & SECS. BETWEEN PULSE
645 8 TRH	60	60	102	93	55	8	¾"	603	4600	82
645 10 TRH	60	60	126	117	55	8	¾"	754	5000	82
815 8 TRH	66	66	102	93	60	9	1"	763	5,100	96
815 10 TRH	66	66	126	117	60	9	1"	954	6,000	116
1005 8 TRH	72	72	102	93	65	10	1"	942	5,080	110
1005 10 TRH	72	72	126	117	65	10	1"	1178	6,300	137
1215 8 TRH	78	78	102	105	70	11	1"	1140	6,500	121
1215 10 TRH	78	78	126	129	70	11	1"	1425	7,300	139
1445 8 TRH	84	84	102	105	75	12	1"	1356	8,000	139
1445 10 TRH	84	84	126	129	75	12	1"	1696	8,300	159
1565 8 TRH	92	85	102	105	83	13	1"	1469	7,900	148
1565 10 TRH	92	85	126	129	83	13	1"	1858	8,500	165
1685 8 TRH	99	85	102	105	89	14	1"	1585	7,855	154
1685 10 TRH	99	85	126	129	89	14	1"	1979	8,900	178
1805 8 TRH	106	85	102	105	94	15	1"	1695	8,090	165
1805 10 TRH	106	85	126	129	94	15	1"	2120	9,350	190
1965 8 TRH	99	99	102	105	89	14	1"	1846	9,400	154
* 1965 10 TRH	99	99	126	129	89	28	1"	2309	9650	35.6
2215 8 TRH	110	92	102	105	101	17	1"	2081	9,640	187
* 2215 10 TRH	120	99	126	129	107	34	1"	2603	13600	43.0
1385 8 TRH	120	99	102	105	107	17	1"	2242	10,500	187
* 2815 8 TRH	120	120	102	105	107	34	1"	2772	11400	32.4
* 3205 8 TRH	141	113	102	105	125	40	1"	3014	13,500	44.0
* 3205 10 TRH	141	113	126	129	125	40	1"	3769	15,200	51.0

(1) UNIT

*MUST USE DOUBLE VALVE SET UP

NOTES:
1. TIMER & MANOMETER SUPPLIED LOOSE FOR INSTALLATION BY OTHERS
2. UNIT MFR LEGS AS SHOWN DESIGNED FOR OUTDOOR INSTALLATION
3. UNIT DESIGNED FOR 3.5" H2O OPERATION NOT GAS TIGHT
4. CONNECTING DUCTWORK & PIPING TO BE INDEPENDENTLY SUPPORTED

JACOBS PROJECT # 28-2312

SUBFILE: AMERICO - BIG BEND FERTILIZER COMPLEX

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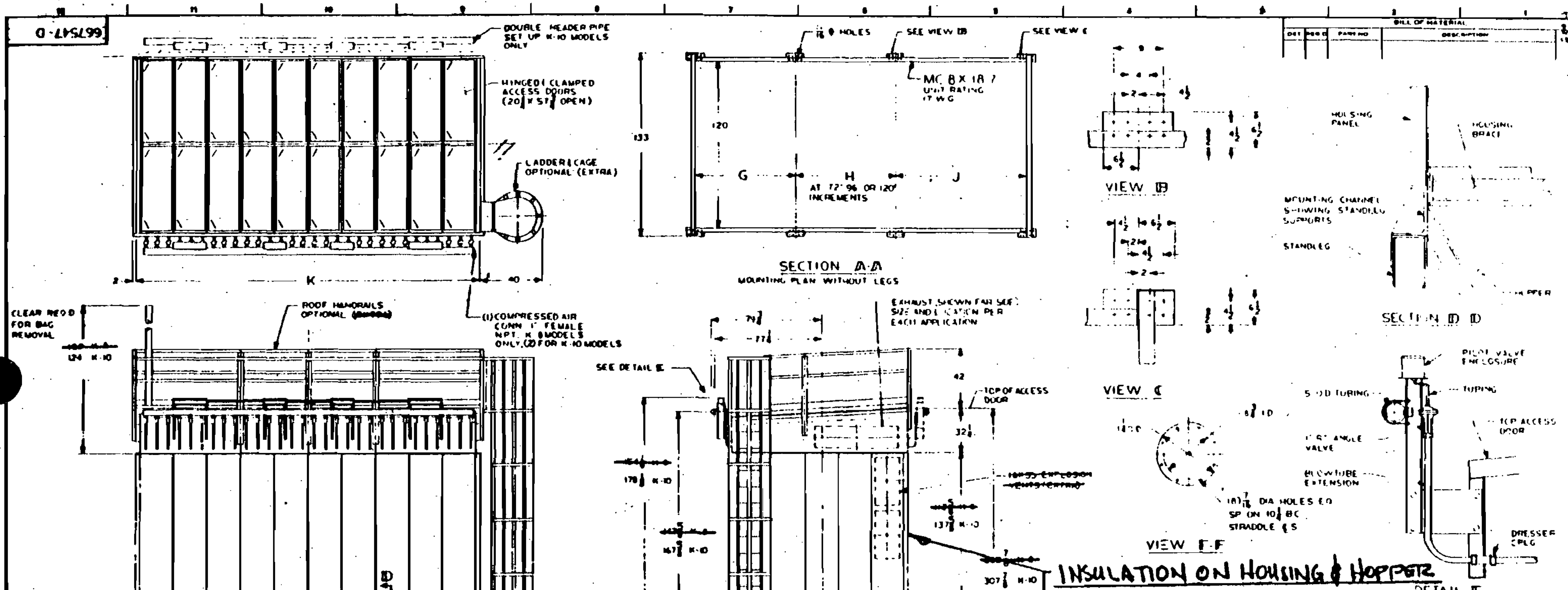
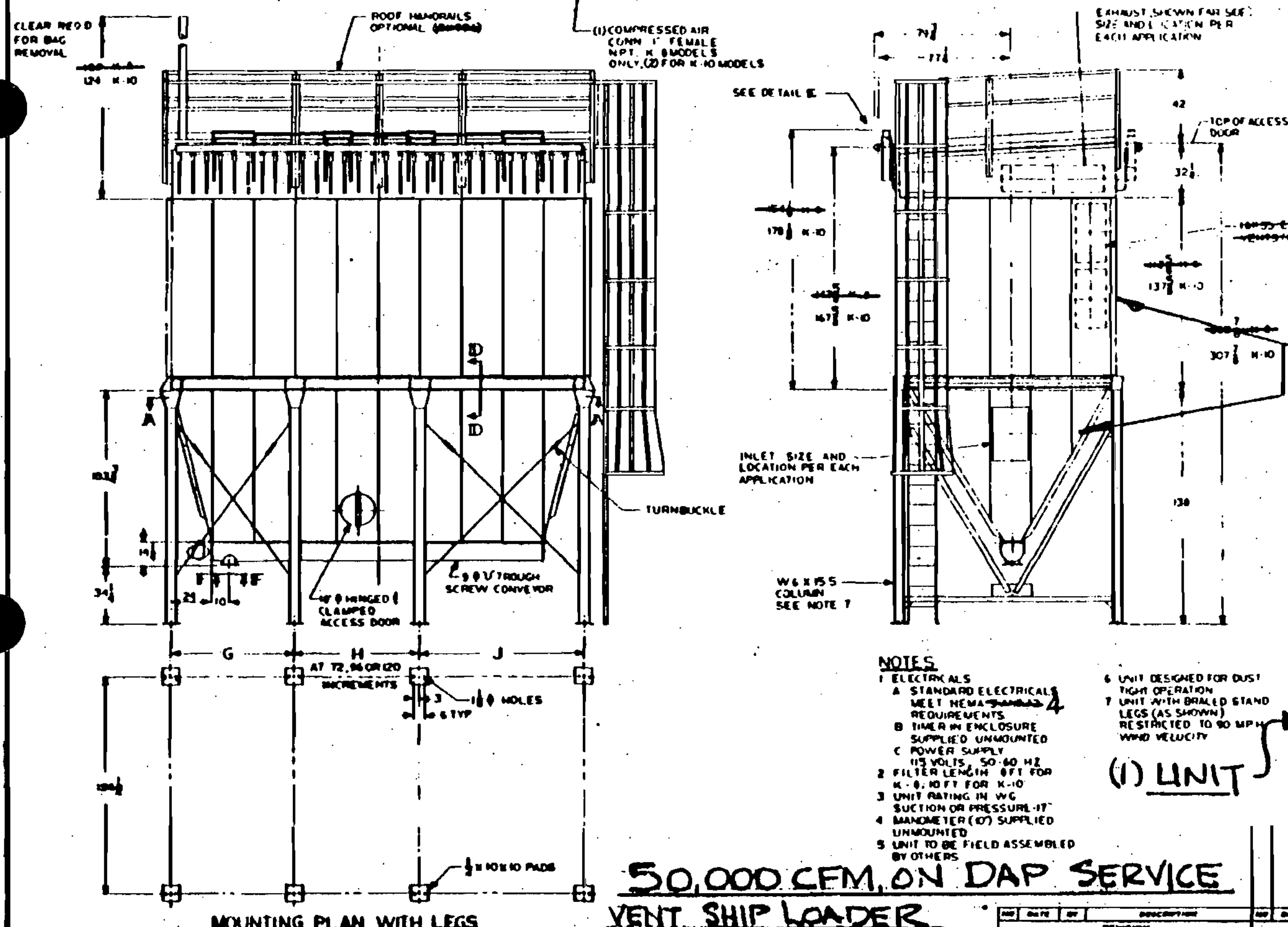




