

CENTRAL PHOSPHATES, INC., Subsidiary of

P.O. Drawer L.  
Plant City, Florida 33566  
Telephone: 813/782-1591



**CF Industries, Inc.**

Plant City Phosphate Complex

May 3, 1989

Mr. William Thomas and  
Mr. Willard Hanks  
Division of Air Resources Management  
Florida Department of Environmental  
Regulation  
2600 Blair Stone Road, Room 338  
Tallahassee, Florida 32399-2400

Re: Central Phosphates, Inc.  
Plant City Phosphate Complex

Dear Bill and Willard:

We would like to thank you for meeting with us in Tallahassee last Friday to discuss an air permitting question regarding one of the sources at Central Phosphates, Inc.'s (CPI's) Plant City Phosphate Complex. This letter is intended to provide relevant facts, explain CPI's outlook on this matter, and facilitate an expeditious response from the Department of Environmental Regulation (DER). Of course, we are hopeful that DER will agree with our conclusions.

1. The Issue

CPI is planning to complete installation of a cooler on the "Y train" (one of four diammonium phosphate, or "DAP" units) as authorized under the construction permits for the Y train located at the Plant City Phosphate Complex. The complex is a "major facility" as defined at Rule 17-2.100(113). CPI seeks DER confirmance that completion of the cooler installation will not (1) require a new construction or operation permit (or modification of previously issued permits); (2) trigger applicability of New Source Performance Standards codified at 40 CFR Part 60, Subpart V (adopted by reference in DER rules at 17-2.660); or (3) require PSD new source review.

2. Factual and Regulatory Background

On May 30, 1974, CPI filed with DER (then Department of Pollution Control) an application for a permit to construct the X, Y, and Z trains at the above-referenced facility. A copy of that application is appended as Attachment A. The



application reflects that the X, Y, and Z trains were proposed and designed to accommodate DAP or granular triple superphosphate (GTSP) production. A process flow drawing indicating CPI's intent to install coolers -- which are utilized only in the DAP production mode -- is reflected in Diagram E of the application. Moreover, the flow rate (cfm) provided for each train (page 7-C of the application) purposefully included levels that accommodate cooler operation. DER issued the construction permit following the May 30, 1974 submittal. Although CPI is unable to find its copy of the construction permit (AC29-2339, issued June 12, 1974), it is known that this permit approved construction of the X, Y, and Z trains as reflected in the application. CPI "commenced construction" of the X, Y, and Z trains prior to October 22, 1974, upon which date NSPS for DAP (Subpart V) and GTSP (Subpart W) were proposed. (This construction was also "grandfathered" under the Clean Air Act's PSD program, which applies to construction of major facilities commenced on or after June 1, 1975.) CPI originally installed and operated a cooler on the Z train, and originally installed scrubber capacity and the foundation for another cooler on the Y train. For the first several years of operation, however, the Y train produced GTSP; therefore, installation and operation of that cooler was deferred.

Following the conversion of Y train from GTSP to DAP production there was substantial discussion in late 1978 between CPI, DER, and EPA as to whether this shift in production would trigger the Subpart V NSPS. By letter to EPA (with copy to DER) dated August 17, 1978, CPI provided substantial project scope documentation clearly reflecting that the X, Y, and Z trains were originally designed to produce GTSP or DAP. (A copy of the August 17, 1978 letter, with its attachments, is appended as Attachment B.) On the basis of this and other correspondence, EPA and DER agreed that the crossover from GTSP to DAP production did not trigger NSPS Subpart V. By letter dated October 19, 1978 (Attachment C), EPA stated that based on the definitions of "new source" and "existing source", the "apparatus (e.g., 'Y train') constructed prior to proposal of standards . . . is considered an 'existing facility' even if the apparatus is subsequently altered in such a way to accommodate DAP production." (Parenthetical in original, emphasis added.)

On July 15, 1976, CPI filed an application (Attachment D) for a construction permit confirming the DAP conversion. The application reflected CPI's intent to make the Y train "exactly the same as [the] Z DAP", which, as already noted, was equipped with a cooler. DER issued the requested construction permit (No. AC29-2471) on August 10, 1976 (Attachment E). This permit authorized the conversion "in accordance with the application." Subsequent operation permits have continued to confirm this authorization.

### 3. Information Relating to the Cooler

Most DAP production units in the United States include a product cooler system between the drying mechanism and conveyance to storage. (See, for example, EPA's November, 1979 "Review of NSPS for Phosphate Fertilizer Industry" and May, 1977 "Inspection Manual for NSPS: Phosphate Fertilizer Plants", each of which reflect coolers as standard components in DAP facilities.) As already noted, complete cooler installation and operation was initially deferred on the Y train because this train was originally operated in the GTSP mode. Thus, due to the unique dual-mode operational capabilities of the Y train, there logically was a hiatus before finalizing installation of all components of the permitted installation. Moreover, the Y train cooler was not immediately installed after conversion to DAP in 1978 because CPI's means of transporting DAP from that unit did not necessitate a cooled product. However, certain changes in shipping practices now necessitate such cooling, and, as a result, CPI intends to install the cooler.

The foundation and final stage scrubber for the Y train cooler have long been in place. The cooling mechanism itself will be a rotating drum identical in design and operation to the Z train and original project design. Air will be drafted by fan through the drum cooler to effect cooling of the product granules from 185° F to 120° F. Dust from the cooler will be directed to a cyclone for process recovery of valuable product, and then to a wet venturi/cyclonic scrubber before discharge to the existing packed scrubber. The result is an environmentally superior product with reduced dust emissions from the storage and shipping areas.

The Y train cooler will improve product quality (by lowering its temperature), but will have no bearing upon production rate. Due to its inherent design and operational specifications, the Y train cooler will contribute no more than de minimis particulate matter and total fluoride air emissions. As can be seen from Attachment F, stack test data submitted to DER for Z train, which is identical to the Y train with cooler installation completed, show Z train stack emissions have been only 10% of permit limits for particulate matter and 35% of permit limits for fluorides. Similarly, Y train particulate matter and fluorides emissions subsequent to completion of cooler installation will be well within the permit limitations.

### 4. Why Installation of the Cooler on the Y Train Does Not Require Further DER Permitting, Trigger NSPS, or Implicate New Source Review.

(a) Permits -- The construction permits for the Y train contemplated and authorized installation of a cooler.

Moreover, CPI's current Y train operation permit authorizes CPI "to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents, attached hereto and on file with the Department . . . ." (Attachment G). Because the cooler for the Y train was referenced in permitting materials provided and still on file with DER, no new construction permit or operation permit is required. CPI intends to complete now what has been approved.

Completing the cooler installation cannot be considered a "modification" because that term encompasses only "physical changes" or "changes in method of operation." See Rule 17-2.100(120). (Emphasis added.) Finalizing installation of the cooler does not constitute a "change" to the Y train because the original application materials provided to DER, and the current emission limitations reflected in permit A029-88151, account for cooler installation and operation. There is, then, neither a legal requirement that CPI apply for new permits (or for modification of existing permits), nor an environmental rationale which would call for such permitting.

(b) NSPS -- EPA and DER have previously agreed that the conversion of the Y train from GTSP to DAP was not a modification or new construction that made applicable the Subpart V NSPS. Finalizing installation of the Y train cooler merely consummates the GTSP/DAP conversion by finishing emplacement of an inherent DAP process component that was originally planned, applied for, and approved. Again, completing installation of the cooler is not a "change"; it simply finalizes utilization of a design feature already approved.

(c) New Source Review -- Completing installation of the cooler is not a "modification" that could potentially trigger PSD review because it does not represent a "change" in operations. Moreover, new source review is not implicated because the total annual emission loading attributable to the Y train cooler will be well below the "significance" thresholds for PM (25 TPY), PM<sub>10</sub> (15 TPY), and fluoride (3 TPY). Rule 17-2.500, Table 500-2.<sup>10</sup>

Thank you for your attention to this matter. We trust that you will let us know if you have any questions regarding the information provided in this letter.

Very truly yours,

CENTRAL PHOSPHATES, INC.

*Paul R. Roberts*  
Paul R. Roberts  
Manager Engineering



State of Florida  
Department of Air and Water Pollution Control

Application For Permit to Construct Air Pollution  
Sources

Applicant  
(Owner or authorized agent)

Rocco L. Russo, Plant Manager  
(Name and Title)

Name of Establishment

Central Phosphates, Inc.  
(Corporation, Company, Political SD, Firm, etc.)

Mailing Address

P. O. Drawer L, Plant City, Florida 33566  
10 miles North of Plant City on the Hillsborough  
Pasco County Line on Highway 39.  
(Number and Street) (City).

Location of Pollution Source

Hillsborough  
(County)

82° 08' 37" W } X  
8° 09' 57" N }  
2° 08' 37" W } Y  
8° 09' 55" N }

82° 08' 37" W } Z  
28° 09' 53" N }

Nature of Industrial Operation

GTSP - Phosphate Fertilizers

Permit Applied For:

Project Engineer:

New Source   
Permit No. AC-33040

George Buard Shearon  
Name

Existing Source after modification

CF CHEMICALS, INC.  
Firm

Existing Source

P. O. Box 1480, Bartow, Florida 33830  
Mailing Address

Relocation, expansion or reconstruction

George B. Shearon  
Signature

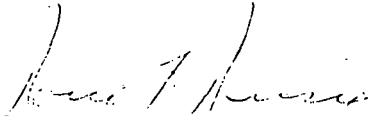
5305  
Florida Registration Number

For Department's Use Only

Permit No.

Date:

The undersigned owner or authorized representative\* of Central Phosphates, Inc. is fully aware that the statements made in this form and the attached exhibits and statements constitute the application for a Construction Permit from the Florida Department of Air and Water Pollution Control and certifies that the information in this application is true, correct and complete to the best of his knowledge and belief. Further, the undersigned agrees to comply with the provisions of Chapter 403, Florida Statutes and all the rules and regulations of the Department or revisions thereof. He also understands that the Permit is non transferable and, if granted a permit, will promptly notify the Department upon sale or legal transfer of the permitted establishment.



\_\_\_\_\_  
Signature of owner or agent.

Rocco L. Russo, Plant Manager.

Name and Title

Date: 5/30/74

\*Attach letter of authorization.

Letter of authorization on file in your office.

Estimated Schedule of  
Construction of the Project

Estimated completion date: January 1975

Information Regarding Pollution Sources  
and Proposed Control Facilities

1. Estimated cost of proposed control facilities \$ 1,950,000.
2. Prepare and attach an 8½" x 11" flow diagram, without revealing trade secrets, identifying the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit where gaseous emissions and/or airborne particulates are involved and where finished products are obtained.
3. Include an 8½" x 11" plot plan showing location of manufacturing processes and location of outlets for airborne emissions. Relate all flows to the flow diagram.
4. Submit an 8½" x 11" plot plan showing the exact location of the establishment and points of discharge in relation to the surrounding area, residences and other permanent structures and roadways.

**I General**

A. Raw Materials and Chemicals Used.

Description	Utilization Tons/day, Lbs./day, etc.	Approximate Contaminant Content		Relate to Flow Diagram
		Type	Percent Dry Weight	
Phosphoric Acid 40% P <sub>2</sub> O <sub>5</sub> crude	2122 T/D	F	2.0	E2
Phosphate Rock 74 BPL	955 T/D	F	3.8	E1



**B. Fuels**

Type (Be Specific)	Daily Consumption	Gross Maximum Heat Output	Relate to Flow Diagram
Natural Gas	2.448 MM SCF	2448 MM BTU/DAY	E7
(No. 5 Fuel Oil used as standby		2448 MM BTU/DAY	E7)

**C. Products**

Description	Average Daily Production (Tons/Day, Lbs/Hr. etc.)
GTSP	2448 T/D

D. Normal operation: Hours/Day 24 Day/Week 7

If operation or process is seasonal, describe: \_\_\_\_\_

**II Identification of Air Contaminants**

Compounds of:

Also —

- |          |                                     |              |                                     |               |                          |
|----------|-------------------------------------|--------------|-------------------------------------|---------------|--------------------------|
| Chlorine | <input type="checkbox"/>            | Hydrocarbons | <input type="checkbox"/>            | Acid Mists    | <input type="checkbox"/> |
| Fluorine | <input checked="" type="checkbox"/> | Smoke        | <input type="checkbox"/>            | Odors         | <input type="checkbox"/> |
| Nitrogen | <input type="checkbox"/>            | Fly Ash      | <input type="checkbox"/>            | Radioisotopes | <input type="checkbox"/> |
| Sulfur   | <input type="checkbox"/>            | Dusts        | <input checked="" type="checkbox"/> | Other _____   | <input type="checkbox"/> |

Specific Compounds SiF<sub>4</sub>, GTSP Dust

### III Air Pollution Control Devices

Contaminant	Control Device	Relate to Flow Diagram	Operating Efficiency	Conditions (Particle Size Range, Temp. etc.)
F	Scrubbers	E5	99.85	0-10 $\mu$ 110°F

Provide a brief description of the control device or treatment system. Attach separate sheets giving details regarding principle of operation, manufacturer, model, size, type and capacity of control treatment device and the basis for calculating its efficiency. Show any bypasses of the control device and specify when such bypasses are to be used and under what conditions.

The additional scrubbers will be designed or purchased under rigid specifications by a major engineering contractor. They will have 175,000 SCFM capacity and consist of a venturi primary scrubber and a spray or packed tail gas scrubber. The overall efficiency will exceed 99.8%.

$$\text{Efficiency} = \left( \frac{F \text{ in} - F \text{ out}}{F \text{ in}} \right) \times 100$$

No bypasses are provided.

#### IV. Contaminant Balance

From contaminant content in raw materials, waste products, and manufactured products, summarize daily contaminant flow:

	Pounds Contaminant per Day	
	Input	Output
<b>List Raw Materials:</b>		
Phosphoric Acid	F	84,880
Phosphate Rock	F	72,580
<b>List Manufactured Products:</b>		
GTSP 2.50% F	F	122,400
<b>List Solid Wastes:</b>		
<b>List Liquid Wastes:</b>		
Scrubber Water	F	35,000
<b>Totals</b>	157,460	157,400
<b>Airborne Wastes (Total input minus total output)</b>		
	F 60	

Note: If more than one contaminant, specify each  
 Contaminants recovered in control devices should be shown as either a liquid or a solid waste.

