

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL REGULATION

Nº 33608

RECEIPT FOR APPLICATION FEES AND MISCELLANEOUS REVENUE

Received from AMAX Phosphate, Inc. Date May 12, 1982

Address 402 S. Kentucky Ave Suite 800 Lakeland, FL 33801 Dollars \$ 20.00

Applicant Name & Address J. Lewis P.O. Box 740 Plant City, FL 33564

Source of Revenue \_\_\_\_\_

Revenue Code 0101 Application Number AC 24-55445

By Patricia G. Adams

**AMAX** Phosphate, Inc.  
A SUBSIDIARY OF AMAX INC

402 SOUTH KENTUCKY AVE. SUITE 800, LAKELAND, FLORIDA 33801

CONTROL NUMBER **C** 4231

BRANDON STATE BANK  
BRANDON, FLORIDA 63-685  
631

CHECK DATE NUMBER  
5/11/82 3299

PAY TO THE ORDER OF

THE FLORIDA DEPT. OF  
ENVIRONMENTAL REGULATION

CHECK AMOUNT \$\*\*\*\*\*20.00

**AMAX** Phosphate, Inc.

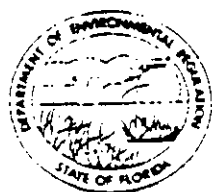
Richard J. Duran

Robert J. ...

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10 615318⑈01

29-55745



DER

MAY 14 1982

BAQM

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO OPERATE/CONSTRUCT  
AIR POLLUTION SOURCES

DER

MAY 12 1982

SOUTHWEST DISTRICT  
TAMPA

SOURCE TYPE: Point Source Air Pollution [ New] [ Existing]

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

COMPANY NAME: AMAX Phosphate, Inc. COUNTY: Hillsborough

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) Phosphate Feed Preparation

SOURCE LOCATION: Street Coronet Road City Plant City  
UTM: East 17-393.8 North 3096.3  
Latitude      °      '      "N Longitude      °      '      "W

APPLICANT NAME AND TITLE: J. J. Lewis, Plant Manager

APPLICANT ADDRESS: P. O. Box 790, Plant City, Florida 33566

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative\* of AMAX Phosphate, Inc.

I certify that the statements made in this application for a Construction permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, 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: [Signature]  
J. J. Lewis, Plant Manager  
Name and Title (Please Type)

Date: 5/11/82 Telephone No. 813/ 752-1161

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: [Signature]  
James B. Whittum  
Name (Please Type)

P. J. Pedone & Company, Inc.  
Company Name (Please Type)  
Lakeland, Florida 33801  
Mailing Address (Please Type)

Date: 5/12/82 Telephone No. 813/665-6120

(Affix Seal) [Signature]

Florida Registration No. 0027689

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

SECTION II: GENERAL PROJECT INFORMATION

A. 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. Installation of collection points and duct work to capture dust from the mixer and pugmill, and unconfined dust from the vibrating pan conveyor at the dryer discharge point. Contaminants will be controlled by the installation of a Hydronics Venturi Scrubber (or equivalent) and will have an airflow of 21,000 ACFM and overall efficiency of 99.8% removal. Particulate contaminants from the mixer, pugmill and dryer are vented through the existing Venturi Scrubber. The new scrubber will control the particulate from the mixer, pugmill and the unconfined particulate at the vibrating pan conveyor. The existing scrubber will then only control the particulates and gasses from the dryer.

B. Schedule of project covered in this application (Construction Permit Application Only)  
 Start of Construction June 1, 1982 Completion of Construction December 1, 1982

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.)  
Venturi Scrubber and Duct Work -- \$243,000.

Total Cost, including Engineering and Installation -- \$581,000

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

The present feed preparation Venturi Scrubber which controls emissions from the mixer, pugmill and dryer is operated under FDER Permit No. A029-6315 issued March 8, 1978, and expires December 15, 1982. This scrubber will be installed in addition to and separate from the existing scrubber.

TOTAL  
 CRISIS  
 REPORT  
 IS  
 KEPT  
 FILED  
 PERMITS  
 DIV.

