

TWIN TOWERS OFFICE BUILDING
2600 HEATHSTONE 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)
488-1044.

Sincerely,

A handwritten signature in black ink, appearing to read "M. G. Hodges", is written over a horizontal line.

M. G. Hodges
- EPER 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 \$ 140⁰⁰

Applicant Name & Address HAROLD LONG, BOX 1110, MULBERRY, FLA, 33860

Source of Revenue _____

Revenue Code 0101 Application Number AC25142, 25143, 25160, 25161,

25162, 25163, 25164

By 



STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
APPLICATION TO OPERATE/CONSTRUCT
AIR POLLUTION SOURCES

SOURCE TYPE: _____ New¹ Existing¹
APPLICATION TYPE: 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: Harold W. Long, Jr.
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: Raymond T. Schneider
Raymond T. Schneider
Name (Please Type)
Jacobs Engineering Group, Pridgen Eng. Div.
Company Name (Please Type)
P. O. Box 2008, Lakeland, FL 33803
Mailing Address (Please Type)
Date: 10/17/79 Telephone No. (813)665-1511

(Affix Seal)

Florida Registration No. 12008

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

SECTION II: GENERAL PROJECT INFORMATION

Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance 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.

J. 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 Deterioration" (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-"B,C,G,H,L"

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				

¹See Section V, Item 2.

²Reference 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)

³Calculated from operating rate and applicable standard

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

⁵If 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. 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 O (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	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:
no waste products generated.

Efficiency is excellent; cost is reasonable;

*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 _____ () SO² _____ 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 (PTMP-W) Modified? If yes, attach description.

3. Air Quality Display Model (AODM) 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	<u>1.448</u> grams/sec
SO ²	<u>NA</u> 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. 1DC-"B,C,G,H,L":

Total Process Input Rate	-	5,400,000 lbs./hr.
<u>Stack Emissions</u>	-	<u>12 lbs./hr.</u>
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:

$$\text{Volume at } 90^{\circ}\text{F } 1 \text{ lb. dry air} = 13.85 \text{ CF}$$

$$\text{Volume at } 90^{\circ}\text{F } 1 \text{ lb. dry and} \\ \text{vapor to saturate it} = 14.55 \text{ CF}$$

$$\frac{14.55-13.85}{14.55} \times 100 = 4.7\% \text{ H}_2\text{O}$$

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

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

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

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

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

8.18 PHOSPHATE ROCK PROCESSING

8.18.1 Process Description¹

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 Controls¹

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

^aEmission factors expressed as units per unit weight of phosphate rock.

^bReferences 2 and 3.

^cDry cyclones followed by wet scrubbers can reduce emissions by 95 to 99 percent.

^dDry cyclones followed by fabric filters can reduce emissions by 99.5 to 99.9 percent.

