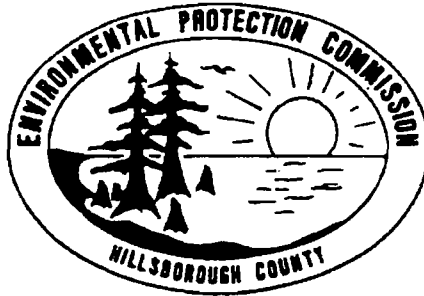


COMMISSION

PAT FRANK
CHRIS HART
JIM NORMAN
JAN PLATT
THOMAS SCOTT
RONDA STORMS
STACEY EASTERLING



ADMINISTRATIVE OFFICES, LEGAL &
WATER MANAGEMENT DIVISION
1900 - 9TH AVENUE
TAMPA, FLORIDA 33605
TELEPHONE (813) 272-5960
FAX (813) 272-5157

AIR MANAGEMENT DIVISION
TELEPHONE (813) 272-5530

WASTE MANAGEMENT DIVISION
TELEPHONE (813) 272-5788

WETLANDS MANAGEMENT DIVISION
TELEPHONE (813) 272-7104

EXECUTIVE DIRECTOR

RICHARD D. GARRITY, Ph.D.

December 20, 2000

Jerry Kissel, P.E.
District Air Engineer
DEP, Southwest District
3804 Coconut Palm Drive
Tampa, FL 33619

RE: CF Industries, Inc.

Dear Mr. Kissel:

We entered into a Consent Order with CF Industries, Inc. (CFI) on June 19, 2000, to settle a stack test failure at their "A" Sulfuric Acid Plant. A copy of the Consent Order is attached for your reference. As one of the corrective measures, we included requirements in paragraph 6 of the Order for CFI to submit a Preventative Maintenance Plan (Plan) for the "A" Sulfuric Acid Plant.

Also attached is correspondence from CFI, dated August 15 and December 8, 2000, which together constitute the approved Plan. The Consent Order requires that this approved Plan be included in CFI's Title V Air Operation Permit. We request that you include the attached approved Plan as an administrative correction either now or during the District's next permit review for CFI.

Thank you for your assistance in this matter. If you have any questions, please contact Kay Strother or me at 272-5530.

Sincerely,

Jerry Campbell, P.E.
Director
Air Management Division

Attachments (3)

cc: Thomas A. Edwards, CF Industries, Inc.

BEFORE THE ENVIRONMENTAL PROTECTION
COMMISSION OF HILLSBOROUGH COUNTY

Environmental Protection
Commission of Hillsborough County
Complainant

vs.

EPC Case #: 00-0126CCG0005

CF Industries, Inc.,
Respondent

CONSENT ORDER

This Consent Order is made and entered into between the Environmental Protection Commission of Hillsborough County (EPC) and CF Industries, Inc. (Respondent) in resolution of the above case pursuant to Chapter 84-446, as amended, Laws of Florida (Act), and interagency agreement with the Florida Department of Environmental Protection.

EPC finds, and Respondent neither admits nor denies, the following:

1. EPC has jurisdiction over the matters addressed in this Consent Order.
2. Respondent, a person within the meaning of the Act and Chapter 403, Florida Statutes, owns and operates the Plant City Phosphate Complex (Facility), located at 10608 Paul Buchman Highway, in Hillsborough County. All of its operations are subject to the conditions of Title V Air Operation Permit No. 0570005-007-AV (Permit), to the prohibitions of the Act and rules promulgated thereunder, and the Florida Administrative Code (FAC).
3. On January 27, 2000, Respondent reported to Commission staff that the "A" Sulfuric Acid Plant exceeded the emissions limitations for sulfuric acid mist in Condition No. B.3. of the Permit. Emissions of sulfuric acid mist during annual compliance testing conducted on January 26, 2000, were 2.40 lbs./hr., which is an exceedance of the permitted limit of 1.43 lbs./hr.
4. Respondent shut the plant down on January 27 between 6:00 PM and 11:00 PM to perform maintenance work. Testing on January 28 again revealed an exceedance of the sulfuric acid mist emission limits, and Respondent performed additional maintenance work. Two

demister pads in the ammonia scrubber were replaced and additional testing on January 29 indicated that sulfuric acid emissions from the plant were in compliance. Results of compliance testing conducted on February 1, 2000, demonstrated compliance with the standard.

5. Respondent has worked with EPC staff to resolve the above matters by reporting and correcting the emissions exceedances in a timely manner.