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? Yes X No

F. Normal equipment operating time: hrs/day 20\*; days/wk 7\*; wks/yr 52\*; if power plant, hrs/yr 7,280;  
 \*Operating time may be variable due to production problems and if seasonal, describe: market demand.

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?  | <u>03</u> | No <u>X</u> |
| a. If yes, has "offset" been applied?   |           | N/A         |
| b. If yes, has "Lowest Achievable Emission Rate" been applied?  |           | N/A         |
| c. If yes, list non-attainment pollutants.  | <u>03</u> |             |
|   |           | N/A         |
| 2. Does best available control technology (BACT) apply to this source? If yes, see Section VI.  |           | No          |
| 3. Does the State "Prevention of Significant Deterioration" (PSD) requirements apply to this source? If yes, see Sections VI and VII. |           | No          |
| 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 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		
Phosphate Rock	Particulate	100.0%	97,200	See Attachment D
Phosphate Rock	Fluoride	3.5%	97,200	See Attachment D
Phosphoric Acid	Fluoride	1.0%	27,700	See Attachment D
Caustic Soda	N/A	N/A	21,200	See Attachment D
			146,100	

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

1. Total Process Input Rate (lbs/hr): 147,000

2. Product Weight (lbs/hr): 120,000

**C. Airborne Contaminants Emitted:**

Name of Contaminant	Emission <sup>1</sup>		Allowed Emission <sup>2</sup> Rate per Ch. 17-2, F.A.C.	Allowable <sup>3</sup> Emission lbs/hr	Potential Emission <sup>4</sup>		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Particulate	3.6	13.1	Ch. 17-2.05 (2)	34.42	1800	6552	See Attachment D
			(?)	Unless checked Table			

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles <sup>5</sup> Size Collected (in microns)	Basis for Efficiency (Sec. V, It <sup>5</sup> )
Hydronics 3' Dia. X 10' Venturi Scrubber (or equivalent)	Particulate	99.8%	1.3 - > 13.7 μ	Manufacturer's Guarantee
		8-12 Gr./SCF		

<sup>1</sup>See Section V, Item 2.

<sup>2</sup>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)

<sup>3</sup>Calculated from operating rate and applicable standard

<sup>4</sup>Emission, if source operated without control (See Section V, Item 3)

<sup>5</sup>If Applicable

E. Fuels

*What was fuel?*

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
Natural Gas	38.5 MMCF	40.8 MMCF	42 MM BTU/Hr
#5 Fuel Oil	6.37 BBL	6.94 BBL	42 MM BTU/Hr.

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

*FUEL  
F.P.  
1248*

Fuel Analysis:

Percent Sulfur: 2.08% Percent Ash: N/A  
 Density: 7.563 lbs/gal Typical Percent Nitrogen: N/A  
 Heat Capacity: 19,040 BTU/lb 144,000 BTU/gal  
 Other Fuel Contaminants (which may cause air pollution): Not Applicable

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

G. Indicate liquid or solid wastes generated and method of disposal.  
Scrubber water is discharged into a treated closed circuit process water system.  
Fluoride is recovered from the recirculated water and used in other manufacturing processes.

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

Stack Height: 100 ft. Stack Diameter: 3.0 ft.  
 Gas Flow Rate: 21,000 ACFM Gas Exit Temperature: 110 °F.  
 Water Vapor Content: 8.25 % Velocity: 49.5 FPS

SECTION IV: INCINERATOR INFORMATION  
 NOT APPLICABLE

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) <sup>3</sup>	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: \_\_\_\_\_

NOT APPLICABLE

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

D. J. R.  
MAY 12 1982  
SOUTHWEST DISTRICT  
TAMPA

### SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

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

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	0.03 Grains/DSCFM

D. Describe the existing control and treatment technology (if any).

- 1. Control Device/System: Venturi Scrubber
- 2. Operating Principles: Wet Venturi
- 3. Efficiency: \* 99.8%
- 4. Capital Costs: Not Available
- 5. Useful Life: 20 Years
- 6. Operating Costs: \$67,000
- 7. Energy: Not Available
- 8. Maintenance Cost: \$ 9,000
- 9. Emissions:

Contaminant	Rate or Concentration
Particulate	3.7 Lbs./Hr.