## V. Discharged Emissions to Atmosphere

### A. Discharge Points and Design Conditions

Discharge Point Description	Relate to Flow Diagram	Height above Ground (ft.)	Cross Sect. Area (sq. ft.)	Periods of Flow		Temp. of Discharge (°F)
				Hrs./Day	Hrs./Wk.	
Stack	E5 X	125	42.2	24	168	110
Stack	E5 Y	125	42.2	24	168	110
Stack	E5 Z	125	42.2	24	168	110

### B. Tabulation of Discharged Contaminants

Discharge Point - Relate to Flow Diagram	Flow Rate at Std. Cond. (cfm)	Total Contaminants Discharged					
		Particulates		Other Contaminants (F <sup>-</sup> , SO <sub>x</sub> , NO <sub>x</sub> etc.)			
		Gr/ft <sup>3</sup> (Std. Cond.)	lbs./Day	Gr/ft <sup>3</sup> (Std. Cond.)	lbs./Day	Gr/ft <sup>3</sup> (Std. Cond.)	lbs./Day
E5 X	175,000	0.0033	122	F 0.00056	20		
E5 Y	175,000	0.0033	122	F 0.00056	20		
E5 Z	175,000	0.0033	122	F 0.00056	20		
Totals			366	F	60		

*flow rates are that would be required for coolers*

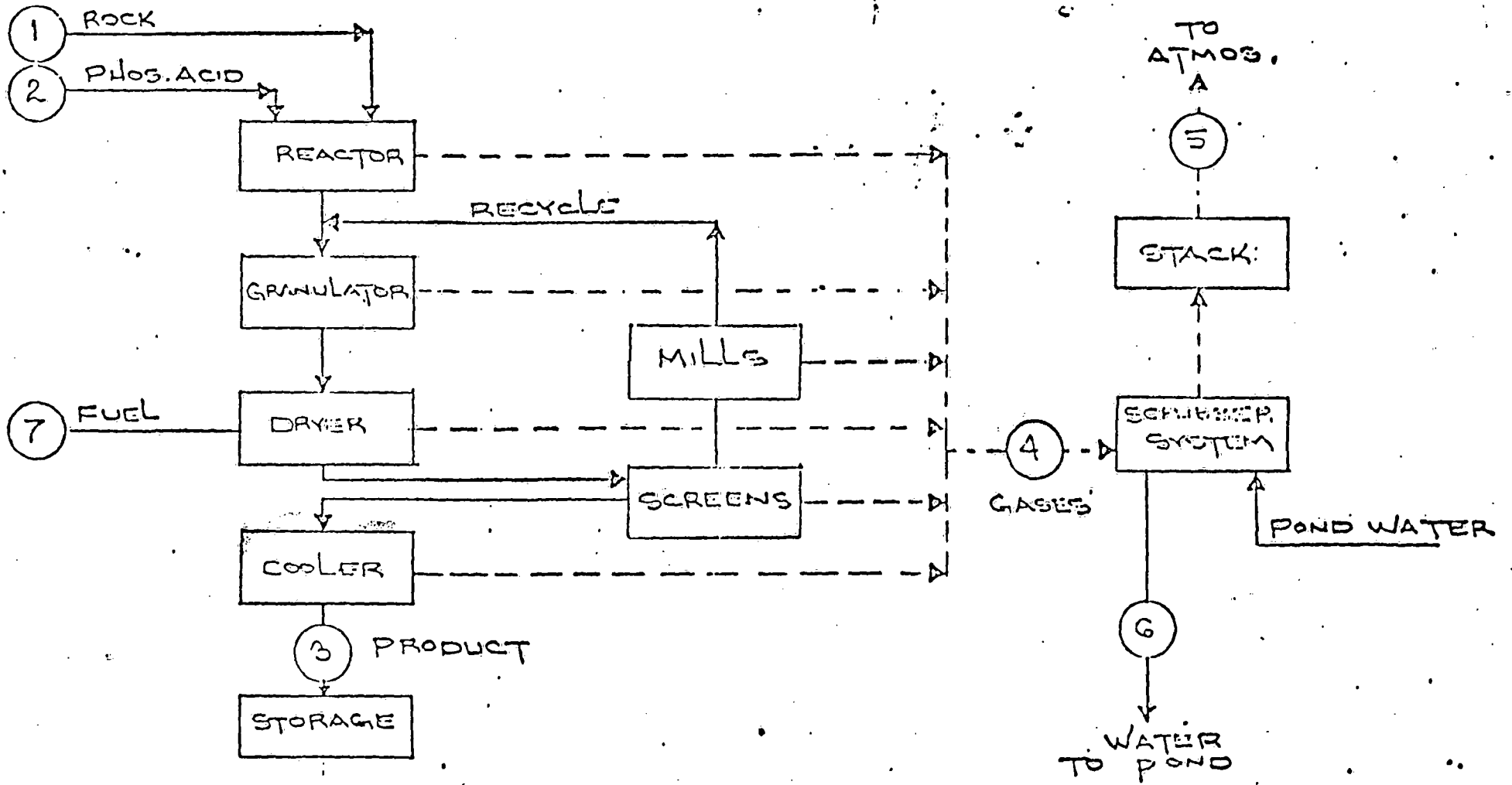
## VI. Treatment and Disposal of Liquid and Solid Waste

1. Identify the contaminants which will be discharged as liquid or solid wastes.

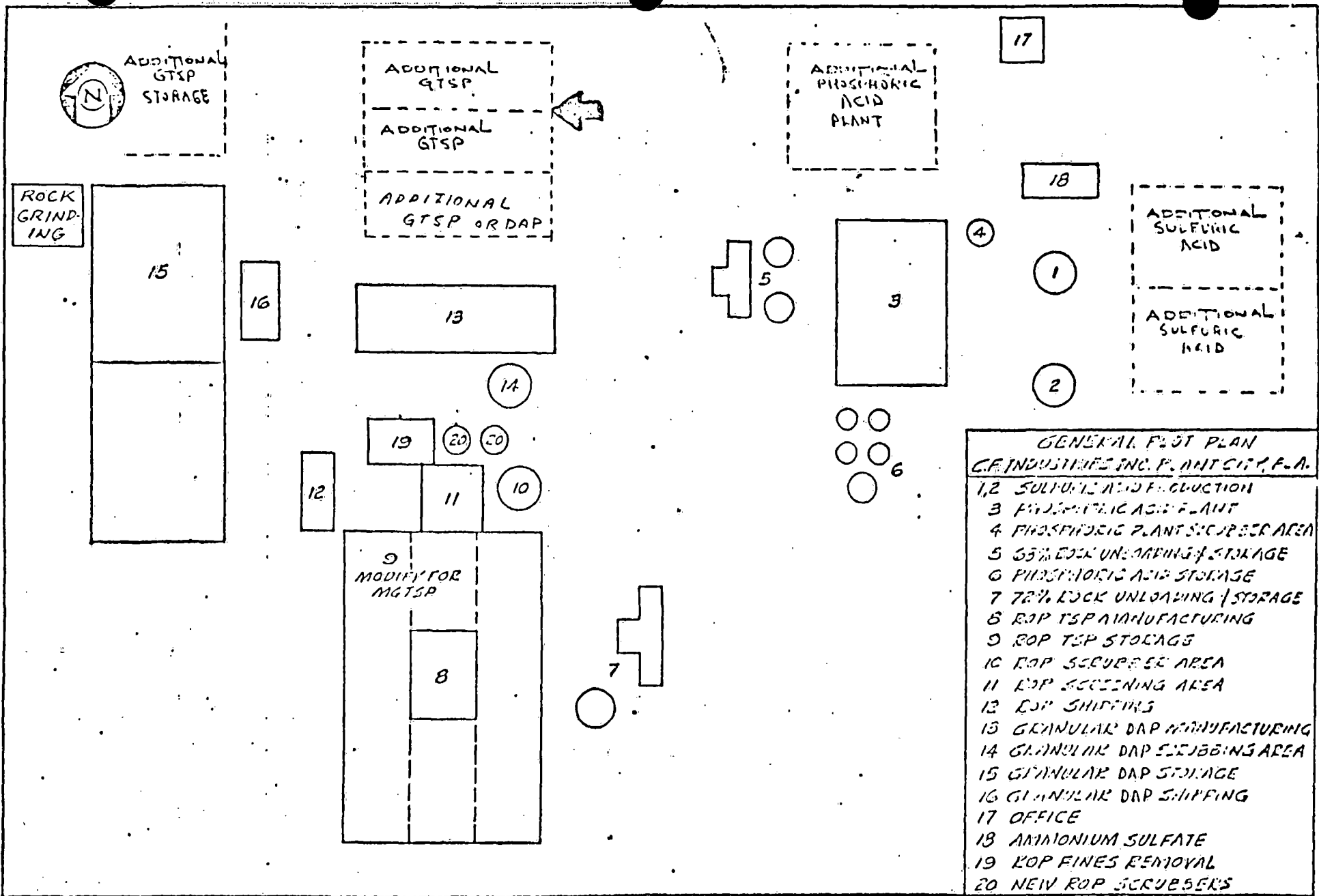
The scrubber water will contain F and some  $P_2O_5$ .

2. Describe the treatment and disposal of liquid and solid wastes. Indicate the concentrations and volume of individual contaminants in treated wastes before disposal.

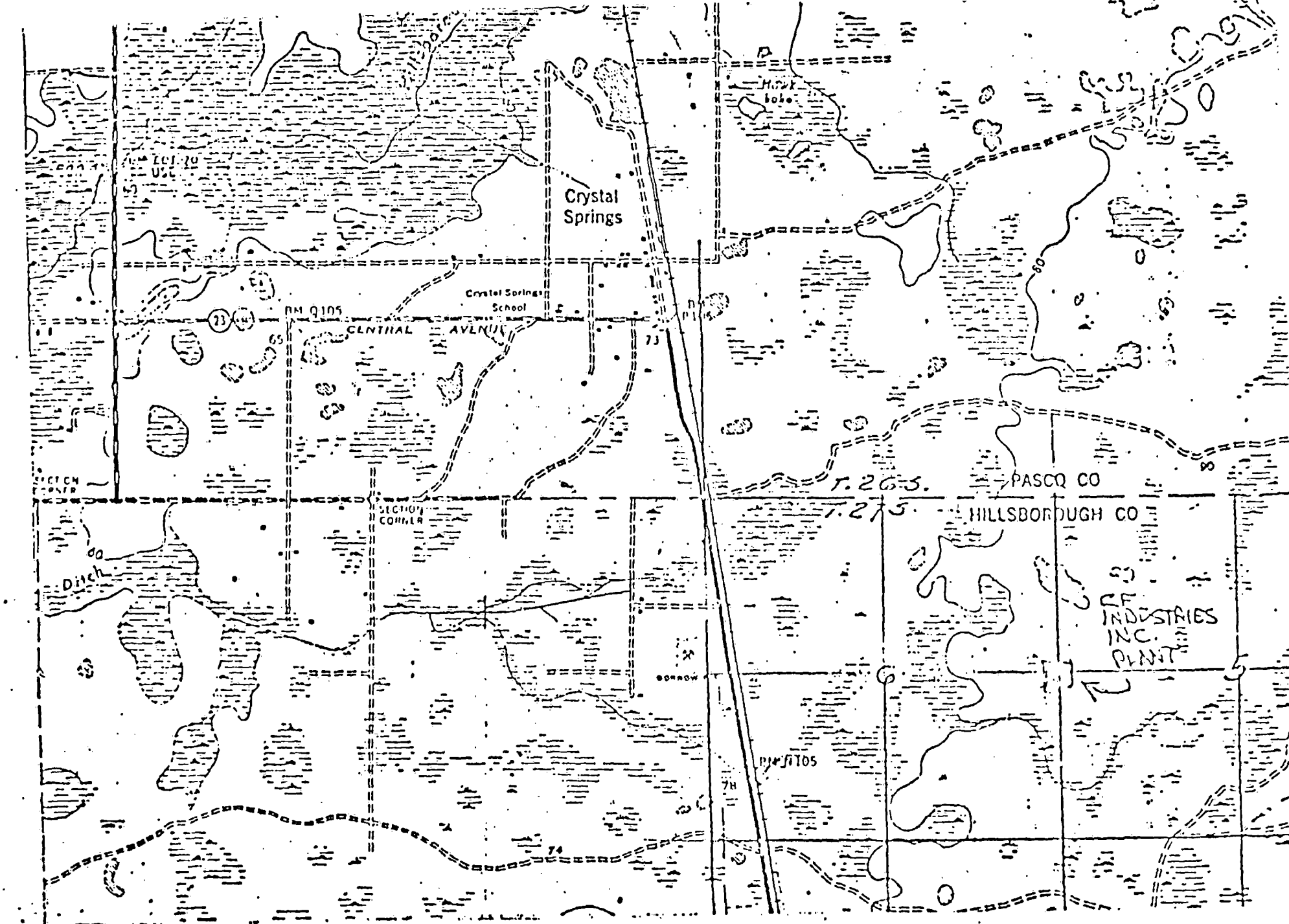
No solid wastes will be discharged from this operation. Liquid waste scrubber water is sent to the gypsum pond.