NO OF 180 H&C ACCESS DOORS	MODELS	NO OF VALVES 8' FILTERS	NO OF VALVES 10' FILTERS	NO OF FILTERS	FILTER AREA SQ FEET 8' FILTERS	FILTER AREA SQ FEET 10' FILTERS	ESTIMATED UNIT WEIGHT IN LBS 8' FILTERS	ESTIMATED UNIT WEIGHT IN LBS 10' FILTERS	UNIT DIMS G	H	J	K
1	288 K TR	18	36	288	2713	3393	17250	18650	72	0	72	150
1	336 K TR	21	42	336	3165	3958	19250	22650	72	0	96	174
1	384 K TR	24	48	384	3617	4524	21250	23650	96	0	96	198
1	432 K TR	27	54	432	4069	5089	24450	27000	120	0	96	222
2	480 K TR	30	60	480	4522	5655	26450	29200	120	0	120	246
2	528 K TR	33	66	528	4974	6220	28450	31400	96	72	96	270
2	576 K TR	36	72	576	5426	6785	31650	34800	96	96	96	294
2	624 K TR	39	78	624	5878	7351	33650	37000	96	96	120	318
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	720 K TR	[redacted]	90	720	[redacted]	8462	[redacted]	42600	120	120	120	366
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	816 K TR	51	102	816	7687	9613	42850	47000	96	192	120	414
3	864 K TR	54	108	864	8139	10178	46050	50400	72	240	120	438

(1) UNIT

NOTES
1 ELECTRICALS
   A STANDARD ELECTRICALS MEET NEMA 4 REQUIREMENTS
   B TIMER IN ENCLOSURE SUPPLIED UNMOUNTED
   C POWER SUPPLY 115 VOLTS, 50-60 HZ
2 FILTER LENGTH 8 FT FOR K-8, 10 FT FOR K-10
3 UNIT RATING IN WG SUCTION OR PRESSURE-17"
4 MANOMETER (10") SUPPLIED UNMOUNTED
5 UNIT TO BE FIELD ASSEMBLED BY OTHERS
6 UNIT DESIGNED FOR DUST TIGHT OPERATION
7 UNIT WITH BRACED STAND LEGS (AS SHOWN) RESTRICTED TO 90 MPH WIND VELOCITY

50,000 CFM, ON DAP SERVICE

VENT SHIP LOADER

ARRANGEMENT OF MIKRO PULSAIRE DUST COLLECTOR W/ TROUGH HOPPER & 9" DIA U TROUGH SCREW CONVEYOR

MODEL K8TR, K10TR

JAN. 1976

MikroPul

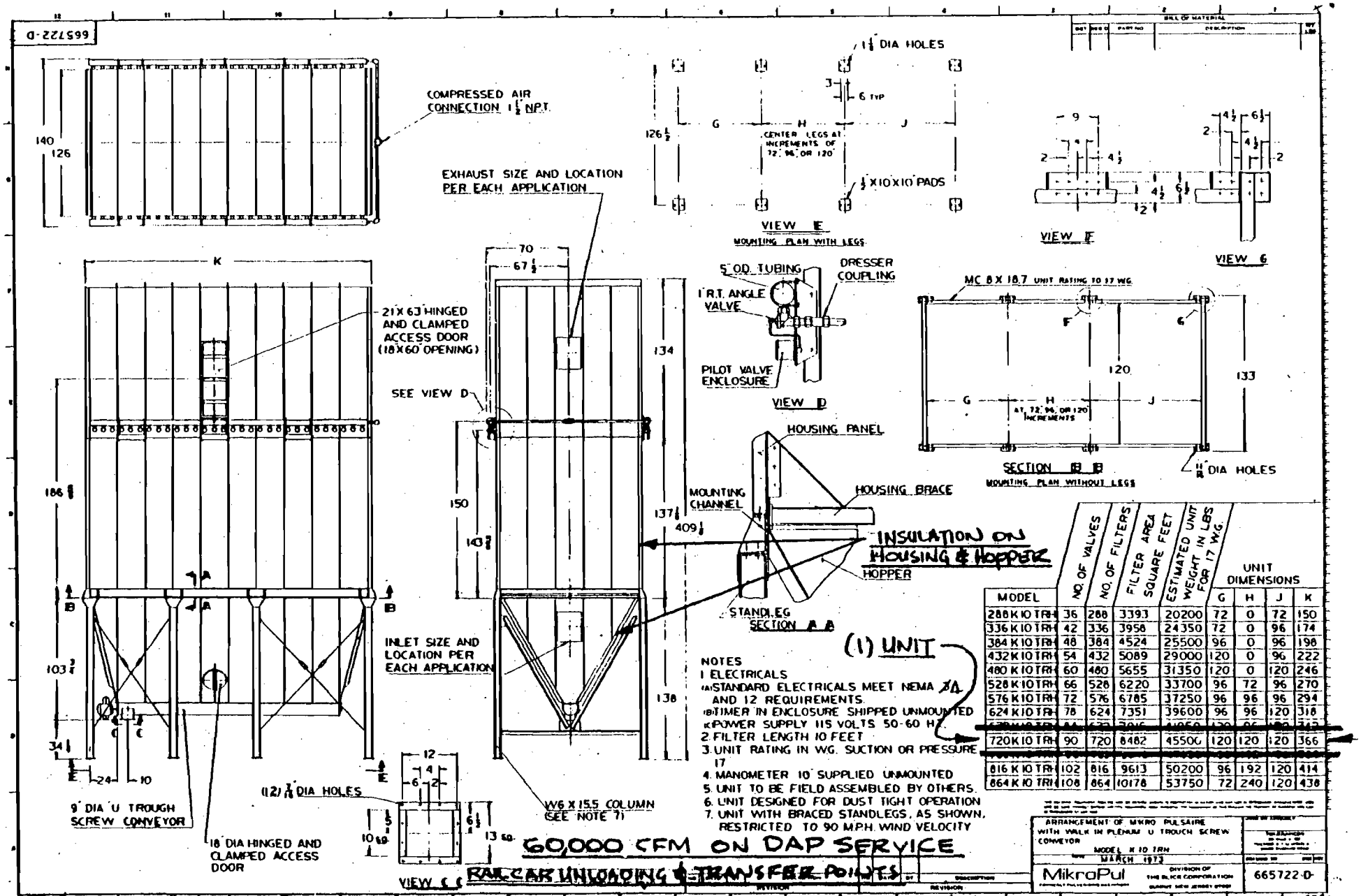
667547 D

MARKED PRINT 2-2-79

JACOBS PROJECT # 28-2312

SUBFILE: AGRICO - BIG BEND FERTILIZER COMPLEX

4330 S. FLA. AVE. -:- (P. O. BOX 5330)
LAKELAND, FLA. 33803 -:- PH. 646-5711



(1) UNIT

MODEL	NO. OF VALVES	NO. OF FILTERS	FILTER AREA SQUARE FEET	ESTIMATED UNIT WEIGHT IN LBS FOR 17 W.G.	UNIT DIMENSIONS G	H	J	K
288 K 10 TRH	36	288	3393	20200	72	0	72	150
336 K 10 TRH	42	336	3958	24350	72	0	96	174
384 K 10 TRH	48	384	4524	25500	96	0	96	198
432 K 10 TRH	54	432	5089	29000	120	0	96	222
480 K 10 TRH	60	480	5655	31350	120	0	120	246
528 K 10 TRH	66	528	6220	33700	96	72	96	270
576 K 10 TRH	72	576	6785	37250	96	96	96	294
624 K 10 TRH	78	624	7351	39600	96	96	120	318
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
720 K 10 TRH	90	720	8482	45500	120	120	120	366
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
816 K 10 TRH	102	816	9613	50200	96	192	120	414
864 K 10 TRH	108	864	10178	53750	72	240	120	438

NOTES
1 ELECTRICALS
(a) STANDARD ELECTRICALS MEET NEMA 3R AND 12 REQUIREMENTS.
(b) TIMER IN ENCLOSURE SHIPPED UNMOUNTED
(c) POWER SUPPLY 115 VOLTS 50-60 HZ.
2. FILTER LENGTH 10 FEET
3. UNIT RATING IN WG. SUCTION OR PRESSURE 17
4. MANOMETER 10" SUPPLIED UNMOUNTED
5. UNIT TO BE FIELD ASSEMBLED BY OTHERS.
6. UNIT DESIGNED FOR DUST TIGHT OPERATION
7. UNIT WITH BRACED STANDLEGS, AS SHOWN, RESTRICTED TO 90 M.P.H. WIND VELOCITY