*Handwritten initials and numbers: ID, 102, 103, 104, 105, 106, 107, 108, 109, 110*

\*Explain method of determining D 3 above. Manufacturer's Guarantee

**MAY 12 1982**  
**SOUTHWEST DISTRICT**  
**TAMPA**

10. Stack Parameters

a. Height:	100	ft.	b. Diameter:	4.5	ft.
c. Flow Rate:	38,559	ACFM	d. Temperature:	151	°F
e. Velocity:	40.4	FPS			

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

1.

- a. Control Device: Venturi Scrubber
- b. Operating Principles: Wet Venturi
  
- c. Efficiency\*: 99.8%
- d. Capital Cost: \$243,000
- e. Useful Life: 20 Years
- f. Operating Cost: \$73,000
- g. Energy\*: 1000 KWH
- h. Maintenance Cost: \$9,000
- 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:

2.

- a. Control Device:
- b. Operating Principles:
  
- c. Efficiency\*:
- d. Capital Cost:
- e. Useful Life:
- f. Operating Cost:
- g. Energy\*\*:
- h. Maintenance Costs:
- 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:

\*Explain method of determining efficiency. Manufacturer's Guarantee

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

3.

- a. Control Device:
- b. Operating Principles:
  
- c. Efficiency\*:
- d. Capital Cost:
- e. Life:
- f. Operating Cost:
- g. Energy:
- h. Maintenance Cost:

\*Explain method of determining efficiency above.



- 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:

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: Venturi Scrubber
- 2. Efficiency\*: 99.8%
- 3. Capital Cost: \$243,000
- 4. Life: 20 Years
- 5. Operating Cost: \$ 73,000
- 6. Energy: 1000 KWH
- 7. Maintenance Cost: \$ 9,000
- 8. Manufacturer: Hydronics Engineering Company
- 9. Other locations where employed in similar processes:

a.

- (1) Company:
- (2) Mailing Address:
- (3) City: (4) State:
- (5) Environmental Manager:
- (6) Telephone No.:

\*Explain method of determining efficiency above. Manufacturer's Guarantee

(7) Emissions\*:

Contaminant	Rate or Concentration

(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:

\*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  
NOT APPLICABLE

A. Company Monitored Data

1. \_\_\_\_\_ no sites \_\_\_\_\_ TSP \_\_\_\_\_ ( ) SO<sub>2</sub> • \_\_\_\_\_ 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. \_\_\_\_\_ Year(s) of data from \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ to \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_  
month day year month day year

2. Surface data obtained from (location) \_\_\_\_\_

3. Upper air (mixing height) data obtained from (location) \_\_\_\_\_

4. Stability wind rose (STAR) data obtained from (location) \_\_\_\_\_

C. Computer Models Used

- \_\_\_\_\_ Modified? If yes, attach description.
- \_\_\_\_\_ Modified? If yes, attach description.
- \_\_\_\_\_ Modified? If yes, attach description.
- \_\_\_\_\_ 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	_____ grams/sec
SO <sub>2</sub>	_____ 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.

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.

ATTACHMENT A

TOTAL PROCESS INPUT RATE

97,200 lb/hr. Phosphate Rock +  
(14,400 lb/hr.  $P_2O_5$  @ 52% →) 27,700 lb/hr. Phosphoric Acid ( $H_3PO_4$ ) +  
( 8,400 lb/hr.  $Na_2O$  @ 38% →) 22,100 lb/hr. Caustic (NaOH)  
= 147,000 lbs/hr. Total Process Input Rate

PRODUCT WEIGHT

147,000 lbs/hr. Total Process Input Rate -  
4 lbs/hr Particulate Loss to Atmosphere -  
26,996 lbs/hr Moisture Loss to the Dryer  
= 120,000 lbs/hr. Product Weight

ATTACHMENT B

EMISSIONS ESTIMATE

Estimated Scrubber Loading: 10.75 Grains/Ft.<sup>3</sup>  
100%-99.8% (Scrubber Efficiency) = 0.2% Discharge  
10.75 Grains/Ft.<sup>3</sup> X 19,526 SCFM Airflow to Scrubber =  
210,000 Grains/Min. X 60 Min./Hour =  
12,600,000 Grains/Hour ÷ 7000 Grains/Lb. =  
1800 Lbs./Hour Actual Loading to the Scrubber.  
1800 Lbs./Hour Loading X 0.2% Discharge =  
3.6 Lbs./Hour Emissions  
3.6 Lbs./Hour Emissions X 7280 Hours Annual Operating Time =  
26,208 Lbs./Year Emissions ÷ 2000 Lbs./Ton =  
13.1 Tons/Year Emissions.

