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July 27, 2006

043-7632

**RECEIVED**

**JUL 28 2006**

**BUREAU OF AIR REGULATION**

Florida Department of Environmental Protection  
Bureau of Air Regulation  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Attention: Syed Arif, P.E.

RE: CF INDUSTRIES INC., PLANT CITY PHOSPHATE COMPLEX  
FDEP FILE NO. 0570005-021-AC; PSD-FL 355  
'A' SULFURIC ACID PLANT & 'A' AND 'B' PHOSPHORIC ACID PLANTS  
PRODUCTION INCREASE  
REQUEST FOR ADDITIONAL INFORMATION

Dear Syed:

CF Industries (CF) has received the Florida Department of Environmental Protection (FDEP) requests for additional information (RAI) dated April 26, 2006, May 1, 2006 and May 5, 2006 regarding the 'A' Sulfuric Acid Plant (A-SAP) & 'A' and 'B' Phosphoric Acid Plants (A-PAP and B-PAP, respectively) production increase project at the Plant City Phosphate Complex. Each of the FDEP's requests is answered below, in the same order as they appear in the RAI letters. The revised application form pages and application attachments are included as part of this RAI response.

**April 26, 2006 (Letter A)**

**Comment A-1.** The Department issued a PSD permit (PSD-FL-339) to CF Industries in 2005 for production increase in "C" and "D" Sulfuric Acid Plants at the Plant City facility. The plants which were double absorption units were required to show compliance with SO<sub>2</sub> limit of 3.5 lb/ton of 100% H<sub>2</sub>SO<sub>4</sub>; 3-hour rolling average using continuous emissions monitoring system. The proposed Best Available Control Technology (BACT) for SO<sub>2</sub> for the "A" SAP is the existing single absorption unit with the ammonia scrubber. The proposed 3-hour SO<sub>2</sub> limit is 3.85 lb/ton, 100% H<sub>2</sub>SO<sub>4</sub>. This BACT limit is not consistent with recent BACT determination for "C" and "D" plants. The cost effectiveness figure of \$4,469 per ton of SO<sub>2</sub> removed as given in the application for converting the existing single absorption plant to a double absorption plant does not include credit for the costs involved in utilizing the two-stage ammonia scrubber. Please recalculate the cost effectiveness figure by including the credit in shutting down the two stage ammonia scrubber for SO<sub>2</sub> control.

**Response:** CF Industries is willing to accept a 3-hour average SO<sub>2</sub> limit of 3.50 pounds per ton (lb/ton) 100 percent sulfuric acid (H<sub>2</sub>SO<sub>4</sub>) for the A-SAP upgrade with the same qualifying

parameters as in Permit No. PSD-FL-339. Revised tables with the proposed new 3-hour average sulfur dioxide (SO<sub>2</sub>) limit are presented in Appendix A-1.

In the cost for upgrading to double absorption, the credit for elimination of ammonia scrubbing was not included because the byproduct of the scrubbing system, ammonium sulfate, is used onsite in diammonium phosphate (DAP) production as a nitrogen enhancer. Ammonium sulfate is valued higher than the sum of the equivalent raw material inputs [SO<sub>2</sub> & ammonia (NH<sub>3</sub>)] and, therefore, the cost of shutting down the scrubber operation is not a credit when evaluating the economics for conversion to double absorption.

**Comment A-2. Please provide the Department with reasonable assurance that the efficiency of the absorber and the acid mist eliminator will not be degraded while operating at the higher process rate.**

**Response:** Monsanto Enviro-Chem Systems Inc. (MECS) provided the engineering technology used in the design of the C & D Sulfuric Acid Plants and the design for the proposed A-SAP upgrade. MECS evaluated the efficiency of the absorber/mist eliminators and believe the existing design is equivalent to BACT (see attached letter from MECS dated June 27, 2006, Appendix A-2). CF proposes to accept an acid mist emission limit of 0.075 lb of sulfuric acid mist (SAM) per ton of H<sub>2</sub>SO<sub>4</sub> produced.

**Comment A-3. Please provide emissions data for SO<sub>2</sub> in lb/ton of 100% H<sub>2</sub>SO<sub>4</sub> for the last year (3-hour CEM averages) of operation for the "A" SAP. In providing this data, please present it in a graphical representation against time. On the same graph, indicate the production rate for the plant (3-hour averages) and indicate the turn-around date, if any, for the "A" SAP on the time axis.**

**Response:** See Appendix A-3. There was no turn-around during the specified period. The most recent turn-around was in November 2003.

**Comment A-4. Please elaborate on the necessary physical modifications for the "A" and "B" PAPs to achieve the increased production rates. The application in Section 2.2.2 is not clear on how this will be facilitated.**

**Response:** CF proposes to utilize a stepwise process to determine the most economic production rate within the limits of the new permitted rates. Project improvements will be identified and evaluated as rates increase. At the present time, CF proposes the following projects: (1) install new piping, larger motors, and other Flash Cooler vessel modifications to increase the A-PAP Flash Cooler reactor cooling capacity, (2) install a third B-PAP Flash Cooler pump and piping to increase the B-PAP reactor cooling capacity, (3) install a new sixth evaporator for B-PAP, and (4) install steam system piping improvements to reduce steam system pressure drop. Additional projects may be submitted as permit modifications once the proposed improvements are evaluated.

The discussion of double filtration in the permit application was included as a possible alternative to mitigate increased water soluble phosphorous pentoxide (P<sub>2</sub>O<sub>5</sub>) losses expected from the higher rates. Again, the economic need for this improvement will be evaluated based on experience at the new higher rates.

**Comment A-5. Please indicate the reasons for different gas flow rates through the "A" and "B" PAPs scrubbers. The application in Section 2.2.3 states that the typical gas flow rates through the "A" and "B" scrubbers are 49,900 acfm and**

**34,300 acfm respectively. Also, explain the reasons for the higher production "B" PAP to have lower gas flow rate than "A" PAP.**

**Response:** The scrubber air flows are engineered to collect fumes from plant operating equipment and limit fugitive emissions. The A-PAP scrubber was redesigned and a new scrubber was installed in 1981. The new A-PAP scrubber had significantly higher air flow. In 1998, belt filters were installed and the scrubber air flows were increased in both A-PAP and B-PAP scrubbers. Scrubber air flow rates are designed around specific equipment and are not typically rate dependent.

**Comment A-6. Please explain the reasons for the control equipments of the "B" PAP to be different than "A" PAP. The "B" PAP is lacking a cyclonic scrubber prior to the horizontal cross-flow packed-bed scrubber. What is the effect on fluoride (gaseous and particulate) emissions due to this set-up for "B" PAP?**

**Response:** The standard process design for phosphoric acid scrubbers is the horizontal cross-flow packed-bed scrubber. The A-PAP scrubber was upgraded to this design in 1979-80. The A-PAP inlet cyclonic scrubber was a portion of the original 1965 scrubber design and was retained in the new design with the thought that it might improve overall scrubber performance. However, the B-PAP horizontal cross-flow packed-bed scrubber, which has no inlet cyclonic scrubber, consistently achieves lower emission rates as evidenced by the data included in Table 5-9 of the application. Average emission rates for A-PAP are 0.0097 lb Fluorine (F)/ton  $P_2O_5$  as compared to 0.0067 lb F/ton  $P_2O_5$  for B-PAP. Therefore, no benefit from the cyclonic scrubber is likely.

**Comment A-7. Please provide the Department with reasonable assurance that the current control equipment(s) for the "A" and "B" PAPs are sufficient to meet the proposed fluoride BACT limits of 0.012 lb/ton of  $P_2O_5$  input while operating at the higher production rates. This can be done by submitting documentation on past test data and a PE sealed statement for the vendor authenticating that the existing control equipment(s) are sufficient to meet the established BACT limits for fluorides.**

**Response:** Attached in Appendix A-7 is the Jacobs Engineering report of 1999/2000 where actual plant testing was completed at higher rates.

**Comment A-8. The application in Section 3.5.3.1 refers to the exemption from complying with the New Source Performance Standards for Hazardous Air Pollutants (NSPS) for the existing "A" and "B" PAPs due to the National Emission Standards for Hazardous Air Pollutants (NESHAP). 40 CFR 63.610 Subpart AA provides those exemptions once the requirements of certain sections are met in the rule. Please provide documentation to the Department that the requirements of Sections 63.604, 63.605, 63.606 Subpart AA have been demonstrated.**

**Response:** Sections 63.604, 63.605, and 63.606 require the following:

- A. Maintenance of daily averages of scrubber pressure drop and scrubbing liquid flow rate within established allowable ranges.
- B. Monitoring systems to determine and permanently record the mass flow rate of phosphorus-bearing feed material to the process, the pressure drop across the scrubber and the scrubbing liquid flow rate in 15-minute block averages.

- C. The establishment of allowable ranges for daily averages of scrubber pressure drop and liquid flow rate using the results of performance tests.
- D. The submittal to the Administrator of the allowable ranges.
- E. Annual performance tests to demonstrate compliance with the applicable emission standard.

Section 63.606 also allows the revision of the allowable ranges by re-testing the emission performance at new extremes of the measured parameters, and submittal of the revised ranges to the administrator.

Previous CF submittals to the FDEP document CF compliance with the above requirements and are available in FDEP files.

Appendix A-8 contains the following documents as evidence of the facility's compliance with the above requirements:

- A. Condition II-10 and Appendix CP-1, "Compliance Plan", from the current Title V Permit No. 0570005-017-AV, which incorporate the facility's Alternative Monitoring Plan in the permit.
- B. CF letters notifying the FDEP of the completion of implementation of the approved Alternative Monitoring Plan.
- C. The CF Transmittal letter to the FDEP which accompanied the tabulations of the established ranges of indicator parameter values and the initial performance test reports used to establish the allowable indicator ranges.
- D. Order forms and calibration certificates for the flowmeters used to measure the mass flow of phosphorus-bearing feed material and the scrubber water flows. These flowmeters have been in operation in the plants and the data has been reported routinely to the FDEP in the annual compliance test reports.
- E. Example print-outs of the 15-minute block averages of the phosphorus-bearing feed material, scrubber pressure drop, and scrubber liquid flow rates from the phosphoric acid plants.
- F. Transmittal letters that accompanied the most recent annual performance test reports. The tests included adjustments to the allowable scrubber water flow indicator ranges, demonstrating emission rate compliance at new range-extreme values.

**May 1, 2006 (Letter B)**

**Comment B-1. Refer to Attachment CF-EU1-I1, "A" Phosphoric Acid Plant Block flow diagram, please explain Steam Eductors in Flash Coolers, Forced Circulation Vacuum Evaporator 26% to 40% P<sub>2</sub>O<sub>5</sub>, and Forced Circulation Vacuum Evaporator 26% to 40% P<sub>2</sub>O<sub>5</sub>. Please submit the revised block flow diagram with correct items.**

**Response:** Steam eductors use steam as the motive force to pull non-condensable gases from direct contact barometric condensers on flash coolers and evaporators to operate the equipment under

a vacuum. A block flow diagram typically does not show details like pumps or small equipment like steam eductors. The existing steam eductors were added to the diagram in the April 2006 application as a sub-block of the flash cooling and evaporation unit operation blocks to illustrate the use of high pressure steam and process water. A Piping & Instrumentation Diagram (P&ID) provides additional details on how steam eductors are used in conjunction with barometric condensers. A P&ID of the proposed #6 Evaporator is attached, Appendix B-1. The steam eductors used to remove non-condensable gases are highlighted.

**Comment B-2.** Refer to Subsection III, Page 14, Sulfuric Acid Plant A (SAP), Field No. 3, please correct the emission unit ID number from 003 to 002 and submit the corrected page.

**Response:** The correction has been made and the corrected page is attached in Appendix B-2.

**Comment B-3.** Refer to Subsection III, Page 20 Sulfuric Acid Plant A (SAP) SO<sub>2</sub>, page No. 20, Field No. 8, Calculation of Emissions, and PSD Report page 2-3, 3<sup>rd</sup> paragraph, although lower SO<sub>2</sub> emission rates of 3.85 lb/ton (3-hr average), and 3.5 lb/ton (24-hour average) are proposed, 24-hour average and 12-consecutive month values increase significantly. Current TV permit (0570008-017-AV) allows: 5.6 lb/ton of 100% H<sub>2</sub>SO<sub>4</sub> (equivalent to 303.4 lb/hour for 1300 TPD of 100% H<sub>2</sub>SO<sub>4</sub> (3-hour rolling average), and 4.23 lb/ton of 100% H<sub>2</sub>SO<sub>4</sub> (equivalent to 229 lbs/hour, and 1,003 TPY for 1300 TPD of 100% H<sub>2</sub>SO<sub>4</sub> (consecutive 12-month rolling average). The proposed SO<sub>2</sub> 24-hour average is 233.3 lb/hour, and 1,022 TPY. Both these figures are significantly higher than current permit limit. Based on the information above, please explain the PSD Report page 2-3, 3<sup>rd</sup> paragraph sentence "To achieve the proposed lower SO<sub>2</sub> emission limits..." Please resubmit the corrected pages.

**Response:** According to the current Title V permit (0570005-017-AV), the maximum allowable SO<sub>2</sub> emission rates for the A-SAP are 5.6 lb/ton of 100 percent H<sub>2</sub>SO<sub>4</sub> on 3-hour average [equivalent to 303.3 pounds per hour (lb/hr)] and 4.23 lb/ton of 100 percent H<sub>2</sub>SO<sub>4</sub> on an annual average [equivalent to 229 lb/hr and 1003 tons per year (TPY)]. Currently there is no 24-hour average SO<sub>2</sub> emission limit for the A-SAP.

The proposed 3-hour and 24-hour average SO<sub>2</sub> emission rate of 233.3 lb/hr is lower than the currently permitted 3-hour average emission limit of 303.4 lb/hr. The proposed annual average emission rate of 1,022 TPY is higher than the currently permitted annual emission rate of 1,003 TPY because the proposed production rate is higher than the currently permitted production rate. A revised page 2-3 of the PSD Report is attached in Appendix B-3.

**Comment B-4.** Refer to Subsection III, Page 20 Sulfuric Acid Plant A (SAP) SAM, page No. 20, Field No. 8, Calculation of Emissions, and PSD Report page 2-3, 4<sup>th</sup> paragraph, although lower SAM emission factor of 0.10 lb/ton of H<sub>2</sub>SO<sub>4</sub> is proposed, hourly and 12-consecutive month values increase significantly. Current TV permit (0570008-017-AV) allows: 0.3 lb/ton of 100% H<sub>2</sub>SO<sub>4</sub> (equivalent to 1.43 lb/hour (each hour), 0.83 lbs/hour (consecutive 12-month average), and 3.49 tons/year (consecutive 12-month period). The proposed SAM emission numbers are 6.67 lbs/hour (hourly), and 29.2 tons/year (annual). Both these figures are significantly higher than current permit limit. Based on the information above, please explain the PSD Report page

**2-3, 4th paragraph sentence, “No new technology will be necessary to meet this limit...” Please resubmit the corrected pages.**

**Response:** The SAM emission limit for the A-SAP was reduced drastically in 1993 due to past excellent emission control performance. Prior to 1993, when Permit AC29-200648 was issued, the SAM limit was 0.3 lb/ton H<sub>2</sub>SO<sub>4</sub> and 12.5 lb/hr. During 1988 through 1992, the average SAM emissions were 0.024 lb/ton H<sub>2</sub>SO<sub>4</sub> and 2.1 lb/hr.

In the processing of the 1993 construction permit, CF sought to expedite the permit issuance by avoiding the prevention of significant deterioration (PSD) process, and accepted a much more stringent limit that was based on its previous performance. The new limit was set at 1.43 lb/hr maximum, and 0.83 lb/hr as a 12-month average. The lb/ton H<sub>2</sub>SO<sub>4</sub> limit was not expressed in this permit or in subsequent operating permits until 2005, when the 0.3 lb/ton H<sub>2</sub>SO<sub>4</sub> limit was again expressed in Construction Permit 0570005-020-AC and Title V Operating Permit 0570005-017-AV. The stringent lb/hr limits remain in these permits, even though they are not equivalent to the lb/ton limit, and CF has used the most stringent annual average limit as its effective SAM emission limit. The 0.83 lb/hr limit at the maximum permitted operating rate [1300 tons per day (TPD)] is equivalent to 0.015 lb of SAM per ton of H<sub>2</sub>SO<sub>4</sub>.

As requested verbally by the FDEP, documentation of the changes is provided in Appendix B-4 in the form of permit copies and communications between CF and the Hillsborough County environmental Protection Commission.

While CF has been able to generally meet the stringent limit, it has occasionally lost some production when it was necessary to shut the plant down for trouble-shooting activity to be able to meet the SAM limitation. Other facilities in the phosphate industry have not had this burden because their SAM limits are 0.1 lb/ton or higher, six times the CF limit.

With the proposed production rate increase for the A-SAP, CF and its consultant, MECS, do not expect to be able to continue to control the SAM emissions at the previous low levels. MECS believes it can guarantee SAM emissions to be below the BACT limits common in the industry at 0.1 lb/ton, and recommends a new limit of 0.075 lb of SAM per ton of H<sub>2</sub>SO<sub>4</sub> produced. The statement quoted from the PSD Report is correct, and so a revised report page is unnecessary.

**Comment B-5. Refer to Subsection III, Sulfuric Acid Plant A (O<sub>2</sub>), page No. 24, Field No. 7, Continuous Monitor Comment: This emission unit No. 002 is not subject to NSPS Subpart H. Please correct and resubmit the page.**

**Response:** Sulfuric Acid Plant A is not currently subject to Subpart H. We believe the proposed modification to A-SAP will make it subject to Subpart H since the modification will result in an increase in hourly emissions of SO<sub>2</sub>, and this triggers the criteria of “modification” in 40 CFR 60.14.

**Comment B-6. Refer to PSD Report, page 2-4, section 2.2.2, “A modification is proposed for the PAPs to increase the production rate by 20%, which will be facilitated by the installation of additional reactor flash cooling equipment, and/or increased evaporation capacity equipment, and double-gypsum filtration. Please show these modification items in the revised attachments CF-EU1-I1 and CF-EU2-I1 (revised block flow diagram for PAP A and PAP B) and resubmit the diagrams.**

**Response:** A block flow diagram typically does not show details like pumps and does not indicate the number of evaporators. Descriptions and additional details on flash cooling equipment, evaporation equipment, and double-gypsum filtration equipment is included below.

#### Flash Cooler Equipment

Flow through the existing two flash coolers in A-PAP and two flash coolers in B-PAP will be increased to reduce scaling and increase the cooling capacity. The flow increase will be achieved through measures like additional pumps, speeding up pumps, and increasing line sizes. Specific construction projects for A-PAP include increasing the suction piping diameter and installing new higher horsepower motors to increase the pump speed. In B-PAP, a third pumping system is being added to increase the flow to the south flash cooler. If this system proves successful, a fourth pumping system may be added to the north flash cooler.

#### Increased Evaporation Capacity

A sixth evaporator will be installed in B-PAP similar to the existing five evaporators. The new unit will be designed to operate with the other five existing evaporators in series or in parallel as needed.

#### Double Filtration Equipment

Double filtration would utilize the existing filters to filter gypsum twice in series instead of the current practice of filtering gypsum in parallel. The two filters in A-PAP and two filters in B-PAP would be converted from parallel operation to series operation. A simple block flow diagram illustrating double filtration is attached, Appendix B-6.

#### May 5, 2006 (Letter C)

**Comment C-1.** Attachment CF-F1-C3 in the application states the “Precautions to Prevent Emissions of Unconfined Particulate Matter.” Under examples of fugitive dust that may result from this project, unpaved roads and fugitive dust from the gypsum stack are listed. Please indicate where in the application emission rates and calculations from unpaved roads and fugitive dust from the gypsum stack are located or provide this information to the Department.

**Response:** Phosphogypsum stacks are not normally considered to be a source of particulate matter (PM) emissions because gypsum has a tendency to crust as it weathers. This crust resists wind forces that normally generate windblown fugitive PM emissions. Likewise, the areas on the top of the phosphogypsum stacks is not a source of PM emissions because of the presence of ponded water or because of the moisture content of exposed gypsum. The only areas on phosphogypsum stacks where the crust is routinely disturbed are the maintenance and the access roads. The road system at the top of the CF Gypsum stack consists of a rim road around the perimeter of the stack and roads on the interconnecting dikes that form individual ponds. These road systems are the only potential source for PM emissions from the phosphogypsum stack. Emissions from these road surfaces depend upon movement of vehicles and wind. Daily vehicle travel on these roads includes inspection, maintenance, and supervisory personnel vehicles and the fugitive dust emissions due to the movement of these vehicles are assumed to be very small. Additionally, these vehicles only travel during daylight hours, the time when maintenance and service usually are conducted on the stack.

**Comment C-2.** Please explain Fertilizer Throughput and Total Fertilizer Production in more detail. In Table 6-8 of the application, Annual Fertilizer Production will be 2,735,528 TPY. The Table also states that 33% of that Production will be shipped by truck. Truck Throughput listed as 639,173 TPY, which is less than 24%. Please explain. Also, in Table A-10, the B Storage &

**Shipping Building shows a Maximum Fertilizer Throughput of 4,380,000 TPY. Please explain why the B Building has a higher Fertilizer Throughput than the Annual Production of 2,735,528 TPY listed in Table 6-8.**

**Response:** The annual fertilizer production of 2,735,528 TPY is calculated from the permitted production capacity of "X", "Y" and "Z" DAP/monoammonium phosphate (MAP) plants and using a conversion factor of 2.03 tons of fertilizer per ton of P<sub>2</sub>O<sub>5</sub>. Production of "A" DAP/MAP is not included as it is not operational and is in a "standby" mode. Plant "A" did not operate in the last five years except for stack testing.

About 33 percent of the phosphate fertilizer produced at CF is shipped out using two different types of trucks: Type "A" truck, which come in empty and carry out fertilizer, and Type "C" trucks, which bring in molten sulfur and carry out fertilizer from the plant. A total of 263,551 TPY of fertilizer is shipped by Type "C" trucks. This amount plus the 639,173 TPY shipped by Type "A" trucks make up the 33 percent of the annual fertilizer production of 2,735,528 TPY mentioned in Table 6-8 of the application.

The maximum annual fertilizer throughput in Table A-10 is based on the permitted hourly loading rates times 8,760 hours per year (hr/yr), which is a very conservative number. The 2,735,528 TPY is a more realistic production throughput.

**Comment C-3. In Section 6.6 of the application, Meteorology Data, the application states "the FDEP consider this station to have surface meteorological data representative of the project site." Since the model used for this project, AERMOD, was established as the preferred model for this type of analysis late 2005, please verify that the statement quoted here was in reference to the new model, which is more sensitive to surface parameters, and provide NWS station used and the land use characteristics of the project site to further demonstrate that the NWS station surface parameters are representative of those at the project site.**

**Response:** The surface and upper-air meteorological data used in the AERMOD modeling are from Tampa and Ruskin, respectively, and are the same stations used in all previous modeling studies for CF using the ISCST3 model. The land use parameters used in the processing of the AERMOD meteorological data were from the Tampa International Airport and were determined using the AERSURFACE program.

In May 2006, the State made available a new 5-year AERMOD meteorological dataset for the Tampa International Airport, which was meant to be a standard meteorological data set to be used for all AERMOD modeling in the area. However, the dataset was prepared with questionable surface characteristics and the State is currently considering modifying the data set.

**Comment C-4. Please explain further how the surface characteristics were determined in AERMET. What is the AERSURFACE program? How does it work? Is it an approved program for use by the Department and/or the EPA?**

**Response:** The surface characteristics used in processing of the meteorological data for the AERMOD modeling were for the Tampa International Airport and were derived by the AERSURFACE program. AERSURFACE is a tool that produces surface characteristics data (i.e., albedo, Bowen ratio and surface roughness) for use in AERMET. Originally developed by West



Virginia Department of Environmental Protection (WVDEP) and Energy & Environmental Management, Inc, the AERSURFACE program reads the United States Geological Survey (USGS) land use data and returns average values of surface roughness, albedo, and Bowen ratio for twelve sectors. The AERSURFACE is not an EPA approved program. Currently there is no EPA-approved program to generate site-specific surface characteristics.

**Comment C-5.** According to the application in 6.7.1, the modeling submitted with the application has fugitive emissions evaluated as a “line” source represented by “volume” source and “volume” source stack parameters. Please provide justification for using this type of source for the fugitives.

**Response:** The ISCST3 user’s manual recommends that line sources can be represented by volume sources in Section 1.2.2 of Volume II of the ISC3 Model User’s Guide and in Sections 1.2.4.2 and 3.3.1 of the AERMOD Model User’s Guide.

**Comment C-6.** Please indicate the distance between the CF Industries Facility and the Chassahowitzka NWA. Section 6.1 of the application states that the distance is 70 km NW of the facility. Section C.1 states that the distance is 110 km NW of the facility.

**Response:** The CF facility is 70 kilometers (km) from the nearest point of the Chassahowitzka NWA. A revised page C-1 of the PSD Report is attached in Appendix C-6.

**Comment C-7.** In Table 2-4 of the application, “A” Shipping Baghouse and “B” Shipping Baghouse Stack and Operating Parameters (Stack Height for “B” and Velocity for “A”) are different than the inputs in the modeling. Please explain.

**Response:** Velocity for “A” shipping baghouse is different because it is a horizontal stack and an exit velocity of 0.1 meters per second (m/s) was used in the modeling.

Stack height for “B” shipping baghouse is correctly listed as 35 feet (ft) in Table 2-4. The stack height was erroneously modeled at a height of 34 ft. However, any impact by this stack can be considered as conservative because of the lower stack height modeled.

**Comment C-8.** Please explain how the Initial Vertical Dimension was determined for the volume sources, including trucks.

**Response:** The vertical dimension of the volume sources representing the truck traffic fugitive emissions is assumed to be 15 ft with the release height at 7.5 ft, the height of the center of the volume. The vertical dimension of the other non-truck traffic volume sources are assumed to be equal to the heights of the respective buildings, which are represented by those volume sources.

**Comment C-9.** The modeled emission rate for the source “BLOAD Current” for the PM short term average does not match the rate listed in Table 6-3. Please explain.

**Response:** The modeled emission rate for the “BLOAD Current” source is the correct emission rate, which is the sum of current emission rates of the “B” shipping truck loading and “B” shipping railcar loading (refer to Table 2-3). A corrected Table 6-3 is attached as Appendix C-9.

**Comment C-10. Please provide any electronic maps used in determining the Base Elevation/Terrain for this modeling project.**

**Response:** The four 7.5-minute digital elevation map (DEM) files used in the AERMAP program are attached as Appendix C-10.

**Comment C-11. Please provide the UTM coordinates for the "C SAP" stack location.**

**Response:** The Universal Transverse Mercator (UTM) coordinates for the "C" SAP stack is 388,168 m East and 3,115,936 m North in UTM Zone 17.


**Comment C-12. The PM short term Increment modeling shows a receptor grid concentrated to the north and east of the facility, where higher concentrations were found in the Significant Impact Analysis. However, there are some concentrations above the Significant Impact Level that were further east and south of this grid. Please extend the receptor grid to cover all areas that were "Significant" in the Significant Impact Analysis. Please do the same with the other Increment/AAQS analyses if needed.**

**Response:** AERMOD model runs take a long time to complete; the PM increment consumption model runs with 270 sources and about 1,000 receptors needed about 12 hours to complete for each year. Therefore to complete these runs in a reasonable time, a curtailed receptor grid concentrated to the north and west of the facility, where most of the significant impacts were found, was used in the increment consumption modeling. The 50-m spaced fence-line receptors were included in the model runs and so there were receptors in the east and south of the CF emission sources. A figure showing the receptor locations used in the 24-hour average PM significant impact modeling, where concentrations were observed above the significant impact level of 5 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) is attached (Appendix C-12).

Thank you for consideration of this information. If you have any questions, please do not hesitate to call me at (352) 336-5600.

Sincerely,

GOLDER ASSOCIATES INC.



David A. Buff, P.E., Q.E.P.  
Principal Engineer  
Florida P.E. H19011

SEAL

DB/all


Enclosures

cc: Tom Edwards, CF Industries  
Bob May, CF Industries

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# APPLICATION INFORMATION

## Professional Engineer Certification

1. Professional Engineer Name: <b>David A. Buff</b> Registration Number: <b>19011</b>
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3. Professional Engineer Telephone Numbers... Telephone: <b>(352) 336-5600</b> ext. <b>545</b> Fax: <b>(352) 336-6603</b>
4. Professional Engineer Email Address: <b>dbuff@golder.com</b>
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i> <i>(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and</i> <i>(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.</i> <i>(3) If the purpose of this application is to obtain a Title V air operation permit (check here <input type="checkbox"/>, if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.</i> <i>(4) If the purpose of this application is to obtain an air construction permit (check here <input checked="" type="checkbox"/>, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here <input type="checkbox"/>, if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.</i> <i>(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here <input type="checkbox"/>, if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.</i>   Signature: <u>David A. Buff</u> Date: <u>7/27/06</u> (seal)

\* Attach any Exception to certification statement.

\*\* Board of Professional Engineers Certificate of Authorization #00001670

**APPENDIX A-1**

**REVISED TABLES OF THE  
PSD APPLICATION DATED APRIL 2006**

**TABLE 2-1  
SUMMARY OF CURRENT AND PROPOSED PERMITTED EMISSION RATES FOR THE  
A SULFURIC ACID PLANT, CF INDUSTRIES, PLANT CITY**

Pollutant & Averaging Time	Current Permit Limits <sup>a</sup>				Proposed Permit Limits <sup>d</sup>			
	Production Rate (TPD)	Emission Rates			Production Rate (TPD)	Emission Rates		
		(lb/ton H <sub>2</sub> SO <sub>4</sub> )	(lb/hr)	(TPY)		(lb/ton H <sub>2</sub> SO <sub>4</sub> )	(lb/hr)	(TPY)
	1,300				1,600			
SO <sub>2</sub>								
3-Hour		5.6 <sup>b</sup>	303.3 <sup>b</sup>	--		3.50	233.3	--
24-Hour		--	--	--		3.5	233.3	--
Annual		4.23	229.0 <sup>c</sup>	1,003 <sup>c</sup>		--	--	1,022.0
SAM								
Hourly		0.3	1.43	--		0.075	5.00	--
Annual		--	0.83 <sup>c</sup>	3.49 <sup>c</sup>		--	--	21.9
NO <sub>x</sub>								
Annual		e	e	e		0.12	8.0	35.0

<sup>a</sup> Based on Title V Permit No. 0570005-017-AV.