THEREFORE, having reached a resolution of these matters, Respondent and the EPC mutually agree and it is **ORDERED**:

6. Respondent shall, within 60 days of this Order, submit a Preventative Maintenance Plan (Plan) for the "A" Sulfuric Acid Plant that includes maintenance recommendations from a person or company knowledgeable in the manufacture of sulfuric acid. The Plan shall be subject to approval by EPC staff and will be incorporated into the Permit upon approval.
7. Respondent shall, within 15 days of this Order, submit to the Executive Director the amount of \$3,600.00, as an appropriate settlement ascribed to the above incidents, made payable to the Hillsborough County Pollution Recovery Fund.

All payments shall be by check or money order and shall reference this Order and the case number above. If the Respondent files for bankruptcy, any unpaid balance will become immediately due and owing.

8. EPC, for and in consideration of the complete and timely performance by Respondent of all the obligations agreed to in this Order, hereby waives its right to seek judicial or additional administrative imposition of damages or civil penalties for the incidents described in this Order. Respondent waives its right to a hearing or judicial review of the terms of this Order, except to the extent of proving compliance with this Order or to challenge the implementation of this Order.
9. This Consent Order is a settlement of the EPC's civil and administrative authority arising from the Act and Chapter 403, Florida Statutes, to pursue the matters addressed herein. This Order does not address or include settlement of any criminal liabilities which may arise therefrom.
10. Entry into this Order does not relieve Respondent of the need to comply with applicable federal, state, or local laws, regulations, or ordinances. The entry of this Order does not abrogate the rights of substantially affected persons who are not parties to this Order.
11. The EPC hereby expressly reserves the right to initiate appropriate legal action to prevent or prohibit the future

violation of applicable statutes or the rules promulgated thereunder. Nothing herein shall be construed to limit the authority of the EPC to undertake any action against any Respondent in response to, or to recover the cost of responding to, conditions at or from the site requiring EPC action to abate an imminent hazard to the public health, welfare or the environment. Respondent expressly reserves all of its legal rights and defenses in any such actions.

12. The provisions of this Order shall apply to and be binding upon the parties, their officers, agents, servants, employees, successors, and assigns and all persons, firms and corporations acting under, through or for them and upon those persons, firms and corporations in active concert or participation with them. The terms and conditions set forth in this Order may be enforced in a court of competent jurisdiction. Failure to comply with the terms of this Order shall constitute a violation of Chapter 84-446, as amended, Laws of Florida.
13. Respondent is fully aware that violation of the terms of this Order may subject it to judicial imposition of damages, civil penalties of up to \$10,000 per offense per day, criminal penalties and costs and expenses incurred in litigating this matter.
14. This Consent Order shall take effect upon the date of execution by the Executive Director and shall constitute final agency action by the EPC. The EPC shall forward a copy of this Consent Order by U.S. Mail to Respondent immediately upon execution.

June 12, 2000
Date

RESPONDENT:
By Signature: Herschel E. Morris

Print: Herschel E. Morris

Corporate Seal

State of Florida
County of Hillsborough

I, the undersigned Herschel E. Morris (printed name of Affiant), being duly sworn, do affirm that I am the authorized agent for Respondent CE Industries, Inc. (name of Respondent), that I am authorized to bind and obligate the Respondent by my signature, and that it is my signature that first appears above on behalf of the Respondent.

Signature Herschel E. Morris
Title General Manager

Sworn to and subscribed before me this 12th day of June, 2000,
by Herschel E. Morris (printed name of Affiant), who is personally
known to me, or who produced _____ as identification.



Tameka J. Jackson
MY COMMISSION # CC597541 EXPIRES
February 28, 2001
BONDED THRU TROY FAIN INSURANCE, INC.

Tameka J. Jackson
Notary Public, State of Florida

DONE and ORDERED this 19th day of June, 2000.

For the Environmental Protection
Commission of Hillsborough County

Roger P. Stewart
Roger P. Stewart, Executive Director
1900 Ninth Avenue
Tampa, Florida 33605
(813) 272-5960

CF Industries CO
06/01/00

SP 5
CG 46

Review Due 4/11/100

P.O. Drawer L.
Plant City, Florida 33564-9007
Telephone: 813/782-1591



CF Industries, Inc.
Plant City Phosphate Complex

August 15, 2000

CERTIFIED MAIL

Ms. Kay Strother
Environmental Protection Commission
of Hillsborough County
Air Management Division
1410 N. 21st Street
Tampa, FL 33605

RECEIVED

AUG 17 2000

EPC of HCO
AIR MANAGEMENT

Subject: Case No. 00-0126CCG0005

Dear Ms. Strother:

The subject consent order, dated June 19, 2000, requires the submittal of a preventative maintenance plan to include "maintenance recommendations from a person or company knowledgeable in the manufacture of sulfuric acid", within sixty days of the order (Paragraph 6 of the order). A preventative maintenance plan prepared for CF Industries, Inc., (CFI), by Acid Engineering and Consulting, Inc., is enclosed.