GTSP FLOW  
DIAGRAM  
E



- GENERAL PLANT PLAN**  
**C.F. INDUSTRIES INC. PLANT CITY, F.A.**
- 1, 2 SULFURIC ACID PRODUCTION
  - 3 PHOSPHORIC ACID PLANT
  - 4 PHOSPHORIC PLANT SCRUBBER AREA
  - 5 55% ROCK UNLOADING & STORAGE
  - 6 PHOSPHORIC ACID STORAGE
  - 7 72% ROCK UNLOADING / STORAGE
  - 8 ROP TSP MANUFACTURING
  - 9 ROP TSP STORAGE
  - 10 ROP SCRUBBER AREA
  - 11 ROP RECEIVING AREA
  - 12 ROP SHIPPING
  - 13 GRANULAR DAP MANUFACTURING
  - 14 GRANULAR DAP SCRUBBER AREA
  - 15 GRANULAR DAP STORAGE
  - 16 GRANULAR DAP SHIPPING
  - 17 OFFICE
  - 18 AMMONIUM SULFATE
  - 19 ROP FINES REMOVAL
  - 20 NEW ROP SCRUBBERS



Crystal Springs

Crystal Springs School

CENTRAL AVENUE

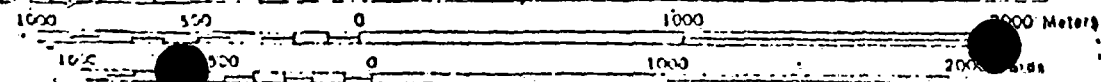
PASCO CO

HILLSBOROUGH CO

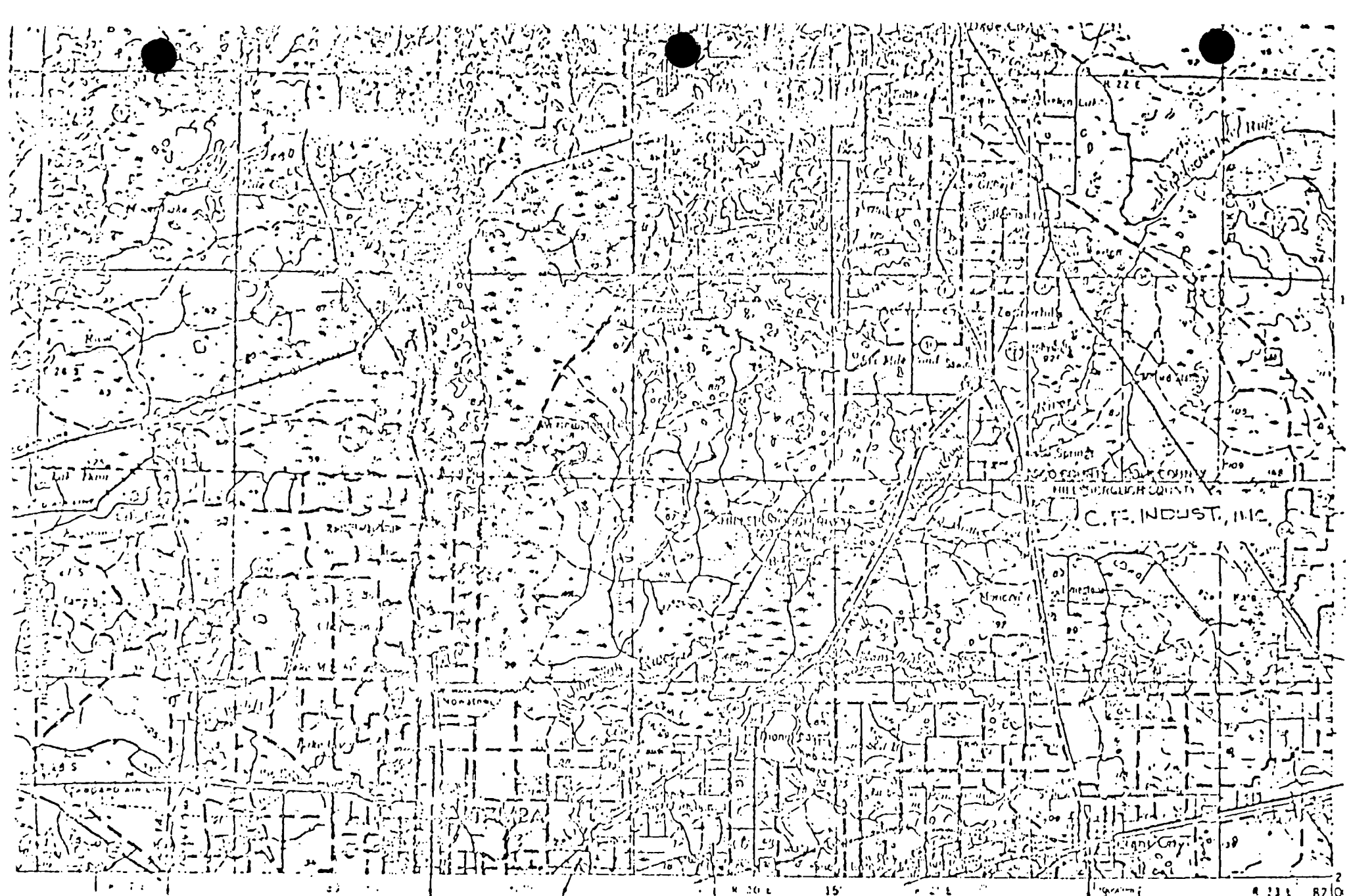
INDUSTRIES  
PANT

SCALE 1:24000

1 Mile







TAMPA 6 MI. 3 MI. TO FLORIDA RR. GIBSONTON 6 MI. RIVERVIEW 7 MI. TAMPA 7 MI. SPFFNER 4 MI. 4 MI. TO FLORIDA RR.

INTERIOR-GEOLOGICAL SURVEY, WASHINGTON, D. C.—1959 NS  
 MB 8408

RELIABILITY DIAGRAM



TO WASHINGTON 100 MILES  
 APPROXIMATE TOWNSHIP  
 OR RANGE LINE

175	176	177
178	179	180
181	182	183

CENTRAL PHOSPHATES, INC., Subsidiary of

C. J. Martin  
P.O. Drawer L.  
Plant City, Florida 33566  
Telephone: 813/782-1591



**CF Industries, Inc.**

Plant City Phosphate Complex

August 17, 1978

Mr. Gregory J. Glahn  
Acting Chief  
Air Programs Branch  
Environmental Protection Agency  
345 Courtland Street  
Atlanta, Georgia 30308

SUBJECT: Central Phosphates, Inc.  
"Y" Train

Dear Mr. Glahn:

This letter is in response to your letter dated July 7, 1978. In our initial transmittals on this matter (February 24 and March 22, 1978), Central Phosphates, Inc. (CPI) attempted to demonstrate that the change in granulation products, from GTSP to DAP, did not constitute modification under 40 CFR 60.14. Your July 7 letter indicates that EPA is of the opinion that in the DAP mode, Y Train is a new source and, in the GTSP mode, Y Train is an existing source. CPI does not share in that conclusion -- we believe that Y Train granulation plant is an existing source in either mode. The remainder of this letter will substantiate our position.

Under section 60.14 Modification, there are certain actions that, by themselves, are not considered a modification. The following is an excerpt of that section:

- (e) "The following shall not, by themselves, be considered modifications under this part:
- (4) Use of an alternative fuel or raw material if, prior to the date any standard under this part becomes applicable to that source type, as provided by 60.1, the existing facility was designed to accommodate that alternative use. A facility shall be considered to be designed to accommodate an alternative fuel or raw material if that use could be accomplished under the facility's construction specifications as amended, prior to the change. Conversion to coal required for energy considerations, as specified in section 119 (d) (5) of the Act, shall not be considered a modification."

Attachment B

The key phrase is "designed to accommodate an alternative use". We ascertain that Y Train, a phosphate granulation plant, was designed to produce either DAP or GTSP.

We have attached the following materials from the year 1973 to support our point:

1. Proposal No. P-2053-C as submitted by Dorr-Oliver, April 17, 1973;
2. Project Scope as developed for CPI by Gordon F. Palm and Associates, June 11, 1973;
3. Dorr-Oliver Flowsheets 5.1F5, 9, 12, 13, 15 and 16.

On page 11 of the Project Scope, a discussion of the design for the granulation reactor is presented. Clearly, DAP granulation capability is designed into each of the three trains: X, Y and Z. The second reactor was "designed for use as a pre-neutralizer for DAP operation".

On pages 23-24 of the Project Scope, a discussion of scrubbers and fans is presented. Note in particular that the 1st Stage Scrubber is designed to accommodate DAP production for all trains. Similar design considerations are noted for the 2nd Stage Scrubber. For the 3rd Stage Scrubber on X and Y Train, design was such that these scrubbers were sized for inclusion of future cooler gases. Coolers are used only in DAP granulation plants.

Similar references to the above design considerations are found in Proposal No P-2053-C by Dorr-Oliver, the prime contractor of X, Y and Z granulation plants. The addition of coolers is discussed in Part II, Section B, page 1. Fume scrubbing is discussed in Part V, Section B, page 3. The acid feed system is discussed in Part V, Section B, page 4.

Finally, the Dorr-Oliver Flowsheets clearly demonstrate that the design of all three plants included DAP as a granulation product. Flowsheet 5.1F9 is highlighted in blue to indicate location of nozzles for future NH<sub>3</sub> spargers on Y Train.

Flowsheets 5.1F12 and 13 demonstrate that, the basic equipment difference between these two flowsheets (trains) is that 5.1F12 has a conveyor (for GTSP) while 5.1F13 has a product cooler (for DAP). Note that each flowsheet is entitled "Granular TSP/DAP Fertilizer, X, Y, Z (Plant B)." The preceding clearly demonstrates that Y Train was "designed to accommodate an alternative use" -- that being, DAP granulation.

Flowsheets 5.1F15 and 16 demonstrate the following points:

1. Y Train Abatement Scrubber was designed to handle 174,000 ACFM of stack gases (bracketed number) although in the GTSP mode the flowrate is 121,000 ACFM (unbracketed number).

August 18, 1978

2. Note that bracketed and unbracketed numbers are one in the same for Z Train where DAP was initially produced. Also note that for Z Train the ACFM is 174,000 while anticipated DAP operation on Y Train (bracketed) is likewise 174,000 ACFM. Drawing 5.1F5 states in the "Legend for Process Flows" that normal flow is unbracketed and design flow is bracketed.

Again, the flowsheets clearly indicate that DAP granulation was designed into Y Train.

Summary

The previous discussion clearly demonstrates that Y Train was "designed to accommodate an alternative use", that being, DAP granulation. Therefore, under the provision of 60.14 (e), the change in granulation products from GTSP to DAP does not constitute a modification under 40 CFR 60. We seek your agreement in this determination and would appreciate a response at your earliest convenience.

In September we are planning to again switch from GTSP to DAP production. However, since we do not agree with your letter of July 7, we do not believe we are required to meet that letter's conditions until this matter is finally resolved.

Please advise us of your findings in this matter. We appreciate your assistance.

Sincerely,

*George B. Shearon*  
*by W.A.S.*

George B. Shearon  
General Manager

GBS:cjr

Attachments

cc: Dr. James Wu  
Dr. J. P. Subramani  
W. A. Schimming

bcc: M. S. Scott  
W. A. Moody  
C. J. Martin  
A. E. Cascino  
W. H. Green - Mahoney,  
Hadlow & Adams

GORDON F. PALM & ASSOCIATES, INC.

2 KAPLAN  
3 DI SANTO/ADME  
4 LANGRISH  
5 MERLINE/ST  
6 ERLEY ALBERNA

PROJECT SCOPE  
GRANULAR TRIPLESUPERPHOSPHATE  
PLANTS  
WITH  
STORAGE & SHIPPING  
CF INDUSTRIES, INC.  
PLANT CITY PHOSPHATE COMPLEX  
PHASE III

cc: J.A. MATSUDA  
L. W. ...  
... → ...

cc: ...  
T. ...

GORDON F. PALM & ASSOCIATES  
LAKEBAND, FLORIDA

7.30 DUAL PIPELINES WILL BE PROVIDED WITH TAKE-OFFS TO EACH SHIFT TANK. EACH PIPELINE WILL BE EQUIPPED WITH MAGNETIC FLOW METERS WITH SEPARATE RECORDS AND TOTALIZERS ON THE CONTROL PANEL. PIPING TO BE DESIGNED SO THAT ONE LINE CAN BE ON WASH AND ONE LINE IN OPERATION WITH SWITCHING OF LINES BY MANIPULATION OF VALVES. DOUBLE BLOCK AND BLEED VALVES AT WASH CONNECTIONS SHALL BE PROVIDED.

### C. TRIPLE REACTORS

#### 1.00 DESIGN

1.10 FIRST TRIPLE REACTOR OF EACH TRAIN WILL BE DESIGNED USING ENGINEERS' DESIGN CRITERIA FOR TRIPLE REACTORS. IT WILL OVERFLOW BY GRAVITY INTO THE SECOND TRIPLE REACTOR.

1.20 SECOND TRIPLE REACTOR OF EACH TRAIN WILL BE DESIGNED FOR USE AS A PRE-NEUTRALIZER FOR DAP OPERATION AND WILL HAVE A MINIMUM HEIGHT OF 20 FEET TO ALLOW A MINIMUM OF 50% FREEBOARD FOR DAP OPERATION.

1.30 FOR DAP OPERATION, AN NH<sub>3</sub> VAPORIZER CONSTRUCTED OF 316L SS WILL BE PROVIDED TO SUPPLY NH<sub>3</sub> VAPOR TO THE PRE-NEUTRALIZER (VII-C-1.20).

#### 2.00 RETENTION TIME

TWO (2) AGITATED REACTORS IN SERIES WILL BE PROVIDED. DESIGN SLURRY RETENTION TIME FOR TRIPLE OPERATION TO BE DETERMINED BY THE ENGINEERS.

#### 3.00 LOCATION

REACTORS WILL BE LOCATED AT GRADE AND SLURRY WILL BE PUMPED TO THE GRANULATOR.

W. SCRUBBERS & FANS

1.00 PERFORMANCE

SCRUBBERS MUST BE DESIGNED FOR OPERATION WHEN PRODUCING TRIPLE OR DAP. MAXIMUM GASEOUS FLUORIDE AND PARTICULATE EMISSIONS ARE AS SPECIFIED ON PAGE 1, INCLUDING ENTRAINMENT, AND WILL BE SAMPLED USING STATE OF FLORIDA STANDARD SAMPLING PROCEDURES.

ENGINEERS ARE TO PROVIDE WITH THEIR BID INLET AND OUTLET F. LOADING AND ACFM FOR EACH SCRUBBER STAGE OF EACH SCRUBBING CIRCUIT FOR TRIPLE AND FOR DAP OPERATION.

ALL TANKS AND SEAL TANKS IN THE SCRUBBER AREA MUST BE VENTED TO THE SCRUBBERS.

2.00 DESIGN

THE FOLLOWING DESIGN FEATURES ARE TO BE USED FOR THE SCRUBBER SYSTEM WHICH ARE SPECIFIED IN W-3.00 FOLLOWING. ACCESS TO ALL MANHOLES, VENTURI SECTIONS, PACKED SECTIONS, ETC., MUST BE FROM PLATFORMS AND STAIRS. LADDERS ARE NOT ACCEPTABLE -- NO EXCEPTIONS !!