<sup>b</sup> Limits are based on a 3-hour rolling average.

<sup>c</sup> Limits are based on a consecutive 12-month rolling average.

<sup>d</sup> Based on proposed BACT limits.

<sup>e</sup> Currently, there is no permit limit for NO<sub>x</sub>.

**TABLE 2-2  
ACTUAL ANNUAL (2003-2004) AND FUTURE POTENTIAL EMISSIONS  
FOR SOURCES AFFECTED BY THE PROPOSED PROJECT**

Source Description	EU ID	Pollutant Emission Rate (TPY)							
		SO <sub>2</sub>	NO <sub>x</sub>	CO	PM	PM <sub>10</sub>	VOC	SAM	Fluoride
<b>2003 Actual Emissions<sup>a</sup></b>									
A Sulfuric Acid Plant	002	541.06	7.10 <sup>k</sup>	--	--	--	--	1.83	--
A Phosphoric Acid Plant	004	--	--	--	--	--	--	--	2.43
B Phosphoric Acid Plant	009	--	--	--	--	--	--	--	1.22
Z DAP/MAP Plant	011	0.01	0.42 <sup>b</sup>	1.77	16.54	16.54	0.12	--	3.83
X DAP/MAP Plant	012	0.00	0.13 <sup>b</sup>	0.56	8.48	8.48	0.04	--	1.08
Y DAP/MAP Plant	013	0.01	0.33 <sup>b</sup>	1.40	13.71	13.71	0.09	--	2.58
A & B Storage Buildings Scrubber	014	--	--	--	0.07	0.07	--	--	--
A Shipping Baghouse	015	--	--	--	0.79	0.79	--	--	--
B Shipping Baghouse	018	--	--	--	1.84	1.84	--	--	--
B Shipping Truck Loading Station	019	--	--	--	1.71	1.71	--	--	--
B Shipping Railcar Loading	020	--	--	--	1.71	1.71	--	--	--
<b>2004 Actual Emissions<sup>a</sup></b>									
A Sulfuric Acid Plant	002	681.51	8.30 <sup>k</sup>	--	--	--	--	2.52	--
A Phosphoric Acid Plant	004	--	--	--	--	--	--	--	2.44
B Phosphoric Acid Plant	009	--	--	--	--	--	--	--	2.96
Z DAP/MAP Plant	011	0.01	0.36 <sup>h</sup>	1.50	13.84	13.84	0.10	--	2.67
X DAP/MAP Plant	012	0.00	0.09 <sup>h</sup>	0.39	13.68	13.68	0.03	--	3.05
Y DAP/MAP Plant	013	0.01	0.35 <sup>h</sup>	1.46	19.46	19.46	0.10	--	2.00
A & B Storage Buildings Scrubber	014	--	--	--	0.11	0.11	--	--	--
A Shipping Baghouse	015	--	--	--	0.99	0.99	--	--	--
B Shipping Baghouse	018	--	--	--	1.78	1.78	--	--	--
B Shipping Truck Loading Station	019	--	--	--	1.40	1.40	--	--	--
B Shipping Railcar Loading	020	--	--	--	2.34	2.34	--	--	--
<b>Average 2003 &amp; 2004 Actual Emissions</b>									
A Sulfuric Acid Plant	002	611.285	7.70	--	--	--	--	2.17	--
A Phosphoric Acid Plant	004	--	--	--	--	--	--	--	2.43
B Phosphoric Acid Plant	009	--	--	--	--	--	--	--	2.09
Z DAP/MAP Plant	011	0.012	0.39	1.63	15.19	15.19	0.11	--	3.25
X DAP/MAP Plant	012	0.004	0.11	0.47	11.08	11.08	0.03	--	2.07
Y DAP/MAP Plant	013	0.010	0.34	1.43	16.59	16.59	0.09	--	2.29
A & B Storage Buildings Scrubber	014	--	--	--	0.09	0.09	--	--	--
A Shipping Baghouse	015	--	--	--	0.89	0.89	--	--	--
B Shipping Baghouse	018	--	--	--	1.81	1.81	--	--	--
B Shipping Truck Loading Station	019	--	--	--	1.55	1.55	--	--	--
B Shipping Railcar Loading	020	--	--	--	2.02	2.02	--	--	--
<b>Future Potential Emissions</b>									
A Sulfuric Acid Plant	002	1,022.00 <sup>b</sup>	35.04 <sup>c</sup>	--	--	--	--	21.90 <sup>b</sup>	--
A Phosphoric Acid Plant	004	--	--	--	--	--	--	--	3.72 <sup>b</sup>
B Phosphoric Acid Plant	009	--	--	--	--	--	--	--	5.54 <sup>b</sup>
Z DAP/MAP Plant	011	9.50 <sup>d</sup>	26.75 <sup>d</sup>	15.73 <sup>d</sup>	99.00 <sup>e</sup>	99.00 <sup>e</sup>	1.03 <sup>d</sup>	0.16 <sup>d</sup>	6.31 <sup>e</sup>
X DAP/MAP Plant	012	9.94 <sup>d</sup>	27.99 <sup>d</sup>	16.46 <sup>d</sup>	41.88 <sup>e</sup>	41.88 <sup>e</sup>	1.08 <sup>d</sup>	0.17 <sup>d</sup>	6.70 <sup>e</sup>
Y DAP/MAP Plant	013	11.00 <sup>d</sup>	30.97 <sup>d</sup>	18.21 <sup>d</sup>	67.00 <sup>e</sup>	67.00 <sup>e</sup>	1.19 <sup>d</sup>	0.19 <sup>d</sup>	9.60 <sup>e</sup>
A & B Storage Buildings	014	--	--	--	4.8 <sup>d</sup>	2.3 <sup>d</sup>	--	--	--
A Shipping Baghouse	015	--	--	--	21.9 <sup>f</sup>	21.9 <sup>f</sup>	--	--	--
B Shipping Baghouse	018	--	--	--	21.9 <sup>f</sup>	21.9 <sup>f</sup>	--	--	--
B Shipping Truck & Railcar Loading	019,020	--	--	--	5.7 <sup>d</sup>	2.7 <sup>d</sup>	--	--	--
A Shipping Truck & Railcar Loading		--	--	--	2.9 <sup>d</sup>	1.4 <sup>d</sup>	--	--	--

<sup>a</sup> From the 2003 and 2004 Annual Operating Reports, CF Industries, Plant City facility.

<sup>b</sup> Based on proposed BACT limits (see Tables 2-1 and 2-5).

<sup>c</sup> Based on proposed BACT limit (see Table 2-1).

<sup>d</sup> See Appendix A for calculations of potential emissions.

<sup>e</sup> Based on Title V Permit No. 0570005-017-AV.

<sup>f</sup> Based on Title V Permit No. 0570005-017-AV and derived from hourly emission rate and 8,760 hr/yr.

<sup>g</sup> Based on 0.04 lb/ton H<sub>2</sub>SO<sub>4</sub> from stack test dated 8/25/93 and actual annual H<sub>2</sub>SO<sub>4</sub> production.

<sup>h</sup> See Table A-8 for calculations of current actual NO<sub>x</sub> emissions from "X", "Y", and "Z" DAP/MAP dryers.

Note: The "A" DAP/MAP plant is in cold shutdown status and there is no plan to activate it in the near future. Therefore, the "A" DAP/MAP plant is not affected by the proposed project.

**TABLE 2-3  
CURRENT ACTUAL AND FUTURE POTENTIAL HOURLY EMISSIONS FOR SOURCES  
AFFECTED BY THE PROPOSED PROJECT**

Source Description	EU ID	SO <sub>2</sub>		CO (lb/hr)	PM <sub>10</sub> (lb/hr)	SAM (lb/hr)	Fluoride (lb/hr)
		3-Hr (lb/hr)	24-Hr (lb/hr)				
<b>Current Actual Hourly Emissions</b>							
A Sulfuric Acid Plant	002	233.4 <sup>a</sup>	195.2 <sup>b</sup>	--	--	0.53 <sup>c</sup>	--
A Phosphoric Acid Plant	004	--	--	--	--	--	0.83 <sup>d</sup>
B Phosphoric Acid Plant	009	--	--	--	--	--	0.80 <sup>e</sup>
Z DAP/MAP Plant	011	0.0031 <sup>e</sup>	0.0031 <sup>e</sup>	0.43 <sup>e</sup>	6.75 <sup>f</sup>	--	1.30 <sup>g</sup>
X DAP/MAP Plant	012	0.0009 <sup>e</sup>	0.0009 <sup>e</sup>	0.13 <sup>e</sup>	3.63 <sup>h</sup>	--	0.79 <sup>h</sup>
Y DAP/MAP Plant	013	0.0027 <sup>e</sup>	0.0027 <sup>e</sup>	0.38 <sup>e</sup>	8.06 <sup>i</sup>	--	1.05 <sup>j</sup>
A & B Storage Buildings Scrubber	014	--	--	--	2.79 <sup>e</sup>	--	--
A Shipping Baghouse	015	--	--	--	0.43 <sup>e</sup>	--	--
B Shipping Baghouse	018	--	--	--	0.43 <sup>e</sup>	--	--
B Shipping Truck Loading Station	019	--	--	--	0.49 <sup>e</sup>	--	--
B Shipping Railcar Loading	020	--	--	--	0.64 <sup>e</sup>	--	--
<b>Future Potential Hourly Emissions</b>							
A Sulfuric Acid Plant	002	233.30 <sup>k</sup>	233.30 <sup>k</sup>	--	--	5.00 <sup>k</sup>	--
A Phosphoric Acid Plant	004	--	--	--	--	--	0.85 <sup>k</sup>
B Phosphoric Acid Plant	009	--	--	--	--	--	1.26 <sup>k</sup>
Z DAP/MAP Plant	011	2.17 <sup>l</sup>	2.17 <sup>l</sup>	3.59 <sup>l</sup>	22.60 <sup>m</sup>	0.04 <sup>l</sup>	1.44 <sup>m</sup>
X DAP/MAP Plant	012	2.52 <sup>l</sup>	2.52 <sup>l</sup>	4.17 <sup>l</sup>	13.75 <sup>m</sup>	0.04 <sup>l</sup>	2.20 <sup>m</sup>
Y DAP/MAP Plant	013	2.51 <sup>l</sup>	2.51 <sup>l</sup>	4.16 <sup>l</sup>	15.30 <sup>m</sup>	0.04 <sup>l</sup>	2.20 <sup>m</sup>
A & B Storage Buildings		--	--	--	0.52 <sup>l</sup>	--	--
A Shipping Baghouse	015	--	--	--	5.0 <sup>m</sup>	--	--
B Shipping Baghouse	018	--	--	--	5.0 <sup>m</sup>	--	--
B Shipping Truck&Railcar Loading	019,020	--	--	--	0.62 <sup>l</sup>	--	--
A Shipping Truck&Railcar Loading		--	--	--	0.31 <sup>l</sup>	--	--

<sup>a</sup> Based on the maximum 3-hr average emissions from CEM data dated 3/02/04.

<sup>b</sup> Based on the maximum 24-hr average emissions from CEM data dated 7/24/04.

<sup>c</sup> Based on the average actual annual emissions and actual operating hours for 2003 and 2004.

<sup>d</sup> Based on compliance test data of 6/17/2003.

<sup>e</sup> Based on compliance test data of 5/19/2004.

<sup>f</sup> Based on compliance test data of 3/10/2005.

<sup>g</sup> Based on compliance test data of 3/11/2003.

<sup>h</sup> Based on compliance test data of 4/20/2004.

<sup>i</sup> Based on compliance test data of 4/27/2004.

<sup>j</sup> Based on compliance test data of 4/29/2003.

<sup>k</sup> Proposed BACT limits.

<sup>l</sup> See Appendix A for calculations of potential emissions.

<sup>m</sup> Based on Title V Permit No. 0570005-017-AV.

**TABLE 3-3**  
**PSD APPLICABILITY ANALYSIS FOR THE PROPOSED CFI PLANT CITY PROJECT**

Source Description	Pollutant Emission Rate (TPY)							
	SO <sub>2</sub>	NO <sub>x</sub>	CO	PM	PM <sub>10</sub>	VOC	SAM	Fluoride
<b>Potential Emissions From Modified/Affected Sources <sup>a</sup></b>								
A Sulfuric Acid Plant	1,022.0	35.0	--	--	--	--	21.90	--
A Phosphoric Acid Plant	--	--	--	--	--	--	--	3.72
B Phosphoric Acid Plant	--	--	--	--	--	--	--	5.54
Z DAP/MAP Plant	9.5	26.7	15.7	99.0	99.0	1.03	0.16	6.31
X DAP/MAP Plant	9.9	28.0	16.5	41.9	41.9	1.08	0.17	6.70
Y DAP/MAP Plant	11.0	31.0	18.2	67.0	67.0	1.19	0.19	9.60
A & B Storage Buildings	--	--	--	4.8	2.3	--	--	--
A Shipping Baghouse	--	--	--	21.90	21.90	--	--	--
B Shipping Baghouse	--	--	--	21.90	21.90	--	--	--
B Shipping Truck/Railcar Loading	--	--	--	5.7	2.7	--	--	--
A Shipping Truck/Railcar Loading	--	--	--	2.9	1.4	--	--	--
Truck Traffic <sup>d</sup>	--	--	--	4.2	0.8	--	--	--
<b>Total Potential Emission Rates</b>	<b>1,052.43</b>	<b>120.75</b>	<b>50.40</b>	<b>269.3</b>	<b>258.9</b>	<b>3.30</b>	<b>22.41</b>	<b>31.87</b>
<b>Actual Emissions from Current Operations <sup>b</sup></b>								
A Sulfuric Acid Plant	611.3	7.70	--	--	--	--	2.17	--
A Phosphoric Acid Plant	--	--	--	--	--	--	--	2.43
B Phosphoric Acid Plant	--	--	--	--	--	--	--	2.09
Z DAP/MAP Plant	0.01	0.39	1.63	15.19	15.19	0.11	--	3.25
X DAP/MAP Plant	0.00	0.11	0.47	11.08	11.08	0.03	--	2.07
Y DAP/MAP Plant	0.01	0.34	1.43	16.59	16.59	0.09	--	2.29
A & B Storage Buildings Scrubber	--	--	--	0.09	0.09	--	--	--
A Shipping Baghouse	--	--	--	0.89	0.89	--	--	--
B Shipping Baghouse	--	--	--	1.81	1.81	--	--	--
B Shipping Truck Loading Station	--	--	--	1.55	1.55	--	--	--
B Shipping DAP (Railcar Loading)	--	--	--	2.02	2.02	--	--	--
<b>Total Actual Emission Rates</b>	<b>611.33</b>	<b>8.54</b>	<b>3.53</b>	<b>49.22</b>	<b>49.22</b>	<b>0.23</b>	<b>2.17</b>	<b>12.13</b>
<b>TOTAL CHANGE DUE TO PROJECT</b>	<b>441.1</b>	<b>112.2</b>	<b>46.9</b>	<b>220.1</b>	<b>209.7</b>	<b>3.1</b>	<b>20.24</b>	<b>19.7</b>
<b>Contemporaneous Emission Changes</b>								
C and D Sulfuric Acid Plants PSD (1/04)	<sup>c</sup>	<sup>c</sup>	0.00	1.43	1.43	0.92	<sup>c</sup>	0.00
<b>Total Contemporaneous Emission Changes</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1.43</b>	<b>1.43</b>	<b>0.92</b>	<b>0.00</b>	<b>0.00</b>
<b>TOTAL NET CHANGE</b>	<b>441.1</b>	<b>112.2</b>	<b>46.9</b>	<b>221.5</b>	<b>211.1</b>	<b>4.0</b>	<b>20.2</b>	<b>19.7</b>
<b>PSD SIGNIFICANT EMISSION RATE</b>	40	40	100	25	15	40	7	3
<b>PSD REVIEW TRIGGERED?</b>	Yes	Yes	No	Yes	Yes	No	Yes	Yes

<sup>a</sup> See future potential annual emissions from Table 2-2.

<sup>b</sup> Based on actual emissions for 2003 and 2004 from Table 2-2 (see also Appendix A).

<sup>c</sup> Denotes that PSD review was triggered, therefore all previous contemporaneous emission changes are wiped clean.

<sup>d</sup> Shows change in emission rate due to the proposed project (see Appendix A).



**TABLE 6-4**  
**SUMMARY OF SO<sub>2</sub> AND SAM CURRENT ACTUAL AND FUTURE POTENTIAL EMISSION RATES**  
**FOR THE PROPOSED PROJECT – CF INDUSTRIES, PLANT CITY**

Source	EU ID	Model ID	SO <sub>2</sub> Emissions						SAM Emissions			
			3-Hour <sup>b</sup>		24-Hour <sup>b</sup>		Annual <sup>c</sup>		Hourly <sup>b</sup>		Annual <sup>c</sup>	
			lb/hr	g/s	lb/hr	g/s	TPY	g/s	lb/hr	g/s	TPY	g/s
<b>Current Actual Emissions</b>												
"A" SAP	002	SAPA	233.4	--	195.2	--	611.3	--	0.53	0.067	2.17	0.274
"A" PAP	004	PAPA	--	--	--	--	--	--	--	--	--	--
"B" PAP	009	PAPB	--	--	--	--	--	--	--	--	--	--
"Z" DAP/MAP Plant	011	ZDMP	0.0031	3.94E-04	0.0031	3.94E-04	0.0120	1.51E-03	--	--	--	--
"X" DAP/MAP Plant	012	XDMGP	0.0009	1.19E-04	0.0009	1.19E-04	0.0035	4.41E-04	--	--	--	--
"Y" DAP/MAP Plant	013	YDMGP	0.0027	3.38E-04	0.0027	3.38E-04	0.0100	1.26E-03	--	--	--	--
"A" and "B" Storage Building Scrubber	014	ABSTO	--	--	--	--	--	--	--	--	--	--
"A" Shipping Baghouse	015	ASBAG	--	--	--	--	--	--	--	--	--	--
"B" Shipping Baghouse	018	BSBAG	--	--	--	--	--	--	--	--	--	--
"B" Truck/Railcar Loading <sup>a</sup>	019	BLOAD	--	--	--	--	--	--	--	--	--	--
"A" Railcar/Truck Loading <sup>a</sup>	020	ALOAD	--	--	--	--	--	--	--	--	--	--
<b>Future Potential Emissions</b>												
"A" SAP	002	SAPA	233.3	--	233.3	--	1022.0	--	5.00	0.63	29.2	3.68
"A" PAP	004	PAPA	--	--	--	--	--	--	--	--	--	--
"B" PAP	009	PAPB	--	--	--	--	--	--	--	--	--	--
"Z" DAP/MAP Plant	011	ZDMP	2.17	0.273	2.17	0.273	9.5	0.273	0.037	0.0046	0.16	0.0046
"X" DAP/MAP Plant	012	XDMGP	2.52	0.318	2.52	0.318	9.9	0.286	0.043	0.0054	0.17	0.0048
"Y" DAP/MAP Plant	013	YDMGP	2.51	0.316	2.51	0.316	11.0	0.316	0.042	0.0053	0.19	0.0053
"A" and "B" Storage Building <sup>a</sup>	014	ABSTO	--	--	--	--	--	--	--	--	--	--
"A" Shipping Baghouse	015	ASBAG	--	--	--	--	--	--	--	--	--	--
"B" Shipping Baghouse	018	BSBAG	--	--	--	--	--	--	--	--	--	--
"B" Truck/Railcar Loading <sup>a</sup>	019	BLOAD	--	--	--	--	--	--	--	--	--	--
"A" Railcar/Truck Loading <sup>a</sup>	020	ALOAD	--	--	--	--	--	--	--	--	--	--

<sup>a</sup> Fugitive emissions, modeled as volume source.

<sup>b</sup> Hourly emissions from Table 2-3.

<sup>c</sup> Annual emissions from Table 2-2.

**APPENDIX A-2**

**MECS, INC. LETTER REGARDING  
"A" PLANT MIST ELIMINATOR REVIEW**

June 27, 2006

Mr. Randy Charlot  
CF Industries, Inc.  
P.O. Drawer "L"  
Plant City, FL 33565

Dear Randy,

The purpose of this letter is to respond to FDEP questions regarding CFI's expansion of "A" sulfuric acid plant.

We believe that 0.075#/ton for acid mist emissions is a reasonable performance expectation for our Brink Brownian diffusion mist eliminators even though the current EPA NSPS standard is still 0.15#/ton. To our knowledge, the only new US sulfuric acid plant to be required to obtain 0.075#/ton was General Chemical in Augusta, GA (formerly Peridot Chemical) circa 1997. Since then, no other US plant has been required to meet 0.075#/ton to our knowledge.

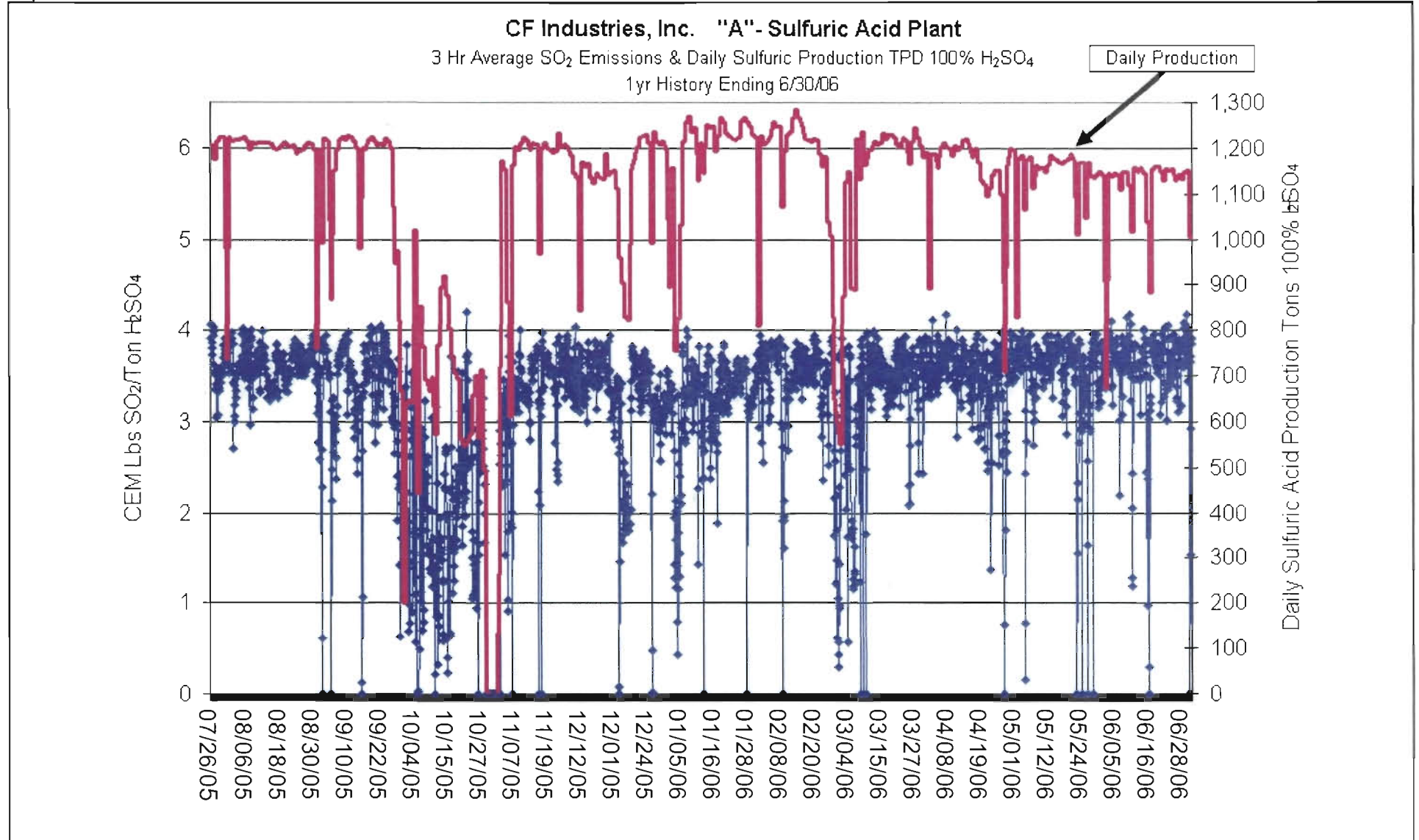
We have reviewed the "A" Plant mist eliminator performance at 1600 STPD and are very comfortable that the current mist eliminator system will not be degraded and that the emissions will not exceed 0.075#/ton.

Sincerely,

  
John Horne

**APPENDIX A-3**

**“A” SULFURIC ACID PLANT  
EMISSIONS AND DAILY PRODUCTION HISTORY**



**Appendix A-3**

Note: Title V Permit only requires the daily sulfuric acid production to be recorded.

Therefore, daily sulfuric acid production was reported instead of 3-hour average production rates.

0437632/4.1/RA1062906/Figure A-3

Source: Golder, 2006.



**APPENDIX A-7**

**EVALUATION OF "A" AND "B" PHOSPHORIC ACID SCRUBBER  
PERFORMANCE**

**JACOBS ENGINEERING GROUP INC.**

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December 15, 1999

Mr. Randy Charlot  
Chief Process Engineer  
CF Industries, Inc.  
Drawer L  
Plant City, FL 33564

**Subject: Evaluation of 'A' & 'B' Phosphoric Acid Scrubber Performance  
PN-28-U785-00**

Dear Randy:

I have enclosed four copies of our Evaluation of 'A' & 'B' Phosphoric Acid Scrubber Performance. Please let me know if you need anything further.

Thank you for the opportunity to work with CF Industries, Inc.

Sincerely,

**JACOBS ENGINEERING GROUP INC.**

Paul S. Waters  
Principal Process Engineer

PSW:ked

Attachments





**EVALUATION OF  
'A' & 'B' PHOSPHORIC ACID  
SCRUBBER PERFORMANCE**

**For**

**CF INDUSTRIES, INC.  
PLANT CITY PHOSPHATE COMPLEX  
PLANT CITY, FL**

**Prepared by**

**JACOBS ENGINEERING GROUP INC.  
Lakeland, Florida USA**

**JEG PN 28-U785-00  
December 1999**

A handwritten signature in black ink, appearing to be 'B.H.', located in the bottom right corner of the page.

## CF INDUSTRIES

### AN EVALUATION OF 'A' and 'B' PAP SCRUBBER PERFORMANCE

#### Summary

Recent data from Annual Compliance Tests conducted in June 1999, and in January and February 1998, on both 'A' PAP and 'B' PAP Stack have been analyzed. This information has been supplemented with data from tests on the two scrubbers, conducted in July and September 1999. The data from these scrubber tests is given in an Appendix to this report. Data from Compliance Tests conducted in May and June 1997 was also available. However, scrubber modifications have been made since the 1997 tests and a new filter has been added to each plant. So this data has not been used in this evaluation

Both 'A' and 'B' PAP Scrubbers consist of a quench section, three cross-flow irrigated beds of 'Kimre' packing, and a mist eliminator of 'Kimre' packing. Also both scrubbers are sized for the current airflow, which will not change for the new production rate. This configuration is, in our opinion, BACT, and would also meet the requirements of MACT under recent changes to Federal Rule 40CFR63.

Predictions have been made of the performance of the 'A' Scrubber and the 'B' Scrubber if the production rates are increased to 1,699 TPD  $P_2O_5$  and 2,528 TPD  $P_2O_5$ , respectively. These predictions are based on the performance demonstrated in the 1998 and 1999 Compliance Tests and the informal tests in July and September 1999.

In both cases the emissions are predicted to be significantly less than the current limits of 28.3 lb F/day and 24.9 lb F/day for the 'A' & 'B' PAP, respectively. In fact, the projected emissions in both cases are significantly less than the new source maximum achievable control technology (MACT) limits of 0.0135 lb F/ton  $P_2O_5$ .

The lowest recorded emissions were achieved in June 1999 Compliance Tests which were run at 1560 TPD, or +10%, for A phosphoric acid plant and 2350 TPD, or +10%, for B phosphoric acid plant. Compliance Tests in the 1998 at 1310 TPD for A phosphoric acid plant and 1995 TPD for B phosphoric acid plant

gave significantly higher lb per day emissions for A phosphoric acid plant and essentially the same emissions for B phosphoric acid plant. Using conservative NTU values of 5.0 NTUs for 'A' PAP and 6.0 NTUs for 'B' PAP gives a calculated increase of 2.801 TPY fluoride emission over the average of the emissions achieved in the last two Compliance Tests in 1998 and 1999.

It is therefore concluded that no modifications are necessary to either scrubber, in order to satisfy the current and proposed permitted emission levels of fluorides, with the proposed increase in production throughput.

**1. Introduction**

Recent data from several sources has been gathered and analyzed to predict the performance of the 'A' and 'B' PAP Scrubbers. Table 1 following gives this data for the 'A' PAP Unit. Table 4 following gives this data for the 'B' PAP Unit.