POTENTIAL EMISSIONS

1800 Lbs./Hour Scrubber Loading  
1800 Lbs./Hour X 7280 Hours Annual Operating Time =  
13,104,000 Lbs./Year ÷ 2000 Lbs./Ton =  
6552 Tons/Year Potential Emissions.

ATTACHMENT C-1

The scrubber to be installed is a Hydronics Venturi Scrubber with 4.67 sq. ft. throat. 170 gpm of pond water will be used once-through in the scrubber.

Venturi scrubbers are considered to be the best available control technology by the U.S. Environmental Protection Agency when used to control nuisance particulate. This installation will exceed 99% efficiency.

? AP of scrubber  
Pressure of nozzle

FLUORIDE EMISSIONS  
 $1.2 \frac{\text{lb F}}{\text{hr}} \cdot \frac{T}{2000 \text{ lb}} \cdot 7,280 \frac{\text{hr}}{\text{yr}} = 4.4 \text{ TPY F} = (4.368)$

LETTER-PROPOSAL 1710,  
 MODIFICATION "A"  
 DECEMBER 14, 1981

GUARANTEE PROVISIO

USER: CASE ENGINEERING (FOR)  
 AMAX CHEMICAL COMPANY

LOCATION: LAKELAND, FLORIDA

**RECEIVED**  
 JAN 22 1981  
 CCA  
 ENGINEERING

HYDRONICS ENGINEERING CORPORATION OFFERS THE FOLLOWING GUARANTEE:

FOR THE INITIAL THREE (3) MONTH PERIOD OF NORMAL PLANT OPERATION, PROVIDED THE SCRUBBER IS OPERATED IN ACCORDANCE WITH THE CONDITIONS SPECIFIED HEREIN, HYDRONICS GUARANTEES: -

- (A) 99.8% REMOVAL OF ALL PARTICLES 0.7 MICRONS IN SIZE, OR LARGER.
- (B) MAXIMUM DISCHARGE OF 0.03 GRS./SCF. (60°F., 1 ATMS). *F - emission*

THE GUARANTEE IS EXTENDED PROVIDED THAT THE SCRUBBER FEED SOLIDS SHALL BE CALCIUM PHOSPHATE AND CALCIUM FLUROIDE AS USUALLY ASSOCIATED WITH FERTILIZER PLANT OPERATIONS.

THE OPERATIONAL CHARACTERISTICS AS TO LIQUID RATE AND PRESSURE DROP ACROSS THE HYDRONICS VENTURI APPLIES AT 15"wg.