The settlement amount called for in Paragraph 7 of the order was submitted by mail on June 30, 2000.

As there were no other actions required of CFI by the conditions of the consent order, it is our understanding that CFI has completed its obligations in this matter. If further discussion is required, please call Michael Messina or the undersigned at (813)782-1591.

Sincerely,

Thomas A. Edwards

T.A. Edwards
Superintendent,
Environmental Affairs

cc: Bill Thomas, FDEP
J.G. Sampson

Kip Freedman
8/15/00

CF Industries, Inc.
Plant City Phosphate Complex
"A" Sulfuric Acid Plant

Sulfuric Acid Mist Emissions Prevention Plan

RECEIVED

AUG 17 2000

Scope Of Work

Develop an "Acid Mist Control Preventative Maintenance Plan" for the CF Industries, Inc., Plant City Phosphate Complex "A" Sulfuric Acid Plant to insure mist emissions are maintained within allowable limits. U.S. EPA new source performance standards for sulfur burning sulfuric acid plants set sulfuric acid mist emission limits at 0.15 Lbs/Ton of sulfuric acid produced on a one hour average, and a maximum opacity of 10%. The Florida Department of Environmental Protection specified in the permit for this plant a sulfuric acid mist emission limit based on past performance, of 1.483 Lbs/Hr (0.027 Lbs/Ton) Maximum and 0.83 Lbs/Hr (0.015 Lbs/Ton) average or about 10% of the U.S. EPA level.

Background

Sulfuric acid is produced in the "A" Sulfuric Acid Plant using elemental sulfur as the raw material. The sulfur is oxidized (burned in a furnace) with dry air to produce sulfur dioxide. The sulfur dioxide is further oxidized (in the converter) to sulfur trioxide. The sulfur trioxide is absorbed (in the absorption tower) into concentrated (nominal 98.5%) sulfuric acid and reacted with free water contained in the acid to form sulfuric acid. The unconverted (residual) sulfur dioxide is removed from the gas to acceptable levels in an ammonia - sulfur dioxide scrubbing tower where the sulfur dioxide is absorbed and reacted with ammonia and water to form an ammonium sulfite/bisulfite solution. The scrubbing system exit gas is slightly superheated and contains some ammonium sulfite/bisulfite particles and entrained solution. The gas then passes through high efficiency mist eliminators to remove ammonium sulfite/bisulfite particles and sulfuric acid mist before being released to atmosphere via the stack.

Upstream of the scrubber, sulfuric acid mist particles are formed in the absorption tower. Large particles, above three microns, are produced from entrainment of liquid droplets from the absorber packing surface. These particles are easily removed in the ammonia - sulfur dioxide scrubbing tower. Small sulfuric acid particles (sulfuric acid mist - less than one micron) are produced by the rapid cooling and condensation of sulfuric acid vapor at the inlet section of the absorption tower by a phenomenon known as "fog formation". These mist particles will pass through the ammonia - sulfur

H. J. Friedman
8/15/00

dioxide scrubber relatively untouched and are removed in a Brownian Diffusion high efficiency mist eliminator.

Operational Practices - A number of operational practices can significantly reduce or eliminate generation of fine sulfuric acid mist particles in the absorption tower. The following maintenance procedures cover normal operating conditions but do not address startup conditions. Startup conditions are specified in Permit 057005-007-AV, Attachment A.

1. Drying Tower Operation

Minimize the amount of water in the sulfur trioxide gas stream entering the absorption tower by thorough drying of the inlet air to the plant, minimizing acid carryover from the drying tower (decomposes to water and sulfur trioxide on heating), and detecting steam/water leaks (from boilers, superheaters and economizers) into the gas stream.