The standard mass transfer equation for gas absorption has been used to indicate the likely performance of this scrubber with an increase in production capacity. The scrubber outlet concentration has been calculated from:

$$P1 = [(P2 - P^*) / \text{Exp (NTU)}] + P^*$$

Where P2 = Inlet F concentration mg/SCF

P1 = Outlet F concentration mg/SCF

P\* = Equilibrium F concentration mg/SCF

NTU = Number of Transfer Units determined from recent data

For the 'A' PAP phosphoric acid plant, the capacities evaluated are:

1416 TPD P<sub>2</sub>O<sub>5</sub> Feed

1416 TPD P<sub>2</sub>O<sub>5</sub> Feed + 10%

1416 TPD P<sub>2</sub>O<sub>5</sub> Feed + 20%

For the 'B' PAP phosphoric acid plant, the capacities evaluated are:

2107 TPD P<sub>2</sub>O<sub>5</sub> Feed

2107 TPD P<sub>2</sub>O<sub>5</sub> Feed + 10%

2107 TPD P<sub>2</sub>O<sub>5</sub> Feed + 20%

## 2. Sources of Recent Data

- 2.1 Data Points 1 – 14 for 'A' PAP are shown in Table 1. Data Points 1 and 2 are taken from the results of the 9/15/99 'A' PAP Scrubber Test collected at the Reactor Fume Duct and at the Tank exit to scrubber duct. Data collected from the exit of cyclone duct has not been used since the reported fluoride includes fluoride that carried over in the pond water from the cyclone. Data Points 3 – 8 are taken from the 'A' Stack measurements taken 6/22/99 and 6/23/99, for the 1999 Annual Compliance Test. Data Points 9 – 14 are taken from the 'A' Stack measurements taken 2/18/98 to 2/20/98, for the 1998 Annual Compliance Test.
- 2.2 Data Points 15 - 25 for the B phosphoric acid plant are shown in Table 4. Data Points 15 – 17, and 21 – 22 are taken from the results of the 9/1/99 'B' PAP Scrubber Test. Data Points 18 - 20, and 23 - 25 are taken from the results of the 7/22/99 'B' PAP scrubber test. Data Points 26 - 31 are taken from the 'B' Stack measurements taken 6/7/99 and 6/8/99, for the 1999 Annual Compliance Test. Data Points 32 - 37 are taken from the 'B' Stack measurements taken 1/28/98 and 1/29/98, for the 1998 Annual Compliance Test.

### 3. Calculation and Interpretation of Recent Data given in Tables 1 and 4

#### 3.1 Column B - Production Rate TPD P<sub>2</sub>O<sub>5</sub>

Taken directly from source data in all cases. For Data Points 3 – 8, the 6/99 'A' phosphoric acid plant Compliance Test measurements report Feed Rate. For Data Points 9 – 14, the 2/98 'A' phosphoric acid plant Compliance Test measurements report Feed Rate. For Data Points 1 & 2, the reported Production Rates are divided by 0.95 to obtain the P<sub>2</sub>O<sub>5</sub> Feed Rates

For Data Points 26 - 31, the 6/99 'B' phosphoric acid plant Compliance Test measurements report Feed Rate. For Data Points 32 – 37, the 2/98 'B' phosphoric acid plant Compliance Test measurements report Feed Rate. For Data Points 15 - 25, the reported scrubber test Production Rates are divided by 0.95 to obtain the P<sub>2</sub>O<sub>5</sub> Feed Rates

#### 3.2 Columns C through G refer to Fume from the Reactor only

#### 3.3 Column C - F lb/day

Taken directly from source data for Data Points 1, 2, and 15 – 25

The results of the 9/15/99 'A' PAP Scrubber Test give values of the evolved lb F/ ton P<sub>2</sub>O<sub>5</sub> feed of 1.00 (for Data point 1) and 0.64 (for Data Point 2). The value of 1.00 has been used to calculate the fluoride arising from the reactor for Data Points 3 through 14.

The results of the 9/1/99 'B' PAP Scrubber Test give values of lb F/ ton P<sub>2</sub>O<sub>5</sub> feed of between 0.84 and 1.47. No conclusive correlation could be made between fluoride evolved and P<sub>2</sub>O<sub>5</sub> production rate and therefore a value of 1.20 has been used to calculate the fluoride arising from the reactor for Data Points 26 through 37.

3.4 Column D – lb F/ton Feed P<sub>2</sub>O<sub>5</sub>

Calculated from Column B and Column C.

3.5 Column E - Air Flow CFM

Taken directly from source data for 'A' Data Points 1 and 2 and 'B' Data Points 15 through 25. For Data Points 3 through 8, the higher value of 10,219 CFM has been assumed. For Data Points 26 through 37, the value of 20,499 CFM has been assumed.

3.6 Column F - Temperature °F

Taken directly from source data for Data Points 1 and 2. For Data Points 3 through 14 the averaged value of 172°F has been assumed. For the 'B' PAP, a fume inlet temperature from the reactor of 176°F has been assumed if the data has not been reported.

3.7 Column G - Air Flow SCFM

Calculated from Columns E and F in all cases.

3.8 Column H - F Inlet Loading mg/SCF

Calculated from Columns D and G in all cases.

3.9 Columns J through L refer to Fume from the Reactor and Filters combined.

3.10 Column I - F lb/day

Data from the 'A' Scrubber test on 9/15/99 has been used directly to add 150 lb F/day and 71.9 lb F/day to Data Points 1 and 2 respectively for the fluoride loading coming from the filters. An average of 111 lb F/day has been used for the other 'A' Data Points 3 – 8. The 'B' Scrubber test on 9/1/99 reported that 20,735 CFM at 95°F contributed 133.3 lb/day F to the scrubber inlet. This additional fluoride is added to Column C for Data Points 15 - 37

3.11 Column J- Combined Air Flow SCFM

Data from the 'A' Scrubber test on 9//15/99 has been used directly to add 28,291 SCFM and 28,787 SCFM to Data Points 1 and 2 respectively for the fluoride loading coming from the filters. An average of 28,539 SCFM has been used for the other 'A' Data Points 3 - 14. For Data Points 15 – 37, the 20,735 CFM from the Filters, measured during the scrubber tests, has been corrected to SCFM and added to Column G

3.12 Column K - F Inlet Loading mg/SCF Combined Fumes

Calculated from Columns I and J in all cases.

3.13 Column L - F Inlet loading lb/ton P<sub>2</sub>O<sub>5</sub>

Calculated from Columns B and I in all cases.

3.14 Column M - Scrubber Outlet Loading mg/SCF

Data from the 'A' Scrubber test on 9//15/99 has been used directly for Data Points 1 and 2 respectively. Values of stack gas flow in SCFM reported in the 6/99 'A' Compliance Tests, have been used with reported emissions of F in lb/day to calculate mg/SCF for Data Points 3 through 8. Values of stack gas flow in SCFM reported in the 2/98 'A' Compliance Tests, have been used with reported emissions of F in lb/day to calculate mg/SCF for Data Points 9 through 14.



A value of 0.1325 mg/CF reported from the 9/1/99 'B' Scrubber Test has been used for Data Points 15 through 20. A value of 0.1525 mg/CF reported from the 9/1/99 'B' Scrubber Test has been used for Data Points 21 through 25. Values of stack gas flow in SCFM reported in the 'B' PAP 6/99 Compliance Tests have been used with reported emissions of F in lb/day to calculate mg/SCF, for Data Points 26 through 31. Values of stack gas flow in SCFM reported in the 'B' PAP 1/98 Tests have been used with reported emissions of F in lb/day to calculate mg/SCF for Data Points 32 through 37.

3.15 Column N – NTU Number of Transfer Units.

Calculated from:

$$NTU = LN [(P2 - P^*) / (P1 - P^*)]$$

Where P2 = Inlet F concentration mg/SCF

P1 = Outlet F concentration mg/SCF

P\* = Equilibrium F concentration mg/SCF

The 9/1/99 'A' Scrubber Test reports 1.05% F in the scrubber liquor. This equates to 1.28% H<sub>2</sub>SiF<sub>6</sub>. Fluoride vapor pressure above a liquor of this concentration at 94°F is reported in Hansen's Russian Data as 0.0011 mm Hg. This is equivalent to a vapor phase equilibrium concentration of 0.044 mg/SCF. This data has been used in NTU calculation for Data Points 1 through 8. For Data Points 9 – 14, a scrubbing liquor outlet temperature of 80 °F is assumed, (to reflect the February ambient). This results in a vapor phase equilibrium concentration of 0.029 mg/SCF.

The 9/1/99 'B' Scrubber Test reports 1.01% F in the scrubber liquor. This equates to 1.27% H<sub>2</sub>SiF<sub>6</sub>. Fluoride vapor pressure above a liquor of this concentration at 118°F is reported in Hansen's Russian Data as 0.0025 mm Hg. This is equivalent to a vapor phase equilibrium concentration of 0.099 mg/SCF. This data has been used in NTU calculation for Data Points 15 through 25.

Scrubber outlet concentration reported in the 6/99 'B' Tests was lower than the equilibrium vapor concentration above. Therefore it has been assumed that the scrubber liquor is cooler. A temperature of 112°F is assumed for Data Points 26 through 31, giving a fluoride vapor pressure of 0.0017 mm Hg, from Hansen's Russian Data, equivalent to a vapor phase equilibrium concentration of 0.0679 mg/SCF. This data has been used in NTU calculation for Data Points 26 through 31

For Data Points 32– 37, the scrubbing liquor outlet temperatures are reported in the 1/98 Compliance Tests. The vapor phase equilibrium concentration at these temperatures has been used in the calculations.

3.16 Column P - Scrubber Outlet F lb/day

For Data Points 1 through 14, the actual reported values have been used.

The 9/1/99 'B' Scrubber Test reported a stack gas flowrate of 31,113 CFM at 110°F. This flow corrected to SCFM has been used with Column M to predict daily F discharge, for Data Points 15 - 25. The values are approximate to those reported in the 9/1/99 Scrubber Test.

For Data Points 26 through 31, the actual reported values have been used.

3.17 Column Q - Scrubber Outlet F lb/ton P<sub>2</sub>O<sub>5</sub>

Calculated from Column B and Column P in all Cases.

Table 1 - 'A' PAP Recent Data

A		B	Reactor Fumes Only						Combined Reactor & Filter Fumes				M	N	P	Q
Data Point	Test Date	Production Feed Rate TPD P <sub>2</sub> O <sub>5</sub>	F lb/day	lb F/ton Feed P <sub>2</sub> O <sub>5</sub>	Air Flow CFM	Temperature °F	Air Flow SCFM	F Inlet Loading mg/SCF Reactor Fumes	F lb/day	Combined Air Flow SCFM	F Inlet Loading mg/SCF Combined Fumes	F Inlet loading lb/ton Feed P <sub>2</sub> O <sub>5</sub>	Scrubber Outlet Loading mg/SCF	NTU	Scrubber Outlet F lb/day	Scrubber Outlet F lb/ton Feed P <sub>2</sub> O <sub>5</sub>
1	9/15/99	700	735	1.00	9738	167	8,200	28.23	885	36,491	7.64	1.20	0.053	6.7	7.77	0.011
2	9/15/99	1200	807	0.84	10,219	177	8,470	30.01	879	37,257	7.43	0.70	0.081	5.5	12.76	0.010
3	6/99	1541	1,541	1.00	10,219	172 Assumed	8,537	56.86	1,652	37,076	14.03	1.07	0.059	6.8	9.35	0.006
4	6/99	1538	1,538	1.00	10,219	172 Assumed	8,537	56.75	1,649	37,076	14.01	1.07	0.062	6.7	9.34	0.006
5	6/99	1567	1,567	1.00	10,219	172 Assumed	8,537	57.82	1,678	37,076	14.26	1.07	0.065	6.5	9.52	0.006
6	6/99	1567	1,567	1.00	10,219	172 Assumed	8,537	57.82	1,678	37,076	14.26	1.07	0.051	<del>18.5</del> 7.6	8.15	0.005
7	6/99	1570	1,570	1.00	10,219	172 Assumed	8,537	57.93	1,681	37,076	14.28	1.07	0.059	6.9	8.98	0.006
8	6/99	1579	1,579	1.00	10,219	172 Assumed	8,537	58.26	1,690	37,076	14.36	1.07	0.065	6.5	9.51	0.006
9	2/98	1304	1,304	1.00	10219	172 Assumed	8,537	48.11	1,415	37,076	12.02	1.09	0.103	5.1	15.05	0.012
10	2/98	1301	1,301	1.00	10219	172 Assumed	8,537	48.00	1,412	37,076	12.00	1.09	0.097	5.2	14.12	0.011
11	2/98	1312	1,312	1.00	10219	172 Assumed	8,537	48.41	1,423	37,076	12.09	1.08	0.057	6.1	8.73	0.007
12	2/98	1312	1,312	1.00	10219	172 Assumed	8,537	48.41	1,423	37,076	12.09	1.08	0.094	5.2	14.38	0.011
13	2/98	1312	1,312	1.00	10219	172 Assumed	8,537	48.41	1,423	37,076	12.09	1.08	0.105	5.1	15.78	0.012
14	2/98	1325	1,325	1.00	10219	172 Assumed	8,537	48.89	1,436	37,076	12.20	1.08	0.112	5.0	16.64	0.013

**4. Observations on Recent Data – Scrubber 'A' – Table 1**

- 4.1 From the 9/1/99 Scrubber Tests, it appears that the 'A' PAP scrubber operates at between 5½ and 7 Transfer Units. The performance extrapolated from the June 1999 stack measurements suggests that this could be higher, perhaps 6 or 7 Transfer Units, although the performance calculated from the February 1998 stack measurements suggests that this could be as low as 5 Transfer Units.
- 4.2 Fluoride emissions are calculated as about one third of the daily permit limit. Stack measurements in June 1999 confirm this. Stack measurements in February 1998 demonstrate emissions of about half of the daily limit.
- 4.3 Because of the uncertainty of some of the assumptions made, it is thought that the actual performance of the 'A' PAP Scrubber, without modification, may be equivalent to 5 or 6 Transfer Units

## 5. 'A' Scrubber Performance with Increased Capacity

5.1 No conclusive correlation could be made between fluoride evolved from the reactor and  $P_2O_5$  production rate. It is conservatively assumed that the evolution of fluorides from the reactor will increase with production rate and be equivalent to about 1.0 lb/ton  $P_2O_5$ , and that the gas flow from the reaction section will be about 10,000 CFM at 172°F. There is no material change in the conclusions drawn if a value slightly higher or lower is chosen for this ratio. In addition, another 111 lb/day F comes from the Filtration Section, along with about 29,945 CFM. The scrubber outlet concentration has been calculated from:

$$P_1 = [(P_2 - P^*) / \text{Exp (NTU)}] + P^*$$

Where  $P_2$  = Inlet F concentration mg/SCF

$P_1$  = Outlet F concentration mg/SCF

$P^*$  = Equilibrium F concentration mg/SCF

5.2 It is also assumed that the scrubber liquor temperature and  $H_2SiF_6$  concentration will be maintained at about 94°F and 1.27%, respectively. Therefore a value of 0.044 mg/SCF has been assigned to  $P^*$  above.

5.3 Table 2 predicts the performance of the 'A' PAP Scrubber with between 5 and 7 transfer units. From the recent data above, there is reasonable confidence that the actual number of transfer units will be between 6 and 7.

5.4 Table 3 shows fluoride emissions in lb/day and percent of permitted maximum for the permitted rate of 1416 TPD  $P_2O_5$  and +20% or 1699 TPD  $P_2O_5$  at a range of NTUs. The annual increase in emissions from the permitted rate to +20% is given. Also, the increased annual emissions over the average of the last two Compliance Tests is given.

- 5.5 At a conservative 5.0 NTUs, 'A' PAP fluoride emissions at the increased capacity of 1,699 TPD  $P_2O_5$ , are expected to increase 1.144 TPY over the average fluoride emissions recorded in the February 1998 and June 1999 Compliance Tests. The increase over calculated emissions with 5.0 NTUs at the permitted 1416 TPD  $P_2O_5$  is only 0.365 TPY. Both calculated daily emissions and increased annual emissions are reduced as scrubber performance is improved with higher NTUs. At 6.0 NTUs and above, calculated emissions are lower than the 1998 and 1999 Compliance Test data average.
- 5.6 At an increased production rate of up to 1699 TPD  $P_2O_5$ , the existing and proposed permitted limits for fluoride emissions from the 'A' PAP Stack will not be exceeded nor will the combined increase in emissions from 'A' and 'B' PAP exceed 3 TPY. Therefore, no modifications to the scrubber are necessary to meet the required discharge levels.

Table 2 – 'A' PAP Fume Scrubber Predicted Performance at various NTU Assumptions

Production Rate TPD P <sub>2</sub> O <sub>5</sub>	F lb/day @ 1.0 lb/ton P <sub>2</sub> O <sub>5</sub>	Air Flow CFM	Temperature °F	Air Flow SCFM	F lb/day	Combined Air Flow SCFM	F Inlet Loading mg/SCF Combined Fumes	F lb/ton P <sub>2</sub> O <sub>5</sub>	NTU	Scrubber Outlet F mg/SCF	Scrubber Outlet F lb/day	Scrubber Outlet F lb/ton P <sub>2</sub> O <sub>5</sub>
1,416	1,491	10,219	Assumed 172	8,537	1,602	37,077	13.61	1.13	5	0.14	15.9	0.0107
1,558	1,640	10,219	Assumed 172	8,537	1,751	37,077	14.87	1.12	5	0.14	16.9	0.0103
1,699	1,789	10,219	Assumed 172	8,537	1,900	37,077	16.14	1.12	5	0.15	17.9	0.0100
1,416	1,491	10,219	Assumed 172	8,537	1,602	37,077	13.61	1.13	5.5	0.10	11.7	0.0079
1,558	1,640	10,219	Assumed 172	8,537	1,751	37,077	14.67	1.12	5.5	0.10	12.3	0.0075
1,699	1,789	10,219	Assumed 172	8,537	1,900	37,077	16.14	1.12	5.5	0.11	12.9	0.0072
1,416	1,491	10,219	Assumed 172	8,537	1,602	37,077	13.61	1.13	6.0	0.08	9.1	0.0061
1,558	1,640	10,219	Assumed 172	8,537	1,751	37,077	14.87	1.12	6.0	0.08	9.5	0.0058
1,699	1,789	10,219	Assumed 172	8,537	1,900	37,077	16.14	1.12	6.0	0.08	9.9	0.0055
1,416	1,491	10,219	Assumed 172	8,537	1,602	37,077	13.61	1.13	6.5	0.06	7.6	0.0051
1,558	1,640	10,219	Assumed 172	8,537	1,751	37,077	14.87	1.12	6.5	0.07	7.8	0.0048
1,699	1,789	10,219	Assumed 172	8,537	1,900	37,077	16.14	1.12	6.5	0.07	8.0	0.0045
1,416	1,491	10,219	Assumed 172	8,537	1,602	37,077	13.61	1.13	7	0.06	6.6	0.0045
1,558	1,640	10,219	Assumed 172	8,537	1,751	37,077	14.87	1.12	7	0.06	6.8	0.0041
1,699	1,789	10,219	Assumed 172	8,537	1,900	37,077	16.14	1.12	7	0.06	6.9	0.0039

**Table 3 – 'A' PAP Increased Emission Comparison**

Assumed	1416 TPD Production Rate		1699 TPD (+ 20% Rate)		Δ Emissions	1998 & 1999	Δ Over
	Outlet F	% Permit Max.	Outlet F	% Permit Max.	TPY	Test Average	Test Average
NTU	lb/day		lb/day			lb/day	TPY
5.0	15.9	56	17.9	63	0.365	11.63	1.144
5.5	11.7	41	12.9	46	0.219	11.63	0.232
6.0	9.1	32	9.9	35	0.146	11.63	-0.316
6.5	7.6	27	8.0	28	0.073	11.63	-0.662
7.0	6.6	23	6.9	24	0.055	11.63	-0.863



**6. Observations on Recent Data – Scrubber 'B' Table 4**

- 6.1 From the 7/22/99 and the 9/1/99 Scrubber Tests, it appears that the 'B' PAP scrubber operates with an average of 6 Transfer Units. The performance calculated from the 6/99 stack measurements suggests that this could be higher, perhaps 8 or 9 Transfer Units. The performance calculated from the 2/98 stack measurements suggests 6 or 6½ NTUs.
- 6.2 From the 9/1/99 scrubber test, fluoride emissions are calculated as up to about half of the daily limit of 24.9 lb F/day and up to about 80% of the new source MACT limit of 0.0135lb F / ton P<sub>2</sub>O<sub>5</sub>. Stack measurements in June 1999 quote emissions of about 25% of the daily limit and about 20% of the lb F/ ton P<sub>2</sub>O<sub>5</sub> Limit, and January 1998 quote 24% and 22% respectively.
- 6.3 Because of the uncertainty of some of the assumptions made, it is thought that the actual performance of the 'B' PAP Scrubber, without modification, may be equivalent to 6 or 7 Transfer Units

Table 4 – 'B' PAP Recent Data

A		B	Reactor Fumes Only						Combined Reactor & Filter Fumes				M	N	P	Q
Data Point	Test Date	Production Feed Rate TPD P <sub>2</sub> O <sub>5</sub>	F lb/day	lb F/ ton Feed P <sub>2</sub> O <sub>5</sub>	Air Flow CFM	Temperature °F	Air Flow SCFM	F Inlet Loading mg/SCF Reactor Fumes	F lb/day	Combined Air Flow SCFM	F Inlet Loading mg/SCF Combined Fumes	F Inlet loading lb/ton Feed P <sub>2</sub> O <sub>5</sub>	Scrubber Outlet Loading mg/SCF	Note 1	Scrubber Outlet F lb/day	Scrubber Outlet F lb/ton Feed P <sub>2</sub> O <sub>5</sub>
15	9/1/99	1000	1544	1.47	18123	176	15,046	32.33	1677.3	34,595	15.27	1.59	0.133	6.12	12.12	0.012
16	9/1/99	1000	1440	1.37	18123	176	15,046	30.15	1573.3	34,595	14.33	1.49	0.133	6.05	12.12	0.012
17	9/1/99	1000	1448	1.38	18123	174	15,093	30.22	1581.3	34,643	14.38	1.50	0.133	6.06	12.12	0.012
18	7/22/99	1200	1123	0.89	19569	176 Assumed	16,246	21.77	1256.3	35,796	11.06	0.99	0.133	5.79	12.12	0.010
19	7/22/99	1200	1110	0.88	19569	176 Assumed	16,246	21.52	1243.3	35,796	10.94	0.98	0.133	5.76	12.12	0.010
20	7/22/99	1200	1108	0.88	19569	176 Assumed	16,246	21.48	1241.3	35,796	10.92	0.98	0.133	5.78	12.12	0.010
21	9/1/99	1950	1829	0.89	18551	176	15,401	37.41	1962.3	34,951	17.69	0.96	0.153	6.03	13.95	0.007
22	9/1/99	1950	1606	0.78	18551	176	15,401	32.85	1739.3	34,951	15.68	0.85	0.153	5.91	13.95	0.007
23	7/22/99	2000	2250	1.07	20499	176 Assumed	17,018	41.65	2383.3	36,568	20.53	1.13	0.153	6.18	13.95	0.007
24	7/22/99	2000	2786	1.32	20499	176 Assumed	17,018	51.57	2919.3	36,568	25.15	1.39	0.153	6.39	13.95	0.007
25	7/22/99	2000	1,777	0.84	20499	176 Assumed	17,018	32.89	1910.3	36,568	16.46	0.91	0.153	5.96	13.95	0.007
26	6/99	2316	2,779	1.20	20,499	176 Assumed	17,018	51.44	2,913	36,568	25.09	1.26	0.068	12.43	5.88	0.003
27	6/99	2316	2,779	1.20	20,499	176 Assumed	17,018	51.44	2,913	36,568	25.09	1.26	0.075	8.17	6.03	0.003
28	6/99	2316	2,779	1.20	20,499	176 Assumed	17,018	51.44	2,913	36,568	25.09	1.26	0.072	8.72	5.64	0.003
29	6/99	2316	2,779	1.20	20,499	176 Assumed	17,018	51.44	2,913	36,568	25.09	1.26	0.07	9.39	5.86	0.003
30	6/99	2314	2,777	1.20	20,499	176 Assumed	17,018	51.40	2,910	36,568	25.07	1.26	0.077	7.92	6.16	0.003
31	6/99	2314	2,777	1.20	20,499	176 Assumed	17,018	51.40	2,910	36,568	25.07	1.26	0.072	8.72	5.53	0.003
32	1/98	1982	2,379	1.20	20499	176 Assumed	17,018	44.03	2,512.2	36,568	21.64	1.27	0.064	6.39	5.97	0.003
33	1/98	1970	2,364	1.20	20499	176 Assumed	17,018	43.77	2,497.8	36,568	21.52	1.27	0.064	6.38	5.96	0.003
34	1/98	2018	2,422	1.20	20499	176 Assumed	17,018	44.83	2,555.4	36,568	22.01	1.27	0.056	6.64	5.16	0.003
35	1/98	1987	2,385	1.20	20499	176 Assumed	17,018	44.14	2,517.9	36,568	21.69	1.27	0.061	6.43	5.7	0.003
36	1/98	2009	2,411	1.20	20499	176 Assumed	17,018	44.62	2,543.9	36,568	21.91	1.27	0.069	6.31	6.28	0.003
37	1/98	2006	2,408	1.20	20499	176 Assumed	17,018	44.56	2,541.0	36,568	21.89	1.27	0.075	6.16	6.83	0.003

## 7. 'B' Scrubber Performance with Increased Capacity

7.1 No conclusive correlation could be made between fluoride evolved and  $P_2O_5$  production rate. It is conservatively assumed that the evolution of fluorides from the reactor will increase with production rate and be equivalent to about 1.2 lb/ton  $P_2O_5$ , representing a worst case, and that the gas flow from the reaction section will be 20,499 CFM at 176°F. There is no material change in the conclusions drawn if a value slightly higher or lower is chosen for this ratio. In addition, another 133 lb/day F comes from the Filtration Section, along with about 20,735 CFM. The scrubber outlet concentration has been calculated from:

$$P_1 = [(P_2 - P^*) / \text{Exp (NTU)}] + P^*$$

Where  $P_2$  = Inlet F concentration mg/SCF

$P_1$  = Outlet F concentration mg/SCF

$P^*$  = Equilibrium F concentration mg/SCF

7.2 It is also assumed that the scrubber liquor temperature and  $H_2SiF_6$  concentration will be maintained at about 118°F and 1.27%, respectively. Therefore a value of 0.099 mg/SCF has been assigned to  $P^*$  above.

7.3 Table 5 predicts the performance of the 'B' PAP Scrubber with 6, 7, and 8 NTUs. From the recent data above, there is reasonable confidence that the actual number of transfer units will be between 6 and 7. The June 1999 Compliance Test gave calculated NTUs above 8. The January 1998 Compliance Test gave calculated NTUs of 6 or 6½.

7.4 Table 6 shows fluoride emissions in lb/day and percent of permitted maximum for the permitted rate of 2107 TPD  $P_2O_5$  and +20% or 2528 TPD  $P_2O_5$  at a range of NTUs. The annual increase in emissions from the permitted rate to +20% is given. Also, the increased annual emissions over the average of the last two Compliance Tests is given.

- 7.5 At a conservative 6.0 NTUs, 'B' PAP fluoride emissions at the increased capacity of 2,528 TPD  $P_2O_5$ , are expected to increase 1.657 TPY over the average fluoride emissions recorded in the January 1998 and June 1999 Compliance Tests. The increase over calculated emissions with 6.0 NTUs at the permitted 2107 TPD  $P_2O_5$  is only 0.183 TPY. Both calculated daily emissions and increased annual emissions are reduced as scrubber performance is improved with higher NTUs. Due to the excellent performance of the 'B' PAP scrubber in the last two Compliance Tests, emissions at 20% over the present permitted rate are not expected to be less than the average of the Compliance Tests.
- 7.6 At an increased production rate of up to 2528 TPD  $P_2O_5$ , the existing and proposed permitted limits for fluoride emissions from the 'B' PAP Stack will not be exceeded nor will the combined increase in emissions from 'A' and 'B' PAP exceed 3 TPY. Therefore no modifications to the scrubber are necessary to meet the permitted discharge levels.