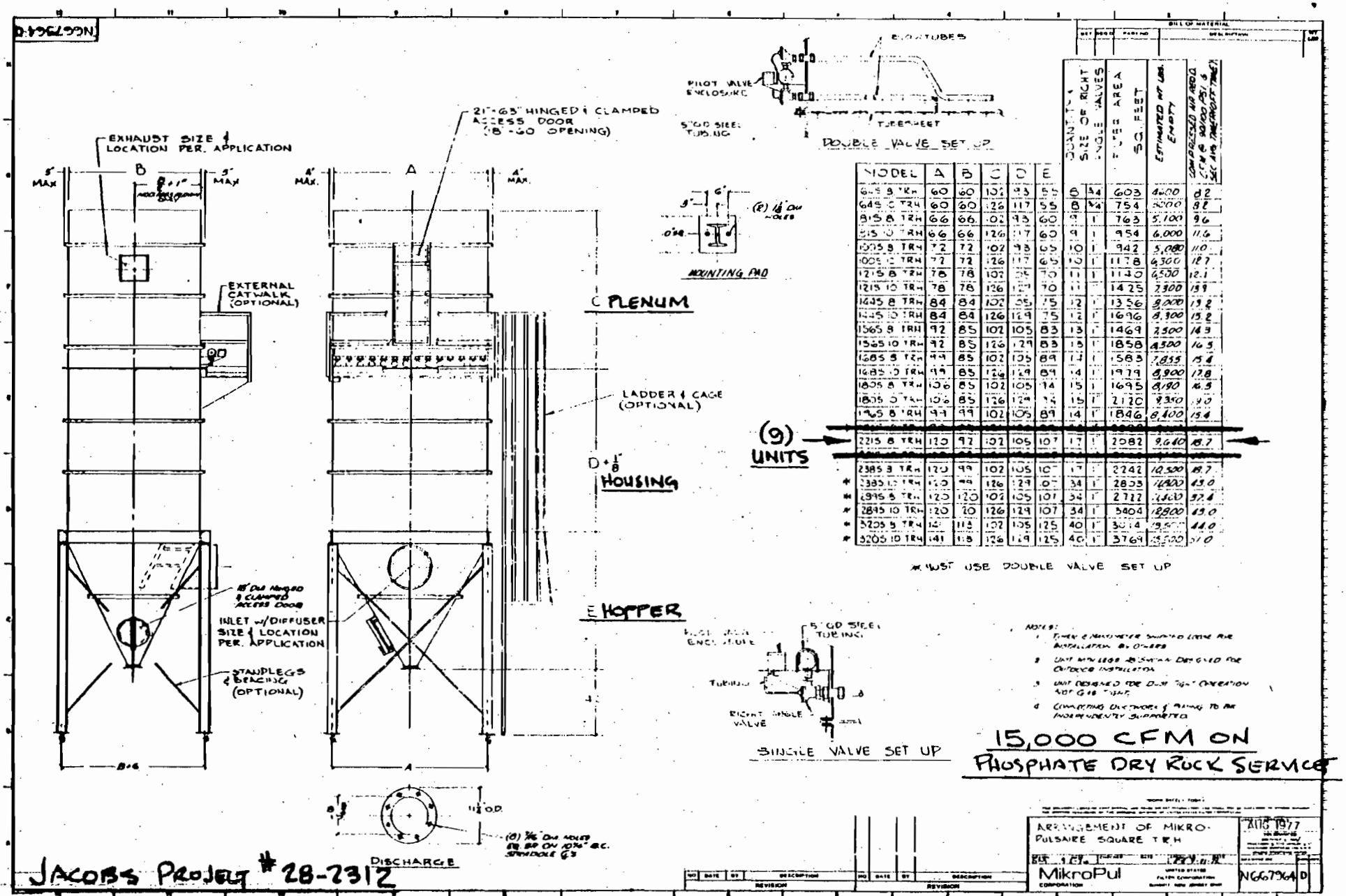
60,000 CFM ON DAP SERVICE
RAILCAR UNLOADING & TRANSFER POINTS

ARRANGEMENT OF MIKRO PULSAIRE WITH WALK IN PLENUM U TROUGH SCREW CONVEYOR
MODEL K 10 TRH
MARCH 1973
MikroPul
DIVISION OF THE BLOCK CORPORATION
665722-D

JACOBS PROJECT # 28-2312
SUBFILE: AGRICO-BIG BEND FERTILIZER COMPLEX

MARKED PRINT 2-2-79

LINDER INDUSTRIAL MACHINERY CO.
4330 S. FLA. AVE. -:- (P. O. BOX 5330)
LAKELAND, FLA. 33803 -:- PH. 646-5711



MODEL	A	B	C	D	E	DUCTS	SIZE OF RIGHT ANGLE VALVES	FILTER AREA SQ. FEET	ESTIMATED WT. LBS. EMPTY	COMPRESSED AIR REQ'D CFM @ 90 PSI & SET MIN. TIME OFF TIMER
605 8 TRH	60	60	102	93	55	8	3/4	603	4,000	8.2
645 10 TRH	60	60	126	117	55	8	3/4	754	5,000	8.2
815 8 TRH	66	66	102	93	60	9	1	763	5,100	9.6
815 10 TRH	66	66	126	117	60	9	1	954	6,000	11.6
1005 8 TRH	72	72	102	93	65	10	1	942	5,080	11.0
1005 10 TRH	72	72	126	117	65	10	1	1178	6,300	12.7
1215 8 TRH	78	78	102	93	70	11	1	1140	6,500	12.1
1215 10 TRH	78	78	126	117	70	11	1	1425	7,300	13.9
1425 8 TRH	84	84	102	93	75	12	1	1356	8,200	13.8
1425 10 TRH	84	84	126	117	75	12	1	1696	8,900	15.8
1565 8 TRH	92	85	102	105	83	13	1	1469	7,500	14.3
1565 10 TRH	92	85	126	129	83	13	1	1858	8,500	16.5
1685 8 TRH	99	85	102	105	89	14	1	1583	7,855	15.4
1685 10 TRH	99	85	126	129	89	14	1	1979	8,900	17.8
1805 8 TRH	106	85	102	105	94	15	1	1695	8,190	16.5
1805 10 TRH	106	85	126	129	94	15	1	2120	9,350	19.0
1965 8 TRH	99	99	102	105	89	14	1	1846	8,400	15.4
(9) UNITS										
2215 8 TRH	120	92	102	105	107	17	1	2082	9,640	18.7
2385 8 TRH	120	99	102	105	107	17	1	2242	10,500	18.7
* 2385 10 TRH	120	99	126	129	107	34	1	2803	14,900	43.0
* 2895 8 TRH	120	120	102	105	107	34	1	2722	13,600	37.4
* 2895 10 TRH	120	120	126	129	107	34	1	3404	18,900	43.0
* 3205 8 TRH	141	113	102	105	125	40	1	3014	15,500	44.0
* 3205 10 TRH	141	113	126	129	125	40	1	3769	19,500	51.0

* MUST USE DOUBLE VALVE SET UP

NOTES:
1. OTHER ARRANGEMENTS SHOWN LATER FOR INSTALLATION BY OTHERS
2. UNIT MAY ALSO BE SUPPLIED DESIGNED FOR OUTDOOR INSTALLATION
3. UNIT DESIGNED FOR DUST TIGHT OPERATION NOT GAS TIGHT
4. CONNECTING DUCTWORK & PIPING TO BE INDEPENDENTLY SUPPORTED

15,000 CFM ON PHOSPHATE DRY ROCK SERVICE

ARRANGEMENT OF MIKRO-PULSAIRE SQUARE TRH
MikroPul CORPORATION
AUG 1977
N66796A D

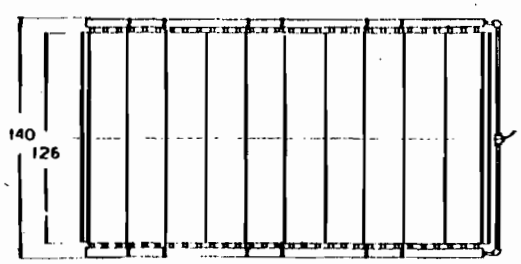
JACOBS PROJECT # 28-7312

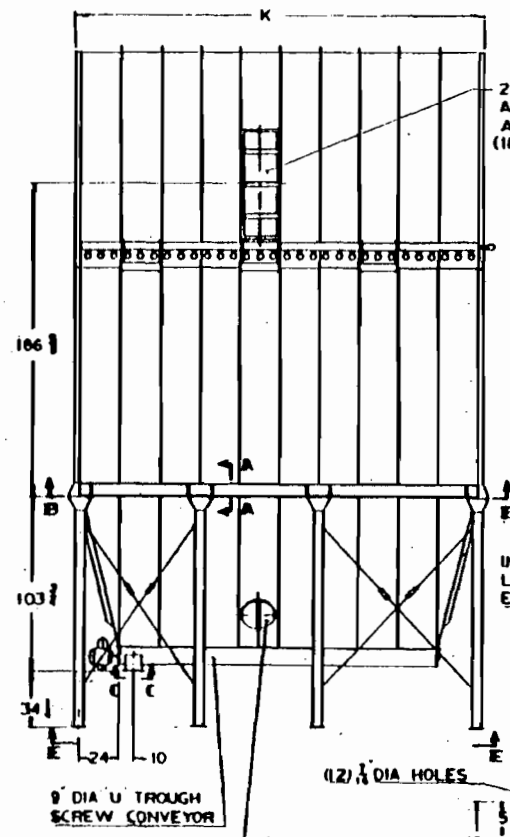
SUBFILE: AGRICO - BIG BEND FERTILIZER COMPLEX