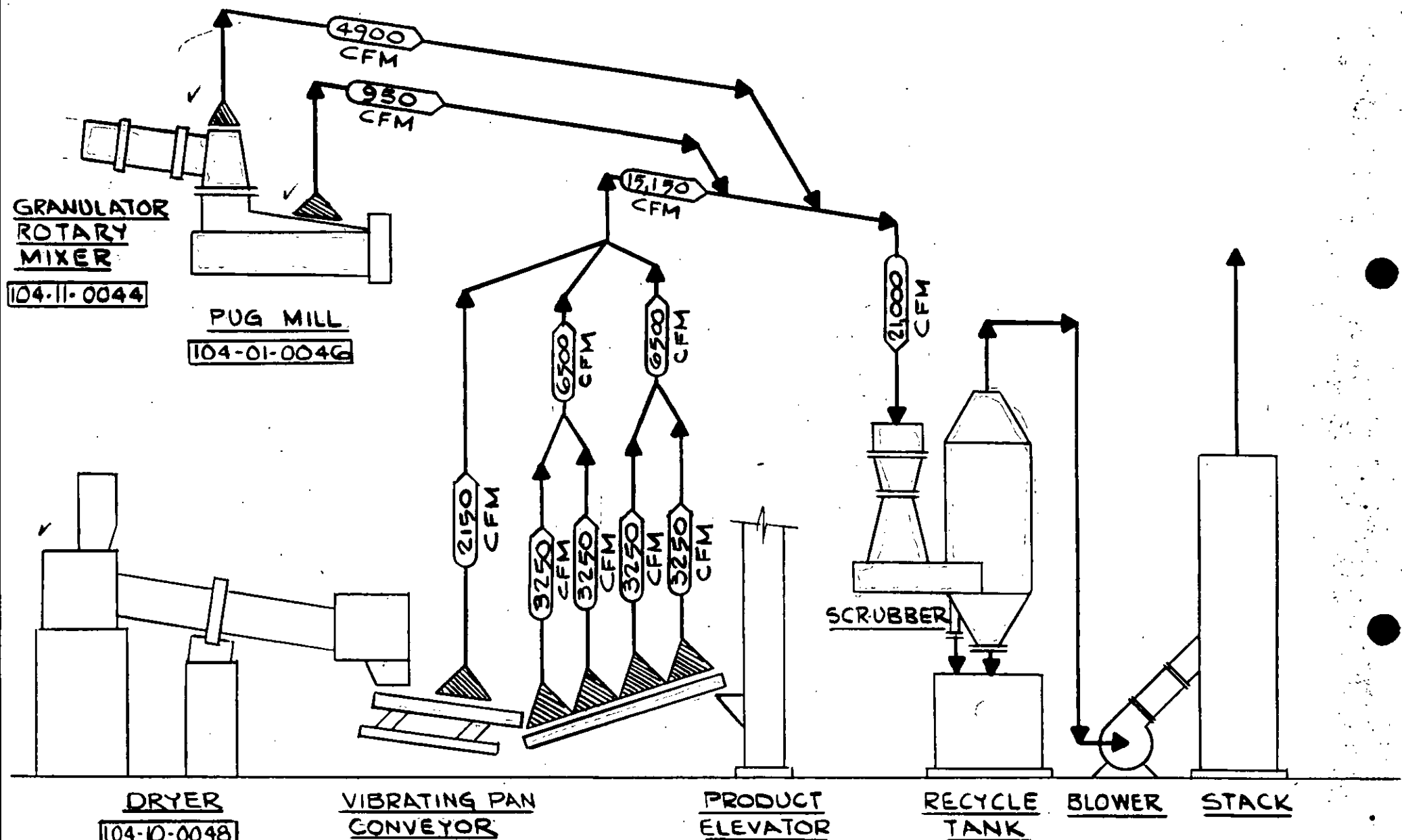
IF PERFORMANCE IS NOT BEING MET, THEN HYDRONICS WILL BE OBLIGATED, AT ITS OWN EXPENSE, TO MAKE THE NECESSARY ALTERATIONS OR SUPPLY NEW PARTS FOR THE SCRUBBER TO CORRECT THE PERFORMANCE AND SATISFY THIS GUARANTEE.

$21,000 \frac{\text{AF}^3}{\text{MIN}} (1 - 0.025) \cdot \frac{1520^{\circ}\text{R}}{570} = 17,577 \text{ SCFM}$

$17,577 \frac{\text{AF}^3}{\text{MIN}} \cdot \frac{60 \text{ MIN}}{\text{hr}} \cdot \frac{0.03 \text{ gr}}{\text{AF}^3} \cdot \frac{\text{Lb}}{70000 \text{ gr}} = 4.52 \text{ Lbs/hr}$

$21,000 \frac{\text{AF}^3}{\text{MIN}} \cdot \frac{0.03 \text{ gr}}{\text{AF}^3} \cdot \frac{60 \text{ MIN}}{\text{hr}} = \frac{\#}{70000 \text{ gr}} = 5.4 \text{ lb/hr}$