2.10 1ST STAGE SCRUBBER

THE 1ST STAGE SCRUBBER IN EACH SCRUBBING CIRCUIT WILL BE A LOW PRESSURE DROP VENTURI SCRUBBER WITH WET ELBOW, AND CYCLONIC SEPARATOR OF RUBBER-LINED STEEL OR FRP CONSTRUCTION. IT WILL SCRUB WITH ACID POND WATER FOR TRIPLE PRODUCTION AND WITH PHOSPHORIC ACID UP TO 42% P<sub>2</sub>O<sub>5</sub> FOR DAP PRODUCTION. THE CYCLONIC SEPARATORS WILL HAVE VERTICAL SEAL LEGS TO INDIVIDUAL SEAL TANKS WHICH WILL OVERFLOW BY GRAVITY THROUGH A COVERED LAUNDER TO A COMMON RUBBER-LINED STEEL SURGE TANK FOR ALL 1ST STAGE SCRUBBERS. BOTTOM TANGENTIAL INLET AND TOP CENTER OUTLET WILL BE PROVIDED TO MINIMIZE ACID ENTRAINMENT. THE SURGE TANK WILL BE EQUIPPED WITH RECIRCULATION PUMPS FOR USE IN DAP OPERATION. FOR TRIPLE OPERATION, ACID POND WATER WILL BE ONCE-THROUGH AND NOT RECIRCULATED.

2.20 2ND STAGE SCRUBBER

THE 2ND STAGE SCRUBBER WILL BE CYCLONIC WALL SPRAY TYPE OF RUBBER-LINED STEEL OR FRP CONSTRUCTION. BOTTOM TANGENTIAL INLET AND TOP TANGENTIAL OUTLET WILL BE PROVIDED. ACID POND WATER, ONCE THROUGH, WILL BE USED FOR SCRUBBING FOR TRIPLE AND DAP PRODUCTION. THE CYCLONIC SEPARATORS WILL HAVE VERTICAL SEAL LEGS TO INDIVIDUAL SEAL TANKS WHICH WILL OVERFLOW BY GRAVITY THROUGH A COVERED LAUNDER TO THE ACID POND WATER SUMP (VII-X).

SELF-CLEANING STRAINERS OF 316L SS CONSTRUCTION MUST BE INSTALLED ON THE POND WATER SUPPLY.

2.30 3RD STAGE SCRUBBER

2.31 TYPE & OPERATION

A COMMON 3RD STAGE SCRUBBER WITH A SPRAY SECTION AND COUNTERCURRENT GAS-LIQUOR FLOW WILL BE USED FOR FINAL FLUORIDE REMOVAL. ALL 2ND STAGE SCRUBBERS WILL DISCHARGE TO THIS SCRUBBER, OR ANY 1ST STAGE SCRUBBERS WHERE A 2ND STAGE IS NOT USED, WITHOUT EXCEPTION. NO 1ST STAGE OR 2ND STAGE SCRUBBERS WILL DISCHARGE DIRECTLY TO ATMOSPHERE.

SCRUBBING WILL BE WITH RECIRCULATED FRESH WATER AND CAUSTIC ADDITION. A 15,000 GALLON TANK WITH SUCTION HEATER TO STORE 50% CAUSTIC WILL BE PROVIDED BY THE ENGINEERS IN A LOCATION ADJACENT TO A ROAD FOR EASY FILLING FROM A TANK TRUCK. A CAUSTIC METERING PUMP AND A PH CONTROL SYSTEM WILL ALSO BE PROVIDED.

THE 3RD STAGE SCRUBBERS ON X & Y TRAIN WILL BE SIZED FOR INCLUSION OF FUTURE COOLER GASES.

CAUSTIC TREATED WATER FROM THE 3RD STAGE SCRUBBER WILL BE PUMPED WITH A TDH OF 60 FEET FROM THE CIRCULATING TANK TO THE BATTERY LIMITS.



CF Industries, Inc.  
Plant City Phosphate Complex Phase III  
Proposal No. P-2053-C

TABLE OF CONTENTS

VOLUME I

- I INTRODUCTION
- II SCOPE
  - A. GENERAL DEFINITION
  - B. DESIGN BASES
  - C. FACILITIES BY OTHERS
- III NOT USED
- IV NOT USED
- V PROCESS DATA
  - A. PROCESS DESCRIPTION
  - B. PLANT FEATURES AND TECHNICAL DISCUSSIONS
  - C. EQUIPMENT AND INSTRUMENT LISTS
  - D. RAW MATERIAL AND UTILITIES REQUIREMENTS
  - E. PLANT EFFLUENTS
  - F. GUARANTEES
- VI ENGINEERING AND MANAGEMENT SERVICES
  - A. ENGINEERING SERVICES
  - B. PROJECT MANAGEMENT
  - C. PROCUREMENT
  - D. FIELD CONSTRUCTION MANAGEMENT
- VII PROJECT EXECUTION
- VIII CONSTRUCTION
  - A. ESTIMATED CONSTRUCTION COSTS
  - B. NOT USED
  - C. SUBCONTRACTS
- IX PROJECT SCHEDULE

CF Industries, Inc.  
Plant City Phosphate Complex Phase III  
Proposal No. P-2053-C

## PART II

## SCOPE

## SECTION B - DESIGN BASES

The design of the plant, Dorr-Oliver's fees and the construction cost estimates are based on CFII's Proposal Request and Project Manual dated October 10, 1972 modified and revised by subsequent written and verbal communications, as further described below and detailed in this proposal.

1. The area available for the plant is assumed to be level with no differences in grade and to be of sufficient size to permit three (3) parallel layouts for the granulation units.
2. All work is based on compacted soils having an average soil bearing value of 3000 lb/ft<sup>2</sup> lending themselves to spread footing design without undue differential settlement. No piling is included and no unusual foundation dewatering will be necessary.
3. Granulation units are based on the following:
  - 3.1 Three (3) identical buildings, foundations and layout based on TSP/DAP unit.
  - 3.2 Equipment arrangement in TSP units same as TSP/DAP, but without cooler and associated DAP equipment.
  - 3.3 The scrubbing system for all three granulation units to be identical with the exception of a cooler scrubber in the TSP/DAP unit.
  - 3.4 One ground rock silo with cone bottom to serve all three units.
  - 3.5 One central control room and instrument board to control the three units.
  - 3.6 The two TSP units to have a common double capacity phosphoric acid storage and desulfation station. Separate storage and desulfation station for the TSP/DAP unit.
4. The general design and construction of the TSP storage building to be identical with in cross section to the existing building, with length to be decreased by full bay increments.
5. Shipping section layout and design is subject to modification, to be mutually agreed upon at a later date between CFII and Dorr-Oliver.
6. All required access roads, paving and yard lighting within the battery-limits is included.
7. A change house is included.
8. Electric power will be supplied by CFII at 13.8 KV and a primary transformer is included.

CF Industries, Inc.  
Plant City Phosphate Complex Phase III  
Proposal No. P-2053-M

## PART V

## THREE TRAIN GRANULATION PLANT

## B. PLANT FEATURES

## 10. (Continued)

The use of one silo for the three lines has the advantage of being able to supply all three lines with rock; in the previous system each silo could only serve one line. We consider that 1300 tons capacity is adequate using an adjacent rock grinding plant.

11. TV Coverage

Closed circuit TV system for monitoring granulating drum discharge and dryer feed chute condition.

12. Fines or Oversize Return from Storage

A hopper and feeder and conveying belt is provided in the storage building for metering TSP or DAP fines or oversize back to the plant from storage.

13. Scrap Reclaim

A scrap reclaim system is designed for each line.

14. Air Compressor System

The design includes an instrument air compressor and a spare, as well as a plant air compressor. Plant air requirements are for tools, about 15 SCFM per tool and used only intermittently for descaling.

15. Fume Scrubbing

An improved fume scrubbing system is provided, which will be able to meet the stringent Florida air pollution laws. In this system both the reaction fumes and the dryer fumes are given a three stage scrubbing with pond water (Venturi plus 2 stages of sprayed cyclonic). The dust system fumes are given a two stage scrubbing with pond water in a Venturi-cyclonic scrubber. Then, the combined fumes are given a scrubbing with fresh water in a tail gas scrubber which is a spray chamber. The fresh water is heated with NaOH to reduce F vapor pressure. Finally, the fume passes through an entrainment separator to the atmosphere. For DAP production, the cooler gases are scrubbed in a single stage cyclonic scrubber using fresh water recirculated solution, which is sent to waste (pond) or to the preneutralizer. The storage fume scrubbing is simpler because the fume is less severe. A single stage pond water sprayed cyclonic is followed by a single stage tail gas scrubber over which recirculated fresh water solution is pumped.

CF Industries, Inc.  
Plant City Phosphate Complex Phase III  
Proposal No. P-2053-M

## PART V

## THREE TRAIN GRANULATION PLANT

## B. PLANT FEATURES

## 15. (Continued)

The bleed out of caustic treated tail gas scrubber solution will amount to less than 5 gpm at about 0.5%  $\text{Na}_2\text{SiF}_6$  per line. The amount of NaOH fed per day is about 50 lb. per line. While it is considered that this solution could be handled in the present cooling pond without increasing measurably the soluble  $\text{Na}_2\text{O}$  in the pond water, it can also be added to the first stage liming pond where the soluble F will be precipitated by lime. If for some reason neither of these disposal points is practical the solution can be worked off in the feed acid. It represents a dilution of 950 TPD of product by about 200 lb. per day of solids, which is negligible.

16. Desulfation Acid Feed System

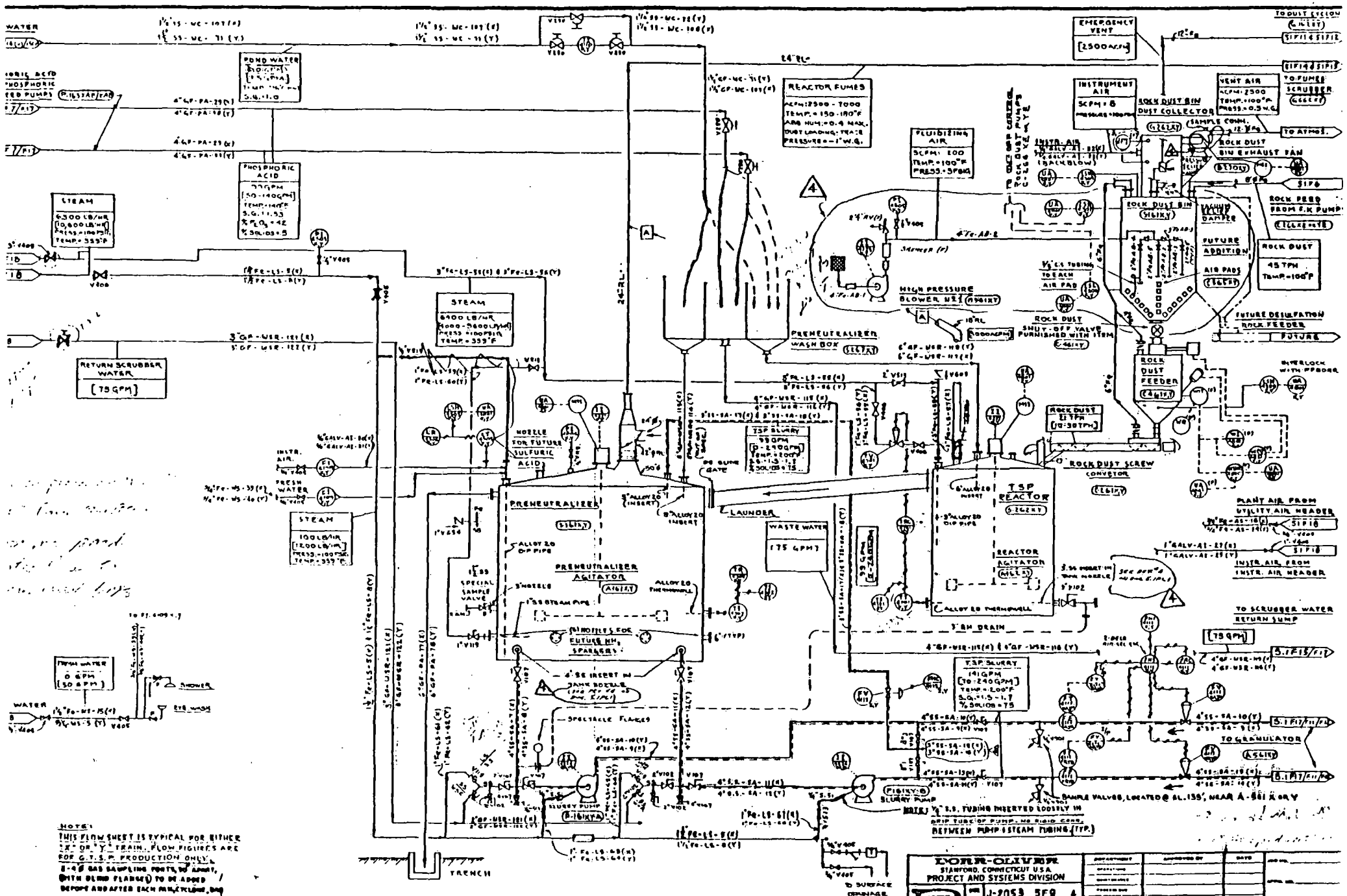
One acid feed system is provided for the X and Y TSP lines. A second acid feed system is provided for the Z line where DAP may also be made. Both systems operate as follows:

Ground phosphate rock is measured from the rock feed hopper for the X line by means of a volumetric rock feeder at the rate of about 2 tons per hour. This will reduce the acid feed by about 1.5%  $\text{H}_2\text{SO}_4$  and will produce about 3 TPH of gypsum. The rock is conveyed to the Desulfation reactor by means of a screw. All the 30% phosphoric and the unclarified 54% acid are added to this reactor. Sludge acid may be added to this reactor or downstream in the "day" tank. The reactor has about 2 hours detention. The desulfated acid and the gypsum produced are separated in a center discharge clarifier. The underflow pump has capacity for about 4 times the normal sludge volume so that the sludge may be recirculated and also to maintain proper control of the underflow percent solids by observation of the sludge.

The desulfated acid overflows to one of two "day" tanks each with about 16 hours storage capacity where 52% sludge acid is blended in. One tank is in use while the other is being filled. Each tank is agitated to maintain a homogeneous feed.

The sludge from X Y and Z lines is accumulated in a tank at the X Y feed system area. This sludge, amounting to about 10 to 15 gpm per line can be worked off in the 30% clarifier or into the phosphoric acid digester or filter feed tanks.

The system can be used also for DAP where the feed acids would be blended in the desulfation reactor but no rock would be added. The following clarification step at 42%  $\text{P}_2\text{O}_5$  would then result in removal of gypsum and insoluble solids resulting in a higher grade of acid so that a maximum amount of I & A could be used on DAP.



NOTE:  
THIS FLOW SHEET IS TYPICAL FOR EITHER  
2" OR 3" TRAIN. FLOW FIGURES ARE  
FOR G.T.S.M. PRODUCTION ONLY.  
2-4" GAS SAMPLING PORTS, OF 1/2" DIA.,  
WITH BLIND FLANGES TO BE ADDED  
BEFORE AND AFTER EACH INSTRUMENT,  
COLLECTOR, OR SCRUBBER.