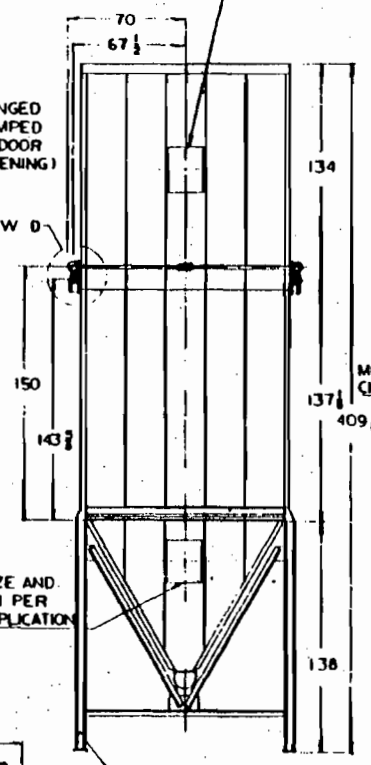
MARKED PRINT 2-2-79

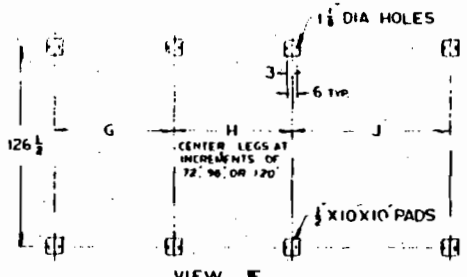
4330 S. FLA. AVE. -:- (P. O. BOX 5330)
LAKELAND, FLA. 33803 -:- PH. 646-5711

665722-D

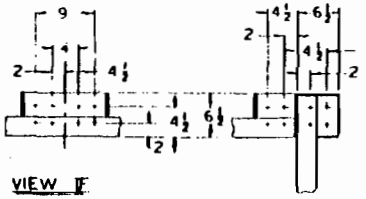






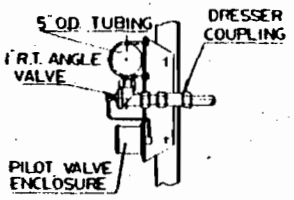


VIEW E
MOUNTING PLAN WITH LEGS

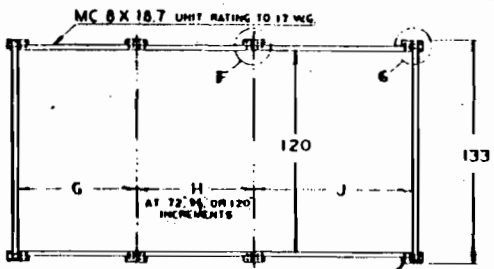


VIEW F

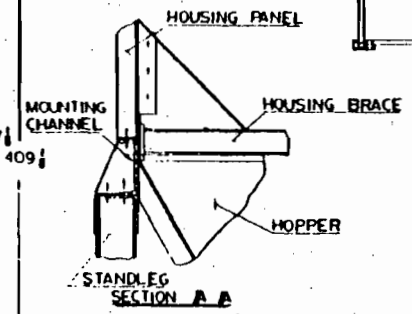
VIEW G



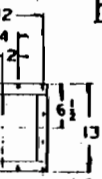
VIEW D



SECTION B B
MOUNTING PLAN WITHOUT LEGS



SECTION A A



VIEW C C

(1) UNIT

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624 K 10 TRH	78	624	7351	39600	96	96	120	318
672 K 10 TRH	84	672	7916	41950	120	96	120	342
720 K 10 TRH	90	720	8482	45500	120	120	120	366
768 K 10 TRH	96	768	9047	48850	120	120	120	390
816 K 10 TRH	102	816	9613	50200	96	192	120	414
864 K 10 TRH	108	864	10178	53750	72	240	120	438

100,000 CFM ON PHOSPHATE DRY ROCK SERVICE
VENT: ROLL-OVER DUMPER

ARRANGEMENT OF MIKRO PULSAIRE WITH WALK IN PLENUM U TROUGH SCREW CONVEYOR
MODEL K 10 TRH
MARCH 1979
MikroPul DIVISION OF THE BUELL CORPORATION
665722-D

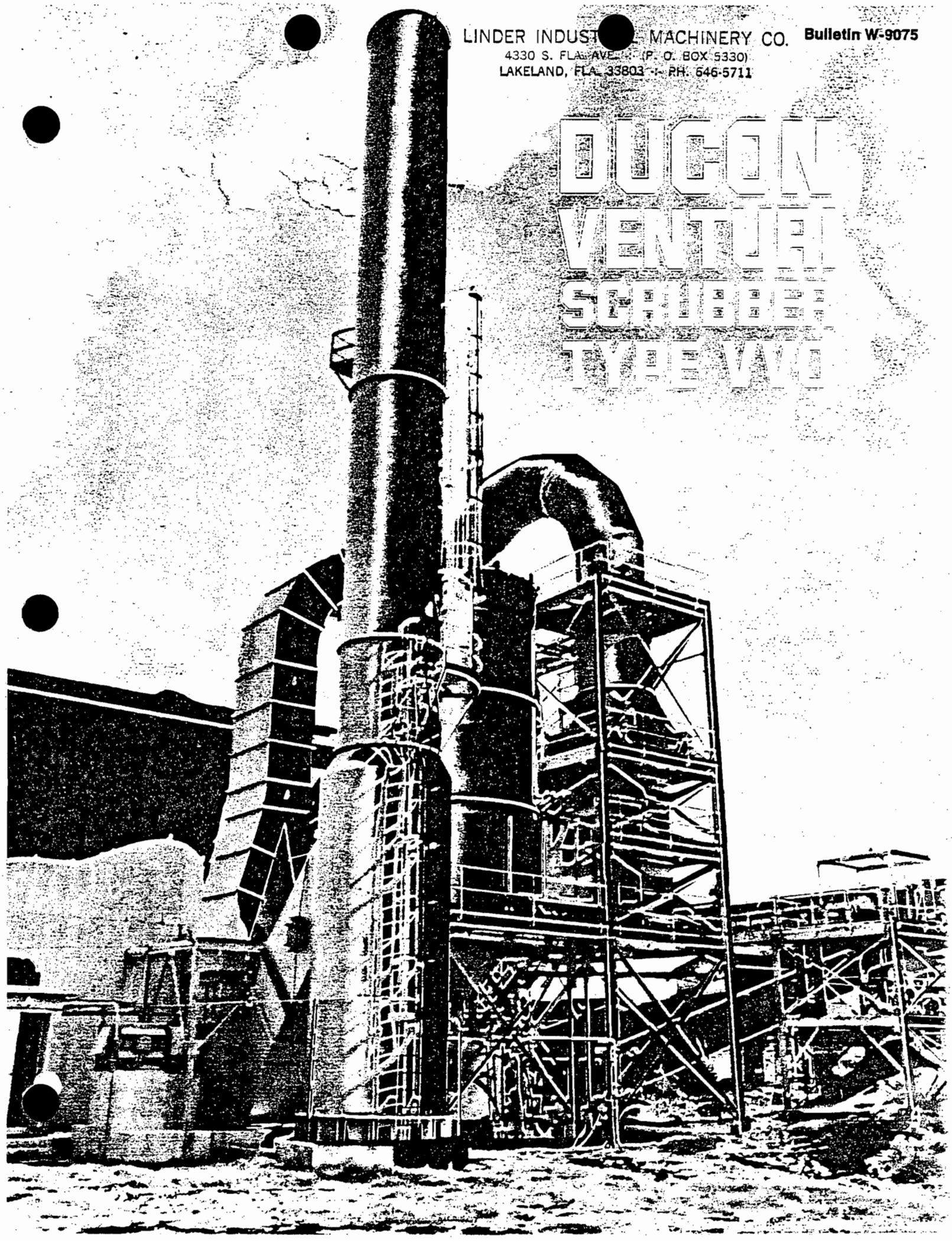
JACOBS PROJECT #28-2312
SUBFILE: AGRICO-BIG BEND FERTILIZER COMPLEX

MARKED PRINT 2-2-79

LINDER INDUSTRIAL MACHINERY CO.
4330 S. FLA. AVE. - (P. O. BOX 5330)
LAKELAND, FLA. 33803 - PH. 646-5711

Bulletin W-9075

DUCON VENTURI SCRUBBER TYPE VWS



DUCON VENTURI SCRUBBER

The Ducon Oriclone Type VVO Venturi Scrubber is a high energy, high efficiency dust and fume collector designed to bring dust-laden gas into intimate contact with the scrubbing liquid by means of acceleration and turbulence in a venturi throat.

These scrubbers are designed for maximum efficiency and are ruggedly constructed for long service life with minimum maintenance.