Table 5 - 'B' PAP Fume Scrubber Predicted Performance at various NTU Assumptions

Production Rate TPD P <sub>2</sub> O <sub>5</sub>	F lb/day @ 1.2 lb/ton P <sub>2</sub> O <sub>5</sub>	Air Flow CFM	Temperature °F	Air Flow SCFM	F lb/day	Combined Air Flow SCFM	F Inlet Loading mg/SCF Combined Fumes	F lb/ton P <sub>2</sub> O <sub>5</sub>	NTU	Scrubber Outlet F mg/CF	Scrubber Outlet F lb/day	Scrubber Outlet F lb/ton P <sub>2</sub> O <sub>5</sub>
2107	2,661	20,499	Assumed 176	17,018	2,795	36,568	24.08	1.26	6	0.16	14.0	0.0053
2318	2,928	20,499	Assumed 176	17,018	3,062	36,568	26.38	1.25	6	0.16	14.5	0.0050
2528	3,193	20,499	Assumed 176	17,018	3,327	36,568	28.66	1.25	6	0.17	15.0	0.0047
2107	2,661	20,499	176	17,018	2,795	36,568	24.08	1.26	6.5	0.14	11.9	0.0045
2318	2,928	20,499	176	17,018	3,062	36,568	26.38	1.25	6.5	0.14	12.3	0.0042
2528	3,193	20,499	176	17,018	3,327	36,568	28.66	1.25	6.5	0.14	12.6	0.0039
2107	2,661	20,499	176	17,018	2,795	36,568	24.08	1.26	7	0.12	10.7	0.0040
2318	2,928	20,499	176	17,018	3,062	36,568	26.38	1.25	7	0.12	10.9	0.0037
2528	3,193	20,499	176	17,018	3,327	36,568	28.66	1.25	7	0.13	11.1	0.0035
2107	2,661	20,499	176	17,018	2,795	36,568	24.08	1.26	7.5	0.11	9.9	0.0037
2318	2,928	20,499	176	17,018	3,062	36,568	26.38	1.25	7.5	0.11	10.0	0.0034
2528	3,193	20,499	176	17,018	3,327	36,568	28.66	1.25	7.5	0.11	10.2	0.0032
2107	2,661	20,499	Assumed 176	17,018	2,795	36,568	24.08	1.26	8	0.11	9.5	0.0036
2318	2,928	20,499	Assumed 176	17,018	3,062	36,568	26.38	1.25	8	0.11	9.5	0.0033
2528	3,193	20,499	Assumed 176	17,018	3,327	36,568	28.66	1.25	8	0.11	9.6	0.0030

**Table 6 – 'B' PAP Increased Emission Comparison**

Assumed	2107 TPD Production Rate		2528 TPD (+ 20% Rate)		Δ Emissions	1998 & 1999	Δ Over
Scrubber	Outlet F	% Permit Max.	Outlet F	% Permit Max.	TPY	Test Average	Test Average
NTU	lb/day		lb/day			lb/day	TPY
6.0	14.0	56	15.0	60	0.183	5.92	1.657
6.5	11.9	48	12.6	51	0.128	5.92	1.219
7.0	10.7	43	11.1	45	0.073	5.92	0.945
7.5	9.9	40	10.2	41	0.055	5.92	0.781
8.0	9.5	38	9.6	39	0.018	5.92	0.672

**APPENDIX**

TO: B. MAY, T. EDWARDS, M. MESSINA, R. CHARLOT, J. BYRD, H. FALLS  
 FROM: T. ORTOSKI

27-Sep-99

**A PAP SCRUBBER TEST 9/15/99**

Water Sample	F%	P <sub>2</sub> O <sub>5</sub> %	Temp °F
Scrubber Inlet	1.04	2.14	90.6
Scrubber Outlet	1.05	2.14	94.4

Sampling Data Points	Time	TPD	Temp °F	Hs	Vs	CFM	F mg/ft3	F lbs/day
Tank exit to scrubber duct	10:23 - 10:30	700	93 DB 89 WB	0.9068	51.328	29,630	1.482	150.34
Exit of cyclone duct	10:48 - 10:55	700	111 DB 108 WB	0.4997	28.742	12,490	36.31	1,515.40
Reactor fume duct	11:09 - 11:16	700	167 DB 162 WB	0.6725	38.066	9,738	22.04	734.81
A PAP Stack	11:39 - 11:51	700	106 DB 95 WB	0.6397	36.632	43,156	0.0526	7.77

Water Sample	F%	P <sub>2</sub> O <sub>5</sub> %	Temp °F
Scrubber Inlet	1.01	2.11	92.4
Scrubber Outlet	1.00	2.10	97.5

Sampling Data Points	Time	TPD	Temp °F	Hs	Vs	CFM	F mg/ft3	F lbs/day
Tank exit to scrubber duct	20:12 - 20:19	1200	95 DB 94 WB	0.9244	52.418	30,259	0.6936	71.86
Exit of cyclone duct	19:57 - 20:04	1200	122 DB 114 WB	0.4478	26.003	11,028	52.08	1,966.50
Reactor fume duct	19:27 - 19:34	1200	177 DB 174 WB	0.6558	39.840	10,219	23.06	806.82
A PAP Stack	19:16 - 19:28	1200	101 DB 94 WB	0.6821	38.887	45,813	0.0814	12.76

**APPENDIX**

TO: B. MAY, T. EDWARDS, M. MESSINA, R. CHARLOT, J. BYRD, H. FALLS  
FROM: T. ORTOSKI

27-Sep-99

**B PAP SCRUBBER TEST 9/1/99**

Water Sample	F%	P <sub>2</sub> O <sub>5</sub> %	Temp °F
Scrubber Inlet	1.01	2.04	99.4
Scrubber Outlet	1.01	1.95	118.0

Time	TPD	Temp °F	Hs	Vs	CFM	F mg/ft3	F lbs/day
11:43 - 11:49	1000	176	0.8918	54.094	18,123	24.89	1,544
11:56 - 12:02	1000	176	0.8918	54.094	18,123	23.21	1,440
12:09 - 12:15	1000	174	0.8918	54.094	18,123	23.33	1,448
B PAP Stack 12:03 - 12:13	1000	107.7	0.6967	39.934	30,109	0.1325	13.65

Water Sample	F%	P <sub>2</sub> O <sub>5</sub> %	Temp °F
Scrubber Inlet	1.01	2.01	101.6
Scrubber Outlet	1.01	2.04	122.4

Time	TPD	Temp °F	Hs	Vs	CFM	F mg/ft3	F lbs/day
4:30 - 4:37 South Leg	1950	100 DB 95 WB	0.6306	35.920	20,735	1.88	133.32
5:08 - 5:15	1950	176 DB 172 WB	0.9120	55.360	18,551	28.80	1,829
5:23 - 5:29	1950	176 DB 172 WB	0.9120	55.360	18,551	25.29	1,606
5:18 - 5:28 B PAP Stack	1950	110 DB 100 WB	0.7181	41.264	31,113	0.1525	16.24





**APPENDIX A-8A**

**CONDITION II-10 AND APPENDIX CP-1  
COMPLIANCE PLAN FROM  
TITLE V PERMIT NO. 0570005-017-AV**

**10. Compliance Plan. Appendix CP-1, Compliance Plan, is a part of this permit.**  
[Rule 62-213.440(2), F.A.C.]

**11. Based on a modeling study approved by the Department on December 8, 1981, it was determined that emissions from the permittee's Plant City facility will not have a significant impact on the Hillsborough County Air Quality Maintenance Area and it is therefore exempt from the PM RACT requirements in accordance with Rule 62-296.700(2)(b), F.A.C.**

**12. Unless otherwise stated in a specific condition, averaging times for specific emission standards are based on the run time of the test method(s) used for determining compliance.**  
[Rule 62-4.070(3), F.A.C.]

**13. When appropriate, any recording, monitoring, or reporting requirements that are time-specific shall be in accordance with the effective date of the permit, which defines day one.**  
[Rule 62-213.440, F.A.C.]

**14. The permittee shall submit all compliance related notifications and reports required of this permit to the Environmental Protection Commission of Hillsborough County (EPCHC):**

Environmental Protection Commission of  
Hillsborough County  
Air Program  
3629 Queen Palm Drive  
Tampa, FL 33619  
Telephone: 813/627-2600  
Fax: 813/627-2660

**15. Any reports, data, notifications, certifications, and requests required to be sent to the United States Environmental Protection Agency, Region 4, should be sent to:**

United States Environmental Protection Agency  
Region 4  
Air, Pesticides & Toxics Management Division  
Air & EPCRA Enforcement Branch  
Air Enforcement Section  
61 Forsyth Street  
Atlanta, Georgia 30303-8960  
Telephone: 404/562-9155  
Fax: 404/562-9163

**16. Certification by Responsible Official (RO).** In addition to the professional engineering certification required for applications by Rule 62-4.050(3), F.A.C., any application form, report, compliance statement, compliance plan and compliance schedule submitted pursuant to Chapter 62-213, F.A.C., shall contain a certification signed by a responsible official that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. Any responsible official who fails to submit any required information or who has submitted incorrect information shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary information or correct information.  
[Rule 62-213.420(4), F.A.C.]

### Appendix CP-1, Compliance Plan

The following Compliance Schedule lists for affected units the standards/requirements for which compliance has not yet been determined, the compliance dates required by rule and/or permit, and the compliance dates required by this Compliance Schedule:

Affected Units		Standards/Requirements
004	"A" Phosphoric Acid Plant	40 CFR Part 63 Subpart AA
009	"B" Phosphoric Acid Plant	40 CFR Part 63 Subpart AA
010	"A" DAP/MAP Plant	40 CFR Part 63 Subpart BB
011	"Z" DAP/MAP Plant	40 CFR Part 63 Subpart BB
012	"X" DAP/MAP Plant	40 CFR Part 63 Subpart BB
013	"Y" DAP/MAP Plant	40 CFR Part 63 Subpart BB

#### Compliance Schedule:

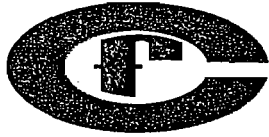
1. Upon the effective date of the Stipulated Settlement, CFI shall be in compliance with all emission limits contained in the Phosphate MACT for affected sources that are being operated at the facility.
2. Within 180 days of the effective date of this Stipulated Settlement, CFI shall install the monitoring devices provided for in its approved alternative monitoring plan (Appendix AMP) in Plants X, Y, and Z, and shall install the monitoring devices required by 40 CFR 63 Subpart AA in Phosphoric Acid Plants A and B. CFI shall provide written notice to the Department confirming such installation.
3. Within 30 days subsequent to the installation of the monitoring devices provided for in the approved alternative monitoring plan, CFI shall initiate data collection into electronic storage for all the proposed monitoring parameters and have in operation a data management and reporting system for all components of its alternative monitoring plan. CFI shall provide written notice to the Department confirming such data collection, management and storage.
4. Within 30 days subsequent to CFI having in operation a data management and reporting system for all components of its approved alternative monitoring plan, CFI shall conduct initial performance testing (consisting of three test runs at each end of the ranges) to establish ranges of the approved monitoring parameters; (where a past three-run reference method test has been timely noticed to the Department, conducted at the end of the indicator range and the indicator monitoring equipment specified in the approved alternative monitoring plan was in use, and the test results were approved by the Department, additional testing will not be required – the existing test data may be used to establish the end of the range.)
5. Within 30 days subsequent to CFI conducting initial performance testing to establish

indicator ranges of acceptable scrubber operation under paragraph 4., CFI shall submit a report of the initial performance testing to the Department and EPA. Thereafter CFI shall submit semiannual reports required by the Phosphate MACT as applied to the alternative monitoring plan.

6. The "A" granulation plant is temporarily idle and is on stand-by status as of the date of this Stipulated Settlement. At such time as a business decision is made to operate this unit, CFI shall notify the Department and shall install monitoring devices and undertake monitoring, as applicable, consistently with paragraphs 2. and 3., above, within the specified time periods beginning with the date of notification. CFI shall provide for data collection into electronic storage for all the required monitoring parameters before starting the "A" granulation plant. CFI shall provide written notice to the Department confirming such installation and data collection, management, and storage capability. Upon the initiation of operation of the unit, CFI shall accomplish the tasks required under paragraphs 4. and 5., above, in accordance with the deadlines set forth therein based on the date of the initiation of operation of the unit.

**APPENDIX A-8B**

**COMPLETION OF IMPLEMENTATION OF  
THE APPROVED ALTERNATIVE MONITORING PLAN**



**CF Industries, Inc.**  
Plant City Phosphate Complex

August 26, 2005

Mr. Joseph Kahn  
Florida Department of  
Environmental Protection  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Re: CF Industries, Inc., Stipulated Settlement OGC Case No. 02-0587

Dear Mr. Kahn:

The stipulated settlement OGC Case No. 02-0587 between CF Industries, Inc. (CF), and the Florida Department of Environmental Protection (DEP) includes agreements that

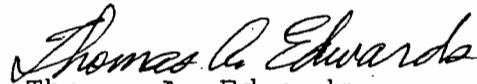
- 1) CF will install approved scrubber parametric monitoring devices within 180 days (by November 7, 2005); initiate data collection, management, and storage within 30 days after the completion of installation; and conduct initial performance testing within 30 days after the data management begins, and
- 2) CF will notify the DEP of each step noted in (1) above.

CF is nearing completion of the installation step at this time and expects to have the data collection and management on-line for some of the production units by mid-September. The initial performance testing is scheduled to begin on September 20 in the "A" Phosphoric Acid Plant, followed by the testing of the additional plants over the period from October 1 through November 4, 2005.

CF plans to start up the "A" DAP/MAP production unit (on stand-by since 2001) around October 1, and to conduct the performance test in that unit during the second week of October.

An approximate testing schedule is attached. DEP and Hillsborough County EPC personnel are welcome to observe any of the tests. CF will keep you up-dated by electronic mail, with regard to the testing schedule.

Sincerely,



Thomas A. Edwards,  
Superintendent,  
Environmental Affairs

TAE/gm

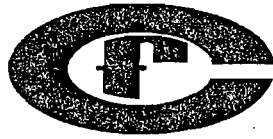
cc: Trina Vielhauer, BAR  
Joel Smolen, SW Dist  
Diana Lee, EPCHC  
J.S. Alves, HGS  
J.M. Messina/Env. File



CF Industries, Inc., Alternative Monitoring Plan Completion  
and Testing Schedule

Production Unit	Emission Unit Number	Instrument Installation Date	Data Collection, Management, and Storage Date	Initial Performance Test Dates
"A" Phosphoric Acid	004	Sept. 14	Sept. 15	Sept. 20-23
"B" Phosphoric Acid	009	Aug. 23	Sept. 15	Oct. <del>1-4</del> 4-7
"A" DAP/MAP	010	Sept. 12	Oct. 1	Oct. 11-14
"Z" DAP/MAP	011	Sept. 14	Sept. 23	Oct. 18-21
"X" DAP/MAP	012	Aug. 30	Sept. 29	Oct. 25-28
"Y" DAP/MAP	013	Sept. 5	Oct. 3	Nov. 1-4
* Dates subject to adjustment.				

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



**CF Industries, Inc.**  
Plant City Phosphate Complex

November 14, 2005

Mr. Joseph Kahn  
Florida Department of  
Environmental Protection  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Re: CF Industries, Inc., Stipulated Settlement OGC Case No. 02-0587;  
Title V Permit 0570005-017-AV.

Dear Mr. Kahn:

The stipulated settlement OGC Case No. 02-0587 between CF Industries, Inc. (CF), and the Florida Department of Environmental Protection (DEP), and Title V Permit 0570005-017-AV, Appendix CP-1 call for the notification of the DEP upon the completion of specified steps of implementation of CF's Alternative Monitoring Plan. An earlier notification letter was provided to you on August 26, 2005.

CF completed the installation of the required scrubber monitoring equipment and the data collection, management, and storage system by October 3, 2005. The initial performance stack tests on the six affected plants were conducted between October 4 and November 10, 2005, and were monitored on-site by the staff of the Environmental Protection Commission of Hillsborough County.

The test reports are in preparation for submittal by December 10, 2005.

Sincerely,

Thomas A. Edwards,  
Superintendent, Environmental Affairs

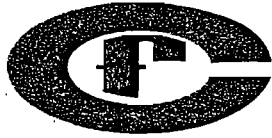
TAE/gm

cc: Trina Vielhauer, BAR  
Joel Smolen, SW Dist  
Diana Lee, EPCHC  
J.S. Alves, HGS  
J.M. Messina/Env. File

**APPENDIX A-8C**

**TRANSMITTAL LETTERS FOR  
INDICATOR PARAMETER TABULATIONS  
AND THE INITIAL PERFORMANCE TEST REPORT**

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



**CF Industries** Inc.  
Plant City Phosphate Complex

December 8, 2005

Mr. Joel Smolen  
Department of Environmental Protection  
State of Florida  
Southwest District  
3804 Coconut Palm Drive  
Tampa, Florida 33619-8318

Subject: Initial Performance Test Results, CF Industries, Inc.,  
Hydrogen Fluoride NESHAP Pollution Control Indicator Ranges,  
Requests for Minor Permit Revisions, Permit No. 0570005-017-AV

Dear Mr. Smolen:

CF Industries, Inc., (CF), provides the enclosed report of initial performance tests required by Title V Permit No. 0570005-017-AV (the permit), issued on October 13, 2005. Appendix CP-1 of the permit, the Compliance Plan, calls for an initial performance testing program of the affected plant stacks for fluoride emissions, for the purpose of setting compliance ranges of indicator parameters to be used in monitoring and operating the pollution control equipment in the phosphoric acid and granulation plants. CF conducted the tests during October and November, 2005, monitored by the Environmental Protection Commission of Hillsborough County. Complete EPA method compliance-style tests were conducted at the high and low ends of the indicator ranges on each affected plant.

The indicator parameter data and emissions data are summarized in Table 1. Table 2 contains the ranges of monitoring system indicator parameters established by the testing. The stack test reports are in Appendix 1.

The particulate matter emission rates in the granulation plant stacks were also measured during these tests in order to generate data to support a revision to the compliance assurance monitoring (CAM) ranges initially included in Appendix CAM of the permit for the X, Y, and Z granulation plant scrubbers. The particulate matter data are included in Table 1 along with the fluoride emissions and indicator parameter data. Table 3 summarizes the proposed CAM indicator range revisions established by this testing, in strike-through/underscore format. CF Industries, Inc.,

requests that the indicator range tables on Page 8 of 10 in Appendix CAM of the permit be revised as shown in Table 3. Additionally, the units for Segment Pressure Drop in the Appendix CAM table were incorrectly designated as "PSIG." CF requests that "PSIG" be corrected in that table to "Inches of Water Column" or "Inches W.C."

Finally, CF requests that Conditions D.10. and E.13. of the permit, authorizing the addition of urea ammonium nitrate solution (UAN) or an equivalent supplemental nitrogen source to the DAP/MAP granulators, be revised to delete the supplement addition rate of 7 gallons per minute. The nitrogen supplement is not a source of fluoride or particulate matter emissions, and therefore does not affect the emissions that are regulated in these plants. The addition rate to meet the plant's operating needs is not expected to exceed 3% of the process input rate in any case. Because the supplement does not affect the regulated emissions, is a small fraction of the input material mass, and is sometimes needed at a rate higher than that designated as "normal" in the conditions mentioned, CF submits that the usage rate does not need to be specified or limited.

Your attention to the enclosed test reports and to these requested permit revisions is appreciated. Please call Tom Edwards or Michael Messina at (813)364-5638 if discussion is needed.

Sincerely,



Thomas A. Edwards  
Superintendent, Environmental Affairs

Enclosures

cc: Alice Harman, EPCHC  
USEPA Region 4

**APPENDIX A-8D**

**ORDER FORMS AND CALIBRATION CERTIFICATES**

# ADVANCED FLOW TECHNOLOGY Co.

Solutions in Flow Measurement

## DeltaMag CALIBRATION CERTIFICATE

Purchaser		C.F. INDUSTRIES	
Purchase Order Number			
Serial Number		and (Converter)	
DeltaMag Work Order Number		5238-0556	
DeltaMag Sensor Type		6 IN. FOXB.	
Sensor Calibration Factor		C = 0	
Converter Type			
Converter Range Factor		R = 0 at Hz	
Full Scale Flow		0 - 1000 gpm	
Tag		WET ROCK A-PHOS	
Output Signals	- Analog	4 - 20 mA	
	- Digital	1 pulse/ gallons HTU = 0 n = 0	
Calibration Media		Water at 76 °F	
Flow Rate gpm Reference	Flow Rate gpm Production	Analog Output Production mA	Allowable Error in %
980.98	983.35	19.73	+/- 0.5
588.73	588.18	13.41	+/- 0.5
210.75	209.5	7.35	+/- 0.5
			+/- 0.5
			+/- 0.5
Production Meter Electrical Test Zero 4 mA			
Production Meter Electrical Test Span 20 mA			
We hereby certify that the above magnetic flowmeter has been tested on the AFTCo flow calibration facility, documented and traceable to the U.S.A. National Institute of Standards and Technology.			

Date: 4/15/99

Signed:

  
 Certified Calibration Technician

  
 Quality Control Manager

Advanced Flow Technology Company  
 P.O. Box 5365  
 Lakeland, Florida 33807 USA  
 1-941-686-0920  
 Fax 1-941-686-5321

# CF Industries, Inc.

## PURCHASE REQUISITION

*Ann Kim*

- Bartow
- Plant City
- Tampa Port

SHADED AREAS FOR PURCHASING USE ONLY

VENDOR  
**AMJ**

P.O. NUMBER **961522**  
 VENDOR NUMBER **101100**  
 SHIP VIA **FREIGHT**  
 F.O.B. **TERMS**  
 BUYERS INITIAL **WV** PAY CODE **1**

REQUISITIONED BY **DWR** NAME  
 REQUISITION # **R982253**

PRIORITY CODE \_\_\_\_\_ TODAY'S DATE **4-20-99** DATE NEEDED **4-20-99**

ORDER  CONFIRM  QUOTE  SHIP TO

ITEM	STOCK #	QUANTITY ORDERED	U/M	UNIT PRICE	ELEMENT COST CENTER	PART NUMBER / DESCRIPTION	DELIVERY DATE
						<i>Pick Up for Certification</i>	
<b>1</b>		<b>1</b>	<b>Eg.</b>	<b>.01</b>	<b>39568</b>	<b>6" Foxboro Magmeter Mod. E96 S# 94F206104-1</b>	
<b>2</b>		<b>1</b>	<b>Eg.</b>	<b>.01</b>	<b>39565</b>	<b>Foxboro Converter S# 13020 D Cost \$550 Pair For APHOS. 1500 GPM OK per Lab</b>	
						<b>May 3rd 4/4</b>	
						<b>Advise Fri. 4/30/99</b>	

SUGGESTED VENDOR'S **Sole Source AMJ 6824500** DATA ENTERED

CONFIRMING TO **Paul Patterson**

REQUISITIONING DEPT. **Instrument** APPROVED: **[Signature] #10**

APPROVED: **[Signature]**

CFPC 011 REV. 4/97 PURCHASING





Classic Controls, Inc.

Classic Controls, Inc.,
P.O. Box 6187
Lakeland, FL 33807-6187
Tel: (941) 644-3642
Fax: (941) 648-0484
URL: http://www.classic-controls.com

PACKING LIST

Ship To:

Bill To:

CF INDUSTRIES INC
10608 PAUL BUCHMAN HIGHWAY
PLANT CITY FL 33565
(813) 785-1591

CF INDUSTRIES INC
PO DRAWER L
PLANT CITY FL 33564

Table with columns: Cust Order#, Date Shipped, Ship Via, Our Number, Mark, Order Date, Saoid#, Terr, Ship Partial?, LI, Item Number, Description, Order Qty, Prev Ship, This Ship, Cartons, Total Weight, Order Comp., Bal To Follow, Packed By.

Handwritten signature



Classic Controls, Inc.  
 P.O. Box 6187  
 Lakeland, FL 33807-6187  
 Tel: (941) 644-3642  
 Fax: (941) 648-0484  
 URL: <http://www.classic-controls.com>

**I N V O I C E**

Page#: 1  
 Invoice#: 106724  
 Invoice Date: 06/23/99

**Bill To:**

CF INDUSTRIES INC  
 PO DRAWER L  
  
 PLANT CITY FL 33564

**Ship To:**

CF INDUSTRIES INC  
 10608 PAUL BUCHMAN HIGHWAY  
  
 PLANT CITY FL 33565

Your PO#: DARRELL  
 Order Date: 05/06/99  
 Ship Date: 05/06/99  
 FOB: LAKELAND, FL  
 Ship Via: OUR DELIVERY

Terms: NET 90 DAYS  
 Sacid#: 124287  
 Our Fed ID#: 59-3376267  
 Control#: 3-34287-  
 Territory#: 2

Order	Ship	BO	Part#/Description	Net Each	Total
1	1	0	AM215DN-CB1-ESA*A/ND YOKOGAWA 6" REMOTE, CERAMIC WAFER STYLE ADMAG MAGNETIC FLOW TUBE	5,250.00	5,250.00
1	1	0	AM11-DEA1A-000*A YOKOGAWA ADMAG CONVERTOR. (HART)	1,425.00	1,425.00
1	1	0	AM011-2-L0030F*A SIGNAL CABLE FOR ADMAG, 30 FEET WITH TERMINATED ENDS	48.75	48.75

Sub-Total: 6,723.75  
 Ship/Handle:  
 Tax:  
 Total Due: 6,723.75

Serial # 94F24610F-1

# DeltaMag CALIBRATION CERTIFICATE

Purchaser		AMJ/C.F. IND.	
Purchase Order Number		99031459	
Serial Number		and	(Converter)
DeltaMag Work Order Number		5238-0580	
DeltaMag Sensor Type		6 IN. FOX.	
Sensor Calibration Factor		C = 0	
Converter Type			
Converter Range Factor		R = 0	at Hz
Full Scale Flow		0 - 1000 gpm	
Tag		WET ROCK PHOS.A	
Output Signals	- Analog	4 - 20 mA	
	- Digital	1 pulse/ gallons HTU = 0 n = 0	
Calibration Media		Water at 77 °F	
Flow Rate gpm Reference	Flow Rate gpm Production	Analog Output Production mA	Allowable Error in %
993.38	994.81	19.92	+/- 0.5
594.36	592.06	13.47	+/- 0.5
198.41	197.44	7.16	+/- 0.5
0	0	4	+/- 0.5
Production Meter Electrical Test Zero		4	mA
Production Meter Electrical Test Span		20	mA
We hereby certify that the above magnetic flowmeter has been tested on the AFTCo flow calibration facility, documented and traceable to the U.S.A. National Institute of Standards and Technology.			

Date: 5/10/99

Signed:

  
Certified Calibration Technician

  
Quality Control Manager

Advanced Flow Technology Company  
P.O. Box 5365  
Lakeland, Florida 33807 USA  
1-941-686-0920  
Fax 1-941-686-5321

# ADVANCED FLOW TECHNOLOGY Co.

Solutions in Flow Measurement

## DeltaMag CALIBRATION CERTIFICATE

Purchaser		C.F. INDUSTRIES	
Purchase Order Number		RE-CAL	
Serial Number		97152209 and 97152209 (Converter)	
DeltaMag Work Order Number		5238-0641	
DeltaMag Sensor Type		6 IN. FOX.	
Sensor Calibration Factor		C = 0	
Converter Type			
Converter Range Factor		R = 0 at Hz	
Full Scale Flow		0 - 1500 Gal./Min.	
Tag			
Output Signals	- Analog	4 - 20 mA	
	- Digital	1 pulse/ gallons HTU = n = 0	
Calibration Media		Water at 79 °F	
Flow Rate Reference	Flow Rate Production	Analog Output Production mA	Allowable Error in %
1475.32	1475.38	19.74	+/- 0.5
845.93	842.29	12.98	+/- 0.5
209.12	208.22	6.22	+/- 0.5
0	0	4	+/- 0.5

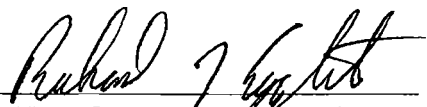
Production Meter Electrical Test Zero 4 mA

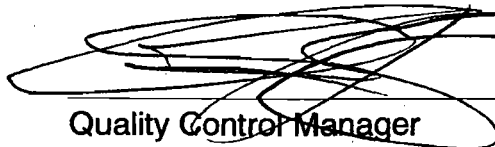
Production Meter Electrical Test Span 20 mA

We hereby certify that the above magnetic flowmeter has been tested on the AFTCo flow calibration facility, documented and traceable to the U.S.A. National Institute of Standards and Technology.

Date: 5/25/99

Signed:

  
Certified Calibration Technician

  
Quality Control Manager

Advanced Flow Technology Company

P.O. Box 5365

Lakeland, Florida 33807 USA

1-941-686-0920

Fax 1-941-686-5321

FP MAG  
10"

Installed "A" PAD Scrubber Flow

1-9-2002



# DeltaMag CALIBRATION CERTIFICATE

Purchaser		CF INDUSTRIES	
Purchase Order Number			
Serial Number		92W441918	and (Converter)
DeltaMag Work Order Number			
DeltaMag Sensor Type		10D14	
Sensor Calibration Factor		C = 0	
Converter Type			
Converter Range Factor		R= 0	at Hz
Full Scale Flow		3000 Gal./Min.	
Tag		FIT-2050	
Output Signals	- Analog	4 - 20 mA	
	- Digital	1 pulse/	Gal. HTU = n =
Calibration Media		Water at 56 °F	
Flow Rate Reference	Flow Rate Production	Analog Output Production mA	Allowable Error in %
1281.98	1281.41	10.83	+/- 0.5
1607.35	1603.61	12.55	+/- 0.5
2154.06	2147.21	15.45	+/- 0.5
729.2	731.75	7.9	+/- 0.5
0	0	4	+/- 0.5
Production Meter Electrical Test Zero 4 mA			
Production Meter Electrical Test Span 20 mA			
We hereby certify that the above magnetic flowmeter has been tested at the AFTCO flow calibration facility, documented and traceable to the U.S.A. National Institute of Standards and Technology.			