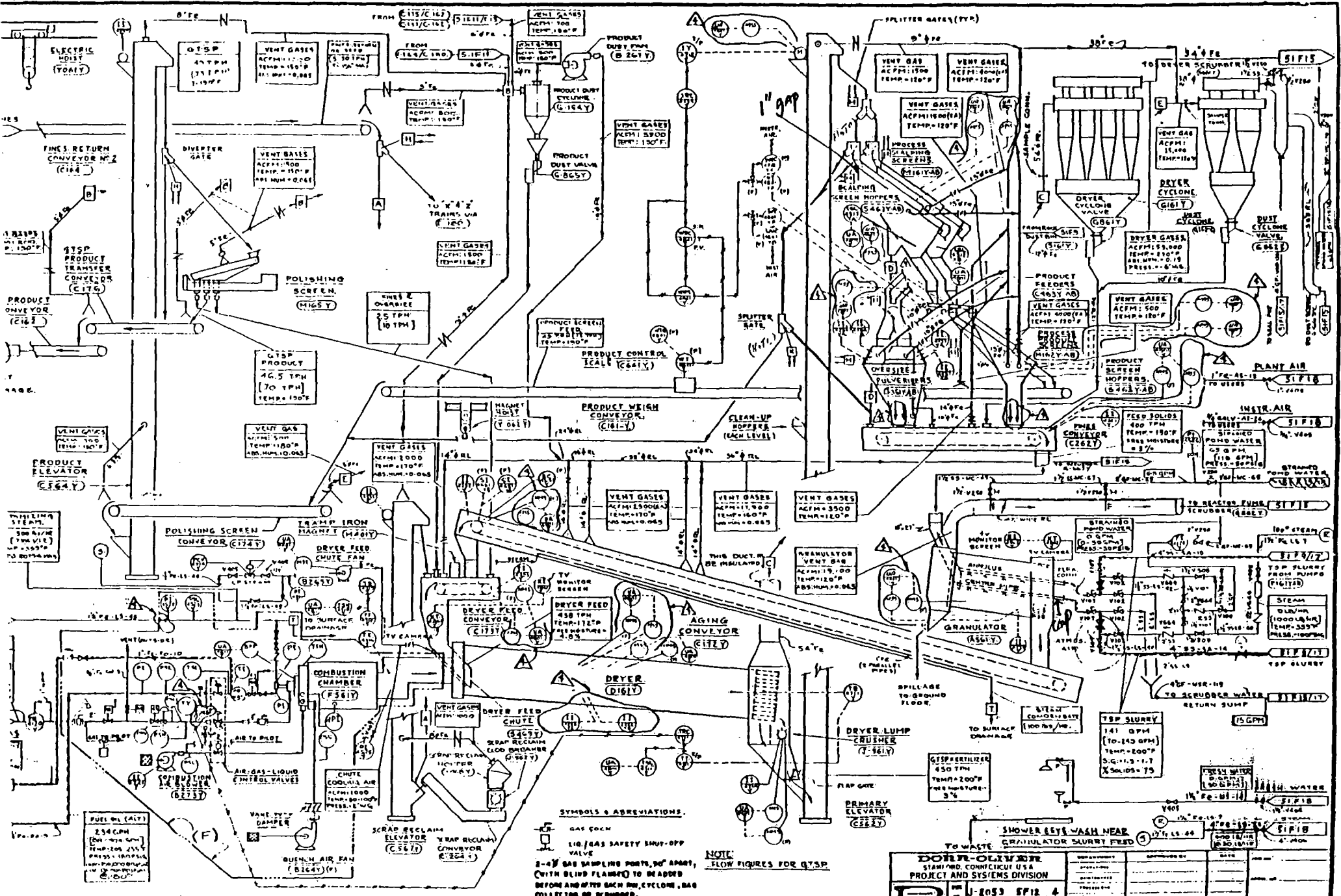
**NOBLE-OLIVE PIPE**  
STAMFORD, CONNECTICUT USA  
PROJECT AND SYSTEMS DIVISION

J-2053 5F9 4

REV.	DATE	DESCRIPTION	APPROVED BY	DATE
1	10-1-73	ERL	ERL	10-1-73
2	11-21-73	ERL	ERL	11-21-73
3	2-6-74	ERL	ERL	2-6-74

**CF Industries**

51F9  
4



SYMBOLS & ABBREVIATIONS.

□ GAS COCK  
 □ LIQ/GAS SAFETY SHUT-OFF VALVE  
 2-4" GAS SAMPLING PORTS, 90° APART, (WITH SLID FLANGE) TO BE ADDED BEFORE AND AFTER EACH PULV, CYCLONE, BAG COLLECTOR OR SCRUBBER.

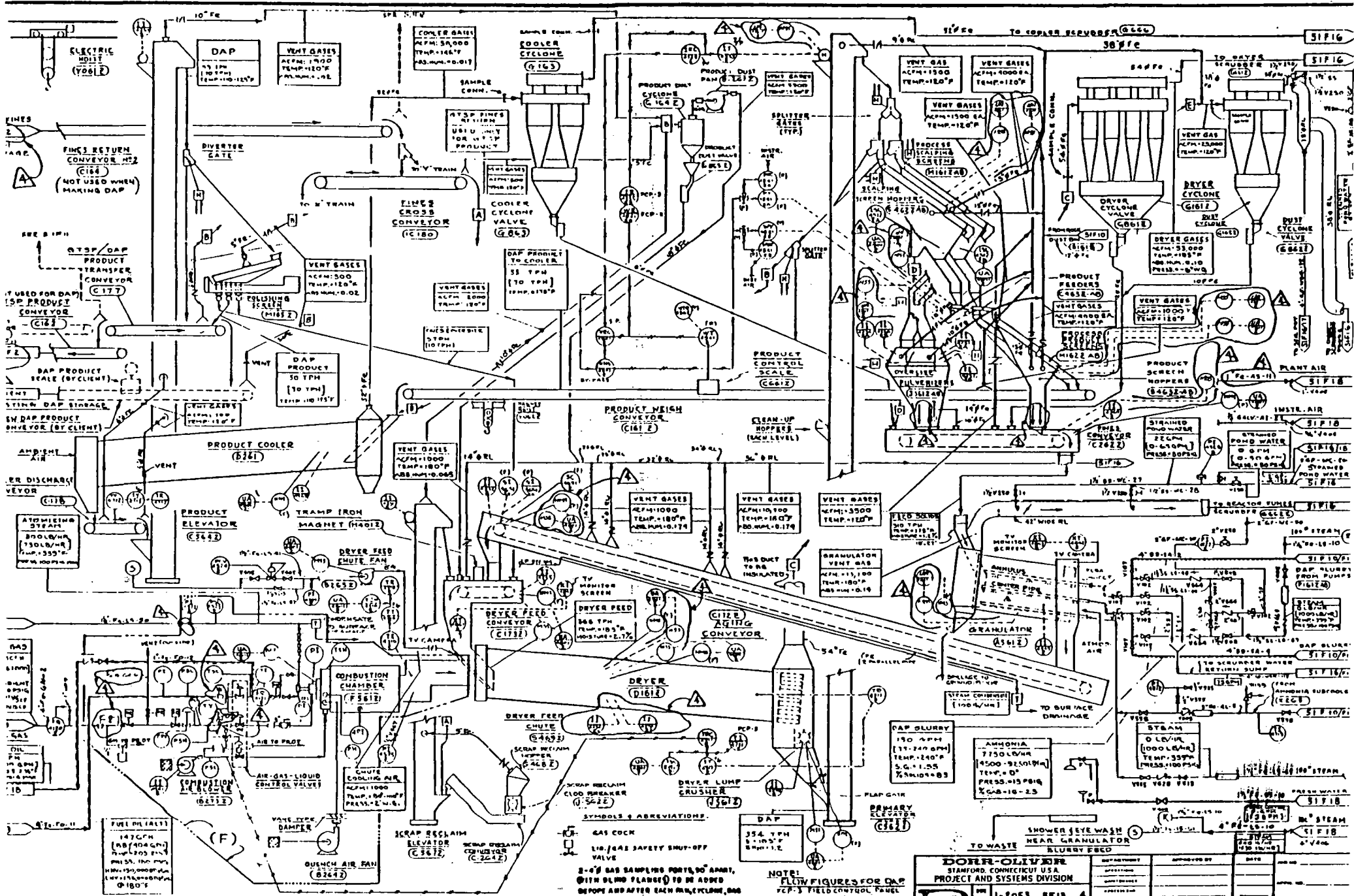
NOTE: FLOW FIGURES FOR Q.T.S.P.

DON F. OLIVER  
 STAMFORD, CONNECTICUT U.S.A.  
 PROJECT AND SYSTEMS DIVISION  
 U-2053 SF12 4



DON F. OLIVER  
 STAMFORD, CONNECTICUT U.S.A.  
 PROJECT AND SYSTEMS DIVISION  
 U-2053 SF12 4

5J F12  
 4



SYMBOLS & ABBREVIATIONS:  
 □ GAS COCK  
 □ LIQ/GAS SAFETY SHUT-OFF VALVE

2-4" GAS SAMPLING PORTS, 90° APART, WITH BLIND FLANGES TO BE ADDED BEFORE AND AFTER EACH DRUM, CYCLONE, BAG COLLECTOR, OR REDUCED.

NOTE:  
 FLOW FIGURES FOR DAP FIELD CONTROL PANEL LOCATED NEAR GRANULATOR

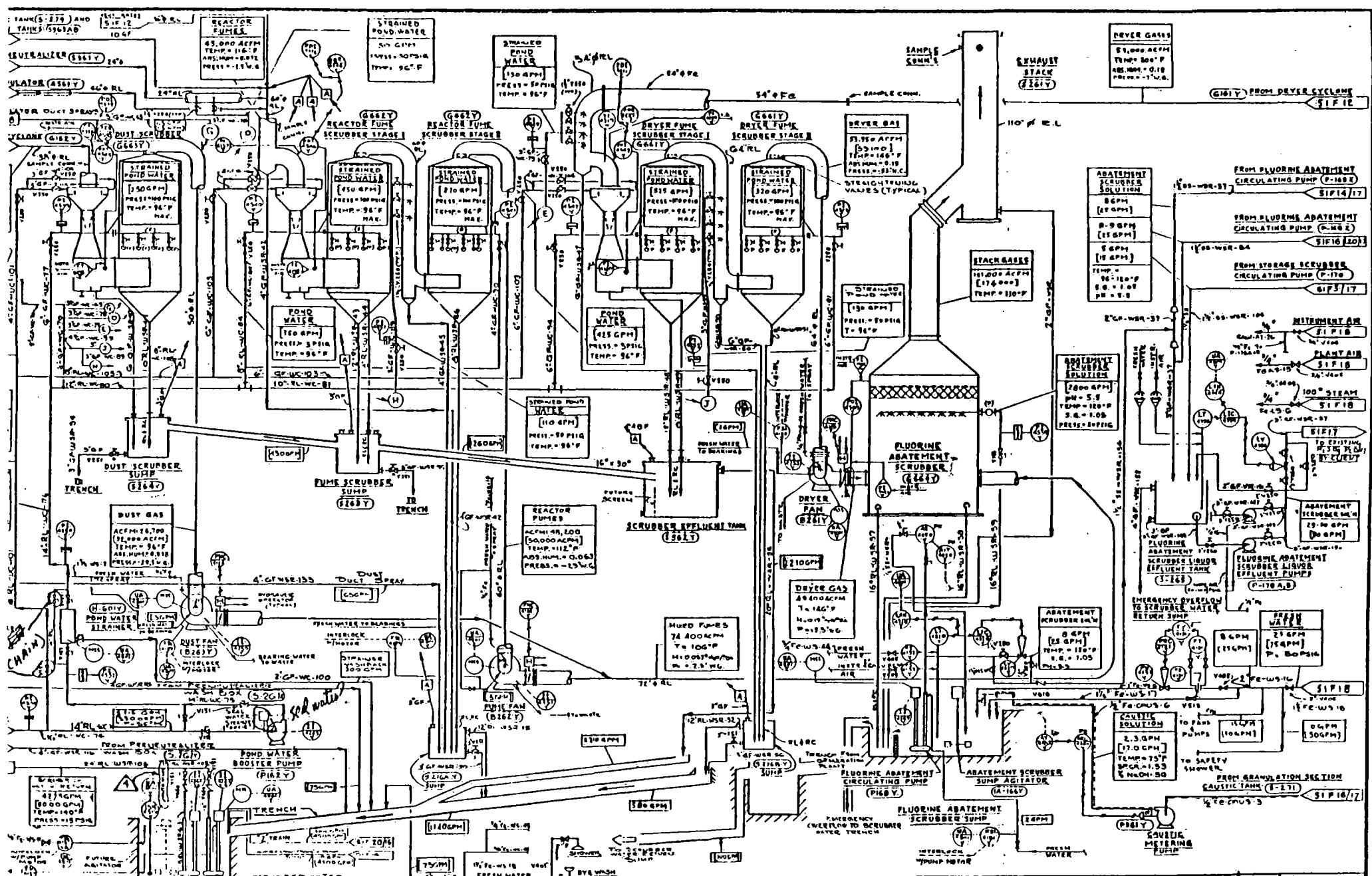
<b>DOHR-OLIVER</b> STAMFORD, CONNECTICUT U.S.A. PROJECT AND SYSTEMS DIVISION		APPROVED BY: _____ DATE: _____
DRAWING NO. J-2053 3F14 4		PROJECT NO. _____ SHEET NO. _____

APPROVED BY: _____ DATE: 11-28-73	APPROVED BY: _____ DATE: 12-11-73	APPROVED BY: _____ DATE: 1-15-74	APPROVED BY: _____ DATE: 2-8-74	APPROVED BY: _____ DATE: 3-15-74	APPROVED BY: _____ DATE: 4-15-74
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**CF Industries, Inc.**  
 STAMFORD, CONNECTICUT U.S.A.  
 PROJECT AND SYSTEMS DIVISION  
 J-2053 3F14 4  
 11-28-73

51F13



NOTE: FLOWS SHOWN ARE FOR G.T.S.P.

**DORR-OLIVER**  
STANFORD, CONNECTICUT U.S.A.  
PROJECT AND SYSTEMS DIVISION

J-2053 SF 15 4

DATE: 10-21-73

BY: R.F.

APPROVED BY: C.F.