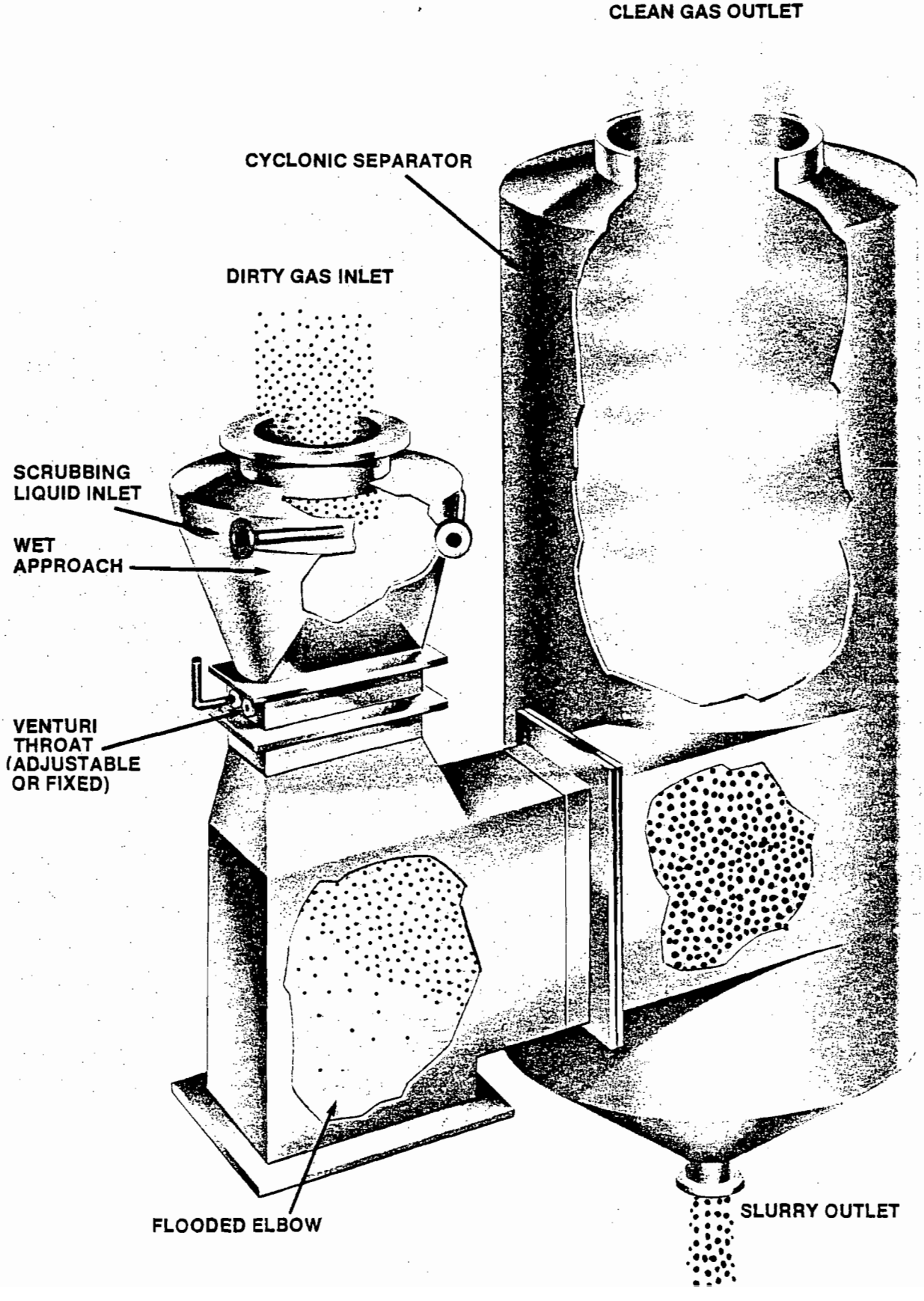
Although the Ducon Oriclone Type VVO Venturi Scrubber is included as a standard item of equipment in our line of gas scrubbers, it resists standardization and requires more of the "custom-designed" approach. Decisions on liquid feed, venturi throat design, construction materials, etc. must be based on the specific operating conditions. In some cases, several types of materials or combinations thereof (alloys, fiberglass reinforced polyester, epoxy coated or rubber-lined steel) may be the most practical selection to withstand the conditions of corrosion and/or erosion. The use of (1) an integral recycle tank for scrubbing liquid feed to the venturi; (2) a precooler at the inlet of the venturi to properly condition high temperature gases; (3) aftercooler section, must be carefully considered in order to achieve sound and practical equipment design and satisfactory performance. Our many years of experience in application and design engineering in this field, enables us to provide this service.

The collection efficiency of the Ducon Oriclone Venturi Scrubber is a function of the pressure drop across the throat which, in turn, is a function of the quantity of sub-micron particulate matter suspended in the gas stream. Type VVO Scrubbers can be supplied to operate at pressure drops from 8" to 60" wg or higher.

For applications requiring the maintenance of a predetermined pressure drop level for varying inlet volumes, the Type VVO Scrubber can be provided with an adjustable throat mechanism. This feature also permits adjustment of pressure drop to upgrade collection efficiency to meet increased process or code requirements.

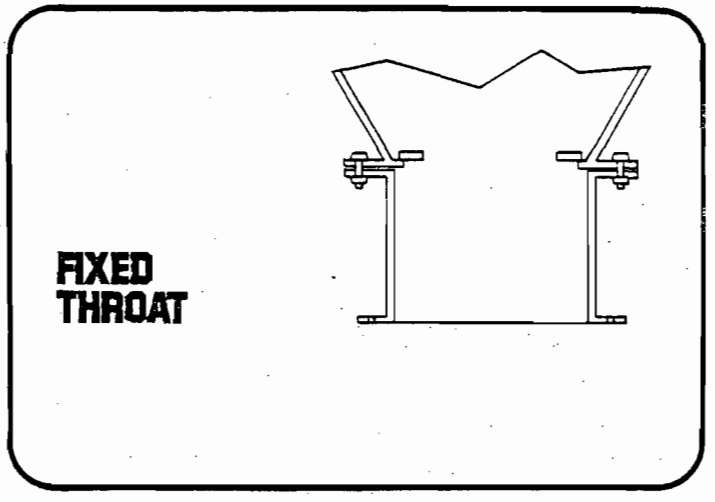
Dust-laden gas enters the wet-approach gas inlet at top center, while scrubbing liquid is introduced on the wall through open pipes. The gas and scrubbing liquid are thoroughly intermixed in the venturi throat. The gas with entrained solids and liquid then passes into a centrifugal separator where scrubbing liquid and collected solids flow downward to the slurry discharge or an integral recycle tank and cleaned gas exits through a top gas outlet.

- **Simple, trouble-free design —**
  There are no spray nozzles or distribution jets in which solids can collect, therefore, slurries, of any solids content capable of being pumped, can be handled.
- **No wet-dry line build-up —**
  Scrubbing liquid, introduced through open pipes on the internal surface of the convergent section, swirls down in a flow pattern that assures thorough wetting of the complete surface.
- **Low water requirements —**
  In applications where liquid is recycled, the recycle tank can be made as an integral part of the entrainment separator. A fraction of the circulation load can be drawn off to a thickener or centrifuge for clarification and the remaining liquid returned to the scrubber. Scrubbing liquid lost in separation and through evaporation is made up by direct addition to the recycle tank.
- **Handles high temperature gases —**
  VVO Scrubbers with the wet approach design feature can handle inlet gas temperatures to 1000°F. and higher without the requirement of separate quenchers.
- **Special construction for unusual environments —**
  Scrubbers can be constructed of stainless steel, special alloys, plastics, or with special linings for severe corrosive conditions.



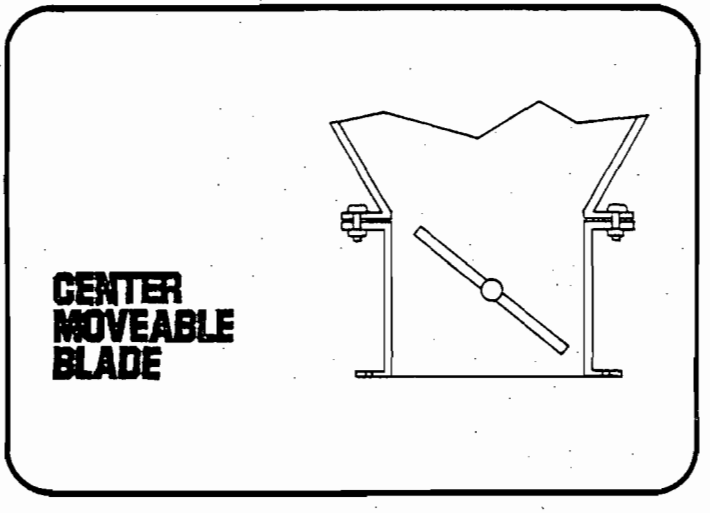
VENTURI THROAT DESIGNS

The Oriclone, Type VVO Venturi Scrubber, can be furnished with a fixed cross-sectional area throat or with an "adjustable" area throat for manual or automatic control of scrubber pressure drop.



Fixed Throat

For systems where significant gas volume variations are not anticipated, a Type VVO Venturi Scrubber with a fixed throat can be utilized. However, if increased collection efficiency were to be required at some future date, the Venturi pressure drop can be increased by a smaller cross-sectional area "picture frame" throat insert.



Adjustable Throat

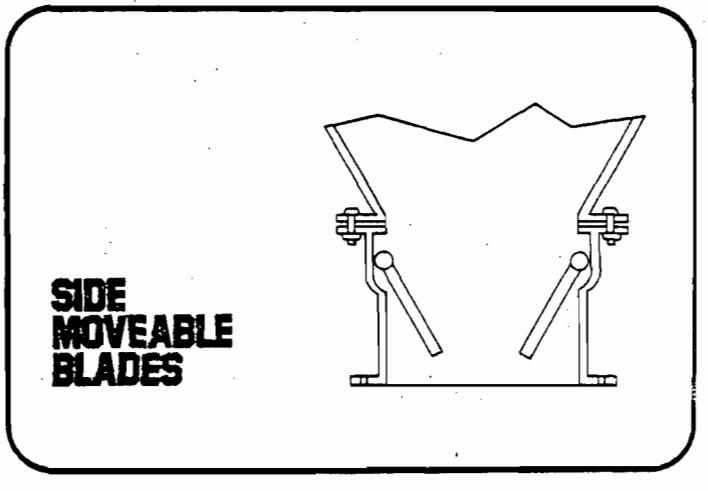
For systems with anticipated wide variations in gas flow, a Type VVO Venturi Scrubber with an adjustable throat would be recommended. There are two (2) designs of adjustable throat available.