Date: 1/7/02

Signed:

\_\_\_\_\_  
Certified Calibration Technician

\_\_\_\_\_  
Quality Control Manager

Post Office Box 906 Lakeland, Florida 33802 USA  
 2700 Interstate Drive Lakeland, Florida 33805 USA  
 863-686-0920 Fax 863-686-5321 Sales 888-354-6343  
 www.advancedflow.com

# TEST CERTIFICATE

19

製品名称 PRODUCT NAME	一体形電磁流量計 MAGNETIC FLOWMETER	夕NO TAG NO.	====
形名 MODEL	AE335MG-AA1-LSA-A1DH/BR	計器番号 SERIAL NO.	21W703091
手配 NO. ORDER NO.	YCWFL22-0001-002		

公称径  
SIZE : 350 mm

実流設定スパン  
FLOW TEST SPAN SETTING : 0 - 2.000 m/s

実流量検査  
ACTUAL FLOW TEST

許容差 ACCURACY ±0.1% OF SPAN (0% ~ 20%)  
±0.5% OF RATE (20% ~ 100%)

設定値 [%] SET FLOW RATE	出力 OUTPUT		誤差 [%] ERROR	液体温度 [°C] FLUID TEMP.
	基準値 [m3/h] DESIRED	実測値 [m3/h] ACTUAL		
0.0	0.0	0.0	0.00	24.0
21.0	145.0	145.2	0.14	24.1
50.7	351.4	351.3	-0.03	24.1
98.8	684.0	684.3	0.04	24.1

メータファクタ METER FACTOR	L: 0.6610	H: 0.6150
-------------------------	-----------	-----------

項目 ITEM	結果 RESULT	項目 ITEM	結果 RESULT	
プロセス接続 PROCESS CONNECTION	ANSI 150 lb フランジ形 ANSI 150 lb FLANGE TYPE	良, GOOD	パルス出力動作 PULSE OUTPUT OPERATIONS	良, GOOD
配線接続口 ELECTRICAL CONNECTION	ANSI 1/2NPT めねじ ANSI 1/2NPT female screw	良, GOOD	アラーム出力動作 ALARM OUTPUT OPERATIONS	良, GOOD
耐電圧 DIELECTRIC STRENGTH	電源端子 - 接地端子 POWER TERM. TO GND TERM. 1500VAC/1 min	良, GOOD	通信機能 COMMUNICATION FUNCTION	良, GOOD
絶縁抵抗 INSULATION RESISTANCE	電源端子 - 接地端子 POWER TERM. TO GND TERM.	良, GOOD	表示器検査 DISPLAY CHECK	良, GOOD
	電源端子 - 出力端子 POWER TERM. TO OUT TERM.		ステータス出力動作 STATUS OUTPUT OPERATIONS	良, GOOD
	出力端子 - 出力端子 OUT TERM. TO OUT TERM. 100MΩ/500V DC			
	接地端子 - 出力端子 GND TERM. TO OUT TERM. 20MΩ/100V DC			
	漏洩試験 LEAK TEST	良, GOOD		
	外観 APPEARANCE			

NOTES \* Installed @ "A" PAD on "SLUICE FLOW" 1-9-2002

日付 DATE	2000-07-05	室内温度, 湿度 AMBIENT TEMP. & HUM.	27°C	66%
検査者 INSPECTOR	M.NAKANO	承認者 APPROVED BY		YFT

# TEST CERTIFICATE

製品名称 電磁流量検出器  
 PRODUCT NAME MAGNETIC FLOW DETECTOR

タグNO  
 TAG NO. =====

形名  
 MODEL AE325DG-AA1-TSA

手配 NO.  
 ORDER NO. X0BFJ94-0001-001

計器番号  
 SERIAL NO. 26B603299

公称径  
 SIZE : 250 mm

実流設定スパン  
 FLOW TEST SPAN SETTING : 0 - 2.000 m/s

実流量検査

許容差 ±0.1% OF SPAN ( 0% ~ 20% )  
 ACCURACY ±0.5% OF RATE ( 20% ~ 100% )

ACTUAL FLOW TEST

設定値 [%] SET FLOW RATE	出力 OUTPUT		誤差 E [%] ERROR	液体温度 [°C] FLUID TEMP.
	基準値 [m3/h] DESIRED	実測値 [m3/h] ACTUAL		
0.0	0.00	0.00	0.00	27.4
20.6	72.63	72.73	0.14	27.4
50.2	177.44	177.35	-0.06	27.4
94.3	332.74	333.12	0.12	27.4

メータファクタ METER FACTOR	L : 0.6102	H : 0.5660
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項目 ITEM	結果 RESULT	項目 ITEM	結果 RESULT
プロセス接続 PROCESS CONNECTION	ANSI 150 lb フランジ形 ANSI 150 lb FLANGE TYPE	良, GOOD	外観 APPEARANCE
配線接続口 ELECTRICAL CONNECTION	ANSI 1/2NPT めねじ ANSI 1/2NPT female screw	良, GOOD	漏洩試験 LEAK TEST
耐電圧 DIELECTRIC STRENGTH	励磁端子(EX1) - 接地端子 EX. TERM. TO GND TERM. 1000VAC/1 min	良, GOOD	
絶縁抵抗 INSULATION RESISTANCE	励磁端子 (EX1) - 信号端子 (A,B,C) EX. TERM. TO SIGNAL TERM. 信号端子 (C) - 信号端子 (A,B) SIGNAL TERM. TO SIGNAL TERM.  信号端子 (A) - 信号端子 (B) SIGNAL TERM. TO SIGNAL TERM.  100MΩ/500V DC	良, GOOD	

NOTES

Installed At APAD  
 Pond Water to Scrubber  
 11/03 MAD

日付  
 DATE 2002-06-19

室内温度, 湿度  
 AMBIENT TEMP. & HUM. 23°C 65%

検査者  
 INSPECTOR T.SONODA

承認者  
 APPROVED BY YMF

**YOKOGAWA**

QIC 01E07D04  
 Ed2:Apr. 2001

WET ROCK SPARE

Returned to Stock

12-19-03

A-B PAD



# DeltaMag CALIBRATION CERTIFICATE

Purchaser		AMJ EQUIPMENT CO.	
Purchase Order Number		2033-2284	
Serial Number		/ LGC802887	
DeltaMag Work Order Number		002146	
DeltaMag Sensor Type		215DN	
Sensor Calibration Factor		Meter Factor = 0.9523	
Converter Type		AM11	
Converter Meter Factor		0.9523	
Full Scale Flow		0 - 1000 Gal./Min.	
Tag			
Output Signals	- Analog	4 - 20 mA	
	- Digital	1 pulse / Gallons	
Calibration Media		Water at 61 °F	
Flow Rate Reference	Flow Rate Production	Analog Output Production mA	Allowable Error in %
0	0	4	+/- 0.5
179.52	179.7	6.88	+/- 0.5
555.72	554.55	12.87	+/- 0.5
745.05	744.94	15.92	+/- 0.5
995.13	996.61	19.95	+/- 0.5
Production Meter Electrical Test Zero: 4 mA			
Production Meter Electrical Test Span: 20 mA			
We hereby certify that the above magnetic flowmeter has been tested at the AFTCO flow calibration facility, documented and traceable to the U.S.A. National Institute of Standards and Technology.			

Date: 12/9/03

Signed: Robert Hightor  
 Certified Calibration Technician

Michael Boyd  
 Quality Control Manager



# AMJ Equipment Corporation

5101 Great Oak Drive, Lakeland, FL 33815  
 Tel: 863-682-4500 Fax: 863-687-0077

# Packing List

Number Date  
 2003-4630 12/10/03

**Bill To:**

Accounts Payable  
 CF Industries-Plant City  
 Att: Dept. 510  
 P.O. Box 1480  
 Bartow, FL 33831-1480

**Ship To:**

Donna Wilkes  
 CF Industries-Plant City  
 10608 Paul Buchman Hwy.  
 Plant City, FL 33565

Phone (813) 752-0489 Fax 886-351-94431

Purchase Order No.	Order No.	Account No.	Order Date	Ship Date	Sales	Job #
Donna	0021-1371	015187	11/17/03	12/10/03	Bruce Simmons	
FOB Factory	Instructions				Ship Via Best Way	
		519329				
Ordered	Shipped	Bk/Ord	Part Number / Description		Customer Stock Number, If Any	
1	1	0	99-AFTCO AFTCO Calibration and Certification of Yokogawa 6" Flowmeter • Model#AM215DN		Calibration	
<p>JO 12/19/03</p> <p><b>D. Wilkes</b></p>						

# AMJ Equipment Corporation

5101 Great Oak Drive, Lakeland, FL 33815  
 Tel: 863-682-4500 Fax: 863-687-0077

## Packing List

Number: 2003-4631 Date: 12/10/03

**Bill To:**

Accounts Payable  
 CF Industries-Plant City  
 Att: Dept. 510  
 P.O. Box 1480  
 Bartow, FL 33831-1480

**Ship To:**

Donna Wilkes  
 CF Industries-Plant City  
 10608 Paul Buchman Hwy.  
 Plant City, FL 33565

Phone (813) 752-0489 Fax 886-351-94431

Purchase Order No.	Order No.	Account No.	Order Date	Ship Date	Sales	Job #
Donna	0021-1430	015187	11/20/03	12/10/03	Rob Case	
FOB Factory	Instructions				Ship Via Best Way	
		52177P				
Ordered	Shipped	Bk/Ord	Part Number/Description		Customer Stock Number, If Any	
1	1	0	99-AFTCO AFTCO Calibration and Certification of Fisher Porter 10" Flowmeter. "Not Possible to Calibrate Flowmeter."  • Model#65PE19PF21KY13A11121		Calibration	
<p>FO 12/19/03</p> <p>M. DENNARD</p>						

Pulled By: \_\_\_\_\_ Packed By: \_\_\_\_\_ Verified By: \_\_\_\_\_



ADVANCED FLOW TECHNOLOGY COMPANY

# DeltaMag CALIBRATION CERTIFICATE

Purchaser		AMJ EQUIPMENT CO.	
Purchase Order Number		2043-1032	
Serial Number		26B501481-22 / 21W920092	
DeltaMag Work Order Number		002761	
DeltaMag Sensor Type		AM215DN-CB1	
Sensor Calibration Factor		C = 0	
Converter Type		AM11	
Converter Range Factor		R = 0	
Full Scale Flow		500 Gal./Min.	
Tag			
Output Signals	- Analog	4 - 20 mA	
	- Digital	1 pulse /	Gallon
Calibration Media		Water at 85 °F	
Flow Rate Reference	Flow Rate Production	Analog Output Production mA	Allowable Error in %
0	0	4	+/- 0.5
193.88	193.58	10.19	+/- 0.5
287.11	287.23	13.19	+/- 0.5
384.88	385.56	16.34	+/- 0.5
496.95	497.94	19.93	+/- 0.5
Production Meter Electrical Test Zero		4	mA
Production Meter Electrical Test Span		20	mA

We hereby certify that the above magnetic flowmeter has been tested at the AFTCO flow calibration facility, documented and traceable to the U.S.A. National Institute of Standards and Technology.

Date: 7/14/04

Signed:

Certified Calibration Technician

Quality Control Manager

Post Office Box 906 Lakeland, Florida 33802 USA  
 1/55 West Olive Street Lakeland, Florida 33815 USA  
 863-686-0920 Fax 863-686-5321 Sales 888-354-6343  
 www.advancedflow.com



ADVANCED FLOW TECHNOLOGY COMPANY

# DeltaMag CALIBRATION CERTIFICATE

Purchaser		AMJ EQUIPMENT CO.	
Purchase Order Number		2043-1032	
Serial Number		F149FA4030-7 / 21W920092	
DeltaMag Work Order Number		002761	
DeltaMag Sensor Type		AM215DN-CB1	
Sensor Calibration Factor		C = 0	
Converter Type		AM11	
Converter Range Factor		R = 0	
Full Scale Flow		500 Gal./Min.	
Tag			
Output Signals	- Analog	4 - 20 mA	
	- Digital	1 pulse / Gallon	
Calibration Media		Water at 85 °F	
Flow Rate Reference	Flow Rate Production	Analog Output Production mA	Allowable Error in %
0	0	4	+/- 0.5
183.27	182.89	9.85	+/- 0.5
284.71	284.6	13.11	+/- 0.5
395.05	393.5	16.59	+/- 0.5
492.62	492.94	19.77	+/- 0.5
Production Meter Electrical Test Zero		4	mA
Production Meter Electrical Test Span		20	mA

We hereby certify that the above magnetic flowmeter has been tested at the AFTCO flow calibration facility, documented and traceable to the U.S.A. National Institute of Standards and Technology.

Date: 7/14/04

Signed:

Certified Calibration Technician

Quality Control Manager

Post Office Box 906 Lakeland, Florida 33802 USA  
 1755 West Olive Street Lakeland, Florida 33815 USA  
 863 686-0920 Fax 863-686-5321 Sales 888-354-6343  
[www.advancedflow.com](http://www.advancedflow.com)

*\* w/h stock*

TEST STAND

Tag No.: \_\_\_\_\_

Description: 4" mag

Location: \_\_\_\_\_

Span (in Eng. Units: 400gpm

Input Z-S & Units: \_\_\_\_\_

Output: 4-20 mA

Type Instrument: mag Mfg.: JY

Model No Am 210 DN

PRE-TEST

%Span	3" Yokogawa Gallons	6" Yokogawa Gallons	% Error
50	600.1	598.5	0.26

AS FOUND

%Span	Measured Output, ma	Test Totalizer Gallons	6" Yokogawa Gallons	% Error
0	4.0	0.0	0.0	0
25	8.0	299.9	300.1	0.06
50	11.6	606.1	605.0	0.18
75	16.0	902.9	900.3	0.288
100	19.8	1201.7	1199.6	0.175

AS CALIBRATED

%Span	Measured Output, ma	Test Totalizer Gallons	6" Yokogawa Gallons	% Error
0				
25				
50				
75				
100				

10 MINUTE TEST

% Span	Measured Output, ma	Test Totalizer Gallons	6" Yokogawa Gallons	% Error
75	16.00	3004.0	3000.8	0.10

3000

NOTES AND COMMENTS OF INSPECTION

Suffix AA1-HHA\* A

L-1.1219 H-1.0754

JAAETB 155 924

Completed By: R. Hughes Date: 5/19/06  
 (Mechanics' Signature)

Reviewed By: D. Perry Date: 5-19-06  
 (Supervisor's Signature)

3" Admag

Tag No.: \_\_\_\_\_ Description: \_\_\_\_\_

Location: w/stock Span (in Eng. Units): \_\_\_\_\_

Input Z-S & Units: \_\_\_\_\_ Output: \_\_\_\_\_

Type Instrument: \_\_\_\_\_ Mfg.: Yoko Model No AM 208DN

AA 1-2SA\* A

PRE-TEST

%Span	3" Yokogawa Gallons	6" Yokogawa Gallons	% Error
50	448.3	446.8	.33

AS FOUND

%Span	Measured Output, ma	Test Totalizer Gallons	6" Yokogawa Gallons	% Error
0	4	0	0	0
25	8	224.9	225.3	.177
50	11.9	447.1	446.8	.067
75	16	675.9	675.6	.044
100	20	901.6	900.4	.133

AS CALIBRATED

%Span	Measured Output, ma	Test Totalizer Gallons	6" Yokogawa Gallons	% Error
0				
25				
50				
75				
100				

10 MINUTE TEST

% Span	Measured Output, ma	Test Totalizer Gallons	6" Yokogawa Gallons	% Error
75	16	2256.0	2248.7	.10

NOTES AND COMMENTS OF INSPECTION

Cal Factor L=1.1225, H=1.0747

Completed By: [Signature]  
(Mechanics' Signature)

Date: 6/7/06

Reviewed By: [Signature]  
(Supervisor's Signature)

Date: 6-7-06

**APPENDIX A-8E**

**EXAMPLE PRINT OUTS OF  
15-MINUTE BLOCK AVERAGES**

# Scrubber Parameter Data

DATE: 28-Mar-06

SAMPLING TIME FROM: 10:10 AM TO 2:05 PM

COMPANY NAME: CF INDUSTRIES, INC. PLANT CITY PHOSPHATE COMPLEX  
 MAILING ADDRESS: P.O. DRAWER L PLANT CITY, FL 33564  
 SOURCE IDENTIFICATION: "A" PAP PRODUCTION FACILITY  
 SOURCE LOCATION: "A" PAP PRODUCTION STACK

PERMIT SOURCE: 0570005-017-AV  
 Emission Unit 004

TYPE OF SCRUBBER LIQUID: Process Water

## PACKED BED SCRUBBER

Permit Limits: 1,136 - 1,628 9.48 - 18.12

Run #1	28-Mar-06	Times		Scrubber Process Water Flow GPM	Scrubber Differential Pressure "W.C.
		10:10 AM	10:25 AM	1,815	16.22
		10:25 AM	10:40 AM	1,814	16.20
		10:40 AM	10:55 AM	1,814	16.16
		10:55 AM	11:10 AM	1,814	16.16
		11:10 AM	11:20 AM	1,812	16.14
		<b>Average</b>		<b>1,814</b>	<b>16.18</b>

Run #2	28-Mar-06	11:30 AM	11:45 AM	1,814	16.14
		11:45 AM	12:00 PM	1,815	16.15
		12:00 PM	12:15 PM	1,815	16.16
		12:15 PM	12:30 PM	1,815	16.13
		12:30 PM	12:40 PM	1,807	16.11
		<b>Average</b>		<b>1,813</b>	<b>16.14</b>

Run #3	28-Mar-06	12:55 PM	1:10 PM	1,810	16.09
		1:10 PM	1:25 PM	1,810	16.07
		1:25 PM	1:40 PM	1,810	16.07
		1:40 PM	1:55 PM	1,811	16.02
		1:55 PM	2:05 PM	1,811	16.02
		<b>Average</b>		<b>1,810</b>	<b>16.05</b>
		<b>Average For 3 Runs</b>		<b>1,812</b>	<b>16.12</b>

I certify that the above statement is true to the best of my knowledge and belief:

Signature: 

Title: Chief Egan

Signature: Tim Faniel

Title: Prod. Supt.



# Scrubber Parameter Data

DATE: 09-May-06

SAMPLING TIME FROM:

10:15 AM

TO

2:05 PM

COMPANY NAME: CF INDUSTRIES, INC. PLANT CITY PHOSPHATE COMPLEX  
 MAILING ADDRESS: P.O. DRAWER L PLANT CITY, FL 33564  
 SOURCE IDENTIFICATION: "B" PAP PRODUCTION FACILITY  
 SOURCE LOCATION: "B" PAP PRODUCTION STACK

PERMIT SOURCE: 0570005-017-AV  
 Emission Unit 009

TYPE OF SCRUBBER LIQUID: Process Water

## PACKED BED SCRUBBER

BPAP\_FT3098 BPAP\_PT3099

Permit Limits: 1,199 to 1,548 3.17 to 13.75

Run #1	9-May-06	Times		Scrubber Process Water Flow GPM	Scrubber Differential Pressure " W.C.
		10:15 AM	10:30 AM	1,586	6.43
		10:30 AM	10:45 AM	1,587	6.42
		10:45 AM	11:00 AM	1,586	6.34
		11:00 AM	11:15 AM	1,586	6.35
		11:15 AM	11:25 AM	1,588	6.47
		Average		1,586	6.40

Run #2	9-May-06	11:35 AM	11:50 AM	1,587	6.42
		11:50 AM	12:05 PM	1,588	6.26
		12:05 PM	12:20 PM	1,587	6.29
		12:20 PM	12:35 PM	1,587	6.28
		12:35 PM	12:45 PM	1,585	6.32
		Average		1,587	6.31

Run #3	9-May-06	12:55 PM	1:10 PM	1,584	6.32
		1:10 PM	1:25 PM	1,582	6.33
		1:25 PM	1:40 PM	1,581	6.26
		1:40 PM	1:55 PM	1,582	6.18
		1:55 PM	2:05 PM	1,583	5.94
		Average		1,582	6.21
		Average For 3 Runs		1,585	6.31

I certify that the above statement is true to the best of my knowledge and belief:

Signature: \_\_\_\_\_

Title: \_\_\_\_\_

Chief Engr.

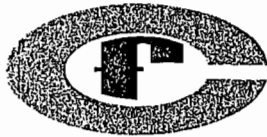
Signature: \_\_\_\_\_

Title: \_\_\_\_\_

**APPENDIX A-8F**

**TRANSMITTAL LETTERS FOR MOST RECENT  
ANNUAL PERFORMANCE TEST REPORTS**

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



**CF Industries** Inc.  
Plant City Phosphate Complex

April 28, 2006

Mr. Joel Smolen  
Florida Department of  
Environmental Protection  
13051 North Telecom Parkway  
Temple Terrace, FL 33637

SUBJECT: COMPLIANCE TEST - "A" PAP  
Permit No. 0570005-017-AV  
Emission Unit 004

Dear Mr. Smolen:

Enclosed are copies of the recent compliance testing conducted at CF Industries, Inc., Plant City Phosphate Complex, on the "A" Phosphoric Acid Plant.

Please note that the liquid flow to the scrubber was varied during the testing to increase the permissible operating range under our approved HMACT monitoring plan.

If there are any questions concerning the results, please give Michael Messina a call at 813-364-5639.

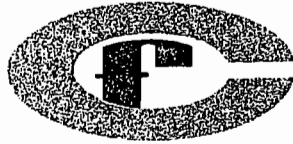
Sincerely,

T.A. Edwards,  
Superintendent, Environmental  
Affairs

TAE/JHF/gm  
u:\envrpt\225960apap.doc  
Enclosures

cc: Diana Lee/HCEPC  
J.M. Messina  
F.J. Dlugos

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



**CF Industries, Inc.**  
Plant City Phosphate Complex

June 20, 2006

Mr. Joel Smolen  
Florida Department of  
Environmental Protection  
13051 North Telecom Parkway  
Temple Terrace, FL 33637-0926

**Subject: COMPLIANCE TEST - "B" PAP**  
**Permit No. 0570005-017-AV**  
**Emission Unit 009**

Dear Mr. Smolen:

Enclosed are copies of the recent compliance test conducted on the "B" Phosphoric Acid Plant at CF Industries, Inc., Plant City Phosphate Complex.

Please note that the liquid flow to the scrubber was varied during the testing to increase the permissible operating range under our approved HMACT monitoring plan.

If you have any questions concerning this submittal please contact Michael Messina at (813) 364-5639.

Sincerely,

Thomas A. Edwards  
Superintendent,  
Environmental Affairs

TAE/JMM/gem  
U:\00BPAPCOMPTEST.doc  
Enclosures

CC: Diana Lee/HCEPC  
F.J. Dlugos  
J.M. Messina

**APPENDIX B-1**

**“A” PAP NO. 6 EVAPORATOR  
PIPING AND INSTRUMENTATION DIAGRAM (P&ID)**

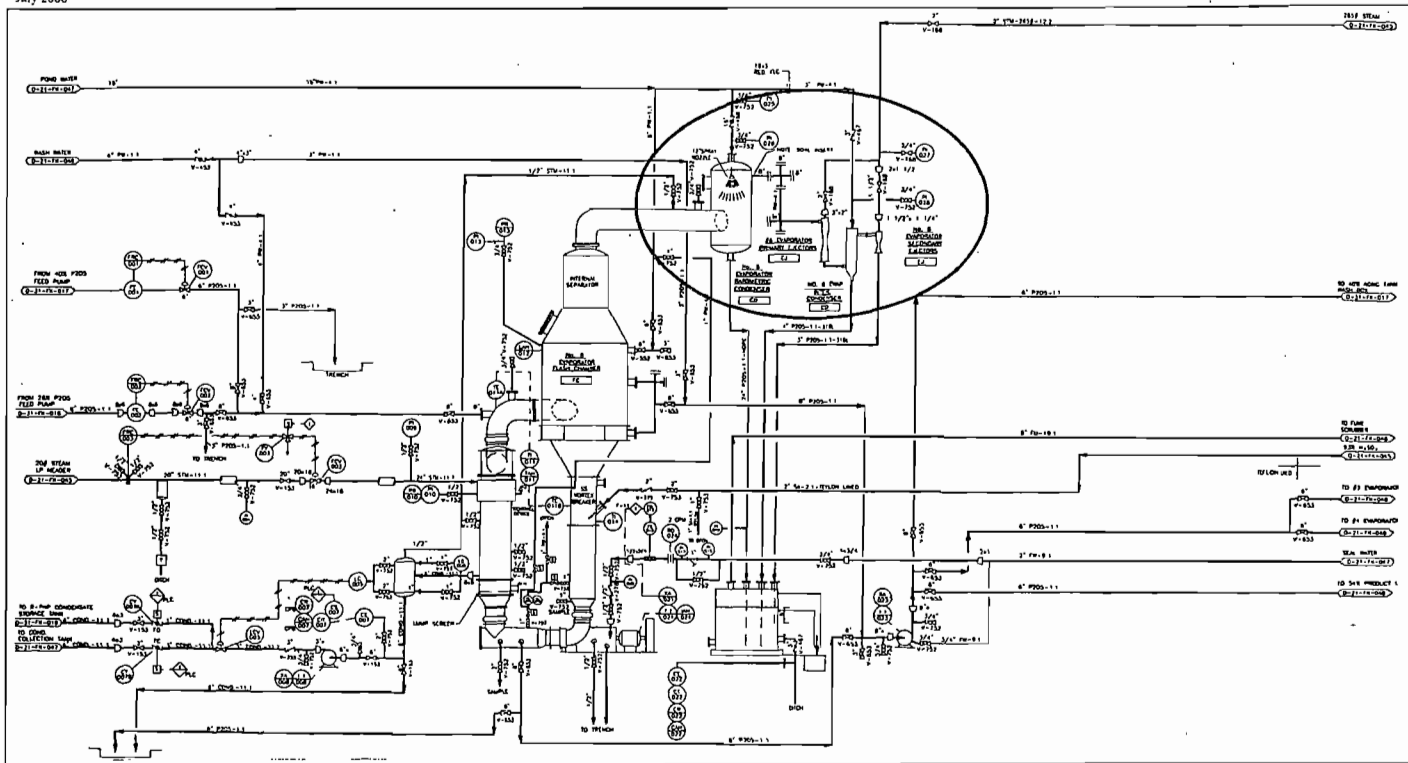


Figure B-1  
"A" Pap No. 6 Evaporator - Piping And Instrumentation Diagram (P&ID)

Y:\Projects\2004\0437632 CF Industries\44.1\RAID\2906\Figure B-1.doc

Source: Golder, 2006.



**APPENDIX B-2**

**CORRECTED EMISSIONS UNIT  
IDENTIFICATION NUMBER**

# EMISSIONS UNIT INFORMATION

Section [3]

"A" Sulfuric Acid Plant

## A. GENERAL EMISSIONS UNIT INFORMATION

### Title V Air Operation Permit Emissions Unit Classification

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

### Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:  
"A" Sulfuric Acid Plant (SAP)

3. Emissions Unit Identification Number: 002

4. Emissions Unit Status Code:  
A

5. Commence Construction Date:

6. Initial Startup Date:

7. Emissions Unit Major Group SIC Code:  
28

8. Acid Rain Unit?  
 Yes  
 No

9. Package Unit:  
Manufacturer:

Model Number:

10. Generator Nameplate Rating: MW

11. Emissions Unit Comment:

**There exists a potential for fugitive emissions of SO<sub>2</sub>/NO<sub>x</sub>/SAM to occur from this emissions unit. It is our understanding, based on past FDEP interpretations and permitting history, that these emissions are not regulated under federal/state/local emission standards.**



**APPENDIX B-3**

**REVISED PSD REPORT**

**PAGE 2-3**

### **2.1.3 Pollution Control Equipment and Air Emissions**

SO<sub>2</sub> and SAM emissions from the A SAP are controlled by a two-stage ammonia scrubber and a Brink's demister. The ammonium sulfate solution generated in the scrubber is consumed in the DAP/MAP plants on-site. The current SO<sub>2</sub> emission limits for the A SAP are 5.6 pounds per ton (lb/ton) of 100-percent H<sub>2</sub>SO<sub>4</sub>, equivalent to 303.3 pounds per hour (lb/hr) (3-hour average), and 4.23 lb/ton of 100-percent H<sub>2</sub>SO<sub>4</sub>, equivalent to 229 lb/hr and 1,003 TPY (consecutive 12-month average). The current SAM emission limits are 0.3 lb/ton of 100-percent H<sub>2</sub>SO<sub>4</sub>, 1.43 lb/hr (hourly average), 0.83 lb/hr (consecutive 12-month average), and 3.49 TPY (consecutive 12-month average). There is currently no NO<sub>x</sub> emission limit.

As part of the proposed project, CF is proposing to reduce permitted SO<sub>2</sub> emissions to 3.85 lb/ton of 100-percent H<sub>2</sub>SO<sub>4</sub> as a 3-hour average and 3.5 lb/ton as a 24-hour average. These emission rates represent current BACT emission levels.

To achieve the proposed SO<sub>2</sub> emission limits, CF will need to implement changes to the A SAP. The primary change includes incorporation of cesium catalyst into the fourth pass of the converter, which will increase conversion efficiency while increasing the H<sub>2</sub>SO<sub>4</sub> production rate. Higher conversion efficiency will allow the A SAP to increase production rates by increasing burner SO<sub>2</sub> concentrations, while at the same time lowering stack SO<sub>2</sub> emissions per ton, without generating excess ammonium sulfate that cannot be consumed on-site.

CF is proposing a SAM emission limit of 0.10 lb/ton of 100-percent H<sub>2</sub>SO<sub>4</sub>. No new technology will be necessary to meet this limit. The proposed emission limit represents current BACT emission levels.

The current and proposed allowable emission rates for the A SAP are summarized in Table 2-1. The table includes the existing permitted allowable emission rates and the proposed maximum emission rates for SO<sub>2</sub>, SAM, and NO<sub>x</sub>. The current actual annual average emissions for 2003 and 2004 from the A SAP are presented in Table 2-2. Current actual hourly emission rates are presented in Table 2-3, which are based on continuous emission monitoring (CEM) data.

### **2.1.4 Stack Data**

The current and future stack geometry and operating data for the A SAP are presented in Table 2-4. The stack will not be physically modified as part of the proposed project.

**APPENDIX B-4**

**DOCUMENTATION FOR SAM  
EMISSION LIMIT PROCESSING**

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL REGULATION

SOUTHWEST DISTRICT

4520 OAK FAIR BLVD.  
TAMPA, FLORIDA 33610-7347  
813-623-5561  
Suncom—552-7612



BOB MARTINEZ  
GOVERNOR  
DALE TWACHTMANN  
SECRETARY  
DR. RICHARD D. GARRITY  
DISTRICT MANAGER

April 14, 1988

NOTICE OF PERMIT

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

Dear Mr. Parsons:

Re: Hillsborough County - AP  
Sulfuric Acid Plant "A"

Enclosed is Permit Number A029-144340 to operate the "A" Sulfuric Acid Plant with ammonia scrubber, issued pursuant to Section 403.087, Florida Statutes.

Persons whose substantial interests are affected by this permit have a right, pursuant to Section 120.57, Florida Statutes, to petition for an administrative determination (hearing) on it. The petition must conform to the requirements of Chapters 17-103 and 28-5.201, F.A.C., and must be filed (received) in the Department's Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within fourteen (14) days of receipt of this notice. Failure to file a petition within fourteen (14) days constitutes a waiver of any right such person has to an administrative determination (hearing) pursuant to Section 120.57, Florida Statutes. This permit is final and effective on the date filed with the Clerk of the Department unless a petition is filed in accordance with this paragraph or unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition and conforms to Rule 17-103.070, F.A.C. Upon timely filing of a petition or a request for an extension of time, this permit will not be effective until further Order of the Department.