DATE: 10-21-73

BY: R.F.

APPROVED BY: C.F.



**CF INDUSTRIES**

1000 WEST 10TH AVENUE  
DENVER, COLORADO 80202

**GRAND ANhydrite FERTILIZER**

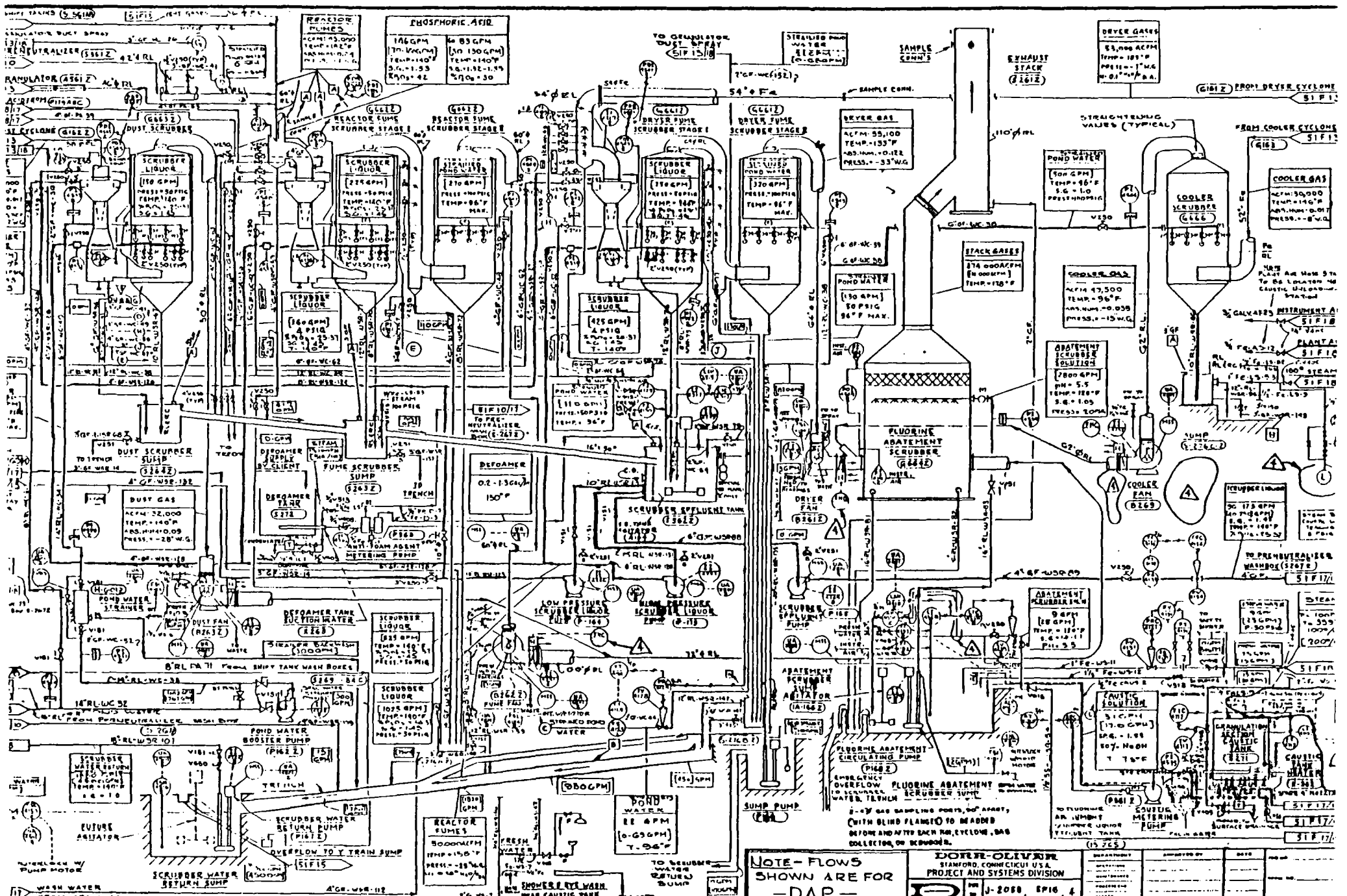
PLANT DIVISION

5.1F15

NO.	REVISION	DATE	BY	APPROVED BY
1	ISSUED DWG.	10-21-73	R.F.	C.F.
2	ISSUED AS PER REVISION LIST HPE	11-10-73	R.F.	C.F.
3	REVISION LIST HPE	12-04-73	R.F.	C.F.
4	REVISION LIST HPE	2-07-74	R.F.	C.F.
5	REVISION LIST HPE	4/1/74	R.F.	C.F.

3-4" GAS SAMPLING PORTS, 90° APART,  
WITH BLIND FLANGES TO BE ADDED  
BEFORE AND AFTER EACH PUMP, VERTICAL GAS  
COLLECTION OR SCRUBBER.





NOTE - FLOWS SHOWN ARE FOR -DAP-

DOYLE-OLIVER STAMFORD, CONNECTICUT USA PROJECT AND SYSTEMS DESIGN

J-2080 EP16 4



5.I.F.I.G.

NO.	DATE	DESCRIPTION	BY	DATE	DESCRIPTION	BY	DATE	DESCRIPTION
1	10-18-73	ISSUED FOR CONSTRUCTION	DOYLE-OLIVER	10-18-73	DOYLE-OLIVER	10-18-73	DOYLE-OLIVER	DOYLE-OLIVER
2	11-15-73	REVISIONS AS NOTED	DOYLE-OLIVER	11-15-73	DOYLE-OLIVER	11-15-73	DOYLE-OLIVER	DOYLE-OLIVER
3	12-14-73	REVISIONS AS NOTED	DOYLE-OLIVER	12-14-73	DOYLE-OLIVER	12-14-73	DOYLE-OLIVER	DOYLE-OLIVER

# INSTRUMENTATION

## TYPICAL SYMBOLS

CONNECTION TO PROCESS

- PNEUMATIC SIGNAL
- ELECTRIC SIGNAL
- CAPILLARY TUBING
- HYDRAULIC SIGNAL
- ELECTROMAGNETIC SIGNAL
- THERMOCOUPLE SIGNAL
- FIELD MOUNTED DEVICE

- PANEL MOUNTED DEVICE  
PROCESS CONTROL PANEL (PCP)
- REAR PANEL MOUNTED DEVICE  
PROCESS CONTROL PANEL (PCP)

- DEVICE MOUNTED ON LOCAL PANEL  
FIELD CONTROL PANEL NO. 1, 2, 3, 4 AS DESIGNATED.  
SEE NOTE 1 OF THIS DRAWING.
- DEVICE MOUNTED ON REAR OF LOCAL PANEL  
FIELD CONTROL PANEL NO. 1, 2, 3, 4 AS DESIGNATED.  
SEE NOTE 3 OF THIS DRAWING.
- DEVICE FURNISHED BY EQUIPMENT MANUFACTURER  
(P.C. DEVICES FURNISHED BY CLIENT)

- MAGNETIC FLOW METER
- ROTAMETER

- PNEUMATIC ACTUATOR CONTROL VALVE

- 2 WAY SOLENOID VALVE

- 3 WAY SOLENOID VALVE

- CHEMICAL TEE TYPE FLOW ELEMENT

- PRESSURE REDUCING REGULATOR (SELF CONTAINED)

- BACK PRESSURE REGULATOR (SELF CONTAINED)

- PRESSURE REDUCING REGULATOR WITH EXTERNAL PRESSURE TAP

- BACK PRESSURE REGULATOR WITH EXTERNAL PRESSURE TAP

- SPOOL PIECE DIAPHRAGM TYPE PRESSURE INDICATOR  
(ROUNDHEAD - PREFER OR EQUAL)

- PANEL MOUNTED, TWO MEASURED VARIABLES IN ONE DEVICE

- CYLINDER, SINGLE ACTING

- CYLINDER, DOUBLE ACTING

- TEMPERATURE REGULATOR (SELF ACTING)

- PITOT TUBE

- TURBINE FLOW METER

- REMOTE SET POINT FLOW CONTROLLER

- ANNULAR FLOW ELEMENT

- ANALYSIS INDICATING TRANSMITTER (O<sub>2</sub>, PH, SO<sub>2</sub>, ETC...)  
(ADD IDENTIFYING INFORMATION OUTSIDE BALLOON TO CLARIFY FUNCTION OF ITEM INSIDE BALLOON.) EX. (O<sub>2</sub> - OXYGEN)  
ELECTRIC MOTOR VALVE ACTUATOR (WITH MOUNTED LIMIT SWITCH)

- LATCH TYPE SOLENOID VALVE (OR SAFETY VALVE)  
(AR - AUTOMATIC RESET)  
(MR - MANUAL RESET)

- METERING ORIFICE

- FLOW CONVERTER (ADD IDENTIFYING INFORMATION OUTSIDE BALLOON TO CLARIFY FUNCTION OF ITEM INSIDE BALLOON.) EX. (I/P - CURRENT TO PNEUMATIC CONVERTER.)

- HAND VALVE (WITH MOUNTED LIMIT SWITCH)

- 4 WAY HAND VALVE

- CHEMICAL SEAL

## ANALYSIS INSTRUMENTS

- AE - ANALYSIS SENSING ELEMENT (INCLUDING SAMPLING SYSTEM)
- AI - ANALYSIS INDICATOR
- AIT - ANALYSIS INDICATING TRANSMITTER
- AR - ANALYSIS RECORDER
- ARC - ANALYSIS RECORDING CONTROLLER
- AT - ANALYSIS TRANSMITTER (BLIND)
- AV - ANALYSIS CONTROL VALVE
- AC - ANALYSIS CONTROLLER (BLIND)
- AIC - ANALYSIS INDICATING CONTROLLER

## PRESSURE INSTRUMENTS

- PC - PRESSURE CONTROLLER (BLIND)
- PDI - DIFFERENTIAL PRESSURE INDICATOR
- PS - DIFFERENTIAL PRESSURE SWITCH
- PI - PRESSURE INDICATOR
- PIE - PRESSURE INDICATING CONTROLLER
- PIS - PRESSURE INDICATING SWITCH
- PIT - PRESSURE INDICATING TRANSMITTER
- PR - PRESSURE RECORDER
- PRC - PRESSURE RECORDER CONTROLLER
- PSH - PRESSURE SWITCH HIGH
- PSL - PRESSURE SWITCH LOW
- PT - PRESSURE TRANSMITTER (BLIND)
- PV - PRESSURE CONTROL VALVE

## MISCELLANEOUS

- BFP - BURNER FLAME FAILURE
- DE - DENSITY ELEMENT
- DRC - DENSITY RECORDER CONTROLLER
- DT - DENSITY TRANSMITTER (BLIND)
- DV - DENSITY CONTROL VALVE
- HS - HAND SWITCH
- HC - HAND CONTROL
- II - AMMETER
- MI - MANUAL INDICATING STATION
- SC - SPEED CONTROL
- SI - SPEED INDICATOR
- SV - SOLENOID VALVE
- TP - TEST POINT
- UA - SYSTEM ALARM ANNUNCIATOR
- VS - VIBRATION SWITCH
- Z - POSITIONER
- Y - CONVERTER
- NB - TIME DELAY SWITCH
- FC - FAIL CLOSE, FO - FAIL OPEN
- MSS - MOTOR STOP SWITCH
- SP - SET POINT
- PV - PROCESS VARIABLE
- MM - LIMITATION SWITCH

## CONVERTERS

- E/I - VOLTAGE TO CURRENT TRANSDUCER
- I/P - VOLTAGE TO PNEUMATIC TRANSDUCER
- I/A - CURRENT TO VOLTAGE TRANSDUCER
- I/P - CURRENT TO PNEUMATIC TRANSDUCER
- P/E - PNEUMATIC TO VOLTAGE TRANSDUCER
- P/I - PNEUMATIC TO CURRENT TRANSDUCER
- V - SQUARE ROOT EXTRACTOR
- > - HIGH LIMIT RELAY
- < - LOW LIMIT RELAY
- 1/1 - AC CURRENT TO M.D.C.

## FLOW INSTRUMENTS

- IPC - FLOW INDICATOR CONTROLLER
- FC - FLOW CONTROLLER (BLIND)
- FE - FLOW ELEMENT
- FG - FLOW SIGHT GLASS
- FI - FLOW INDICATOR
- FIC - FLOW INDICATING CONTROLLER
- FIT - FLOW INDICATING TRANSMITTER
- FO - FLOW TOTALIZER
- FR - FLOW RECORDER
- FRK - FLOW RECORDING CONTROLLER
- FSH - FLOW SWITCH HIGH
- FSL - FLOW SWITCH LOW
- FT - FLOW TRANSMITTER (BLIND)
- FV - FLOW CONTROL VALVE
- FR - FLOW INTEGRATOR

## TEMPERATURE INSTRUMENTS

- TC - TEMPERATURE CONTROLLER (BLIND)
- TE - TEMPERATURE ELEMENT
- TI - TEMPERATURE INDICATOR
- TIC - TEMPERATURE INDICATING CONTROLLER
- TIK - TEMPERATURE INDICATING TRANSMITTER
- TR - TEMPERATURE RECORDER
- TRC - TEMPERATURE RECORDER CONTROLLER
- TSH - TEMPERATURE SWITCH HIGH
- TSL - TEMPERATURE SWITCH LOW
- TT - TEMPERATURE TRANSMITTER (BLIND)
- TV - TEMPERATURE CONTROL VALVE

## LEVEL INSTRUMENTS

- LC - LEVEL CONTROLLER (BLIND)
- LE - LEVEL ELEMENT
- LG - LEVEL GAGE GLASS
- LI - LEVEL INDICATOR
- LIC - LEVEL INDICATING CONTROLLER
- LIT - LEVEL INDICATING TRANSMITTER
- LRC - LEVEL RECORDING CONTROLLER
- LSH - LEVEL SWITCH HIGH
- LSHL - LEVEL SWITCH HIGH/LOW
- LSL - LEVEL SWITCH LOW
- LSM - LEVEL SWITCH MID
- LT - LEVEL TRANSMITTER (BLIND)
- LV - LEVEL CONTROL VALVE
- LR - LEVEL RECORDER

## WEIGHT INSTRUMENTS

- WC - WEIGHT CONTROLLER (BLIND)
- WE - WEIGHT ELEMENT
- WI - WEIGHT INDICATOR
- WIC - WEIGHT INDICATING CONTROLLER
- WIT - WEIGHT INDICATING TRANSMITTER
- WQ - WEIGHT TOTALIZER
- WR - WEIGHT RECORDER
- WRC - WEIGHT RECORDING CONTROLLER
- WSH - WEIGHT SWITCH HIGH
- WSL - WEIGHT SWITCH LOW
- WT - WEIGHT TRANSMITTER (BLIND)