Center Moveable Blade

This design is similar to the "butterfly damper" commonly used in exhaust system ducts, with a flat plate fixed, on its centerline, to a rotating shaft.

Side Moveable Blades

This design consists of two (2) plates or blades mounted on parallel shafts located on each of the long sides of, and at the entrance to, a rectangular throat. The throat area can be decreased by shaft rotations so that the blade edges move from the sidewalls toward the center-line of the throat.



Constant Pressure Drop

In order to maintain a constant pressure drop across the venturi, a constant throat gas velocity must be maintained. Thus, the throat must widen with increased gas volume and reduce in width with a decreased volume. This is accomplished by the moveable blades which can be supplied for automatic operation.

OUTSTANDING FEATURES

A. Gas inlet, handles gases to 1,000°F. and above.

B. Liquid introduction open pipes; no small orifice nozzles, therefore, can recycle slurry containing suspended solids.

C. Hot dry inlet duct isolated thereby avoiding wet to dry line buildup.

D. Adjustable throat for pressure drop control designed to suit application.

E. Completely wetted converging section eliminating wet material buildup.

F. Venturi shelf to help liquid distribution.

G. Flooded elbow — abrasion barrier.

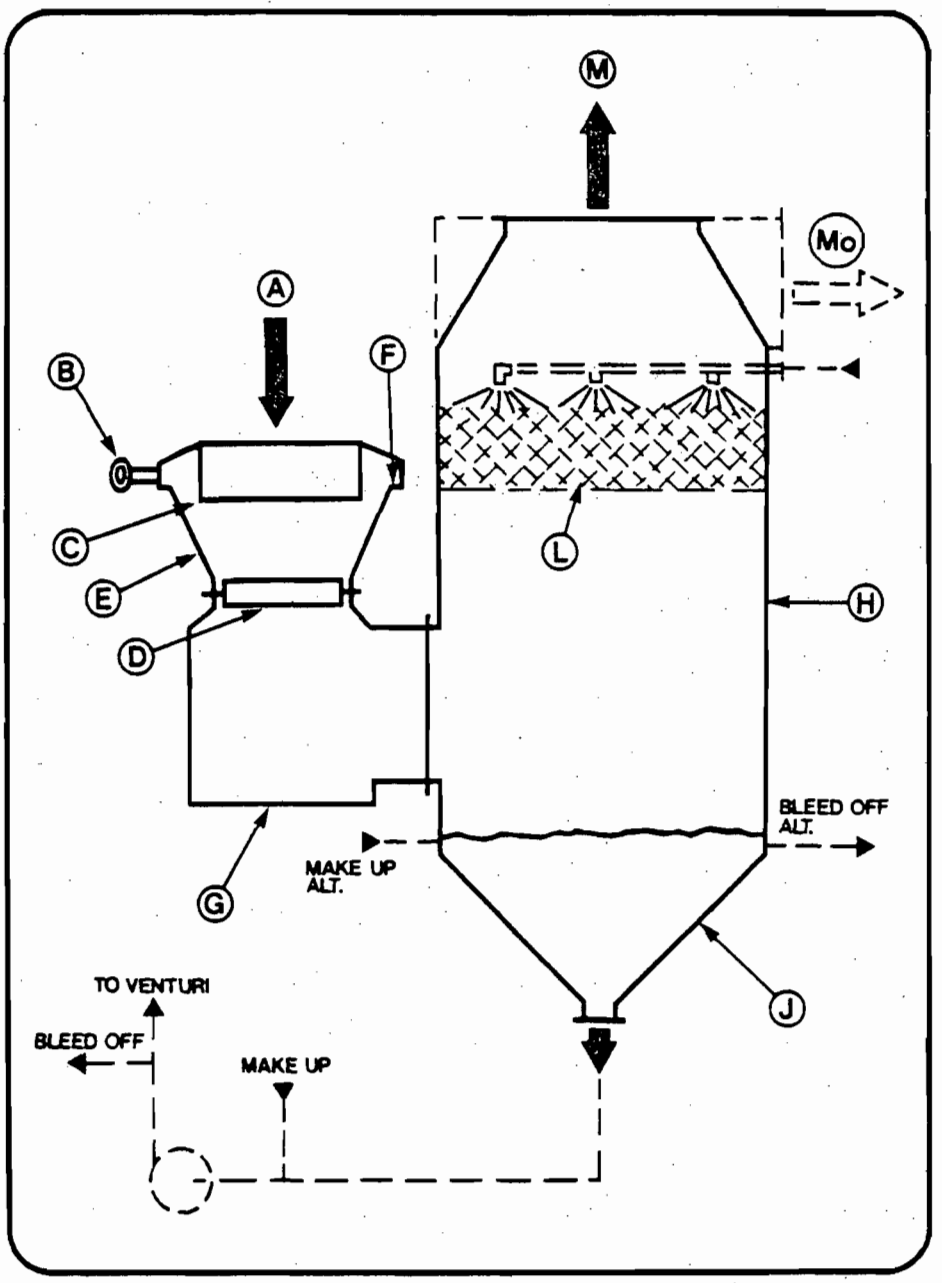
H. Cyclonic separator — liquid — gas separator.

M. Scrubber clean gas vertical discharge.

Mo. Scrubber clean gas horizontal discharge.

J. An integral recycle tank feature can be furnished if it suits the application.

L. This may be a "packed tower" or "perforated plate tower" section incorporated in the upper part of a centrifugal separator for absorption of gaseous contaminants and/or for sensible cooling of gases for dehumidification to eliminate a steam plume.



Volume capability — 200 to 70,000 cfm standard equipment design. Higher volumes will require multiple units or special design consideration

Design Pressure Drop — 8" to 60" W.G. or higher.

Venturi liquid requirements — to suit application — Normally 8-12 GPM/1000 cfm 3-5 psig.

Construction materials — any available workable material or linings.

TYPICAL APPLICATIONS

DIAMMONIUM PHOSPHATE FERTILIZER PROCESS

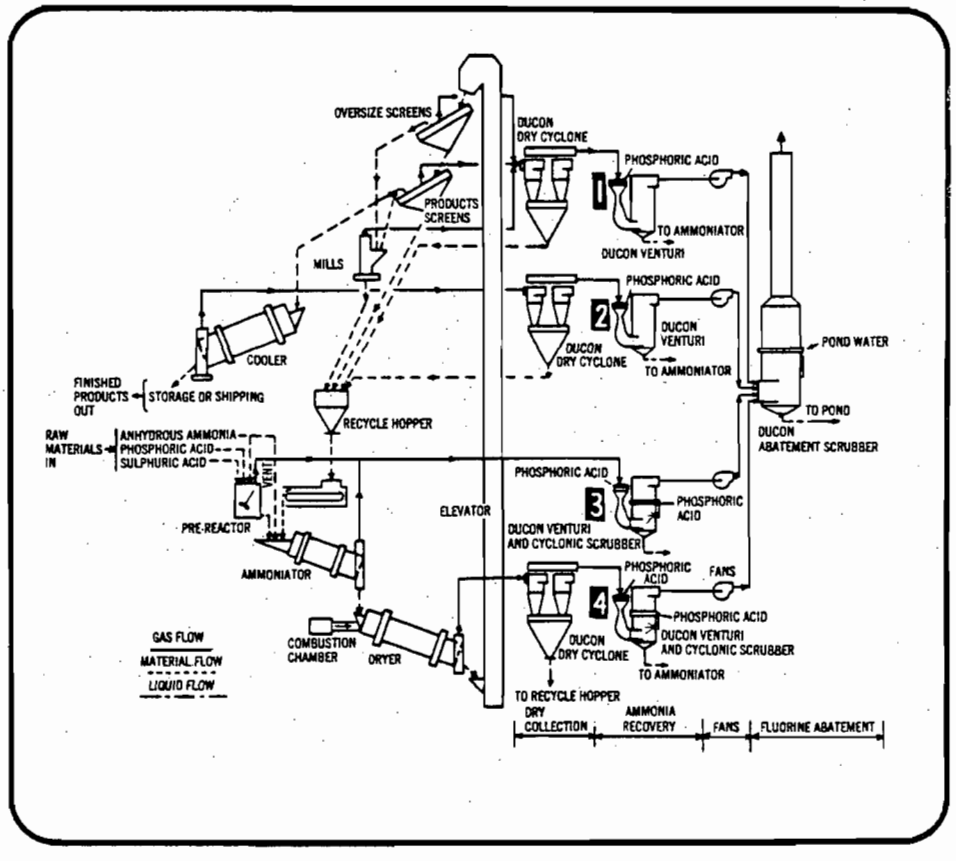
Complete system engineered to provide: Dust Recovery • Ammonia Recovery • Fluorine Removal

1. Screen and Mills — Cyclone and Scrubber
2. Cooler — Cyclone and Scrubber
3. Ammoniator* — Scrubber
4. Dryer* — Cyclone and Scrubber