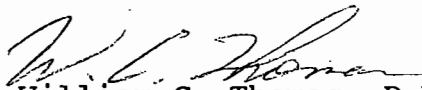
Central Phosphates, Inc.  
Plant City, FL 33566

Page Two

When the Order (Permit) is final, any party to the Order has the right to seek judicial review of the Order pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date the Final Order is filed with the Clerk of the Department.

Executed in Tampa, Florida.

Sincerely,

  
William C. Thomas, P.E.  
District Air Engineer

WCT/AJW/pb

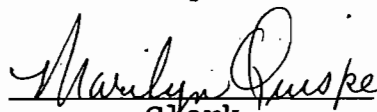
Enclosures

xc: Environmental Protection Commission  
of Hillsborough County

CERTIFICATE OF SERVICE

This is to certify that this NOTICE OF PERMIT and all copies were mailed before the close of business on APR 15 1988 to the listed persons.

FILING AND ACKNOWLEDGEMENT  
FILED, on this date, pursuant  
to Subsection 120.52(10),  
Florida Statutes, with the  
designated Department Clerk,  
receipt of which is hereby  
acknowledged.

  
Clerk

APR 15 1988  
Date

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL REGULATION

SOUTHWEST DISTRICT

4520 OAK FAIR BLVD.  
TAMPA, FLORIDA 33610-7347

813-623-5561  
Suncom—552-7612



BOB MARTINEZ  
GOVERNOR

DALE TWACHTMANN  
SECRETARY

DR. RICHARD D. GARRITY  
DISTRICT MANAGER

PERMITTEE:

Central Phosphates, Inc.  
Plant City Phosphate Center  
Post Office Drawer L  
Plant City, FL 33566

PERMIT/CERTIFICATION

Permit No.: AO29-144340  
County: Hillsborough  
Expiration Date: March 30, 1993  
Project: "A" Sulfuric Acid Plant  
with Scrubber

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 "A" Sulfuric Acid Plant designed for a production rate of 1,000 tons per day of 100 percent sulfuric acid. Sulfuric acid is produced by burning molten sulfur with dry air in a combustion chamber. Then, the sulfur dioxide gas stream is passed through a catalyst bed of vanadium pentoxide where the sulfur dioxide gas is converted to sulfur trioxide. The sulfur trioxide is then absorbed with 98% sulfuric acid. Emissions exit through a 64,000 ACFM Cominco Ammonia Scrubber with a Brinks demister.

Location: SR 39, 10 miles north of Plant City

UTM: 17-388.1E 3116.0N NEDS NO: 0005 Point ID: 02

Replaces Permit No.: AO29-65041

DER Form 17-1.201(5) Page 1 of 4

PERMITTEE: Permit/Certification No.: AO29-144340  
Central Phosphates, Inc. Project: "A" Sulfuric Acid Plant with  
Scrubber

SPECIFIC CONDITIONS:

1. A part of this permit is the attached 15 General Conditions.

2. Pursuant to Subsection 17-2.600(2)(a)2.b., F.A.C., sulfur dioxide emissions shall not exceed 416.7 pounds per hour and 10.0 pounds per ton of 100 percent acid produced.

3. Pursuant to Subsection 17-2.600(2)(a)2.c., F.A.C., acid mist emissions shall not exceed 12.5 pounds per hour and 0.3 pounds per ton of 100 percent acid produced.

4. Visible emissions shall not exceed 10% opacity except for a thirty (30) minute period during plant start-up, with opacity for such period allowed up to 40% [Chapter 1-3.63(a), Environmental Protection Commission of Hillsborough County Rules].

5. Test the emissions for the following pollutants at intervals of 12 months from July 22, 1987 and submit 2 copies of test data to the Air Section of the Environmental Protection Commission of Hillsborough County office within forty-five (45) days of such testing. Testing procedures shall be consistent with the requirements of Section 17-2.700, F.A.C.

- |   |   |
|---|---|
| <input type="checkbox"/> Particulates         | <input checked="" type="checkbox"/> Sulfur Oxides |
| <input type="checkbox"/> Fluorides            | <input type="checkbox"/> Nitrogen Oxides          |
| <input checked="" type="checkbox"/> Opacity   | <input type="checkbox"/> Hydrocarbons             |
| <input checked="" type="checkbox"/> Acid Mist | <input type="checkbox"/> Total Reduced Sulfur     |

6. Compliance with the emission limitations of Specific Condition Nos. 2, 3, and 4 shall be determined using EPA Methods 1, 2, 4, 8 and 9 contained in 40 CFR 60, Appendix A and adopted by reference in Section 17-2.700, F.A.C. The minimum requirements for stack sampling facilities, source sampling and reporting, shall be in accordance with Section 17-2.700, F.A.C. and 40 CFR 60, Appendix A.

7. Testing of emissions must be accomplished within  $\pm$  10% of the production rate of 42 tons per hour of 100 percent sulfuric acid. The actual production rate during the test shall be specified in each test result. Failure to submit the input rates or operation at conditions which do not reflect actual operating conditions may invalidate the data [Subsection 403.161(1)(c), Florida Statutes].

PERMITTEE: Permit/Certification No.: AO29-144340  
Central Phosphates, Inc. Project: "A" Sulfuric Acid Plant with  
Scrubber

SPECIFIC CONDITIONS (con't):

8. The Environmental Protection Commission of Hillsborough County shall be notified in writing 15 days in advance of any compliance test to be conducted on this source.

9. Submit 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.

Duplicate copies of all reports shall be submitted to the Environmental Protection Commission of Hillsborough County.

10. A continuous monitoring system to determine sulfur dioxide emissions from this source shall be calibrated, operated, and maintained in accordance with Subsection 17-2.710(1), F.A.C.

11. A report shall be submitted to both the Department and the Environmental Protection Commission of Hillsborough County within 30 days following each calendar quarter detailing any excess sulfur dioxide readings reported during the three month period. For the purpose of this report, excess emissions shall be defined as all three hour averages of sulfur dioxide emissions greater than the standard specified in Specific Condition No. 2. The information supplied in this report shall be consistent with the reporting requirement of 40 CFR 51, Appendix P [Subsection 17-2.710(1), F.A.C.].

12. An application for an operation permit shall be submitted to the Environmental Protection Commission of Hillsborough County within 45 days of completion of compliance testing or at least 60 days prior to the expiration date of this permit, whichever occurs first.



PERMITTEE:  
Central Phosphates, Inc.

Permit/Certification No.: AO29-144340  
Project: "A" Sulfuric Acid Plant with  
Scrubber

Issued this 14 day of  
April, 1988.

STATE OF FLORIDA DEPARTMENT OF  
ENVIRONMENTAL REGULATION

for E. D. Garrity  
Richard D. Garrity, Ph.D.  
District Manager

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.

GENERAL CONDITIONS (con't):

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.

GENERAL CONDITIONS (con't):

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 prescribed 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.

GENERAL CONDITIONS (con't):

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.

COMMISSION  
PHYLLIS BUSANSKY  
JOE CHILLURA  
PAM IORIO  
SYLVIA KIMBELL  
JAN KAMINIS PLATT  
JAMES D. SELVEY  
ED TURANCHIK

FAX (813) 272-5157



ROGER P. STEWART  
EXECUTIVE DIRECTOR  
ADMINISTRATIVE OFFICES  
AND  
WATER MANAGEMENT DIVISION  
1900 - 9TH AVENUE  
TAMPA, FLORIDA 33605  
TELEPHONE (813) 272-5960

AIR MANAGEMENT DIVISION  
TELEPHONE (813) 272-5530

WASTE MANAGEMENT DIVISION  
TELEPHONE (813) 272-5788

ECOSYSTEMS MANAGEMENT DIVISION  
TELEPHONE (813) 272-7104

February 11, 1992

CERTIFIED MAIL # P 648 519 664

Mr. J.E. Parsons  
General Manager  
C F Industries, Inc.  
P.O. Drawer L  
Plant City, FL 33566

Re: Hillsborough County - AP  
DER File No. AC29-200648  
(Modification of Sulfuric Acid Plants "A" and "B")

Dear Mr. Parsons:

Please be advised that the Environmental Protection Commission of Hillsborough County (EPCHC) and the Florida Department of Environmental Regulation (FDER) have completed their initial review of the above application and found it to be incomplete. In order to complete the review process two copies of the following additional information is being requested pursuant to Chapter 17-4.070, F.A.C.:

Comment: Just for information, after reviewing the statistical analysis and the proposed new SO<sub>2</sub> emission limit in the response dated January 29, 1992 from Koogler & Associates, the FDER and the EPCHC determined that the response failed to comply with the requirements of 40 CFR 60.14 and 40 CFR 60, Appendix C. All of the calculations and the proposed new SO<sub>2</sub> emission limit should have been based upon actual SO<sub>2</sub> emission rates expressed in units of pounds per hour (not pounds per ton of acid). Pro-rata adjustments could have compensated for instances when a sulfuric acid plant may not have operated at its maximum permitted production rate during a compliance test. In order to expedite resolution of this matter, the FDER and the EPCHC conducted their own statistical analysis. Based upon the March 1991 compliance tests, the adjusted average SO<sub>2</sub> emission rate was 197 pounds per hour. The standard deviation of the emission rate was 25.65 pounds per hour. At the 95th percentile confidence level, the FDER and the EPCHC plan to

Mr. J.E. Parsons  
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Page 2

establish a new SO<sub>2</sub> emission limit of 247.3 pounds per hour. Based upon 1,300 tons of acid per day, this new emission limit translates to 4.565 pounds of SO<sub>2</sub> per ton of acid. The FDER and the EPC do not require a response to this paragraph.

A response is required, however, to the following four requests.

1. Please submit calculations, a statistical analysis, and a proposed new acid mist emission limit which will comply with the requirements of 40 CFR 60.14 and 40 CFR 60, Appendix C.

2. Please re-do attachment 1B. The present actual emissions must be calculated as specified in Rule 17-2.100(3)(a), F.A.C. The proposed allowable emissions for SO<sub>2</sub> must be based upon the FDER and the EPCHC's calculation of 247.3 pounds per hour and 4.565 pounds per ton of acid. The proposed allowable emissions for acid mist must be based upon the response to request (1).

3. Please re-do Table 3-1. The present actual emissions must be calculated as specified in Rule 17-2.100(3)(a), F.A.C. The proposed allowable emissions for SO<sub>2</sub> must be based upon the calculation of 247.3 pounds per hour and 4.565 pounds per ton of acid. The proposed allowable emissions for acid mist must be based upon the response to request (1).

4. Pursuant to Rule 17-4.050(4)(a)1.b., F.A.C., the appropriate FDER processing fee is \$5,000. The FDER received a check for \$1,000. Please submit a check for \$4,000 (balance due) payable to the Florida Department of Environmental Regulation.

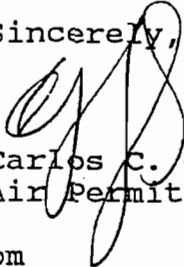
"NOTICE! Pursuant to the provisions of Section 120.600 F.S., if the Department does not receive a response to this request for information within 90 days of the date of this letter, the Department will issue a final order denying your application. You need to respond within 30 days after you receive this letter, responding to as many of the information requests as possible and indicating when a response to any unanswered question will be submitted. If the response will require longer than 90 days to develop, an application for new construction should be withdrawn and resubmitted when completed information is available. Or for operating permits, you should develop a specific time table for the submission of the requested information for Department review and consideration. Failure to comply with a time table accepted by the Department will be grounds for the Department to issue a Final Order of Denial for lack of timely response. A denial for lack of information or response will be unbiased as to the merits of the application. The applicant can reapply as soon as the requested information is available."

Mr. J.E. Parsons  
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Page 3

In your response, please submit the original to the undersigned and a copy to Gary Maier of the Southwest District of the FDER.

If you have any questions, please feel free to contact me at (813) 272-5530.

Sincerely,



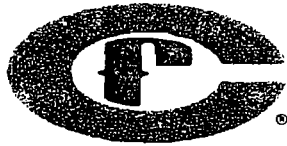
Carlos C. Gonzalez  
Air Permit Engineer

bm

cc: Gary Maier, FDER SW-District



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



**CF Industries, Inc.**

Plant City Phosphate Complex

April 21, 1992

Mr. Carlos Gonzales  
Air Permit Engineer  
Hillsborough County  
Environmental Protection Commission  
Air Management Division  
1900 9th Avenue  
Tampa, Florida 33675

RE: Hillsborough County - AP  
DER File No. AC29-200648  
(Modification of Sulfuric Acid Plants "A" & "B")

Dear Mr. Gonzales:

In response to requests made in your letter of February 11, 1992, and our meeting of February 13, 1992, Dr. Koogler has calculated proposed emission limits based upon past actual emissions for the period 1984 through 1991. The attached letter provides his discussion of the calculations as well as the revised Tables 3-1 and 1B as requested. In review of our comment in the February 13 meeting, we do not believe the three compliance tests performed since the scrubber replacements in March, 1990, provide a sufficient database to represent normal process and sampling variations. For this reason it is appropriate to use the larger body of data (1984-1991) to determine allowable emissions for the proposed rate increase.

In addition to Dr. Koogler's letter, please find our check for \$4,000, the remainder of the permit fee required under the November, 1991 fee schedule.

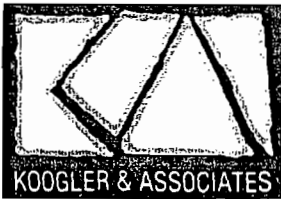
Mr. Jim Martin will be in contact with you by telephone to discuss this submittal and a possible meeting date.

Sincerely,

Thomas A. Edwards  
Superintendent,  
Environmental Affairs

TAE/tjj

cc: Gary Maier, FDER Southwest District



**KOUGLER & ASSOCIATES**  
ENVIRONMENTAL SERVICES  
4014 NW THIRTEENTH STREET  
GAINESVILLE, FLORIDA 32609  
904/377-5822 • FAX 377-7158

KA 344-90-01

April 20, 1992

Mr. Tom A. Edwards  
CF Industries, Inc.  
P.O. Drawer L  
Plant City, FL 33564-9007

Subject: Hillsborough County AP  
FDER File No. AC29-200648  
CF Industries  
Sulfuric Acid Plants A and B

Dear Mr. Edwards:

This is in response to the letter of February 11, 1992, from Mr. Carlos Gonzales, Hillsborough County Environmental Protection Commission (HCEPC) to Mr. J. E. Parsons, General Manager of CF Industries, Inc. The information provided herein addresses the actual emission rates of sulfur dioxide and sulfuric acid mist from the A and B sulfuric acid plants as they are presently operated and uses these emission rates, with no increase in emissions, to establish emission limits for the A and B sulfuric acid plants when operating at 1300 tons per day, 100 percent sulfuric acid each plant.

Subsequent to Mr. Gonzales' letter of February 11, 1992, a meeting was held in the HCEPC offices including representatives of HCEPC, the Florida Department of Environmental Regulation and CF Industries, Inc. Based upon this meeting, the present actual sulfur dioxide and sulfuric acid mist emissions from the A and B sulfuric acid plants were calculated from compliance tests conducted during the period 1984 to 1991 (see attached data). The test data from the A and B plants were combined as the two plants are identical plants operating at similar production rates. The combined data set represented 48 individual test runs for sulfur dioxide emissions and a similar number of test runs for sulfuric acid mist emissions. The average sulfur dioxide emission rate from the plants averaged 236.4 pounds per hour with a standard deviation of 32.8 pounds per hour. The sulfur acid mist emission rate averaged 0.88 pounds per hour with a standard deviation of 0.58 pounds per hour.

The average emission rates of sulfur dioxide and sulfuric acid mist were used with the 1990-91 average hours of operation of each of the two plants (8471 hours per year) to determine actual annual sulfur dioxide and sulfuric acid mist emission rates. The average sulfur dioxide emission rate from each of the two plants was 1001.3 tons per year and the average

Mr. Tom A. Edwards  
CF Industries, Inc.

April 20, 1992  
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sulfuric acid mist emission rate was 3.73 tons per year. These averages are summarized in revised Table 3-1 (attached hereto). These annual emission rates were used with the proposed sulfuric acid production rates of each plant (1300 tons per day) and an annual operating time of 8760 hours per year to arrive at a hourly average sulfur dioxide emission rate of 228.6 pounds per hour (4.22 pounds sulfur dioxide per ton of acid) and an average sulfuric acid mist emission rate of 0.85 pounds per hour (0.016 pounds of mist per ton of acid produced).

A maximum hourly sulfur dioxide emission rate has been calculated for each plant defined as the upper 95th percentile confidence interval (1.96 standard error above the average). The maximum emission rate has been calculated as 1.96 times the standard error (the standard deviation divided by the average sulfur dioxide emission rate) of existing actual average emissions (0.139) times the proposed average emission rate plus the proposed average emission rates. The maximum hourly sulfur dioxide emission rate at the proposed production rate of 1300 tons per day will be 290.8 pounds per hour or 5.37 pounds of sulfur dioxide per ton of acid produced. Similarly, a maximum hourly sulfuric acid mist emission rate was calculated for each plant to be 2.0 pounds per hour or 0.037 pounds of mist per ton of acid produced at a production rate of 1300 tons per day. These emission rates are summarized in revised Table 3-1 and revised Attachment 1B; both attached hereto.

I trust that the information provided herein is consistent with discussions you had with HCEPC and FDER and will fully respond to the HCEPC request for information dated February 11, 1992. If there should be any further questions regarding this matter, please do not hesitate to contact me.

Very truly yours,

KOGLER & ASSOCIATES

  
John B. Koogler, Ph.D., P.E.

JBK:wa  
Enc.

c: Mr. Jim Martin, CF Industries



TABLE 3-1

PRESENT AND PROPOSED PRODUCTION RATES AND  
EMISSION RATES FOR CF A & B SULFURIC ACID PLANTSCF INDUSTRIES, INC.  
PLANT CITY PHOSPHATE COMPLEX  
HILLSBOROUGH COUNTY, FLORIDA

	Sulfuric Acid Plant			
	A		B	
Date Originally Permitted	1965		1965	
Date Modified (PSD-FL-119)	1988		1988	
<u>Present Permit Conditions</u>				
Rate (tpd)	1050		1050	
S02 (lb/ton)	8.0		8.0	
(lb/hr)	350.0		350.0	
(tpy)	1533.0		1533.0	
Mist (lb/ton)	0.2		0.2	
(lb/hr)	8.8		8.8	
(tpy)	38.3		38.3	
Operating Factor	1.0		1.0	
<u>Present Actual Conditions</u>				
Rate	1050		1050	
	<u>Max Hr</u>	<u>Avg.</u>	<u>Max Hr</u>	<u>Avg.</u>
S02 (lb/ton)	6.87	5.40	6.87	5.40
(lb/hr)	300.7	236.4	300.7	236.4
(tpy)		1001.3		1001.3
Mist (lb/ton)	0.047	0.020	0.047	0.020
(lb/hr)	2.04	0.88	2.04	0.88
(tpy)		3.73		3.73
Operating Factor	0.967		0.967	
<u>Proposed Conditions</u>				
Rate	1300		1300	
	<u>Max Hr</u>	<u>Avg.</u>	<u>Max Hr</u>	<u>Avg.</u>
S02 (lb/ton)	5.37	4.22	5.37	4.22
(lb/hr)	290.8	228.6	290.8	228.6
(tpy)		1001.3		1001.3
Mist (lb/ton)	0.037	0.016	0.037	0.016
(lb/hr)	2.00	0.85	2.00	0.85
(tpy)		3.73		3.73
Operating Factor	1.0		1.0	



ATTACHMENT 1B

ANNUAL AIR POLLUTANT EMISSION CHANGES RESULTING  
FROM THE PROPOSED SULFURIC ACID PLANT RATE INCREASES (1)

CF INDUSTRIES, INC.  
PLANT CITY PHOSPHATE COMPLEX  
HILLSBOROUGH COUNTY, FLORIDA

POLLUTANT	Sulfuric Acid Plant			
	A		B	
	(tpy)	(lb/hr)	(tpy)	(lb/hr)
<b>SO<sub>2</sub></b>				
Present	1001.3 (3)	300.7 (4)	1001.3 (3)	300.7 (4)
Proposed	1001.3	290.8 (4)	1001.3	290.8 (4)
Annual Change	0		0	
Subtotal		0		
Significant Increase (2)		40		
<b>Mist</b>				
Present	3.73 (5)	2.04 (4)	3.73 (5)	2.04 (4)
Proposed	3.73	2.00 (4)	3.73	2.00 (4)
Annual Change	0		0	
Subtotal		0		
Significant Increase (2)		7		

- (1) Based on differences between present actual and proposed operating conditions.
- (2) Defined in 17-2.500(2)(e)2, FAC.
- (3) Based on 236.4 lb/hr and 8471 hr/yr (actual, average).
- (4) Maximum actual hourly = annual average plus 1.96 standard deviation.
- (5) Based on 0.88 lb/hr and 8471 hr/yr (actual, average).





PERMIT NO. A029-167061

NEW SCRUBBER/HCEPC AUDIT

2	3	1	2	3	1	2	3	1	2	3	1	2	3
21-Jul-87	22-Jul-87	19-Jul-88	19-Jul-88	19-Jul-88	11-Jul-89	11-Jul-89	11-Jul-89	29-Mar-90	29-Mar-90	29-Mar-90	27-Mar-91	27-Mar-91	27-Mar-91
12:40 PM	10:45 AM	9:05 AM	11:15 AM	1:08 PM	10:10 AM	12:05 PM	2:05 PM	10:05 AM	12:20 PM	2:25 PM	10:25 AM	1:08 PM	3:02 PM
2:20 PM	12:15 PM	10:35 AM	12:40 PM	2:35 PM	11:40 AM	1:45 PM	3:32 PM	11:40 AM	1:50 PM	3:55 PM	12:38 PM	2:35 PM	4:29 PM
30.16	30.15	30.1	30.13	30.14	30.18	30.15	30.12	30.1	30.06	30.03	30.13	30.08	30.05
30.17	30.16	30.11	30.14	30.15	30.19	30.15	30.13	30.1	30.06	30.03	30.13	30.08	30.05
1.0575	1.0779	1.1102	1.1347	1.1824	1.1255	1.126	1.1201	1.0794	1.0791	1.073	1.171	1.142	1.164
1.25	1.3	1.36	1.37	1.56	1.24	1.24	1.24	1.0944	1.1169	1.105	1.359	1.298	1.371
92.7	93.4	92.3	91.9	92.6	87.2	87.4	87.6	88.4	88.4	88.6	85.9	85.4	85.3
92.7	93.4	92.3	91.9	92.6	87.2	87.4	87.6	88.4	88.4	88.6	85.9	85.4	85.3
118.9	111.1	100.9	110	112	105.1	113.8	116.7	95.7	105	101.4	99.6	104.8	113.2
50.29	50.664	55.047	54.936	58.314	52.297	53.023	53.039	47.638	48.595	48.081	53.964	53.026	54.788
46.7	47.68	52.146	51.262	54.267	49.79	49.65	49.37	46.148	46.24	45.995	51.579	50.129	50.996
5.5	5.3	2.84	4.08	4.25	4.53	4.4	4.52	4.2	4.27	4.43	3.06	3.59	3.55
28.66	28.66	28.66	28.66	28.66	28.66	28.66	28.66	28.66	28.66	28.66	28.66	28.66	28.66
28.07	28.09	28.36	28.23	28.21	28.18	28.19	28.18	28.21	28.2	28.19	28.33	28.28	28.28
0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
61.34	62.55	64.11	65.62	68.43	64.82	64.89	64.59	62.28	62.32	62.02	67.24	65.66	66.95
19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63
19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63
65767	67070	70582	71445	74303	70960	71010	70529	68070	67963	67444	74773	72562	73962
80	80	80	80	80	80	80	80	80	80	80	80	80	80
0.000169	0.000169	0.000169	0.000169	0.000169	0.000173	0.000173	0.000173	0.000163	0.000163	0.000163	0.00017	0.00017	0.00017
102.5	102.6	107.6	104.5	106.3	98.9	98.5	98.7	101	101.4	101.6	99.3	99.5	99.3
2.61	2.88	4.44	3.36	4.56	5.45	5.69	4.74	1.9	1.9	2.61	3.07	3.07	4.26
1135.3	1275.3	1443.4	1422.3	1447.4	1426.7	1305.97	1179.09	1057.6	1054	1060.2	1077.3	939.7	785.2
0.49	0.53	0.79	0.62	0.82	1.03	1.07	0.89	0.37	0.37	0.51	0.59	0.59	0.82
211	236.8	257.9	261.7	261.6	268.4	246.6	222.3	205.92	204.49	205.21	206.15	179.55	150.32
11.6	12.8	19	14.8	19.8	24.6	25.8	21.5	8.9	8.8	12.1	14.1	14.08	19.57
5064.9	5683	6189.3	6279.9	6278.3	6441.8	5917.8	5335.9	4942.1	4907.7	4925	4947.6	4309.1	3607.7
0.012	0.013	0.019	0.015	0.02	0.025	0.026	0.022	0.009	0.009	0.012	0.014	0.013	0.019
5.33	5.98	6.19	6.28	6.28	6.44	5.92	5.34	4.82	4.79	4.8	4.75	4.14	3.47
3.21	3.87	4.88	4.87	4.75	4.85	4.63	4.05	3.15	3.07	3.09	3.53	3.08	3.04
950	950	1000	1000	1000	1000	1000	1000	1025	1025	1025	1040	1040	1040

NEW PERMIT NO. R029-167062

2	3	1	2	3	1	2	3	1	2	3	4	1	2	3
07-Oct-87	07-Oct-87	13-Oct-88	13-Oct-88	13-Oct-88	11-Oct-89	11-Oct-89	11-Oct-89	27-Mar-90	27-Mar-90	Q	28-Mar-90	25-Mar-91	25-Mar-91	25-Mar-91
12:46 PM	3:05 PM	10:45 AM	12:40 PM	2:30 PM	11:30 AM	1:15 PM	3:00 PM	VOID	3:06 PM	4:54 PM	10:15 AM	10:20 AM	12:34 PM	2:23 PM
2:18 PM	4:42 PM	12:10 PM	2:05 PM	3:55 PM	12:55 PM	2:40 PM	4:25 PM	BECAUSE	4:32 PM	6:34 PM	11:45 AM	11:50 AM	2:00 PM	3:50 PM
29.94	29.94	30.22	30.19	30.16	30.06	30.03	29.99	OF	30.1	30.08	30.18	30.13	30.09	30.07
29.95	29.95	30.213	30.2	30.17	30.07	30.04	30	LEAK	30.1	30.09	30.19	30.14	30.1	30.07
1.2	1.166	1.2324	1.2618	1.24	1.19	1.16	1.19	IN	1.1871	1.176	1.2031	1.151	1.146	1.152
1.58	1.5	1.54	1.7	1.64	1.47	1.37	1.44	SAMPLE	1.461	1.424	1.5088	1.31	1.309	1.304
90.2	89.9	88.3	89.5	89.1	92.8	93	92.8	TRAIN	86.8	86.7	86.5	87.6	86.9	86.8
90.2	89.9	88.3	89.5	89.1	92.8	93	92.8		86.8	86.7	86.5	87.6	86.9	86.8
112.6	113.7	93	100.1	100.3	97	100.6	103		102.6	97.6	88.9	93.2	101.6	105.5
54.475	53.246	56.12	59.444	58.336	54.667	53.017	54.542		54.944	54.407	55.347	53.062	53.379	53.098
50.814	49.562	54.758	57.231	56.081	52.146	50.185	51.349		52.616	52.546	54.495	51.315	50.787	50.115
5.24	4.47	4.48	3.76	3.53	4.85	5.33	5.29		3.5	3.83	3.93	3.51	4.03	3.9
28.66	28.66	28.66	28.66	28.66	28.66	28.66	28.66	28.66	28.66	28.66	28.66	28.66	28.66	28.66
28.1	28.18	28.18	28.26	28.28	28.14	28.09	28.1		28.29	28.25	28.24	28.29	28.23	28.24
0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
69.69	67.59	70.99	72.7	71.42	69.05	67.59	69.02		68.31	67.72	69.16	66.23	66.02	66.35
19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63
19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63	19.63
74716	73089	77709	79923	78685	74278	72246	73733		75421	74502	76294	73120	72471	72878
80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
0.000167	0.000167	0.000167	0.000167	0.000167	0.000167	0.000167	0.000167		0.000172	0.000172	0.000172	0.00017	0.00017	0.00017
99.3	99	102.8	104.4	103.9	103.4	102.3	102.5		97.9	99	100.3	101	100.9	99
4.06	4.22	3.84	2.88	4.8	5.45	6.16	7.11		3.8	3.33	4.75	5.67	7.09	7.09
1233.9	1232	1146.7	1292.6	1134.1	1514.9	995.5	1250.8		1541.2	1205	1541.2	1046.4	1086.6	1055.7
0.79	0.82	0.72	0.53	0.89	1.02	1.17	1.35		0.72	0.62	0.88	1.07	1.34	1.36
239.5	239.8	214.8	238.3	210	284.8	189.17	237.08		291.61	225.52	284.82	196.8	204.7	202.7
18.9	19.7	17.3	12.7	21.3	24.6	28.1	32.3		17.3	15	21.1	25.6	32.05	32.66
5747.7	5755.6	5155.4	5718.6	5041	6836.1	4540.1	5689.9		6998.7	5412.5	6835.7	4723.6	4912.1	4863.6
0.019	0.02	0.017	0.013	0.021	0.024	0.027	0.032		0.017	0.015	0.021	0.026	0.032	0.033
5.75	5.76	5.16	5.72	5.04	6.67	4.43	5.55		6.83	5.28	6.67	4.77	4.96	4.91
3.4	3.41	3.93	3.91	3.48	4.47	3.21	3.8		3.88	3.18	3.88			
1000	1000	1000	1000	1000	1025	1025	1025		1025	1025	1025	990	990	990







# Florida Department of Environmental Regulation

Southwest District

3804 Coconut Palm

Tampa, Florida 33619

Lawton Chiles, Governor

813-744-6100

Carol M. Browner, Secretary

## NOTICE OF PERMIT

Mr. J.E. Parsons  
General Manager  
CF Industries, Inc.  
P.O. Drawer L  
Plant City, FL 33564

Dear Mr. Parsons:

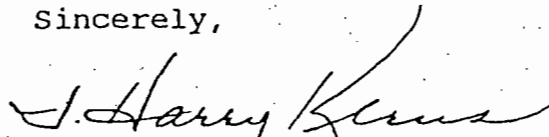
Re: Hillsborough County - AP

Enclosed is Permit Number AC29-200648 to modify the existing "A" and "B" Sulfuric Acid Plants (plants) by increasing the production of each plant from 1050 tons per day to 1300 tons per day of 100% sulfuric acid ( $H_2SO_4$ ) issued pursuant to Section 403.087, Florida Statutes.