## LEGEND FOR PROCESS FLOWS

- NORMAL FLOW 100 GPM
- DESIGN FLOW 1200 GPM

PANEL MOUNTED DEVICE  
(SHIPPING / STORAGE CONTROL ROOM)

HYDRAULIC CYLINDER ACTUATOR

LARGE TYPE FLOW METER

EXTERNAL CONTROL  
PRESSURE RATIO REGULATOR  
(SELF CONTAINED)

F (FIRST LETTER)	RC-	4	101	X
FLOW	RECORDER CONTROLLER	DORR-OLIVER IDENTIFICATION NUMBER FOR INSTRUMENTATION	LOOP NUMBER	TRAIN
FUNCTIONAL IDENTIFICATION		LOOP IDENTIFICATION		
INSTRUMENTATION ITEM NUMBERING SYSTEM				

TYPICAL INSTRUMENT ITEM NUMBER IDENTIFICATION FOR FLOW RECORDER CONTROLLER FRC-101X

INSTRUMENT ITEM NUMBER KEY		
FUNCTIONAL SERVICE (FIRST LETTER)	SEQUENCE OF LOOP NUMBERS (ITEM NUMBERS) TO BE USED	REMARKS
INSTRUMENT PANEL AND ACCESSORIES	4001 THRU 4049	
A THRU E	4050 THRU 4099	
F (FLOW)	4101 THRU 4199	
G THRU K	4201 THRU 4299	
L (LEVEL)	4301 THRU 4399	
M THRU O	4401 THRU 4499	
P (PRESSURE)	4501 THRU 4599	
Q THRU S	4601 THRU 4699	
T (TEMPERATURE)	4701 THRU 4799	
U THRU Z	4801 THRU 4899	
LOCAL PERHEAT SIGNAL INSTRUMENT	4901 THRU 4999	

## UNITS OF MEASUREMENT - ENGLISH

- TEMPERATURE: DEGREES FAHRENHEIT
- PRESSURE: NEAR ATMOSPHERE - INCHES OF WATER (IN.WC.)
- ABOVE ATMOSPHERE - POUNDS PER SQUARE INCH GAGE (PSIG)
- BELOW ATMOSPHERE - INCHES OF MERCURY (IN.HG)
- ABSOLUTE - PSIA OR IN.HgA
- LEVEL: 0-100 PERCENT (EXCEPT GAGE BOARDS IN FEET OR INCHES)
- STEAM - POUNDS PER HOUR (LB/H)
- LIQUID - GALLONS PER MINUTE (GPM)
- GAS OR VAPOR - STANDARD CUBIC FEET PER MINUTE (SCFM) AT 14.7 PSIA AND 60°F OR ACTUAL CUBIC FEET PER MINUTE (ACFM)

- NOTES:
- FIELD CONTROL PANELS ARE DEFINED AS FOLLOWS:  
 PCP-1: FIELD CONTROL PANEL FOR "E" TRAINS ACID HANDLING SYSTEM, LOCATED AT GRADE, NEAR COORDINATES 1215E, 1630N.  
 PCP-2: FIELD CONTROL PANEL FOR "E" TRAIN ACID HANDLING SYSTEM, LOCATED AT ELEVATION 100', NEAR COL.  
 PCP-3: FIELD CONTROL PANEL FOR "E" TRAIN PROCESS SYSTEM (URAC GRANULATOR), LOCATED AT ELEVATION 138'0" NEAR COL LINES 19; M.  
 S. PCP: PROCESS CONTROL PANEL, LOCATED IN GRANULATION PLANT.  
 B. PCP-4: FIELD CONTROL PANEL FOR GROUND ROCK STORAGE HANDLING SYSTEM, LOCATED IN MAIL CAR (INLOADING AREA)

<b>DORR-OLIVER</b> STAMFORD, CONNECTICUT U.S.A. PROJECT AND SYSTEMS DIVISION		DESIGNED BY	APPROVED BY	DATE	JOB NO.
NO. J-2068 SFS 4		DATE	DATE	DATE	DATE

CF Industries, Inc.  
Plant No. 1000000  
P.O. BOX 1000000  
PLANT OFF. PLAINFIELD, NJ

GRANULAR TSP/DAP FERTILIZER  
X.Y.Z (PLANT B)  
INSTRUMENTATION SYMBOLS  
AND ABBREVIATIONS

REV. NO. 5.1FS  
4

NO.	DESCRIPTION	BY	DATE	APPROVED BY	DATE	FIELD	DATE
1	RELEASED FOR INFORMATION	REV	4-10-75			J.R.	10-20-75
2	ISSUED NOTE #3	AMP	12-21-75				10-20-75
3	CHANGED FOR CONSTRUCTION	AMP	1/10/76				10-20-75
4	REVISED AS NOTICED	JSL	4/1/76				



CC ALL MANAGERS  
SUMMING  
GAS  
FILE  
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

J P B

REGION IV  
345 COURTLAND STREET  
ATLANTA, GEORGIA 30308

RECEIVED BY

OCT 27 1978

OCT 19 1978

PLANT MANAGER

Mr. George B. Shearon, General Manager  
C. F. Industries, Inc.  
P. O. Drawer L  
Plant City, FL 33566

Dear Mr. Shearon:

Thank you for your prompt response to our request for additional information during our meeting on September 29, 1978.

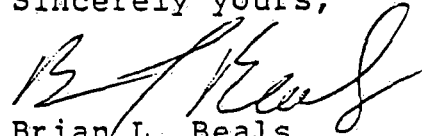
Based upon the information submitted in your letters and the information obtained during my visit, we have concluded that the switch from granular triple super phosphate production (GTSP) to diammonium phosphate production (DAP) will not subject your facility to the provisions of 40 CFR 60, either as a "new source" or a "modification".

The modification section under 40 CFR 60.14 does not apply since there is no increase in the emission rate of fluorides to the atmosphere. Use of alternative raw materials, as you indicated, is therefore a moot point since there is no emission increase, which is the initial consideration in determining if the modification provisions are applicable.

With respect to whether the DAP production mode is considered a "new source" or "existing source", we have established that the definition of existing source, as appears in 40 CFR 60.2(aa), is applicable to your situation. This definition indicates that apparatus (e.g., "Y Train") constructed prior to proposal of standards (in this case fluoride standards for GTSP production) is considered an "existing facility" even if the apparatus is subsequently altered in such a way to accommodate DAP production.

We apologize for any inconvenience which may have resulted from Mr. Glahn's correspondence to you dated July 7, 1978 and we trust this letter now resolves the issue of applicability of 40 CFR 60 to your "Y Train" production facility.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "B. L. Beals".

Brian L. Beals  
Air Engineering Branch



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

Source Type      Air Pollution [ ]      Incinerator [ ]  
Type application:    [ ] Operation      [X] Construction  
Source Status:      [ ] New      [X] Existing      [X] Modification

Source Name: Central Phosphates, Inc.      County Hillsborough  
Source Location: Street 10 miles N of Plant City  
Hillsborough-Pasco County Line      City Plant City, Florida  
UTM: East 17-358.95      North 3092.85

Appl. Name and Title: George B. Shearon - General Manager  
Appl. Address: P. O. Drawer L, Plant City, Florida 33566

**STATEMENTS BY APPLICANT AND ENGINEER**

**A. APPLICANT**

The undersigned owner or authorized representative of \* Central Phosphates, Inc. is fully aware that the statements made in this application for a Construction permit are true, correct and complete to the best of his knowledge and belief. Further, the undersigned agrees to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provisions of Chapter 403, Florida Statutes, and all the rules and regulations of the Department or revisions thereof. He also understands that a permit, if granted by the Department, will be non-transferable and he will promptly notify the Department upon sale or legal transfer of the permitted establishment.

*George B. Shearon*  
Signature of the Owner or Authorized Representative

Date: 7/15/76      Telephone No.: 813-782-1591

\*Attach a letter of authorization. If applicant is a corporation, a Certificate of Good Standing must be submitted with application. This may be obtained, for a \$5.00 charge, from the Secretary of State, Bureau of Corporate Records, Tallahassee, Florida 32304.

**B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA**

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 the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signature *Kenneth E. Given*      Mailing Address P. O. Drawer L  
Name Kenneth E. Given      Plant City, Florida 33566  
(Please Type)  
Company Name Central Phosphates, Inc.      Telephone No.: 813 782-1591

Florida Registration Number 23203      Date July 15, 1976  
(Affix Seal)

DETAILED DESCRIPTION OF SOURCE

A. Describe the nature and extent of the project. Refer to existing pollution control facilities, expected improvement in performance of the facilities and state whether the project will result in full compliance. Attach additional sheet if necessary.

This is an existing GTSP unit operating under DER Permit #A029-2471 issued 5-25-76. The proposed project consists of converting this existing unit to DAP production. When completed this unit will be exactly the same as our 'Z' DAP covered by permit A029-2461 issued February 20, 1976. The source will be in full compliance with DER regulations and should be equivalent to 'Z' DAP

B. Schedule of Project Covered in this Application (Construction Permit Application Only).

Start of Construction August 1, 1976  
 Completion of Construction November 15, 1976

C. Costs of Construction (Show a breakdown of costs for individual components/units of the project serving pollution control purpose only). Information on actual costs shall be furnished with the application for operation permit.

Scrubber modifications	
Agitator	\$ 4,000
Pumps	6,000
Piping and valves	35,000
Venturis	35,000
Miscellaneous	10,000
	\$ 100,000

D. For this source indicate any previous DER permit: issuance dates, and expiration dates; and orders and notices.

GTSP Operating Permit	
Issued	5-25-76
Expires	5-25-78

E. Is this application associated with or part of a Development of Regional Impact ( DRI ) pursuant to Chapter 380, Florida Statutes, and Chapter 221-2, Florida Administrative Code? ..... Yes ...X...No

A. Identification of Air Contaminants

- 1)  Particulates
  - a)  Dust      b)  Fly Ash      c)  Smoke      d)  Other (Identify)
- 2)  Sulfur Compounds
  - a)  SO<sub>x</sub> as SO<sub>2</sub>      b)  Reduced Sulfur as H<sub>2</sub>S      c)  Other (Identify)
- 3)  Nitrogen Compounds
  - a)  NO<sub>x</sub> as NO<sub>2</sub>      b)  NH<sub>3</sub>      c)  Other (Identify)
- 4)  Fluorides      5)  Acid Mist      6)  Odor
- 7)  Hydrocarbons      8)  Volatile Organic Compounds
- 9)  Other (Specify) \_\_\_\_\_

B. Raw Materials and Chemicals Used (Be Specific)

Description	Utilization Rate	Approximate Contaminant Content		Relate to Flow Diagram
	lbs./hr. Tons/day	Type	% Wt.	
Ammonia	153	N	82.3	A
52% H <sub>3</sub> PO <sub>4</sub>	303	F	1.1	B
28% H <sub>3</sub> PO <sub>4</sub>	563	F	2.6	C

C. Process Rate:

- 1) Total Process input Rate\* 84917 Units. lbs/hr.
- 2) Product Weight\* 69417 Units. lbs/hr.
- 3) Normal Operating Time Continuous, if seasonal describe: \_\_\_\_\_  
 hrs./day 24 days/wk. 7 wks/yr. 52

D. Airborne Contaminants Discharged:

Taken from compliance test on 'Z' DAP

*lbs/day*

Name of Contaminant	Actual** Discharge		Discharge Criteria Rate*	Allowable Discharge (lbs./hr.)	Relate to Flow Diagram
	lbs./hr.	T/yr.			
F	0.67	2.9	.06 #/ton P <sub>2</sub> O <sub>5</sub>	23.2	X
NH <sub>3</sub>	7.90	34.6	No <sub>x</sub> regulation		X
Particulate	0.06	.26	30 #/hr.	30 #/hr.	X
SO <sub>2</sub>	12.5	54.75	NA	NA	X

\*\* Refer to Chapter 17-2.04(2), Florida Administrative Code.

\* Discharge Criteria: Rate=#/ton P<sub>2</sub>O<sub>5</sub>, #/M BTU/hr., etc.)

\*\* Estimate only if this is an application to construct.

Name of Contaminant	Hourly Emission (lb./hr.)	Daily Emission (lb./day)	Yearly Emission (T/yr.)	Basis for Emission Estimate (Test Data, Material Balance)

E. Control Devices:

Name and Type (Model and Serial No.)	Contaminant	Efficiency*	Conditions of Operations	Basis for Efficiency Operational Data, Test, Design, Data)
Seven stage Venturi, cyclonic and packed scrubbers -F,NH <sub>3</sub> and (DUCON)	Particulates	99 $\frac{7}{10}$ %	continuous when producing	Design & operational data

\*See required supplement.  
(Include any test data and/or design data for efficiency substantiation)

F. Fuels

Type (Be Specific, includes %S, etc.)	Daily Consumption *		Maximum Heat Input MBTU/hr.
	Avg./hr.	Max./hr.	
# 5 fuel oil	1560.	1950	28.5 design

\* Units: Natural Gas -MCF/hr.; Fuel Oils, Coal-ibs./hr.

Fuel Analysis:

Percent Sulfur 0.5 Percent Ash \_\_\_\_\_

Density 7.8 lb./gal.

Heat Capacity \_\_\_\_\_ BTU/lb. 140,000 BTU/gal.

Other Fuel Contaminants \_\_\_\_\_



G. Describe briefly, without revealing trade secrets, the processes/operations generating the airborne emissions identified in this application.

Production of Diammonium Phosphate by reacting anhydrous ammonia with phosphoric acid

H. Indicate liquid or solid wastes generated and method of disposal.

None

Emission Stack Geometry and Flow Characteristics, (Provide Date for each Stack).

Stack Height 136' ft, Stack Diameter 9 ft. 2"

Gas Flow Rate 170,000 ACFM, Gas Exit Temperature 120 °F

Required Supplements:

1. Total process input rate and product weight -- show deviation.
2. Efficiency Estimation.
3. An 8½" x 11" flow diagram, which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate whether raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particulates are evolved and where finished products are obtained.
4. An 8½" x 11" plot plan showing the exact location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.
5. An 8½" x 11" plot plan showing the exact location of the establishment, and points of airborne emissions in relation to the surrounding area, residences and other permanent structures and roadways.
6. If applicable, provide a brief description of the control device or treatment system serving the discharge point for airborne contaminants identified in this application. Include details of the manufacturer, model, size, type and capacity for control/treatment device and the features of the discharge point (height above ground, diameter, period(s) of discharge and discharge temperature).
7. Plans for storm water control during and after construction.