^eReference 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

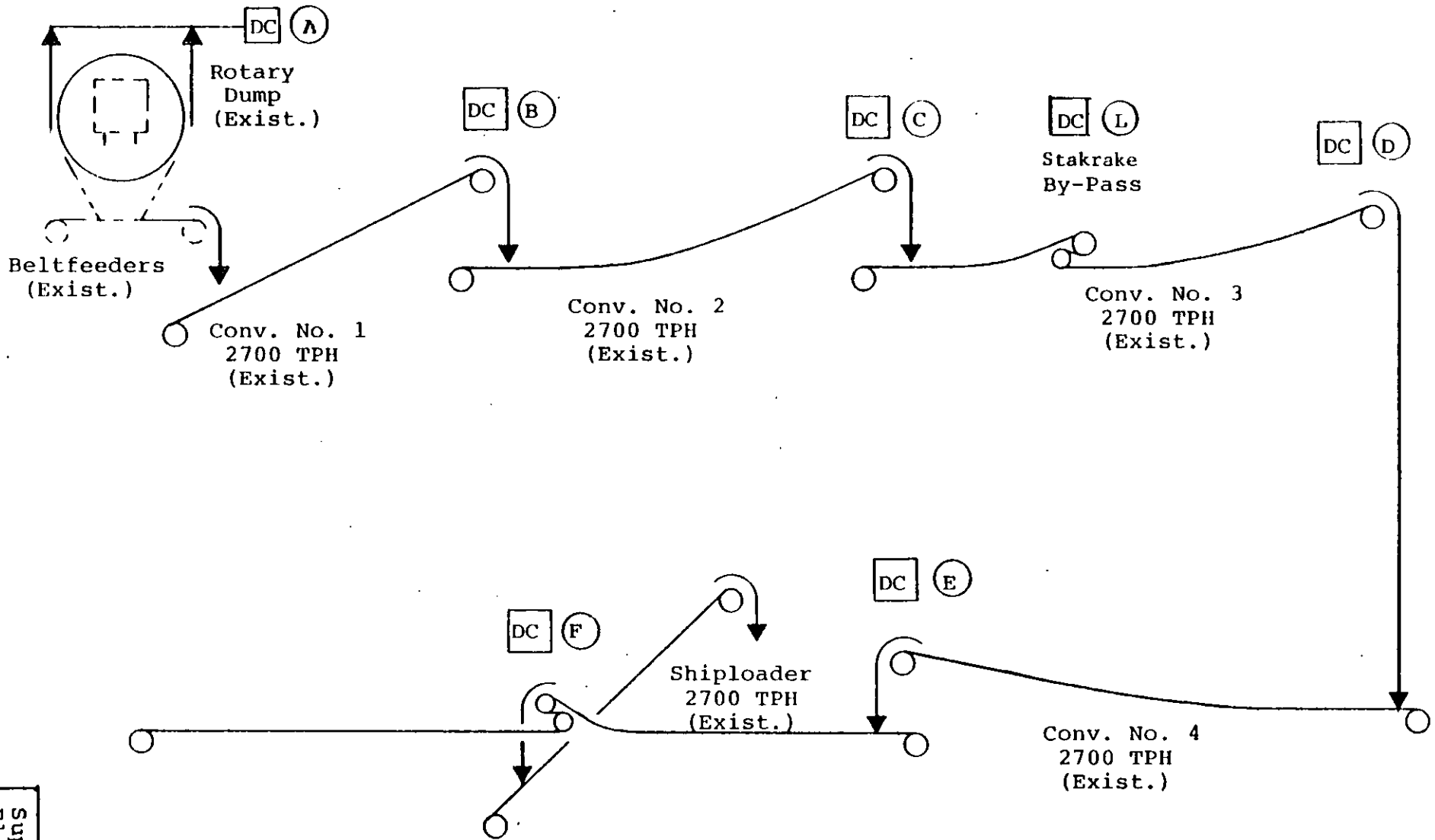
$$\frac{(10-0.02)}{(10)}(100) = 99.8\% \text{ Efficiency}$$

From Supplement No. 2:

Input = 19.16 lb/Minute/Dust Collector

$(19.16)(60) = 1149 \text{ lb/Hr.} = \text{Potential Emission}$

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

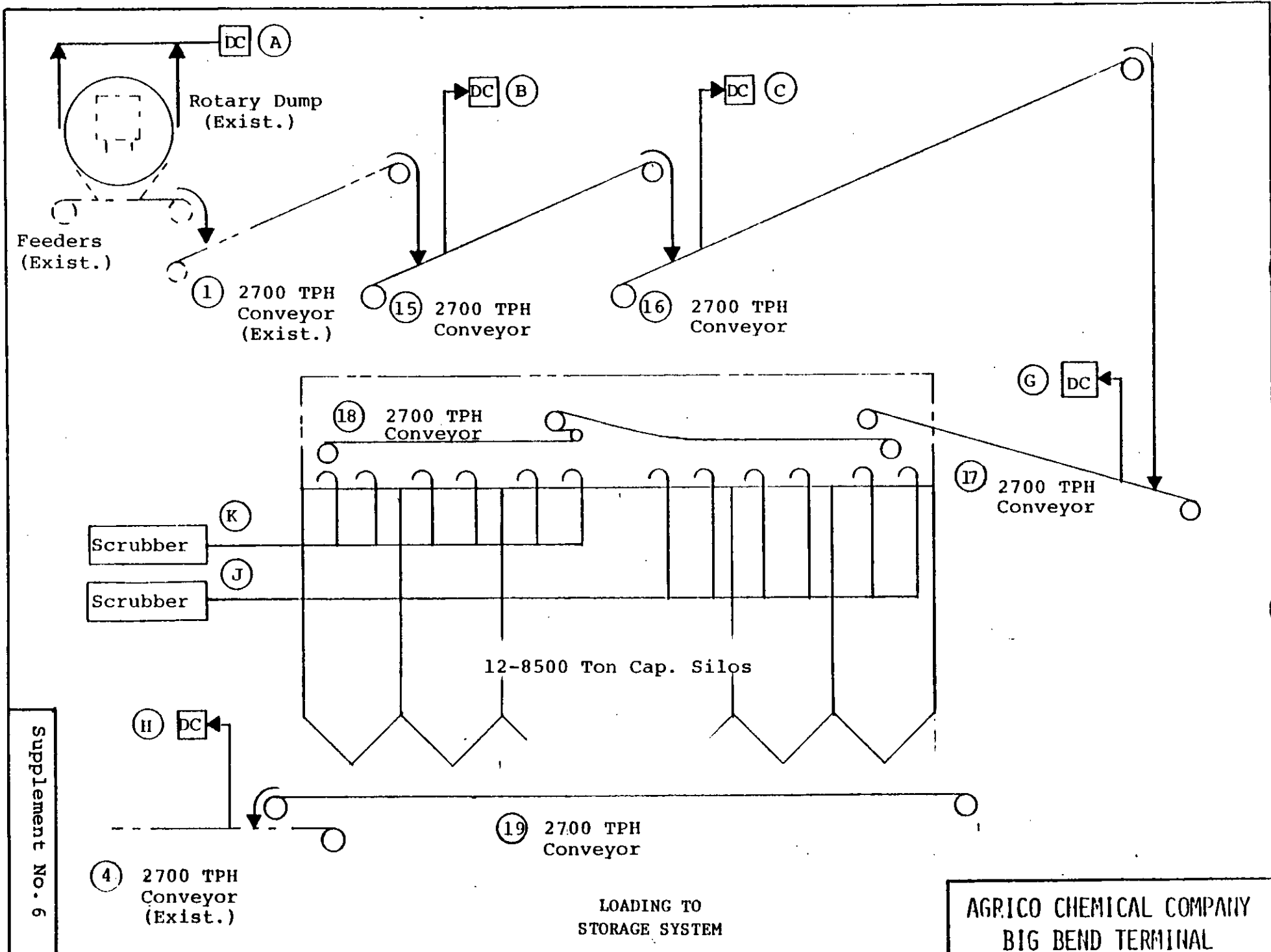


Dust Collectors
D, E & F will replace
existing Dust collectors

DIRECT LOADING
TO SHIP

AGRICO CHEMICAL COMPANY
BIG BEND TERMINAL

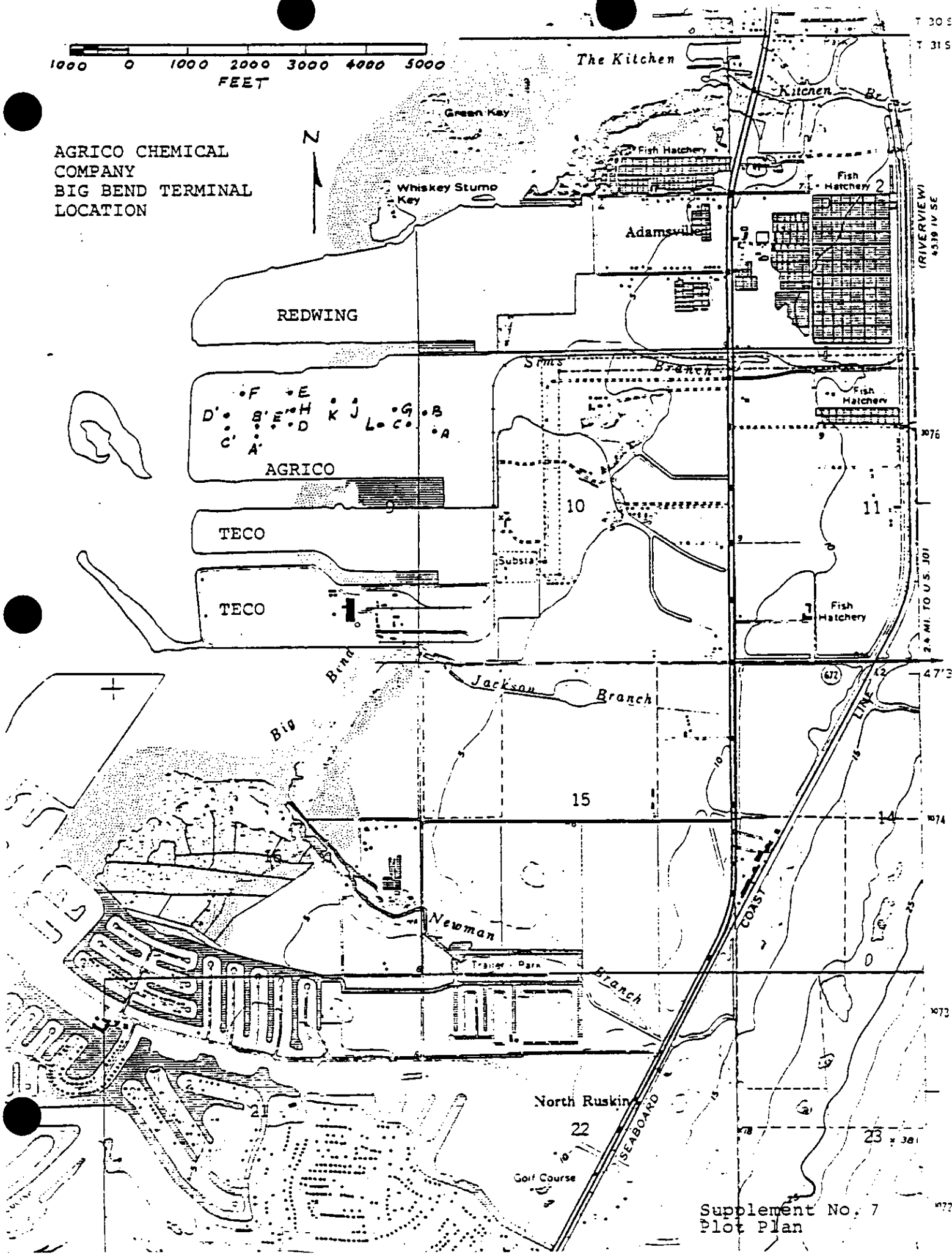
Supplement No. 6
Flow Diagram



Supplement No. 6



AGRICO CHEMICAL
COMPANY
BIG BEND TERMINAL
LOCATION



T 30 S
T 31 S

(RIVERVIEW)
4539 IV SE

2.4 MI. TO U.S. JOI

47'3

1074

1073

1072

Supplement No. 7
Plot Plan

DER PERMIT APPLICATION TRACKING SYSTEM MASTER RECORD

FILE#000000025142 CUE#
FILE NAME: AGRICO CHEMICAL
APPL NAME: LONG, HAROLD W.
ADDR: P.O. BOX 1110
AGNT NAME: SCHNEIDER, R.T.
ADDR: P.O. BOX 2008

DER PROCESSOR: THOMAS
DATE FIRST REC: 11/01/79
APPL PHONE: (813)428-1413
CITY: MULBERRY
AGNT PHONE: (813)665-1151
CITY: LAKE LAND

DER OFFICE: TLH
APPLICATION TYPE: AC
PROJECT COUNTY: 29
ST: FL ZIP: 33860
ST: FL ZIP: 33803

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 14:40:36

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". UIM = ZONE 17,
LAT/LON = 27-48-15 N / 82-23-57 W., UIM = 361689 E / 3076178 N. BIG BEND TER-
MINAL.