Any party to this order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this Notice is filed with the Clerk of the Department.

Executed in Tampa, Florida.

Sincerely,

  
J. Harry Kerns, P.E.  
District Air Engineer

JHK/CCG/bm

cc: Environmental Protection Commission  
of Hillsborough County  
John B. Koogler, Ph.D., Koogler & Associates, Environmental  
Services

CERTIFICATE OF SERVICE

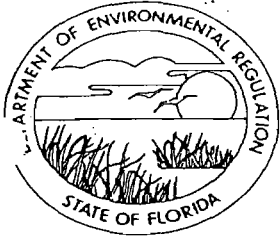
This is to certify that this NOTICE OF PERMIT and all copies were mailed before the close of business on JAN 13 1993 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGEMENT  
FILED, on this date, pursuant to Section 120.52(11), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Narilyn Quispe  
Clerk

JAN 13 1993  
Date



# Florida Department of Environmental Regulation

Southwest District

3804 Coconut Palm

Tampa, Florida 33619

Lawton Chiles, Governor

813-744-6100

Carol M. Browner, Secretary

PERMITTEE:  
CF Industries, Inc.  
Post Office Box Drawer L  
Plant City, FL 33566

PERMIT/CERTIFICATION  
Permit No.: AC29-200648  
County: Hillsborough  
Expiration Date: 11/01/94  
Project: Modification of "A" and "B"  
Sulfuric Acid Plants

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rules 17-2 and 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 modification of the existing "A" and "B" Sulfuric Acid Plants (plants). The plants are identical in process design, capacities, emission controls and have the same general configuration. The modification involves increasing each plant current maximum production rate from 1050 tons per day to 1300 tons per day of 100% sulfuric acid ( $H_2SO_4$ ) to offset purchases of sulfuric acid. To achieve the new proposed  $H_2SO_4$  production levels, molten sulfur utilization rates will be 434 tons per day per plant. In the process, molten sulfur is combusted (oxidized) with dry air in the sulfur furnace. The resulting sulfur dioxide gas is catalytically converted (further oxidized) to sulfur trioxide in a 4-bed converter tower. Sulfur trioxide is then adsorbed in an approximately 96%  $H_2SO_4$  stream to form a more concentrated acid (98% plus  $H_2SO_4$ ) in a single stage adsorption tower (final stage of production). Heat generated by the chemical reactions in the sulfur furnace and the 4-bed converter tower is recovered to operate two boilers, an economizer and a proposed steam superheater. The boilers, the economizer and the steam superheater are not sources of air pollution.

Sulfur dioxide and sulfuric acid mist (acid mist) emissions from each plant are controlled by a two-stage Cominco scrubber and a Brink's demister and through a 110-foot stack.

Location: SR 39, 10 miles north of Plant City

UTM: 17-388.1 E 3116.0 N NEDS NO: 0005 Point ID: 02 - "A" Sulfuric Acid Plant  
03 - "B" Sulfuric Acid Plant

Replaces Permit No.: A029-167061 and A029-167062

PERMITTEE:  
CF Industries, Inc.

Permit/Certification No.: AC29-200648  
Project: Modification of "A" and "B"  
Sulfuric Acid Plants

SPECIFIC CONDITIONS:

1. A part of this permit is the attached 15 General Conditions. All conditions (specific and general) thereof, shall apply to each source (sulfuric acid plant) in page 1 of this permit.
2. 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. [Rule 17-4.070(7), F.A.C.]
3. The maximum allowable emission rates for acid mist shall not exceed any of the following limits: [Construction Application dated July 17, 1991 and supplement July 15, 1992]
  - A) 1.43 pounds per hour (in any hour) or 0.83 pounds per hour (average in any consecutive 12 month period).
  - B) 3.49 tons in any consecutive 12 month period.
4. The maximum allowable emission rates for sulfur dioxide shall not exceed any of the following limits: [Construction Application dated July 17, 1991 and supplement July 15, 1992]
  - A) 303.3 pounds per hour (in any hour) or 238.8 pounds per hour (average in any consecutive 12 month period).
  - B) 1003 tons in any consecutive 12 month period.
5. The maximum allowable emission rates for nitrogen oxides shall not exceed any of the following limits: [Construction Application dated July 17, 1991]
  - A) 11.7 pounds per hour.
  - B) 51.2 tons in any 12 consecutive month period.
6. Visible emissions shall not exceed 10% opacity. [Rule 17-2.600(2)(a)2.a., F.A.C.]
7. The maximum production rate shall not exceed 1300 tons per day of 100% H<sub>2</sub>SO<sub>4</sub>. [Construction Application dated July 17, 1991]
8. The permittee shall not cause, suffer, allow or permit the discharge of air pollutants from this source which cause or contribute to an objectionable odor. [Rule 17-2.620(2), F.A.C.]
9. The source is allowed to operate continuously (8760 hrs./yr.).

PERMITTEE:  
CF Industries, Inc.

Permit/Certification No.: AC29-200648  
Project: Modification of "A" and "B"  
Sulfuric Acid Plants

SPECIFIC CONDITIONS: (continued)

10. Within 30 days after achieving 90 to 100% of the maximum permitted production rate in Specific Condition No.-7, but not later than 60 days after initial startup after the proposed physical changes, CF Industries, Inc. shall test the emissions for the following pollutant(s). CF Industries, Inc. shall submit 2 copies of test data to the Air Section of the Environmental Protection Commission of Hillsborough County office within forty-five days of such testing. Testing procedures shall be consistent with the requirements of Rule 17-2.700(2), F.A.C.:

(X) Opacity	(X) Sulfur Dioxides
(X) Acid Mist	(X) Nitrogen Oxides

11. Compliance with the applicable emission limitations of Specific Condition Nos. 3, 4, 5 and 6 shall be determined using EPA Methods 1, 2, 4, 7 or 7E, 8 and 9 contained in 40 CFR 60, Appendix A and adopted by reference in Rule 17-2.700, F.A.C. The EPA Method 9 observation period shall be at least sixty (60) minutes. The minimum requirements for stack sampling facilities, source sampling and reporting, shall be in accordance with Rule 17-2.700, F.A.C. and 40 CFR 60, Appendix A.

12. CF Industries, Inc. shall maintain monthly records in permanent form and available for inspection to comply, in part, with Specific Condition Nos. 3 and 4. The records shall contain sufficient information to enable the inspector to determine the current emissions status and shall be retained for at least two years. [Rule 17-4.070(3), F.A.C.]

13. Testing of emissions must be accomplished at 90 to 100% of the maximum permitted production rate of 1300 tons per day of 100% H<sub>2</sub>SO<sub>4</sub> produced. The actual production rate shall be specified in each test result. Failure to include the actual process or production rate in the results may invalidate the test. In addition, the test results shall include the scrubber operating parameters outlined in Specific Condition No. 21. [Rule 17-4.070(3), F.A.C.]

14. The permittee shall notify the Environmental Protection Commission of Hillsborough County at least 15 days prior to the date on which each formal compliance test is to begin of the date, time, and place of each such test, and the contact person who will be responsible for coordinating and having such test conducted. [Rules 17-2.700(2)(a)9. and 17-2.820(5), F.A.C.]

15. The continuous emission monitoring system (CEMS) to determine sulfur dioxide emissions from this source shall be calibrated, operated, and maintained in accordance with Rule 17-2.710(1), F.A.C.

PERMITTEE:  
CF Industries, Inc.

Permit/Certification No.: AC29-200648  
Project: Modification of "A" and "B"  
Sulfuric Acid Plants

SPECIFIC CONDITIONS: (continued)

16. A report shall be submitted to the Environmental Protection Commission of Hillsborough County within 30 days following each calendar quarter detailing all periods of excess sulfur dioxide emissions recorded by the CEMS during that three month period. The report shall include the magnitudes of the excess emissions, the duration of each excess emission period, the cause of the abnormal event, and the action taken to correct it. The excess emission report shall also include a statement of all periods during the quarter when the sulfur dioxide monitoring system was inoperative. [Rule 17-2.710(2), F.A.C.]

17. If any changes authorized by this permit result in an increase in the actual emissions of either acid mist or sulfur dioxide, determined in accordance with 40 CFR 60, Appendix C, then CF Industries, Inc. shall immediately comply with all NSPS requirements of 40 CFR 60, Subpart H, Standard of Performance for Sulfuric Acid Plants, or immediately cease operation.

18. The permittee shall comply with the "Best Operation Start-up Practices for Sulfuric Acid Plants." [Attached Memorandum and signed agreement of November 1, 1989]

19. The permittee shall promptly notify\* the Commission's Air Management Division of any abnormal event\*\* associated with the operation of the source which results in elevated emissions. Notification shall include the following: [Chapter 1-1.05, Rules of the Environmental Protection Commission of Hillsborough County]

- A) Facility Name
- B) Source Name
- C) Cause
- D) Time and Duration of the Abnormal Event
- E) CEM Readings or Magnitude of the Emissions
- F) Steps taken to reduce emissions if the abnormal event is still occurring.
- G) Identification of person reporting the abnormal event.

A reportable abnormal event does not necessarily constitute a permit violation.

\* For purposes for this condition, prompt notification shall mean "within thirty (30) minutes following detection of the reportable event by the permittee as long as reasonable care is taken in monitoring the source."

\*\* For purposes of this condition, abnormal events shall, in part, include:

For all startups (hot and cold): the time when the unit will begin to burn sulfur.

PERMITTEE:  
CF Industries, Inc.

Permit/Certification No.: AC29-200648  
Project: Modification of "A" and "B"  
Sulfuric Acid Plants

SPECIFIC CONDITIONS: (continued)

20. This permit acknowledges that leaks of sulfur dioxide and sulfur trioxide, or other fugitive process emissions that do not pass through a stack, may occur as part of routine operations. Best operational practices to minimize these emissions shall be adhered to and shall include regular inspections and the prompt repair or correction of any leaks or other fugitive emissions.

[Rule 17-4.070(3), F.A.C.]

21. The permittee shall follow the attached Memorandum of Understanding Regarding Best Operational Start-Up Practices for Sulfuric Acid Plants.

[Signed and executed on November 1, 1989.]

22. The permittee shall monitor the following scrubber operating parameters during each test run in any compliance test and include them in the test results: [Rules 17-2.700(8) and 17-4.070(3), F.A.C.]

- \* Volumetric flow of water
- \* Feed rate of ammonia
- \* pH of the scrubber liquor
- \* Gas pressure drop

23. When a plant is in operation, the pH of the scrubber liquor shall not fall below 90% of the value reported during the most recent satisfactory compliance test. [Rule 17-4.070(3), F.A.C.]

24. CF Industries, Inc. shall create and keep a record log for each scrubber, documenting the scrubber operating parameters itemized in Specific Condition No. 22. A record log entry shall be made at least once for every 8 hour shift that the plant operates. In addition to the scrubber operating parameters, the record log shall contain the date and time of the measurements, and the person responsible for performing the measurements. The record log shall be maintained at the facility and shall be retained at least two years from the date of measurement. [Rules 17-4.070(3), F.A.C.]

25. Should the Department have reason to believe that any applicable emission standards are not being met, the Department may require that compliance with such emission standards be demonstrated by testing. [Rule 17-2.700(2)(b), F.A.C.]

26. Submit for this facility, each calendar year, on or before March 1, an emission report for the preceding calendar year containing the following information pursuant to Subsection 403.061(13), Florida Statutes:

- 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.



PERMITTEE:  
CF Industries, Inc.

Permit/Certification No.: AC29-200648  
Project: Modification of "A" and "B"  
Sulfuric Acid Plants

SPECIFIC CONDITIONS: (continued)

The report shall be submitted only to the Environmental Protection Commission of Hillsborough County.

27. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Environmental Protection Commission of Hillsborough County prior to 60 days before the expiration of the permit. [Rule 17-4.080, F.A.C.]

28. The permittee shall provide timely notification to the Environmental Protection Commission of Hillsborough County prior to implementing any changes that may result in a modification to this permit pursuant to Rule 17-2.100(136), F.A.C., Modification. The changes may include, but are not limited to, the following, and may also require prior authorization before implementation: [Rules 17-2.210 and 17-4.070(3), F.A.C.]

- A) Alteration or replacement of any equipment or major component of such equipment listed on page 1 of this permit.
- B) Installation or addition of any equipment which is a source of air pollution.

29. Issuance of this permit does not relieve CF Industries, Inc. from complying with applicable emission limiting standards or other requirements of Chapter 17-2, or any other requirements under federal, state, or local law. Future regulations may impact this source at some future date. CF Industries, Inc. shall comply with any applicable future regulations when they become effective. [Rule 17-2.210, F.A.C.]

30. This construction/modification permit might have been subject to the new source review (NSR) requirements of Rule 17-2.500, F.A.C. if any of the federally enforceable limits in this permit had been relaxed. If CF Industries, Inc. requests relaxation of any of the federally enforceable limits in this permit, then the Department will determine whether the NSR requirements of Rule 17-2.500, F.A.C. shall apply as though construction/modification had not yet commenced. [Rule 17-2.500(2)(g), F.A.C.]

31. If the permittee wishes to transfer this permit to another owner, an "Application for Transfer of Permit" (DER Form 17-1.201(1)) shall be submitted to the Environmental Protection Commission of Hillsborough County within 30 days after the sale or legal transfer of the permitted facility. [Rule 17-4.120, F.A.C.]

32. An application for an operation permit for each plant must be submitted to the Environmental Protection Commission of Hillsborough County at least 90 days prior to the expiration date of this construction permit or within 45 days after completion of compliance testing, whichever occurs first. To properly apply for an operation permit, the applicant shall submit four copies of the appropriate

PERMITTEE:  
CF Industries, Inc.

Permit/Certification No.: AC29-200648  
Project: Modification of "A" and "B"  
Sulfuric Acid Plants

SPECIFIC CONDITIONS: (continued)

application form, fee, certification that construction was completed noting ~~any~~ deviations from the conditions in the construction permit, and compliance test reports as required by this permit. Compliance test reports shall include pounds per ton data specified in Specific Condition No. 12 based on tons of  $H_2SO_4$  produced during compliance testing. [Rule 17-4.220, F.A.C.]

STATE OF FLORIDA DEPARTMENT  
OF ENVIRONMENTAL REGULATION



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Dr. Richard D. Garrity  
Director of District Management

MEMORANDUM OF UNDERSTANDING  
REGARDING BEST OPERATIONAL START-UP PRACTICES  
FOR SULFURIC ACID PLANTS

BEST OPERATIONAL START-UP PRACTICES  
FOR SULFURIC ACID PLANTS

1. Only one sulfuric acid plant at a facility should be started up and burning sulfur at a time. There are times when it will be acceptable for more than one sulfuric acid plant to be in the start-up mode at the same time, provided the following condition is met. It is not acceptable to initiate sulfur burning at one sulfuric acid plant when another plant at the same facility is emitting SO<sub>2</sub> at a rate in excess of the emission limits imposed by the permit or rule, as determined by the CEMS emission rates for the immediately preceding 20 minutes.

2. A plant start-up must be at the lowest practicable operating rate, not to exceed 70 percent of the designated operating rate, until the SO<sub>2</sub> monitor indicates compliance. Because production rate is difficult to measure during start-up, if a more appropriate indicator (such as blower pressure, furnace temperature, gas strength, blower speed, number of sulfur guns operating, etc.) can be documented, tested and validated, the Department will accept this in lieu of directly documenting the operating rate. Implementation requires the development of a suitable list of surrogate parameters to demonstrate and document the reduced operating rate on a plant-by-plant basis. Documentation that the plant is conducting start-up at the reduced rate is the responsibility of the owner or operator.

3. Sulfuric acid plants are authorized to emit excess emissions from start-up for a period of three consecutive hours provided best operational practices, in accordance with this agreement, to minimize emissions are followed. No plant shall be operated (with sulfur as fuel) out of compliance for more than three consecutive hours. Thereafter, the plant shall be shut down. The plant shall be shut down (cease burning sulfur) if, as indicated by the continuous emission monitoring system, the plant is not in compliance within three hours of start-up. Restart may occur as soon as practicable following any needed repairs or adjustments, provided the corrective action is taken and properly documented.

4. Cold Start-Up Procedures.

a. Converter.

(1) The inlet and outlet temperature at the first two masses of catalyst shall be sufficiently high to provide immediate ignition when SO<sub>2</sub> enters the masses. In no event shall the inlet temperature to the first mass be less than 800°F or the outlet temperature to the first two masses be less than 700°F.

*Steve Smallwood* 10-10-89

*Attorney*

Nov. 1, 1988

Steve Smallwood, P.E. Date  
Director, Division of Air  
Resources Management  
Department of Environmental  
Regulation  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

CF Industries, Inc. Date

- (a) Have access to and copy any records that must be kept under conditions of the permit;
- (b) Inspect the facility, equipment, practices, or operations regulated or required under this permit;
- (c) Sample or monitor 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 provide the Department with the following information:

- (a) A description of and cause of noncompliance; and
- (b) The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

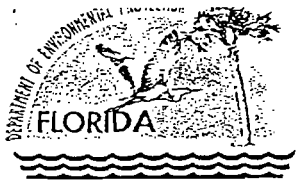
The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

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 involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.111 and 403.73, F.S. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

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 Rule 17-4.120 and 17-730.300, Florida Administrative Code, 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 or a copy thereof shall be kept at the work site of the permitted activity.



# Department of Environmental Protection

Lawton Chiles  
Governor

Southwest District  
3804 Coconut Palm Drive  
Tampa, Florida 33619

Virginia B. Wetherell  
Secretary

SEP 08 1994

**CERTIFIED MAIL**

Mr. J. E. Parsons, General Manager  
CF Industries, Inc.  
P.O. Drawer L  
Plant City, FL 33564-9007

Dear Mr. Parsons:

Re: Hillsborough County - AP  
AC29-200648 Permit Amendment  
Extension of Expiration Date

The Department is in receipt of the letter dated August 31, 1994 requesting an amendment to construction permit No. AC29-200648 which was issued for modifications to the A and B Sulfuric Acid Plants at your facility. The amendment requested was for a one year extension of the construction permit expiration date to allow time for you to resolve outstanding permitting issues. The Department has reviewed this request and has no objection. Therefore, the following amendment is hereby made to AC29-200648:

Page 1 of 7

Expiration Date:

Change from: 11/01/94

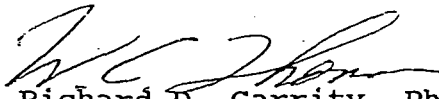
Change to : 11/01/95

A person whose substantial interests are affected by this permit amendment may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within 14 days of receipt of this permit. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under section 120.57 Florida Statutes.

filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date the Final Order is filed with the Clerk of the Department.

This amendment letter must be attached to and becomes a part of permit AC29-200648. If you have any questions please call Mr. David Zell of my staff at (813) 744-6100, extension 412.

Sincerely,

  
For Richard D. Garrity, Ph.D.  
Director of District Management  
Southwest District


DRZ/

copy to:  
Environmental Protection Commission of Hillsborough County

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF PERMIT AMENDMENT and all copies were mailed by certified mail before the close of business on SEP 08 1994 to the listed persons.

FILING AND ACKNOWLEDGEMENT FILED,  
on this date, pursuant to Section  
120.52(9), Florida Statutes, with  
the designated Department Clerk,  
receipt of which is hereby  
acknowledged.

  
Clerk SEP 08 1994  
Date





# Department of Environmental Protection

Lawton Chiles  
Governor

Southwest District  
3804 Coconut Palm Drive  
Tampa, Florida 33619

Virginia B. Wetherell  
Secretary

## NOTICE OF PERMIT ISSUANCE

### CERTIFIED MAIL

In the Matter of an Application  
for permit by:

DER File No.: AO29-236551  
County: Hillsborough

J. E. Parsons, General Manager  
C.F. Industries, Inc.  
P.O. Drawer L  
Plant City, Florida 33564-9007

---

Enclosed is Permit Number AO29-236551 to operate Sulfuric Acid Plant "A" at your facility located in Plant City, issued pursuant to Section 403, Florida Statutes. Please read this new permit thoroughly as there are changes from the previous permit.

A person whose substantial interests are affected by this permit may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within 14 days of receipt of this permit. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57 Florida Statutes.

The Petition shall contain the following information;

- (a) The name, address, and the telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;
- (b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
- (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
- (d) A statement of the material facts disputed by petitioner, if any;

*"Protect, Conserve and Manage Florida's Environment and Natural Resources"*

- (e) A statement of facts which petitioner contends warrants reversal or modification of the Department's action or proposed action;
- (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and
- (g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

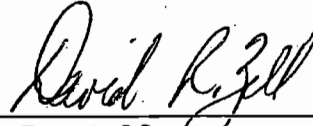
If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this permit. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of receipt of this notice, in the Office of General Counsel at the above address of the Department. Failure to petition within the allotted time frame constitutes a waiver of any rights such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

This permit is final and effective on the date filed with the Clerk of the Department unless a petition is filed in accordance with the above paragraphs or unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition and conforms to Rule 17-103.070, F.A.C. Upon timely filing of a petition or a request for an extension of time this permit will not be effective until further Order of the Department.

When the Order (Permit) is final, any party to the Order has the right to seek judicial review of the Order pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Street Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date the Final Order is filed with the Clerk of the Department.

Executed in Tampa, Florida

FLORIDA DEPARTMENT OF  
ENVIRONMENTAL PROTECTION



David R. Zell  
Air Permitting Engineer  
Phone (813) 744-6100 Ext. 118

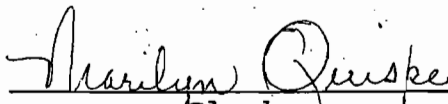
DRZ/  
Attachment

copy to:  
Environmental Protection Commission of Hillsborough County

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF PERMIT ISSUANCE and all copies were mailed by certified mail before the close of business on APR 13 1995 to the listed persons.

FILING AND ACKNOWLEDGEMENT FILED,  
on this date, pursuant to Section  
120.52(11), Florida Statutes, with  
the designated Department Clerk,  
receipt of which is hereby  
acknowledged.

  
Clerk

APR 13 1995  
Date



# Department of Environmental Protection

Lawton Chiles  
Governor

Southwest District  
3804 Coconut Palm Drive  
Tampa, Florida 33619

Virginia B. Wetherell  
Secretary

**PERMITTEE:**

CF Industries, Inc.  
P.O. Box Drawer L  
Plant City, FL 33566

**PERMIT/PROJECT:**

Permit No: A029-236551  
County: Hillsborough  
Expiration Date: 02/11/99  
Project: Sulfuric Acid Plant "A"

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 62-200 through 297, and Chapter 62-4. 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 Sulfuric Acid Plant "A" which has a maximum permitted production rate of 1300 tons per day of 100% sulfuric acid ( $H_2SO_4$ ). In the process, molten sulfur is combusted (oxidized) with dry air in the sulfur furnace. The resulting sulfur dioxide gas is catalytically converted (further oxidized) to sulfur trioxide in a 4-bed converter tower. Sulfur trioxide is then absorbed in an approximately 98%  $H_2SO_4$  stream to form a more concentrated acid in a single stage absorption tower (final stage of production). Heat generated by the chemical reactions in the sulfur furnace and the 4-bed converter tower is recovered to operate two boilers, an economizer and a proposed steam superheater. (The boilers, the economizer and the steam superheater are not sources of air pollution.)

Sulfur dioxide and sulfuric acid mist (acid mist) emissions are controlled by a two-stage Cominco scrubber and a Brink's demister and exhausted through a 110-foot stack.

**Location:** SR 39, 10 miles north of Plant City

**UTM:** 17-338.1 E 3116.0 N      **NEDS No:** 0005      **Point ID No:** 02

**Replaces Permit Nos.:** A029-167061 and AC29-200648

PERMITTEE:  
CF Industries, Inc.

PERMIT/PROJECT:  
Permit No. : AO29-236551  
Project: Sulfuric Acid Plant "A"

**Specific Conditions:**

1. A part of this permit is the attached 15 General Conditions.  
[Rule 62-4.160, F.A.C.]
2. Issuance of this permit does not relieve the permittee from complying with applicable emission limiting standards or other requirements of Chapters 62-200 through 62-297, or any other requirements under federal, state or local law.  
[Rule 62-210.300, F.A.C.]

Operation and Emission Limitations

3. This source is permitted to operate continuously (i.e. 8760 hours/year). [Construction permit AC29-200648]
4. The maximum production rate from SAP "A" shall not exceed 1,300 tons per day of 100% H<sub>2</sub>SO<sub>4</sub>.  
[Construction permit AC29-200648]
5. Visible emissions from SAP "A" shall not exceed 10% opacity.  
[Rules 62-296.402(1)(b)1., F.A.C.]
6. The maximum allowable emission rates for acid mist from SAP "A" shall not exceed any of the following limits: :
  - A. 1.43 pounds per hour (maximum in any hour);
  - B. 0.83 pounds per hour (based on a 12 consecutive month average);
  - C. 3.49 tons in any consecutive 12 month period.[Construction permit AC29-200648]
7. The maximum allowable emission rates for sulfur dioxide from SAP "A" shall not exceed any of the following limits: :
  - A. 10 pounds per ton of 100% H<sub>2</sub>SO<sub>4</sub> produced;
  - B. 303.3 pounds per hour (in any hour);
  - C. 238.3 pounds per hour (based on a 12 consecutive month average);
  - D. 1,003 tons in any consecutive 12 month period.

[Specific Condition No. 7A - Rule 62-296.402(1)(b)(2), F.A.C.]  
[Specific Condition Nos. 7B, 7C and 7D - construction permit AC29-200648]

PERMITTEE:

CF Industries, Inc.

PERMIT/PROJECT:

Permit No. : A029-236551

Project: Sulfuric Acid Plant "A"

**Specific Conditions:**

8. The maximum allowable emission rates for nitrogen oxides from SAP "A" shall not exceed either of the following limits:

A. 11.7 pounds per hour;

B. 51.2 tons in any 12 consecutive month period.

[Construction permit AC29-200648]

9. The permittee shall not cause, suffer, allow or permit the discharge of air pollutants from this source which cause or contribute to an objectionable odor.

[Rule 62-296.320(2), F.A.C.]

10. At all times that SAP "A" is in operation, the two-stage scrubber shall be in service and operating properly. The pH of the scrubber liquor in the upper stage shall not fall below a pH of 4.5.

[Rules 62-210.650 and 62-4.070(3), F.A.C., and construction permit AC29-200648]

11. The permittee shall comply with the attached "Best Operation Start-up Practices for Sulfuric Acid Plants" memorandum signed on November 1, 1989. [Construction permit AC29-200648]

12. This permit acknowledges that leaks of sulfur dioxide and sulfur trioxide or other fugitive process emissions that do not pass through a stack may occur as part of routine operations. Best operation practices to minimize these emissions shall be adhered to and shall include regular inspections and the prompt repair or correction of any leaks or other fugitive emissions.

[Construction permit AC29-200648]

Compliance Testing Requirements

13. The permittee shall test the emissions from SAP "A" for the following pollutants annually on, or during the 60 day period prior to, the date of March 15 of each year:

(X) Sulfur Dioxide (SO<sub>2</sub>)

(X) Sulfuric Acid Mist (Acid Mist)

(X) Visible emissions (VE)

Copies of the test data shall be submitted to the Air Compliance Sections of the Southwest District Office of the Department and the Environmental Protection Commission of Hillsborough County within forty-five (45) days of such testing. Testing procedures shall be consistent with the requirements of Rule 62-297.340, F.A.C.

[Rules 62-297.340 and 62-297.570, F.A.C.]

PERMITTEE:

CF Industries, Inc.

PERMIT/PROJECT:

Permit No. : A029-236551

Project: Sulfuric Acid Plant "A"

**Specific Conditions:**

14. The permittee shall test the emissions from SAP "A" for nitrogen oxides during calendar year 1998 (corresponds to a test frequency of once every five years prior to renewal. Copies of the test data shall be submitted to the Air Compliance Sections of the Southwest District Office of the Department and the Environmental Protection Commission of Hillsborough County office within forty-five (45) days of such testing. Testing procedures shall be consistent with the requirements of Rule 62-297.340, F.A.C. [Rules 62-297.340(1)(c) and 62-297.570, F.A.C.]

15. Testing of emissions must be accomplished at 90 to 100% of the maximum permitted production rate of 1,300 tons per day of 100% H<sub>2</sub>SO<sub>4</sub> produced. Compliance tests submitted for rates less than 90% of maximum permitted rate will automatically amend the permit to reflect the tested rate plus 10% as the currently permitted production rate. To increase the currently permitted production rate another compliance test at a higher rate shall be performed within 30 days of commencement of the higher rate and the results submitted to the Department within 45 days of the test. Acceptance of the test by the Department will automatically amend the permit to the new rate plus 10%. In no case shall the production rate exceed the maximum permitted process input rate of 1,300 tons/hour expressed as 100% H<sub>2</sub>SO<sub>4</sub>. The actual production rate (in tons per day of 100% H<sub>2</sub>SO<sub>4</sub>) during the test shall be included in each test report. Failure to include the actual process or production rate in the results may invalidate the test. In addition, the test results shall include the scrubber operating parameters outlined in Specific Condition No. 18. [Rule 62-4.070(3), F.A.C.]