- a. Drying Tower - Insure Good Drying - Maintain sulfuric acid flow at the proper level, acid concentration to the drying tower above 97.5%, and acid inlet temperature to the tower below 170 F to minimize the water partial pressure above the acid (water vapor in the gas leaving the tower) ⇒ Monitor the acid concentration, temperature, acid circulating pump current (amps), and acid flow to the drying and absorption towers by instruments in the control room. *a vent location*
- b. Drying Tower - Acid Carryover - Monitor the condition and performance of the drying tower entrainment separator to prevent sulfuric acid droplet carryover from the drying tower. Perform a stick test of the gas exit from the drying tower to monitor acid droplets in the gas stream on a regular basis - once per week minimum. *See Note*
- c. Steam/ Water Leaks - The economizer is the coldest area in the gas flow path ahead of the absorption tower, so any excessive water vapor in the gas will result in acid condensation in the economizer. Monitor the gas side (casing) drains for condensed sulfuric acid on a regular basis - once per shift minimum. *Condensate formation* indicates excessive water vapor in the gas stream. When this occurs, further investigation to determine the source of the water entering the gas should follow. Check drying tower acid concentration, temperature, and acid flow. Perform a stick test for acid droplet carryover from the drying tower. Check steam equipment for leaks - check gas side vestibule blowdowns for indications of moisture.

2. Absorption Tower Operation

Operate the absorption tower outside the fog formation region. Operate the absorption tower to maximize sulfur trioxide absorption by maintaining proper acid concentration, temperature and flow.

- a. Operate Outside Fog Formation Region - Fog formation is dependent on the concentrations of sulfur trioxide, water and sulfuric acid vapor in the gas stream and the partial pressure of sulfuric acid and water above the acid in the bottom, gas inlet

L. J. Friedman
8/15/00

area, of the absorption tower. Operate the plant at acid concentrations above 97.5% and at acid temperatures above 160 F to reduce or eliminate fog formation. Monitor the acid concentration and temperature in the control room.

- b. Maximize Sulfur Trioxide Absorption - Maintain sulfur trioxide absorption by maintaining the proper acid flow and acid concentration (above 97.5%) to the absorption tower. Monitor the acid circulating pump current (amps), acid flow and concentration in the control room.

3. Mist Eliminator

Maintain the water spray wash of high efficiency mist eliminator elements (water spray at the inlet to the mist eliminator vessel) to saturate the gas and prevent ammonium sulfite/bisulfite/sulfate solids build-up. Build-up could cause restriction (plugging) of the gas passages in the mist eliminator elements, increasing pressure drop and causing excessive particle emissions to the stack.

- a. Water Spray High Efficiency Mist Eliminator - A low mist eliminator gas pressure drop insures wash spray is effectively saturating the gas and preventing solids build-up on the elements (solids build-up is a slow process). Monitor Brink's fan discharge pressure and water flow to the mist eliminator in the control room. Water flow to the sprays is ensured by maintaining a level in the Brink's basin and monitoring the pumped flow from the Brink's basin to the scrubber.

4. Stack Opacity

Monitor the integrity of the high efficiency mist eliminator system. Monitor stack appearance by visual operator inspection on a regular basis (once per shift minimum). High stack opacity may indicate a leak in one of the elements, element flange leak, element seal leg problem, or failure of the glass fiber bed in one or more elements. Optimize operational practices items 1-3 above to minimize mist entering the mist eliminator, until the plant can be shutdown and the mist eliminator problem repaired.

Preventative Maintenance Practices - Maintenance inspection and testing during the plants regular maintenance outage (turnaround) insures proper performance of the high efficiency mist eliminator system for the next operating period.

During the turnaround the plant is purged, cooled and inspected, and any required maintenance repairs or replacements are performed. All areas of the plant are inspected. Boilers are inspected and hydrostatically tested for water tightness; towers are inspected, including acid distribution, flow, acid cooling, and entrainment separators; acid pumps are inspected, rebuilt, or in many cases, replaced with a spare; instruments are inspected and calibrated; etc. The high efficiency mist eliminator system is inspected and elements repaired or replaced as required.

L. P. Friedman
8/15/00

Preventative maintenance tasks to be accomplished during the turnaround are as follows:

1. Inspect High Efficiency Mist Eliminator System - Inspection should include visual inspection of the elements, element to tubesheet flange connections, seal legs, and the inlet water spray system.
 - a. Visually inspect each mist eliminator vessel and each element for unusual flow areas, bulges in the element glass, loose flanges, flanges missing bolts or nuts, element wire failure, etc.
 - b. Start inlet water spray and check the spray pattern and flow.
 - c. Visually inspect element seal legs for damage.
2. Test System - Perform Leak Check of Element System - Use high intensity light in each element or use smoke generator (smoke bomb) to detect leaks in the mist eliminator system. Tighten flanges, repair seal legs, repair or replace any leaking or plugged elements as indicated and required.