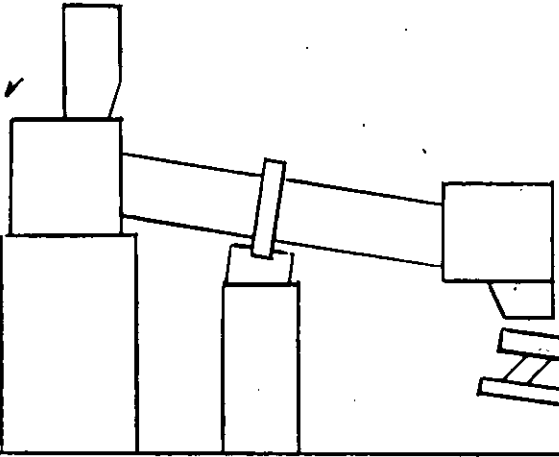
$5.4 \frac{\text{lb}}{\text{hr}} \cdot \frac{TOW}{2000 \text{ lb}} \cdot 7,280 \frac{\text{hr}}{\text{yr}} = 19.7 \text{ TPY}$



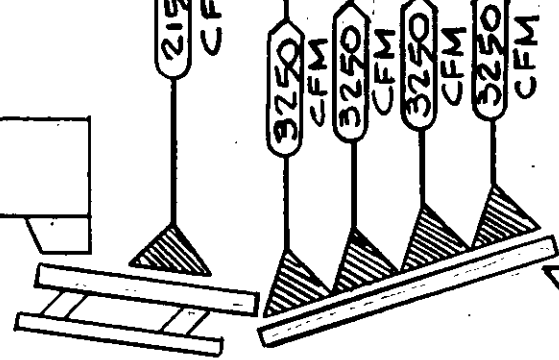
GRANULATOR  
ROTARY  
MIXER

104-11-0044

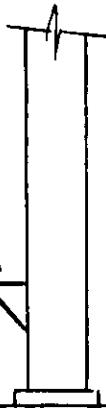
PUG MILL  
104-01-0046



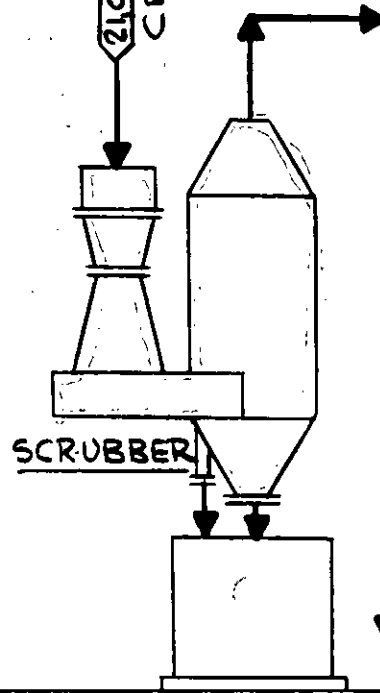
DRYER  
104-10-0048



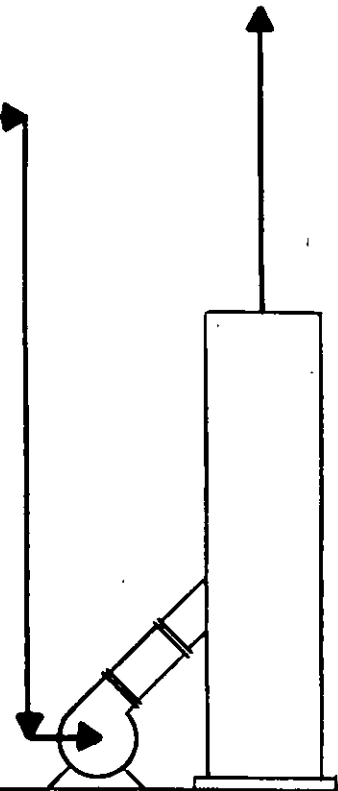
VIBRATING PAN  
CONVEYOR  
104-  
50' VIBRATING  
PAN CONVEYOR  
104-14-0053