16. Compliance with the applicable emission limitations of Specific Condition Nos. 5, 6, 7 and 8 shall be determined using EPA Methods 1, 2, 4, 7 or 7E, 8 and 9 contained in 40 CFR 60, Appendix A and adopted by reference in Rule 62-297, F.A.C. The minimum requirements for stack sampling facilities, source sampling and reporting, shall be in accordance with Rule 62-297, F.A.C. and 40 CFR 60, Appendix A. [Rules 62-296.402(3) and 62-297, F.A.C.]

17. The visible emissions test shall be conducted by a certified observer and be a minimum of sixty (60) minutes in duration. The test observation period shall include the period during which the highest opacity can reasonably be expected to occur. [Rule 62-297.330(1)(b), F.A.C.]

PERMITTEE:

CF Industries, Inc.

PERMIT/PROJECT:

Permit No. : A029-236551

Project: Sulfuric Acid Plant "A"

Specific Conditions:

18. The permittee shall monitor the following scrubber operating parameters during each test run in any compliance test and include the information with all test reports.

- A. volumetric flow of water in the upper stage of the scrubber (gallons/minute);
- B. ammonia feed rate to the scrubber (gallons/minute);
- C. pH of the scrubber liquor in the upper stage of the scrubber;
- D. gas pressure drop across the entire scrubber (inches H<sub>2</sub>O);

[Rules 62-297.450 and 62-4.070(3), F.A.C., and construction permit AC29-200648]

19. The permittee shall notify the Air Compliance Sections of the Southwest District Office of the Department and the Environmental Protection Commission of Hillsborough County at least 15 days prior to the date on which each formal compliance test is to begin of the date, time, and place of each such test, and the contact person who will be responsible for coordinating and having such test conducted.

[Rules 62-297.340(1)(i) and 62-209.500(5), F.A.C.]

Monitoring and Recordkeeping Requirements

20. A continuous emission monitoring system (CEMS) to determine sulfur dioxide emissions from this source shall be operated, calibrated, and maintained in accordance with Rule 62-296.402(4), F.A.C.

[Rule 62-296.402(4), F.A.C., and permit AC29-200648]

21. The permittee shall operate and maintain equipment and/or instruments necessary to determine the production rate of H<sub>2</sub>SO<sub>4</sub> as required in Specific Condition No. 22. This equipment, along with any associated instrumentation, as well as the equipment and/or instruments necessary to measure other required process variables as stated in Specific Condition Nos. 18 and 23, shall be calibrated and adjusted to indicate the true value of the parameter being measured. The frequency of calibration and adjustment shall be in accordance with the equipment and/or instrument manufacturers recommendations.

[Rule 62-297.350, F.A.C.]



PERMITTEE:

CF Industries, Inc.

PERMIT/PROJECT:

Permit No. : AO29-236551

Project: Sulfuric Acid Plant "A"

**Specific Conditions:**

22. In order to document compliance with the daily production rate limitations of Specific Condition No. 4, the permittee shall maintain daily records of SAP "A" H<sub>2</sub>SO<sub>4</sub> production. These records shall be based upon data obtained from acid flow meters measuring acid flow rates to storage as well as transfers between plants (or other available means prior to July 1, 1994). Flow meter information and documentation as to how daily production rates were calculated shall be included as part of the records. These records shall be maintained in a permanent form suitable for inspection and retained for at least two years.

[Rule 62-4.070(3), F.A.C. and CF Industries, Inc. letter of November 16, 1993 submitted as a supplement to the permit application]

23. In order to document ongoing compliance with the emission limitations of Specific Condition Nos. 6 and 7, the permittee shall maintain monthly records of SAP "A" sulfur dioxide (SO<sub>2</sub>) emissions. The records shall include the following for each day of the month:

- A. daily acid production (in tons as 100% H<sub>2</sub>SO<sub>4</sub>);
- B. hours operated;
- C. daily average pounds/hour SO<sub>2</sub> emission rate;
- D. maximum pounds/hour SO<sub>2</sub> emission rate (for any hour);
- E. maximum pounds/hour SO<sub>2</sub> emission rate for the month;
- F. a calculation of the monthly average SO<sub>2</sub> emission rate in pounds/ton of 100% H<sub>2</sub>SO<sub>4</sub> produced;
- G. a calculation of the average pounds/hour SO<sub>2</sub> emission rate for the last 12 consecutive month period;
- H. a calculation of the SO<sub>2</sub> emissions in tons/last 12 consecutive month period.

The monthly records shall also show the sulfur dioxide emission limits from Specific Condition No. 7. These records shall be recorded in a permanent form suitable for inspection by the Department upon request, and shall be retained for at least a two year period.

[Rule 62-4.070(3), F.A.C., construction permit AC29-200648, and Appendix 1 to CF Industries, Inc. letter of November 16, 1993 submitted as a supplement to the operation permit application]

PERMITTEE:

CF Industries, Inc.

PERMIT/PROJECT:

Permit No. : AO29-236551

Project: Sulfuric Acid Plant "A"

**Specific Conditions:**

24. The permittee shall create and keep a scrubber operations record log for the upper stage of the scrubber, documenting the scrubber operating parameters itemized in Specific Conditions No. 18. A record log entry shall be made at least once for every 12 hour shift that the plant operates. In addition to the scrubber operating parameters, the record log shall contain the date and time of the measurements, and the person responsible for performing the measurements. The record log shall be maintained and made available upon request at the facility, and shall be retained at least two years from the date of measurement.

[Rule 62-4.070(3), F.A.C. and construction permit AC29-200648]

Reporting Requirements

25. The permittee shall submit to the Air Section of the Environmental Protection Commission of Hillsborough County each calendar year on or before March 1, completed DER Form 62-210.900(5), "Annual Operating Report for Air Pollutant Emitting Facility," for the preceding calendar year.

[Rule 62-210.370(3), F.A.C.]

26. A report shall be submitted to the Air Compliance Section of the Environmental Protection Commission of Hillsborough County within 30 days following each calendar quarter detailing all periods of excess sulfur dioxide emissions recorded by the CEMS during that three month period. The report shall include the magnitudes of the excess emissions, the duration of each excess emission period, the cause of the abnormal event, and the action taken to correct it. The excess emission report shall also include a statement of all periods during the quarter when the sulfur dioxide monitoring system was inoperative. [Rule 62-296.402(5), F.A.C.]

27. The permittee shall promptly notify the Commission's Air Management Division of any abnormal event associated with the operation of the source which results in elevated emissions. Notification shall include the following:

- A. Facility and Source Name;
- B. Cause;
- C. Time and duration of the abnormal event;
- D. CEM readings or magnitude of the emissions;
- E. Steps taken to reduce emissions if the abnormal event is still occurring;

(continued)

PERMITTEE:  
CF Industries, Inc.

PERMIT/PROJECT:  
Permit No. : A029-236551  
Project: Sulfuric Acid Plant "A"

**Specific Conditions:**

27. (continued)

F. Identification of person reporting the abnormal event.

A reportable abnormal event does not necessarily constitute a permit violation.

- For purposes for this condition, prompt notification shall mean "within thirty (30) minutes following detection of the reportable event by the permittee as long as reasonable care is taken in monitoring the source."
- \*\* For purposes of this condition, abnormal events shall, in part, include:

For all startups (hot and cold): the time when the unit will begin to burn sulfur.

[Chapter 1-1.05, Rules of the Environmental Protection Commission of Hillsborough County and construction permit AC29-200648]

Permitting Requirements

28. Construction/modification permit AC29-200648 might have been subject to the new source review (NSR) requirements of Rule 62-212.400, F.A.C. if any of the federally enforceable limits in this permit had been relaxed. If CF Industries, Inc. requests relaxation of any of the federally enforceable limits in this permit, then the Department will determine whether the NSR requirements of Rule 62-212.400, F.A.C. shall apply as though construction/modification had not yet commenced.

[Rule 62-212.400(2)(g), F.A.C., and construction permit AC29-200648]

29. The permittee shall provide timely notification to the Air Programs of the Southwest District Office of the Department and the Environmental Protection Commission of Hillsborough County prior to implementing any changes that may result in a modification to this permit pursuant to Rule 62-210.200(39), F.A.C., "Modification". The changes may include, but are not limited to, the following, and may also require prior authorization before implementation: :

- A. Alteration or replacement of any equipment or major component of such equipment listed on page 1 of this permit that would result in a change in emissions;
- B. Installation or addition of any equipment which is a source of air pollution

[Rules 62-210.300 and 62-4.070(3), F.A.C.]

**PERMITTEE:**

CF Industries, Inc.

**Specific Conditions:**

**PERMIT/PROJECT:**

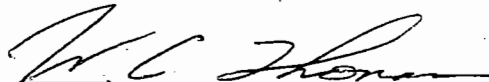
Permit No. : AO29-236551

Project: Sulfuric Acid Plant "A"

30. Three applications to renew this operating permit shall be submitted to the Air Program of the Southwest District Office of the Department, with a copy to the Environmental Protection Commission of Hillsborough County, no later than December 13, 1998 (60 days prior to the expiration date of this permit). Submittal of a Title V operation permit application prior to the above date shall negate this requirement.

[Rule 62-4.090(1), F.A.C.]

FLORIDA DEPARTMENT OF  
ENVIRONMENTAL PROTECTION

  
For Richard D. Garrity, Ph.D.  
Director of District Management  
Southwest District

MEMORANDUM OF UNDERSTANDING  
REGARDING BEST OPERATIONAL START-UP PRACTICES  
FOR SULFURIC ACID PLANTS

The parties jointly agree: for the purposes of Rule 17-2.250, the foregoing practices constitute "best operational practices" for the start-up of sulfuric acid plants.

The Department will not seek to incorporate these practices into permits for existing facilities during the first 18 months after implementation. After the expiration of this 18-month period, which is a typical catalyst cycle, the Department may seek to modify the permits, in accordance with Rule 17-4.080 and other applicable laws, to incorporate appropriate site-specific start-up procedures as enforceable permit conditions.

These Sulfuric Acid Plant Best Operation Start-Up Practices will be made available in the control room at all times.

Since these specific procedures are undergoing evaluation, the Department will not consider these practices to be the only means of demonstrating best operating procedures. If a company chooses to use another method, it will be its responsibility to demonstrate that it constitutes best operational practices in accordance with 17-2.250, F.A.C.

BEST OPERATIONAL START-UP PRACTICES  
FOR SULFURIC ACID PLANTS

1. Only one sulfuric acid plant at a facility should be started up and burning sulfur at a time. There are times when it will be acceptable for more than one sulfuric acid plant to be in the start-up mode at the same time, provided the following condition is met. It is not acceptable to initiate sulfur burning at one sulfuric acid plant when another plant at the same facility is emitting SO<sub>2</sub> at a rate in excess of the emission limits imposed by the permit or rule, as determined by the CEMS emission rates for the immediately preceding 20 minutes.

2. A plant start-up must be at the lowest practicable operating rate, not to exceed 70 percent of the designated operating rate, until the SO<sub>2</sub> monitor indicates compliance. Because production rate is difficult to measure during start-up, if a more appropriate indicator (such as blower pressure, furnace temperature, gas strength, blower speed, number of sulfur guns operating, etc.) can be documented, tested and validated, the Department will accept this in lieu of directly documenting the operating rate. Implementation requires the development of a suitable list of surrogate parameters to demonstrate and document the reduced operating rate on a plant-by-plant basis. Documentation that the plant is conducting start-up at the reduced rate is the responsibility of the owner or operator.

3. Sulfuric acid plants are authorized to emit excess emissions from start-up for a period of three consecutive hours provided best operational practices, in accordance with this agreement, to minimize emissions are followed. No plant shall be operated (with sulfur as fuel) out of compliance for more than three consecutive hours. Thereafter, the plant shall be shut down. The plant shall be shut down (cease burning sulfur) if, as indicated by the continuous emission monitoring system, the plant is not in compliance within three hours of start-up. Restart may occur as soon as practicable following any needed repairs or adjustments, provided the corrective action is taken and properly documented.

4. Cold Start-Up Procedures.

a. Converter.

(1) The inlet and outlet temperature at the first two masses of catalyst shall be sufficiently high to provide immediate ignition when SO<sub>2</sub> enters the masses. In no event shall the inlet temperature to the first mass be less than 800°F or the outlet temperature to the first two masses be less than 700°F.

These temperatures are the desired temperatures at the time the use of auxiliary fuel is terminated.

(2) The gas stream entering the converter shall contain  $\text{SO}_2$  at a level less than normal, and sufficiently low to promote catalytic conversion to  $\text{SO}_3$ .

b. Absorbing Towers.

The concentration, temperature and flow of circulating acid shall be as near to normal conditions as reasonably can be achieved. In no event shall the concentration be less than 96 percent  $\text{H}_2\text{SO}_4$ .

5. Warm Restart.

a. Converter.

The inlet and outlet temperatures of the first two catalyst masses should be sufficiently high to ensure conversion. One of the following three conditions must be met:

(1) The first two catalyst masses inlet and outlet temperatures must be at a minimum of  $700^\circ\text{F}$ ; or

(2) Two of the four inlet and outlet temperatures must be greater than or equal to  $800^\circ\text{F}$ ; or

(3) The inlet temperature of the first catalyst must be greater than or equal to  $600^\circ\text{F}$  and the outlet temperature greater than or equal to  $800^\circ\text{F}$ . Also, the inlet and outlet temperatures of the second catalyst must be greater than or equal to  $700^\circ\text{F}$ .

Failure to meet one of the above conditions, requires use of cold start-up procedures.

To allow for technological improvements or individual plant conditions, alternative conditions will be considered by the Department in appropriate cases.

b. Absorbing Towers.

The concentration, temperature and flow of circulating acid shall be as near to normal conditions as reasonably can be achieved. In no event shall the concentration be less than 96 percent  $\text{H}_2\text{SO}_4$ .



Steve Smallwood 10-10-89

Attolines

Nov. 1, 1985

Steve Smallwood, P/E. Date  
Director, Division of Air  
Resources Management  
Department of Environmental  
Regulation  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

CF Industries, Inc.

Date

**ATTACHMENT - GENERAL CONDITIONS:**

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.141, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
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 403.722(5), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not 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, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
6. The permittee shall 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 may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

**GENERAL CONDITIONS:**

- a. Have access to and copy any records that must be kept under the conditions of the permit;
- b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and
- c. Sample or monitor 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 provide the Department with the following information:

- a. a description of and cause of non-compliance; and
- b. the period of noncompliance, including 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 for revocation of this permit.

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 involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, F.S. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

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 17-4.120 and 17-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

**GENERAL CONDITIONS:**

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

- ( ) Determination of Best Available Control Technology (BACT)
- ( ) Determination of Prevention of Significant Deterioration (PSD)
- ( ) Compliance with New Source Performance Standards (NSPS)

14. The permittee shall comply with the following:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

b. The permittee shall hold 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) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained 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 dates 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 corrected promptly.

**APPENDIX B-6**

**“B” PHOSPHORIC ACID PLANT  
WITH DOUBLE FILTRATION**

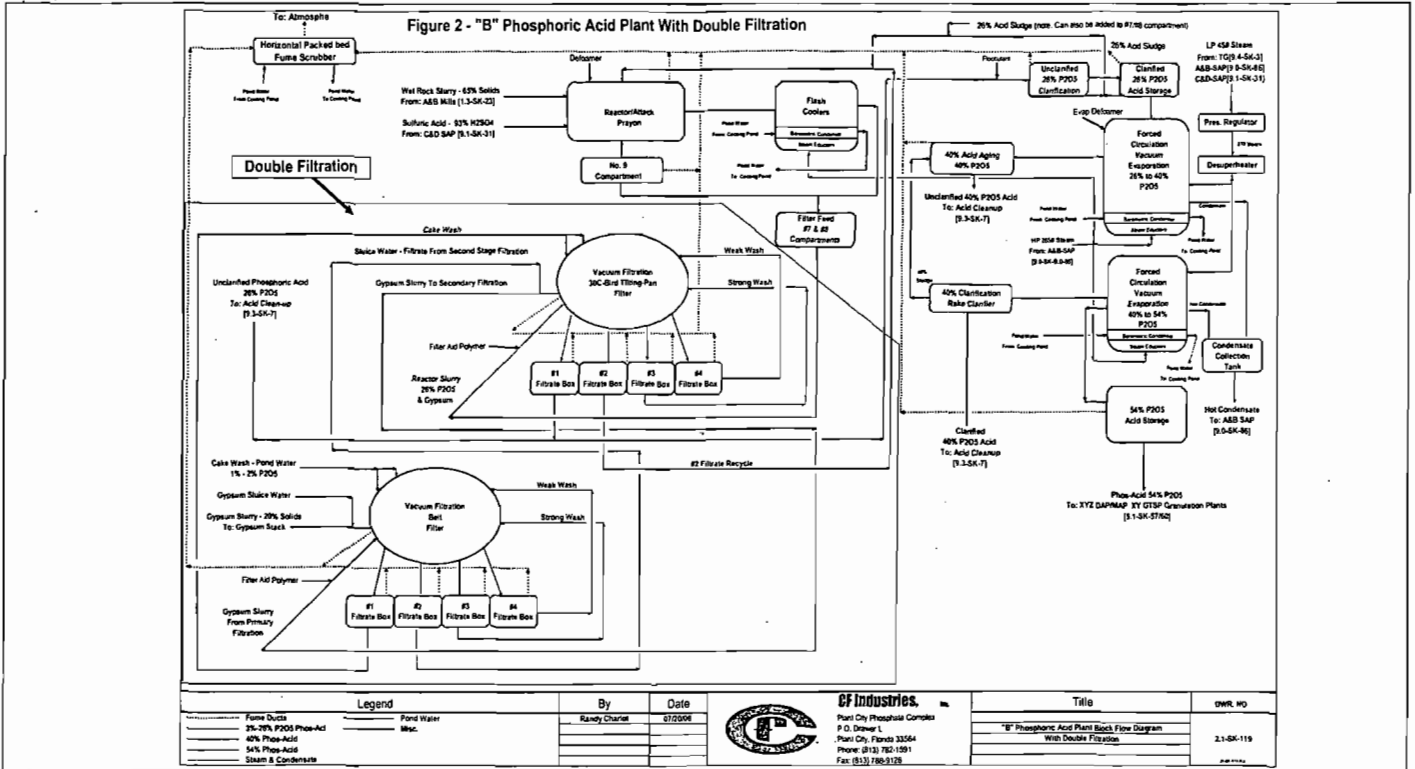


Figure B-6  
 "B" Phosphoric Acid Plant with Double Filtration  
 0437632/1/RA1062906/figure B-6

Source: Golder, 2006.



**APPENDIX C-6**

**REVISED PAGE C-1 OF THE PSD REPORT  
FOR PERMIT APPLICATION DATED APRIL 2006**

## CALPUFF MODEL DESCRIPTION AND METHODOLOGY

### C.1 INTRODUCTION

As part of the new source review requirements under Prevention of Significant Deterioration (PSD) regulations, new sources are required to address air quality impacts at PSD Class I areas. As part of the PSD analysis report submitted to the Florida Department of Environmental Protection (DEP), the air quality impacts due to the potential emissions of the proposed CF Industries, Plant City Facility, modification are required to be addressed at the PSD Class I area of the Chassahowitzka National Wildlife Area (NWA). The Chassahowitzka NWA is located approximately 70 km northwest of the facility site and is the only PSD Class I area located within 200 km of the project site.

The evaluation of air quality impacts are not only concerned with determining compliance with PSD Class I increments but also assessing a source's impact on Air Quality Related Values (AQRVs), such as regional haze. Further, compliance with PSD Class I increments can be evaluated by determining if the source's impacts are less than the proposed U.S. Environmental Protection Agency (EPA) Class I significant impact levels. The significant impact levels are threshold levels that are used to determine the type of air impact analyses needed for the facility. If the new source's impacts are predicted to be less than significant, then the source's impacts are assumed not to have a significant adverse affect on air quality and additional modeling with other sources is not required. However, if the source's impacts are predicted to be greater than the significant impact levels, additional modeling with other sources is required to demonstrate compliance with Class I increments.

Currently there are several air quality modeling approaches recommended by the Interagency Workgroup on Air Quality Models (IWAQM) to perform these analyses. The IWAQM consists of EPA and Federal Land Managers (FLM) of Class I areas who are responsible for ensuring that AQRVs are not adversely impacted by new and existing sources. These recommendations have been summarized in two documents:

- *Interagency Workgroup on Air Quality Models (IWAQM), Phase 2 Summary Report and Recommendations for Modeling Long Range Transport Impacts* (EPA, 1998), referred to as the IWAQM Phase 2 report.
- *Federal Land Managers' Air Quality Related Values Workgroup (FLAG), Phase I Report*, USFS, NPS, USFWS (12/00), referred to as the FLAG document.



**APPENDIX C-9**

**REVISED TABLE 6-3 OF THE PSD REPORT FOR  
PERMIT APPLICATION DATED APRIL 2006**

**TABLE 6-3**  
**SUMMARY OF PM<sub>10</sub>, F, AND NO<sub>x</sub> CURRENT ACTUAL AND FUTURE POTENTIAL EMISSION RATES**  
**FOR THE PROPOSED PROJECT -- CF INDUSTRIES, PLANT CITY**

Source	EU ID	Model ID	PM <sub>10</sub> Emissions				Fluoride Emissions				NO <sub>x</sub> Emissions		
			Hourly <sup>b</sup>		Annual <sup>c</sup>		Hourly <sup>b</sup>		Annual <sup>c</sup>		Annual <sup>c</sup>		
			lb/hr	g/s	TPY	g/s	lb/hr	g/s	TPY	g/s	TPY	g/s	
<b>Current Actual Emissions</b>													
"A" SAP	002	SAPA	--	--	--	--	--	--	--	--	--	7.70	0.221
"A" PAP	004	PAPA	--	--	--	--	0.83	0.105	2.43	0.070	--	--	--
"B" PAP	009	PAPB	--	--	--	--	0.80	0.101	2.09	0.060	--	--	--
"Z" DAP/MAP Plant	011	ZDMP	6.75	0.851	15.19	0.437	1.30	0.164	3.25	0.093	0.39	0.011	0.011
"X" DAP/MAP Plant	012	XDMGP	3.63	0.457	11.08	0.319	0.79	0.100	2.07	0.059	0.11	0.003	0.003
"Y" DAP/MAP Plant	013	YDMGP	8.06	1.016	16.59	0.477	1.05	0.132	2.29	0.066	0.34	0.010	0.010
"A" and "B" Storage Building Scrubber	014	ABSTO	2.79	0.352	0.09	0.002	--	--	--	--	--	--	--
"A" Shipping Baghouse	015	ASBAG	0.43	0.054	0.89	0.026	--	--	--	--	--	--	--
"B" Shipping Baghouse	018	BSBAG	0.43	0.054	1.81	0.052	--	--	--	--	--	--	--
"B" Truck/Railcar Loading <sup>a,d</sup>	019, 020	BLOAD	0.49	0.062	1.55	0.045	--	--	--	--	--	--	--
"A" Railcar/Truck Loading <sup>a</sup>	--	ALOAD	0.64	0.081	2.02	0.058	--	--	--	--	--	--	--
<b>Future Potential Emissions</b>													
"A" SAP	002	SAPA	--	--	--	--	--	--	--	--	--	35.0	1.008
"A" PAP	004	PAPA	--	--	--	--	0.85	0.107	3.72	0.107	--	--	--
"B" PAP	009	PAPB	--	--	--	--	1.26	0.159	5.54	0.159	--	--	--
"Z" DAP/MAP Plant	011	ZDMP	22.6	2.848	99.0	2.848	1.44	0.181	6.310	0.1815	26.7	0.770	0.770
"X" DAP/MAP Plant	012	XDMGP	13.75	1.733	41.9	1.205	2.2	0.277	6.700	0.1927	28.0	0.805	0.805
"Y" DAP/MAP Plant	013	YDMGP	15.3	1.928	67.0	1.927	2.20	0.277	9.6	0.276	31.0	0.891	0.891
"A" and "B" Storage Building <sup>a</sup>	014	ABSTO	0.52	0.066	4.8	0.138	--	--	--	--	--	--	--
"A" Shipping Baghouse	015	ASBAG	5.00	0.630	21.9	0.630	--	--	--	--	--	--	--
"B" Shipping Baghouse	018	BSBAG	5.00	0.630	21.9	0.630	--	--	--	--	--	--	--
"B" Truck/Railcar Loading <sup>a</sup>	019, 020	BLOAD	0.62	0.078	5.7	0.164	--	--	--	--	--	--	--
"A" Railcar/Truck Loading <sup>a</sup>	--	ALOAD	0.31	0.039	2.9	0.083	--	--	--	--	--	--	--
Truck Traffic <sup>e</sup>	--	--	0.19	0.024	0.83	0.024	--	--	--	--	--	--	--

<sup>a</sup> Fugitive emissions, modeled as volume source.

<sup>b</sup> Hourly emissions from Table 2-3.

<sup>c</sup> Annual emissions from Table 2-2.

<sup>d</sup> PM<sub>10</sub> emissions from "B" Shipping Truck Loading (EU 019) and "B" Shipping Railcar Loading (EU 020) were modeled together.

<sup>e</sup> Fugitive emissions from change in truck traffic due to the proposed project.

**APPENDIX C-10**

**DIGITAL ELEVATION MAP FILES**

**APPENDIX C-12**

**FIGURE**

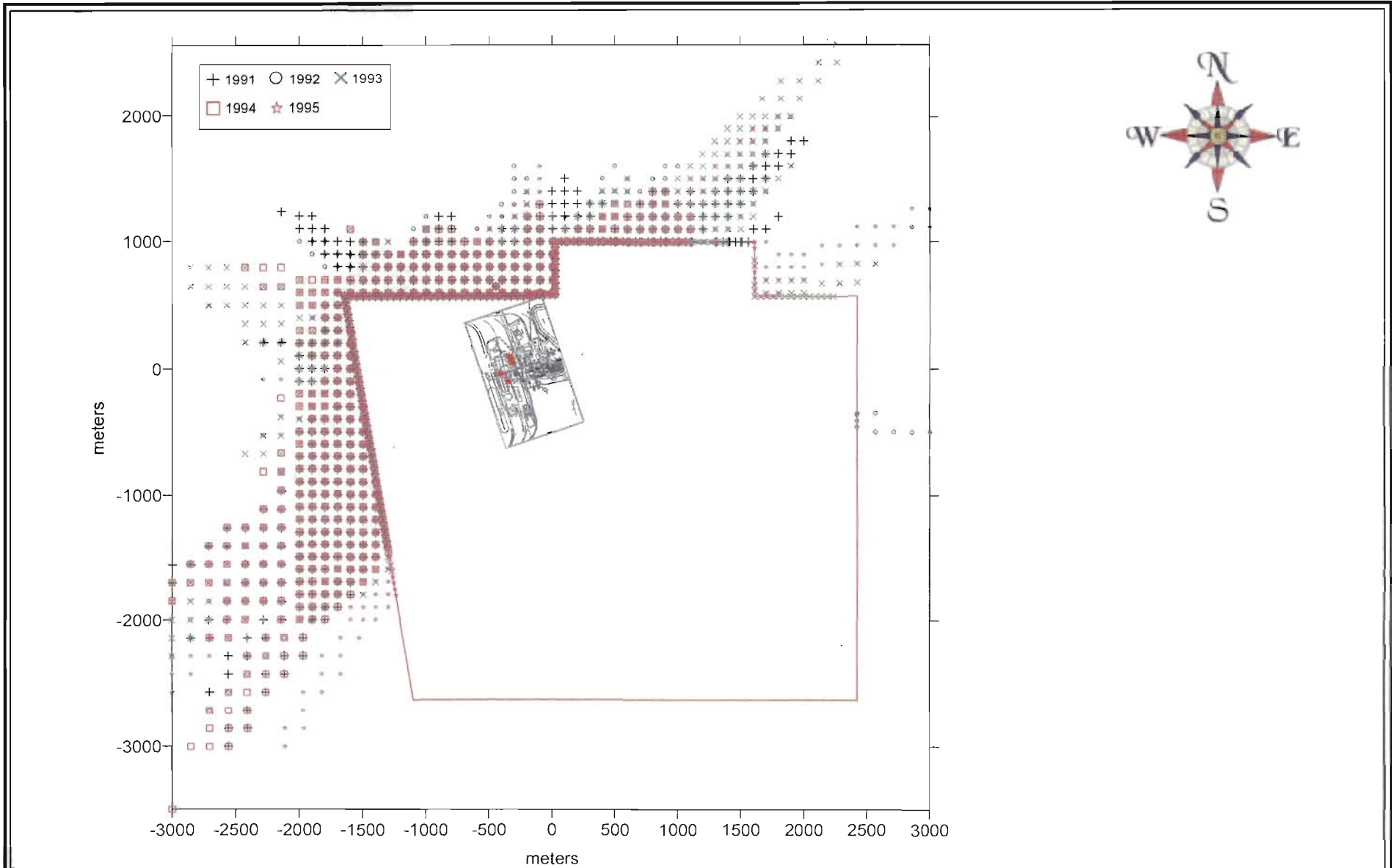


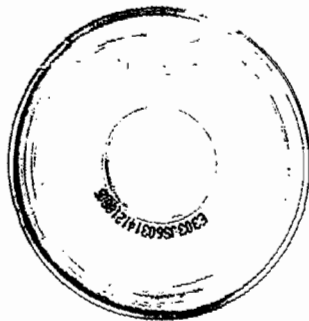
Figure C-12  
 Significant Impact Receptor Locations, 24-Hour Average PM10 Impacts, CFI Plant City

Source: Golder, 2006.



**CF INDUSTRIES**  
**APPENDIX C-10**  
**TO RAI LETTER 07/27/06**  
**DIGITAL ELEVATION MAP FILES**

FDEP FILE  
NO. 0570005-021-AC  
PSD-FL 355



0437632-0300



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