25149
60
61
62
63

DER PERMIT APPLICATION TRACKING SYSTEM MASTER RECORD

FILE#000000025149 COE#
FILE NAME: AGRICO CHEMICAL
APPL NAME: AGRICO CHEMICAL
ADDR: P.O. BOX 1110
AGNT NAME: SCHNEIDLK, R.T.
ADDR: P.O. BOX 2008

DER PROCESSOR: THOMAS
DATE FIRST REC: 11/01/79
APPL PHONE: (813)428-1431
CITY: MULBERRY
AGNT PHONE: (813)665-1511
CITY: LAKELAND

DER OFFICE: TLH
APPLICATION TYPE: AC
PROJECT COUNTY: 29
ST: FL ZIP: 33860
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 14:41:42

FEE PD DATE#1: 11/01/79 \$0020 RECEIPT#000033519 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#000000025160 CDE# 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:33906

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 14:42:48

FEE PD DATE#1:11/01/79 \$0020 RECEIPT#000033519 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#000000025161 COE#
FILE NAME: AGRICO CHEMICAL
APPL NAME: LONG, HAROLD W.
ADDR: P.O. BOX 1110
AGNT NAME: SCHEIDER, R.T.
ADDR: P.O. BOX 2008

DER PROCESSOR: THOMAS
DATE FIRST REC: 11/01/79
APPL PHONE: (813)428-1431
CITY: MULBERRY
AGNT PHONE: (813)665-1511
CITY: LAKELAND

DER OFFICE: TLH
APPLICATION TYPE: AC
PROJECT COUNTY: 29
ST: FL ZIP: 33806
ST: FL ZIP: 33806

ADDITIONAL INFO REQ: / / / / / / / / / / / /
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 14:44:07

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#000000025162 CUE#
FILE NAME: AGRICO CHEMICAL
APPL NAME: LONG, H.W.
ADDR: P.O. BOX 1110
AGNT NAME: SCHEIDER, R.T.
ADDR: P.O. BOX 2008

DER PROCESSOR: THOMAS
DATE FIRST REC: 11/01/79
APPL PHONE: (813)428-1431
CITY: MULBERRY
AGNT PHONE: (813)665-1511
CITY: MULBERRY

DER OFFICE: TLH
APPLICATION TYPE: A
PROJECT COUNTY: 29
ST: FL ZIP: 33800
ST: FL ZIP: 33800

ADDITIONAL INFO REQ: / / / / / / REC: / / / / / /
APPL COMPLETE DATE: / / COMMENTS NEC: Y DATE REC: / / 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 14:46:00

FEE PD DATE#1: 11/01/79 \$0020 RECEIPT#000033519 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#000000025163 CDE#
FILE NAME: AGRICO CHEMICAL
APPL NAME: LONG, H.W.
ADDR: P.O. BOX 1110
AGNT NAME: SCHEIDLER, R.T.
ADDR: P.O. BOX 2998

DER PROCESSOR: THOMAS
DATE FIRST REC: 11/01/79
APPL PHONE: (813)428-1431
CITY: MULBERRY
AGNT PHONE: (813)665-1511
CITY: LAKE LAND

DER OFFICE: TLH
APPLICATION TYPE: A
PROJECT COUNTY: 29
ST: FL ZIP: 33860
ST: FL ZIP: 33806

ADDITIONAL INFO REQ: / / / / / / REC: / / / / / /
APPL COMPLETE DATE: / / COMMENTS NEC: Y DATE REV: / / 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#000033519 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 RECEIVING, 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 CDE#
FILE NAME: AGRICO CHEMICAL
APPL NAME: LONG, H.W.
ADDR: P.O. BOX 1110
AGNT NAME: SCHEIDLER, R.T.
ADDR: P.O. BOX 2008

DER PROCESSOR: THOMAS
DATE FIRST REC: 11/01/79
APPL PHONE: (813)428-1431
CITY: MULBERRY
AGNT PHONE: (813)665-1511
CITY: LAKELAND

DER OFFICE: TLH
APPLICATION TYPE: AC
PROJECT COUNTY: 29
ST: FL ZIP: 33860
ST: FL ZIP: 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#000033519 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.