PRODUCT  
ELEVATOR  
104-07-0054



SCRUBBER  
RECYCLE  
TANK



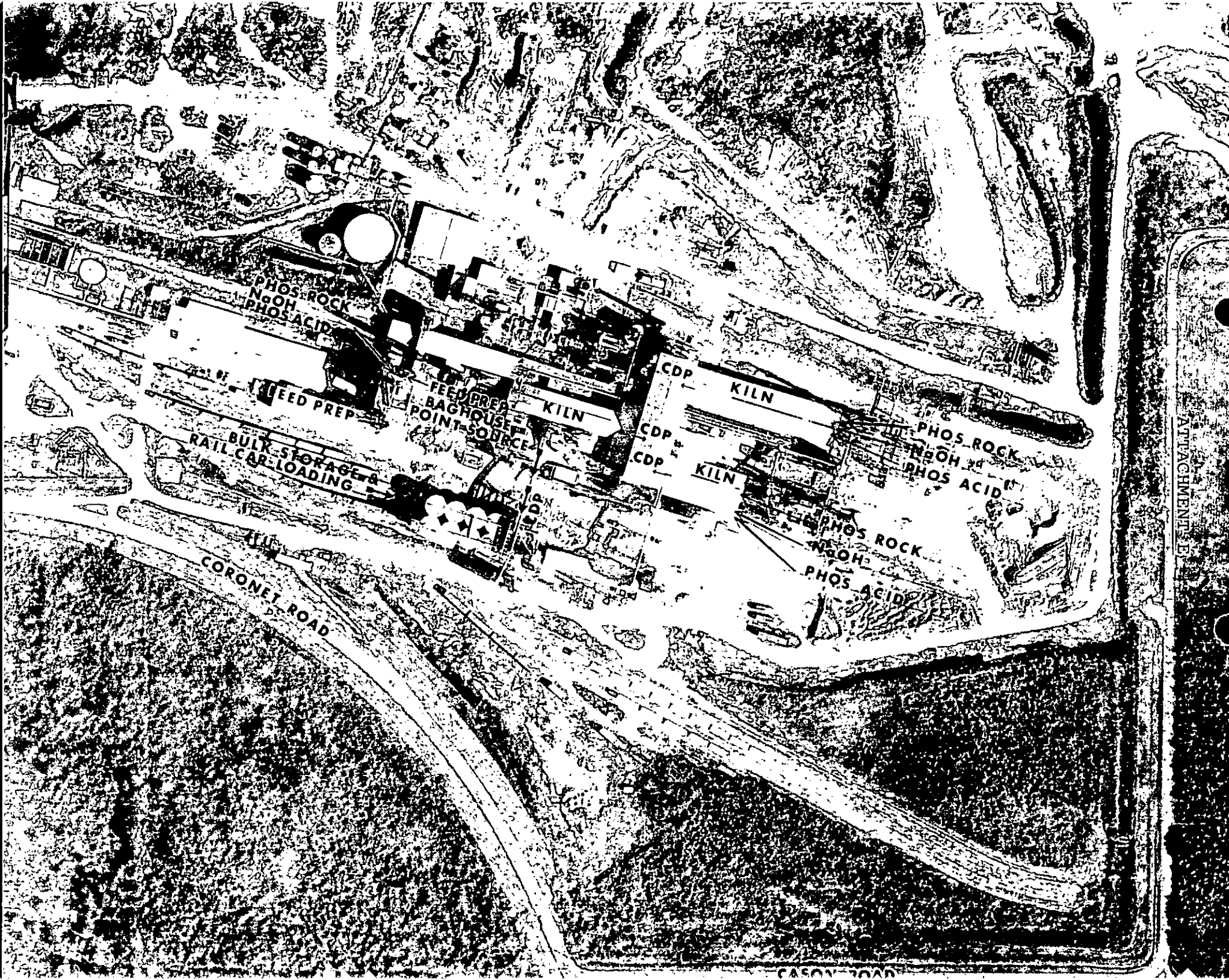
BLOWER  
STACK

FEED PREP AREA  
ROCK HANDLING

DUST PARTICULATE  
EMISSION COLLECTION  
SYSTEM - WET

ATTACH. D





PHOS ROCK  
NaOH  
PHOS ACID

FEED PREP

FEED PREP  
BAGHOUSE  
POINT SOURCE

KILN

CDP

KILN

CDP

CDP

KILN

PHOS ROCK  
NaOH  
PHOS ACID

PHOS ROCK  
NaOH  
PHOS ACID

CORONET ROAD

CASON ROAD

ATTACHMENT E