The storm water control system will not be altered in the proposed change. The present system has the capability of sending the storm water either to the cooling water system or through the lime treatment system.



**CF Industries, Inc.**

Plant City Phosphate Complex

November 4, 1975

State of Florida  
Department of Environmental Regulations  
500 East Central Avenue  
Winter Haven, Florida 33880

To Whom It May Concern:

Mr. George B. Shearon, General Manager, Central Phosphates, Inc., is the local agent for Central Phosphates, Inc. and is authorized to sign all pollution documents and papers submitted to the Florida Department of Environmental Regulation and the Hillsborough County Environmental Protection Commission.

Sincerely,

D. F. DeLong  
Vice President Manufacturing  
Florida Region

DFD:el

cc: Hillsborough County Environmental Protection Commission  
406 N. Morgan Street  
Tampa, Florida 33602

# STATE OF FLORIDA

DEPARTMENT OF STATE



I certify from the records of this office that

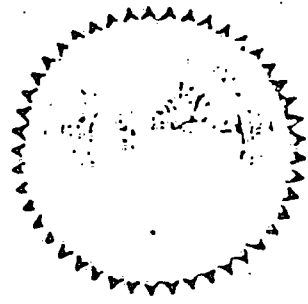
CENTRAL PHOSPHATES, INC.

a corporation organized under the laws of the State of DELAWARE  
is duly authorized to transact business within the State of Florida.

Permit Number: 818174

I further certify that above corporation has filed all reports due this office.

GIVEN under my hand and the Great  
Seal of the State of Florida, at  
Tallahassee, the Capital, this the  
28th day of October,  
19 75.



*Bruce A. Gardner*  
SECRETARY OF STATE

101800052000513

NEDS 0005  
POINT ID 13

# STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

## CONSTRUCTION PERMIT

FOR CENTRAL PHOSPHATES, INC.

P. O. DRAWER E

PLANT CITY, FLORIDA 33566

PERMIT NO. AC29-2471

DATE OF ISSUE 8/10/76

PURSUANT TO THE PROVISIONS OF SECTIONS 403.061(16) AND 403.707 OF CHAPTER 403, FLORIDA STATUTES AND CHAPTERS 17-4 AND 17-7, FLORIDA ADMINISTRATIVE CODE, THIS PERMIT IS ISSUED TO:

GEORGE B. SHEARON, GENERAL MANAGER

FOR THE CONSTRUCTION OF THE FOLLOWING:

CONVERSION OF THE GTSP "Y" TRAIN TO DAP OR GTSP PRODUCTION WITH SAME WET SCRUBBER SUBJECT TO ATTACHED CONDITIONS OF APPROVAL NOS: 1, 2, 3, 4, 5, 7 & 9

LOCATED AT: 10 MILES NORTH OF PLANT CITY, HILLSBOROUGH/PASCO COUNTY LINE

UTM: 17-388.0E -- 3115.8N

IN ACCORDANCE WITH THE APPLICATION DATED 7/15/76

ANY CONDITIONS OR PROVISOS WHICH ARE ATTACHED HERETO ARE INCORPORATED INTO AND MADE A PART OF THIS PERMIT AS THOUGH FULLY SET FORTH HEREIN. FAILURE TO COMPLY WITH SAID CONDITIONS OR PROVISOS SHALL CONSTITUTE A VIOLATION OF THIS PERMIT AND SHALL SUBJECT THE APPLICANT TO SUCH CIVIL AND CRIMINAL PENALTIES AS PROVIDED BY LAW.

THIS PERMIT SHALL BE EFFECTIVE FROM THE DATE OF ISSUE UNTIL

1/31/77

OR UNTIL REVOKED OR SURRENDERED AND SHALL BE SUBJECT TO ALL LAWS OF THE STATE AND THE RULES AND REGULATIONS OF THE DEPARTMENT.

*J. H. Kerns*  
DISTRICT ENGINEER

*Joseph A. Landers, Jr.*  
JOSEPH A. LANDERS, JR.  
SECRETARY

*Roger P. Stewart*  
ROGER P. STEWART, DIRECTOR  
HILLS. COUNTY ENV. PROTECTION COMMISSION

*[Signature]*  
DISTRICT MANAGER

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL REGULATION

CONSTRUCTION PERMIT PROVISOS

AIR POLLUTION SOURCES

Permit No. AC29-2471

Date: 8/10/76

- (X) 1. Construction of this installation shall be completed by 11/30/76. Application for Permit to Operate to be submitted by 12/31/76.
- (X) 2. This construction permit expires on 1/31/77 following an initial period of operation for appropriate testing to determine compliance with the Rules of the Florida Department of Environmental Regulation Commission.
- (X) 3. All applicable rules of the Department including design discharge limitations specified in the application shall be adhered to. The permit holder may also need to comply with county, municipal, federal, or other state regulations prior to construction.
- (X) 4. The applicant shall continue the retention of the engineer of record for the inspection of the construction of this project. Upon completion the engineer shall inspect for conformity to construction permit applications and associated documents. A report of such inspection shall be submitted by the engineer to the Department of Environmental Regulation for consideration toward the issuance of an operation permit.
- (X) 5. This SOURCE shall be tested\* for PARTICULATES AND FLUORIDES within 30 days after it is placed in operation. These test results are required prior to our issuance of an operation permit and shall be submitted in duplicate to the Florida Department of Environmental Regulation CENTRAL SUB-DISTRICT OFFICE AND THE HILLSBOROUGH COUNTY

ENVIRONMENTAL PROTECTION COMMISSION

\* Fuel Analysis May be Submitted for Required Sulfur Dioxide Emission Test.

- ( ) 6. The operation of this installation shall be observed for visible emissions in accordance with Method 9-Visible Determination of the Opacity of Emissions from Stationary Sources (36FR24895; Federal Register, December 23, 1971). The observation results are required prior to our issuance of an operation permit, and shall be submitted in duplicate to the Department of Environmental Regulation District Office, \_\_\_\_\_
- (X) 7. Satisfactory ladders, platforms, and other safety devices shall be provided/available as well as necessary ports to facilitate the carrying out of an adequate sampling program.
- ( ) 8. There shall be no discharges of liquid effluents or contaminated runoff from the plant site.
- (X) 9. All fugitive dust generated at this site shall be adequately controlled.

( ) 10. This permit is associated with a Development of Regional Impact (D.R.I.). It does not waive any other permits that may be required from this or any other State, Federal, or local agency.

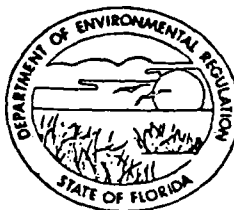
**Z TRAIN**

TEST DATE	F LBS/DAY	PART. LBS/DAY
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3/84	12.2	27.9
	9.4	21.6
	9.9	31.2
10/84	19.8	45.2
	13.5	52.4
	9.2	49.7
3/85	23.1	134.3
	9.8	74.4
	9.5	65.8
10/85	10.5	113.3
	11.9	119.3
	13	109.5
3/86	12.3	42.1
	16.1	30.1
	21.3	34.5
9/86	15.6	37.6
	15.2	53.6
	9.9	50.3
3/87	5.3	55
	3.5	60.7
	20.2	61.5
9/87	3.5	92.3
	4.1	92.7
	4.1	83.9
3/88	2.4	215.7
	6.4	95.2
	8.6	201.5
9/88	10.8	152.1
	10.1	161.6
	9.6	182.7
3/89	21.9	138.4
	22.2	61
	22.5	101.9

AVERAGE	12.04	86.33
VARIANCE	37.19626	2746.342
SD	6.098874	52.40556
MAXIMUM	23.1	215.7
MINIMUM	2.4	21.6
EXISTING PERMIT LIMITS	34.56	853.44

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL REGULATION



SOUTHWEST DISTRICT

7601 HIGHWAY 301 NORTH  
TAMPA, FLORIDA 33610-9544

BOB GRAHAM  
GOVERNOR

VICTORIA J. TSCHINKEL  
SECRETARY

RICHARD D. GARRITY, PH.D.  
DISTRICT MANAGER

PERMITTEE:

Mr. J. E. Parsons, General Manager  
Central Phosphates, Inc.  
Post Office Drawer L  
Plant City, FL 33566

PERMIT/CERTIFICATION

Permit No.: A029-88151  
County: Hillsborough  
Expiration Date: 8/14/89  
Project: Y-GTSP/DAP Scrubber

*APPROVED 8/31/84*

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

For the operation of the Y-GTSP/DAP plant with emissions thru a venturi and cyclonic scrubbers with a tail gas packed bed scrubber.

Location: 10 miles north of Plant City at the Hillsborough/Pasco County line.

UTM: 17-387.6            3115.9            NEDS NO: 0005            Point ID: 18

Replaces Permit No.: A029-21157



PERMITTEE:  
Central Phosphates, Inc.

Permit/Certification No.: A029-88151  
Project: Y-GTSP/DAP Scrubber

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 Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is hereby placed on notice that the department will review this permit periodically and may initiate the enforcement action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the department.
3. As provided in Subsections 403.087(6) and 403.712(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or approval of any other department permit that may be required for other aspects of the total project which are not addressed in the permit.
4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant or aquatic life or property and penalties therefore caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and department rules, unless specifically authorized by any order from the department.

PERMITTEE: Permit/Certification Number: A029-88151  
Central Phosphates, Inc. Project: Y-GTSP/DAP Scrubber

6. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized department personnel, upon presentation of credentials or other documents as maybe required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purposes of;

a. Having access to and copying any records that must be kept under the conditions of the permit;

b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the department with the following information:

(a) a description of and cause of non-compliance; and

(b) the period of non-compliance, including exact dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the department for penalties or revocation of this permit.

PERMITTEE: Permit/Certification No: A029-88151  
Central Phosphates, Inc. Project: Y-GTSP/DAP Scrubber

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the department, may be used by the department as evidence in any enforcement case arising under the Florida Statutes or department rules, except where such use is proscribed by Section 403.73 and 403.111, Florida Statutes.

10. The permittee agrees to comply with changes in department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or department rules.

11. This permit is transferable only upon department approval in accordance with Florida Administrative Code Rules 17-4.12 and 17-30.30, as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the department.

12. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

13. This permit also constitutes:

- ( ) Determination of Best Available Control Technology (BACT)
- ( ) Determination of Prevention of Significant Deterioration (PSD)
- ( ) Certification of Compliance with State Water Quality Standards (Section 401. PL 92-500)
- ( ) Compliance with New Source Performance Standards

14. The permittee shall comply with the following monitoring and record keeping requirements:

a. Upon request, the permittee shall furnish all records and plans required under department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the department, during the course of any unresolved enforcement action.

PERMITTEE: Permit/Certification No.: A029-88151  
Central Phosphates, Inc. Project: Y-GTSP/DAP Scrubber

14. (con't)

b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the date(s) analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

15. When requested by the department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the department, such facts or information shall be submitted or corrected promptly.

SPECIFIC CONDITIONS:

1. Test the emissions for the following pollutant(s) at intervals of 6 months from the date April 24, 1984 and submit 2 copies of test data to the Air Section of the Hillsborough County Environmental Protection Commission Office within forty five days of such testing (Section 17-2.700 (2), Florida Administrative Code (F.A.C.)).

- |                  |                          |
|------------------|--------------------------|
| (X) Particulates | ( ) Sulfur Oxides        |
| (X) Fluorides    | ( ) Nitrogen Oxides      |
| (X) Opacity      | ( ) Hydrocarbons         |
|                  | ( ) Total Reduced Sulfur |

\*Fuel analysis may be submitted for required sulfur dioxide emission test.

2. Compliance tests shall be conducted per Section 17-2.700, Florida Administrative Code.

PERMITTEE: Central Phosphates, Inc. Permit/Certification No.: A029-88151  
 Project: Y-GTSP/DAP Scrubber

SPECIFIC CONDITIONS (con't):

3. The Hillsborough County Environmental Protection Commission shall be notified in writing 15 days prior to compliance testing.
4. Submit to DER and HCEPC for this facility, each calendar year, on or before March 1, an emission report for the preceding calendar year containing the following information as per Section 17-4.14, F.A.C.
  - (A) Annual amount of materials and/or fuels utilized.
  - (B) Annual emissions (note calculation basis).
  - (C) Any changes in the information contained in the permit application.
5. Visible emissions shall not be equal to or greater than 20% opacity in accordance with Subsection 17-2.610(2)(b), F.A.C.
6. The No. 5 fuel oil shall be limited to 1.6% by weight of sulfur.
7. Maximum permitted rates are as follows:

Product:	Production: Rate TPH	P <sub>2</sub> O <sub>5</sub> : Input TPH	F :		Particulate: Emissions LPH
			Emissions lb./ton P <sub>2</sub> O <sub>5</sub>	Emissions lb./hr.	
GTSP	50	25	0.15	3.8	34.9
DAP	75	36.5	0.06	2.2	34.9

8. Compliance testing shall be due every six months from the date of the last compliance test (April 24, 1984) or within 60 days prior to the next test date.
9. Compliance testing shall be conducted within 30 days of a change from GTSP to DAP or vice versa or of a change from natural gas to fuel oil. The maximum number of compliance tests for any six month interval from the date of April 24, 1984 shall be 2. Pursuant to Specific Condition 8, if a compliance test was conducted as a result of a change in production mode or fuel switch, then the next test shall be due 6 months from that date. If fuel oil is used for a period of less than 30 days, compliance testing is not required.

PERMITTEE:  
Central Phosphates, Inc.


Permit/Certification No.: A029-88151  
Project: Y-GTSP/DAP Scrubber (Ammended)

SPECIFIC CONDITIONS (con't):

10. Compliance test will be made with the plant operating at 90-110% of the permitted production rate. However, a compliance test may be made at 80-89% of the permitted production rate and the emission rates ratioed up to the permitted production rate to assure compliance. A compliance test made at less than 80% of the permitted production rate will automatically lower the permitted rate to the compliance test rate, plus 10%. Operation at a rate in excess of 110% of the maximum permitted operating rate will require a compliance test within 30 days of the increase over 110%.

Issued this 31 day of Aug.  
1988.

STATE OF FLORIDA DEPARTMENT OF  
ENVIRONMENTAL REGULATION

  
Richard D. Garrity, Ph.D.  
District Manager