*Uses combination Venturi and Cyclonic Scrubbers

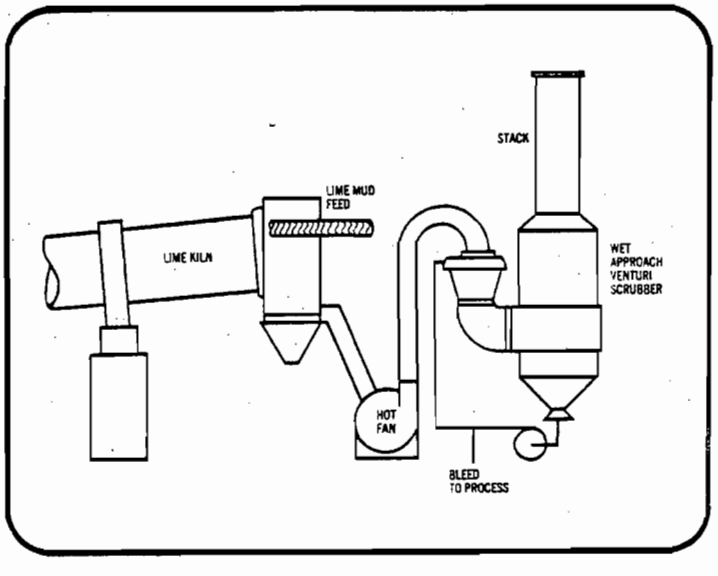
Scrubbing with phosphoric acid (30% P_2O_5) provides 96% to 99% recovery of escaping ammonia fumes from ammonium phosphate plant. Low pressure Venturi operates at 10″ wg with low liquid pressure of 10 psig under recirculation.

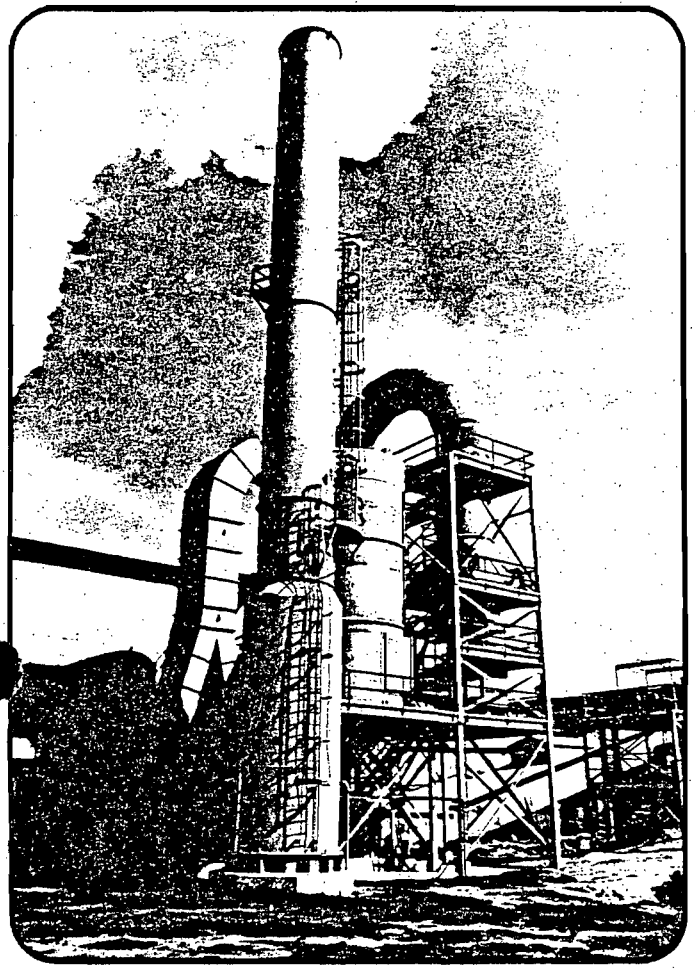
Abatement scrubber removes fluorine fumes evolved in the scrubbing of ammonia with wet process phosphoric acid.



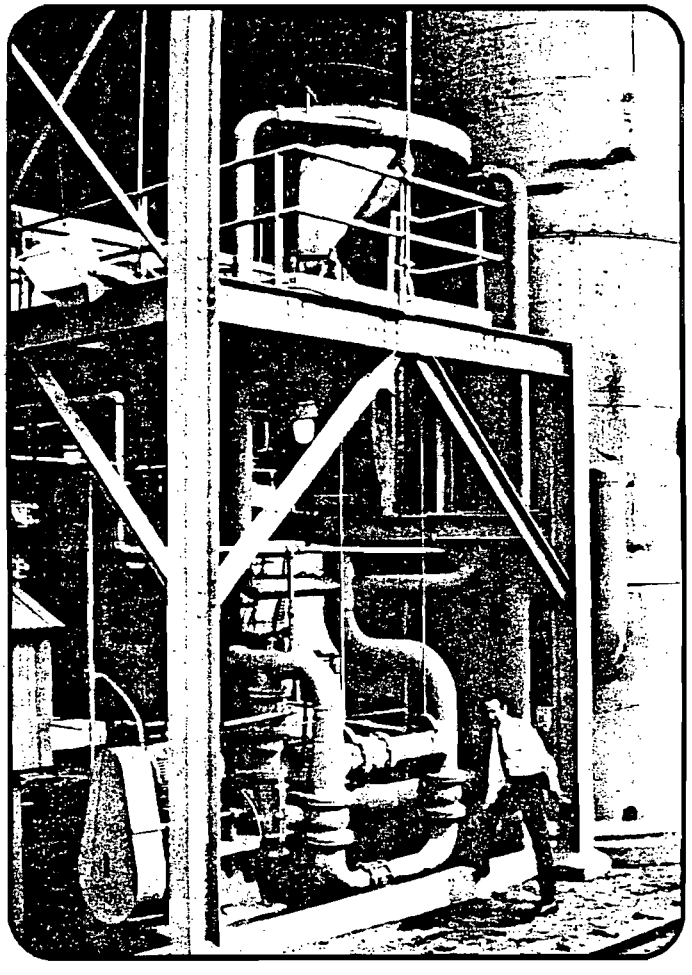
THE LIME KILN SYSTEM

In both Rotary and Fluid Bed Lime Kiln Systems, the lime is fed as mud (55-65% solids) and calcined to active lime oxide. The particulate matter emitted is coarse calcium oxide and submicron soda fume, ranging from 10 to 20 grains per scf. For controlling lime kiln emissions, the Ducon high efficiency wet approach venturi is recommended. The wetted wall venturi inlet eliminates wet-dry line build-up and allows direct recycle of high (0-25%) solids slurry. The externally adjustable throat is used to control the pressure drop and gas flow. The unit is self-cleaning, with no nozzles or trays to plug. Efficiency of the wetted wall venturi can be varied between 95 and 99.9%, depending on pressure drop.





Phosphate Rock Dryer



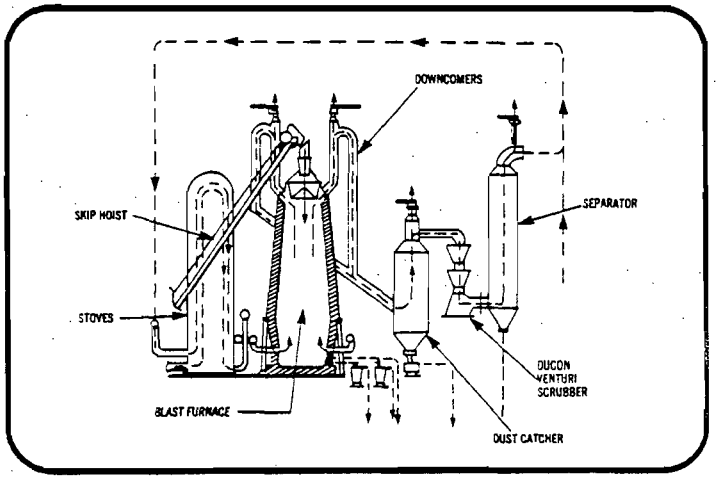
Lime Mud Kiln

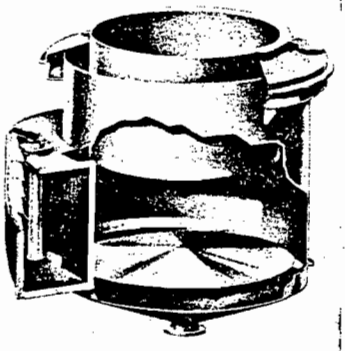
BLAST FURNACE

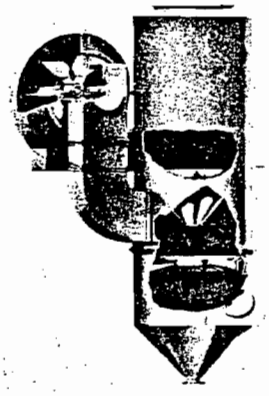
Blast Furnace campaigns are expected to last about three to five years without lengthy interruptions or shut-downs. Venturi Scrubbers in blast furnace service are, therefore, expected to be rugged and reliable enough to equal or exceed the length of the campaign.

Ducon Venturi Scrubbers specifically designed for blast furnace applications have demonstrated this reliability of service while also cleaning the dirty gas to the degree expected. Customary pressure drops are in the range of 50 to 60 inches WG.

Ducon's Blast Furnace Venturi Scrubber features adjustable throat dampers suitable for automatic control, scrubbing liquid introduction without nozzles, and abrasion resistant linings of silicon carbide brick and high alumina ceramic refractory shapes.







Ducon engineers have been solving dust recovery and air pollution problems for more than 40 years. We supply a broad range of dust control equipment to industry including, centrifugal, dynamic and venturi scrubbers, cyclones, and catalyst recovery cyclones. Ducon's Fluid Transport Division specializes in pneumatic conveying systems. For expert engineering and top quality products, make your selection Ducon.

REPRESENTATIVE LISTING OF PROVEN INDUSTRIAL APPLICATIONS

Steel Industry
Blast Furnace
Electric Arc Furnace
BOF
Sintering Machine
Scarfing Machine
Cupola
Coke Oven

Non-Ferrous Metallurgical Operations
Copper Reverberatory Furnace
Lead Blast Furnace
Aluminum Melting Furnace
Aluminum Pot Lines

***Fertilizer* Industry**
Phosphate Rock Dryers & Calciners
GTSP and DAP Systems
Screens and Mills
Dryers, Coolers

Pulp & Paper
Lime Kilns
Back Liquor Recovery
Book Boilers

Mineral Products
Asphalt Stone Dryers
Cement Kilns
Ore Dryers & Calcining Kilns

THE DUCON COMPANY INC., **147 East Second Street, Mineola, L.I., N.Y. 11501**
Subsidiary UNITED STATES FILTER CORPORATION
West Coast Office: 9400 S.W. Beaverton-Hillsdale Highway, Suite 100, Beaverton, Oregon 97005
Ducon Fluid Transport Div., 650 Park Ave., King of Prussia, Pa. 19406
Ducon-MikroPul Ltd., 1940 Steeles Ave., E. Brampton, Ontario L6T1A7
Subsidiaries and licensees throughout the world. Member of the Industrial Gas Cleaning Institute Inc.

4914½ - Buff
8914½ - Green
4214½ - White

AGRICO

			DESCRIPTION	1 UTILIZATION RATE (#/HR)	2 POLLUTANT	3 ACTUAL DISCHARGE (#/HR / TPY)	4 ALLOWABLE DISCHARGE (#/HR)	5 MATERIALS INPUT (#s/HR)	5 MATERIALS OUTPUT	7 STACK HT. (FT.)	8 STACK DIA. (FT.)	9 FLOW RATE (ACFM)	10 % H_2O VAPOR	11 EXIT TEMP.	12 TOTAL (TPY) ANNUAL THROUGHPUT	13 OPERATING SCHEDULE 1037/HR.
1																
2	B	1	ROCK RECIEVING	5.4×10^6	TSP	15.6 / 8.09	61.28	SEE 1.	UTIL. — 16#	25	7.14	100,000	4.7	+15°F	2.8×10^6	1037
3																
4	C	2	ROCK CONVEYING	" "	TSP	2.4 / 1.24 2.4 / 1.24 2.4 / 1.24 2.4 / 1.24	61.28 61.28 61.28 61.28	SEE 1.	UTIL. — 10#	35 60 60 60	2.75 EACH	15,000 EACH	" "	" "	" "	1037
5																
6	D	3	DRY ROCK STORAGE	" "	TSP	13.8 / 7.16 13.8 / 7.16	61.28 61.28	SEE 1.	UTIL — 18# UTIL — 18#	40 40	4 4	60,000 EACH	5.5	" "	" "	" "
7																
8	E	4	GRANULAR PLANT FOOD &	3×10^6	TSP	2.4 / .68 2.4 / .68 2.4 / 1.24 2.4 / 1.24	55.78 55.78 61.28 61.28	SEE 1.	UTIL- 5# UTIL- 5#	45 45	2.75 EACH	15,000 EACH	4.7	" "	~	533 1037
9			DRY PHOSPHATE ROCK	5.4×10^6												
10	F	5	DRY PHOSPHATE ROCK	5.4×10^6	TSP	7.8 / 4.04 7.8 / 2.08	61.28 55.78	SEE 1	UTIL - 8# UTIL - 8#	60	5	50,000	4.7	" "	2.8×10^6 $.8 \times 10^6$	1037 534
11			GRANULAR FERTILIZER	3×10^6												
12	G	6	GRANULAR PLANT FOOD	1×10^6	TSP	9.0 / 3.6	46.79	SEE 1	UTIL - 9#	35	5.5	60,000	4.7	" "	$.4 \times 10^6$	800
13																
14	H	7	GRANULAR PLANT FOOD	1×10^6	TSP	1.8 / .72 1.8 / .72 1.8 / .72 1.8 / .72	46.79 46.79 46.79 46.79	SEE 1	UTIL - 7#	40 60 130 50	2-25	10,000 EACH	4.7	"	$.4 \times 10^6$	800
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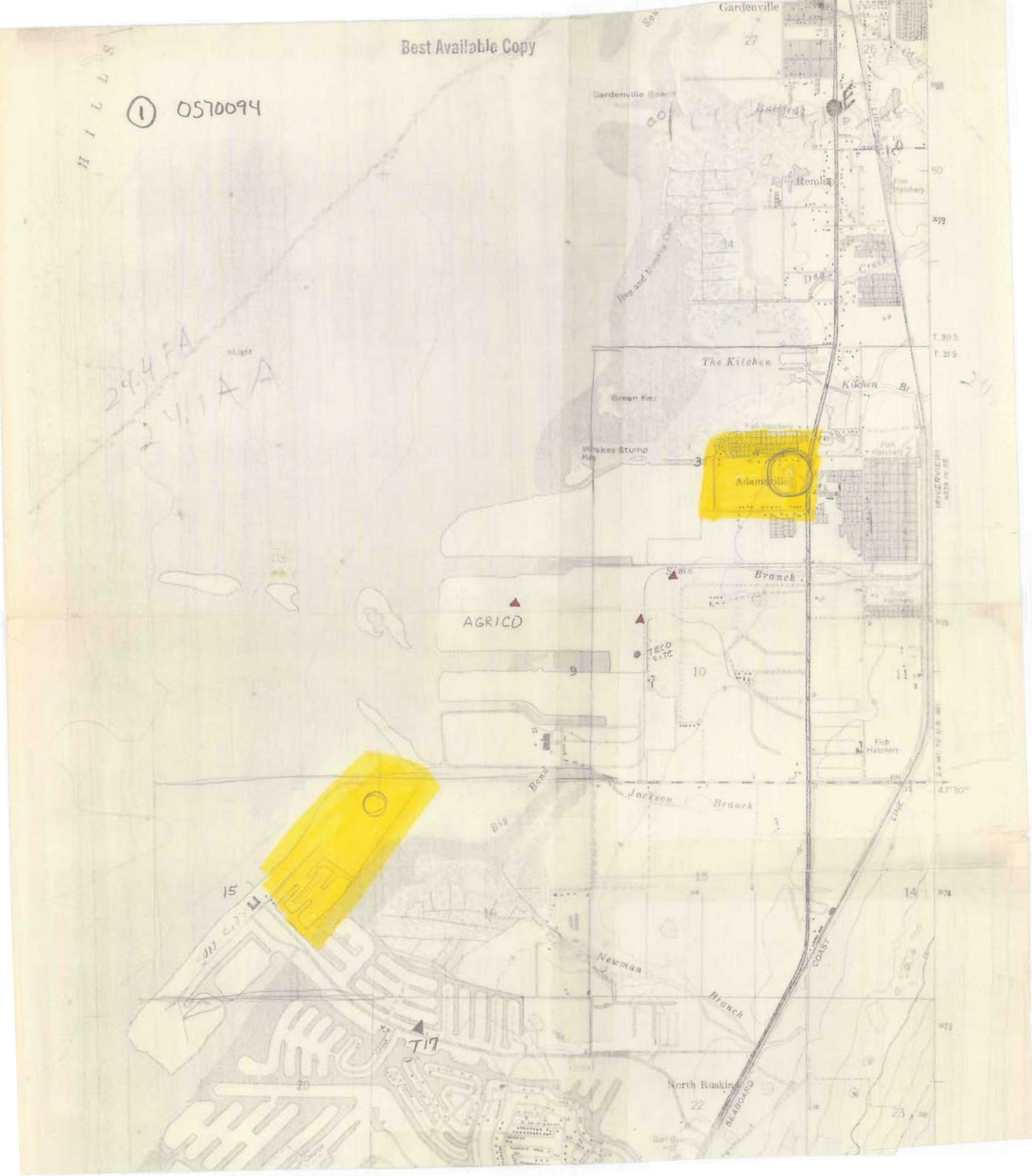

Supplement No. 3
Flow Diagram

DC (A) Rotary Dump (Exist.)

Beltfeeders (Exist.)

Conv. No. 1
2700 TPH
(Exist.)

DC (B)

Conv. No. 2
2700 TPH
(Exist.)

DC (C)

Stakrake
By-Pass

DC (D)

Conv. No. 3
2700 TPH
(Exist.)

OR

(15)

(16)

DC (E)

DC (F)

Shiploader
2700 TPH
(Exist.)

(5)

(6)

Conv. No. 4
2700 TPH
(Exist.)

Dust Collectors
D, E & F will replace
existing Dust collectors

DIRECT LOADING
TO SHIP

AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL

(18) 2700 TPH
Conveyor

(G) DC

(17) 2700 TPH
Conveyor

(K) Scrubber

(J) Scrubber

12-8500 Ton Cap. Silos

(H) DC

(19) 2700 TPH
Conveyor

(4) 2700 TPH
Conveyor
(Exist.)

LOADING TO
STORAGE SYSTEM

AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL