



**FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION**
BOB MARTINEZ CENTER
2600 BLAIRSTONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

RICK SCOTT
GOVERNOR

CARLOS LOPEZ-CANTERA
LT. GOVERNOR

HERSCHEL T. VINYARD JR.
SECRETARY

July 23, 2014

Electronically Sent – Received Receipt Requested

David. B. Jellerson, Senior Director, Environmental
Mosaic Fertilizer, LLC
13830 Circa Crossing Drive
Lithia, Florida 33547

Re: Project No. 0570005-062-AC
Mosaic Plant City Phosphate Complex
Sulfuric Acid Plant “D” (SAP “D”)
Short-Term Production Increase Testing
Letter of Authorization
Expires: November 30, 2014

Dear Mr. Jellerson:

The Department acknowledges receipt of your letter request (dated July 16, 2014) to undertake certain testing as described in the attached testing protocol involving SAP “D” (EU 008) at the Plant City Phosphate Complex located in Plant City, Florida. Mosaic requests permission to conduct functional tests at production rates above the current SAP “D” permit limit of 2,600 tons/ day of 100% sulfuric acid. The planned testing would involve use of Haldor Topsoe’s Portable Gas Analysis Unit (“TOPGUN”) to evaluate plant performance at various production rates and gas strengths. The duration of testing would be approximately one week. Although the SAP “D” production limit may be exceeded during these functional tests, the plant will remain in compliance with all permits limits and emissions standards including the sulfur dioxide (SO₂) emissions standards for SAP “D” based on data collected from the continuous emission monitoring system (CEMS).

The Department approves your request contingent on the following conditions:

1. The approval is temporary and only for the period specified below.
2. The functional tests shall only be conducted on SAP “D”.
3. The duration of the functional testing shall not exceed ten calendar days unless additional time is authorized by the Department.
4. The Southwest District Office and Environmental Protection Commission of Hillsborough County shall be notified of the starting date and time of the test.
5. For the duration of the functional tests, the 100% sulfuric acid production limit for SAP “D” may temporarily exceed the maximum permitted rate of 2600 tons/day; however, the combined 100% sulfuric acid production rates (A, B, C and D) shall not exceed the combined production limits from of all four sulfuric acid plants (8,100 tons/day, total) at any time during the functional tests.
6. The facility shall remain in compliance with all other terms and conditions of Permit No. 0570005-057-AV including the SO₂ emissions standards for SAP “D” based on CEMS data.
7. Within 30 days of completing the functional tests on SAP “D”, the facility shall submit a report summarizing the following information:
 - a. Provide the “informational table” prepared for the plant operators to conduct the functional testing that includes, but is not limited to: 100% sulfuric acid production rate, air flow, SO₂ gas strength, furnace temperature, expected optimum inlet and outlet bed temperatures and predicted SO₂ emissions.

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- b. Provide the corresponding actual measured data collected during a baseline period and the functional testing that includes, but is not limited to: 100% sulfuric acid production rate, air flow, SO₂ gas strength, furnace temperature, expected optimum inlet and outlet bed temperatures and SO₂ emissions.
- c. The 100% sulfuric acid production rates from each sulfuric acid plant for each 24-hour block average.
- d. The following hourly data: hourly 100% sulfuric acid production rate from SAP "D"; SO₂ emissions rates from SAP "D" (lb/ton of 100% sulfuric acid and lb/hour) for each hour, for each 3-hour rolling average, and for each 24-hour block average.

The Department will consider this action final unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57, of the Florida Statutes (F.S.). Mediation under Section 120.573, F.S., will not be available for this proposed action.

A person whose substantial interests are affected by the proposed decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Department's Office of General Counsel, MS #35, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000. Petitions filed by the applicant or any of the parties listed below must be filed within 14 days of receipt of this notice. Petitions filed by any other person must be filed within 14 days of receipt of this proposed action. A petitioner must mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C. A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner; the name, address and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when each petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, as well as the rules and statutes which entitle the petitioner to relief; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and, (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the permitting authority's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the permitting authority on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

Any party to this order has the right to seek judicial review of it under Section 120.68, F.S., by the filing of a Notice of Appeal, under Rule 9.110 of the Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000; and, by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate

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District Court of Appeal. The Notice of Appeal must be filed within thirty days from the date this notice is filed with the Clerk of the permitting authority.

Executed in Tallahassee, Florida

for Jeffery F. Koerner, Program Administrator
Office of Permitting and Compliance
Division of Air Resource Management

JFK/dlr

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Letter of Authorization was sent by electronic mail, or a link to these documents made available electronically on a publicly accessible server, with received receipt requested before the close of business on the date indicated below to the following persons.

David. B. Jellerson, Mosaic: david.jellerson@mosaicco.com
Kelly M. Boatwright, DEP SWD: kelly.m.moatwright@dep.state.fl.us
Robert W. Caplan, U.S. EPA Region 4: kaplan.robert@epa.gov
Beverly Spagg, U.S. EPA Region 4: spagg.beverly@epa.gov
Jerry Campbell, Hillsborough County EPC: campbell@epchc.org
Ms. Heather Ceron, US EPA Region 4: ceron.heather@epa.gov
Ms. Lynn Searce, DEP OPC: (lynn.searce@dep.state.fl.us)

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to Section 120.52(7), Florida Statutes, with the designated agency clerk, receipt of which is hereby acknowledged.

Mosaic – Plant City

TOPGUN testing at various production rates

D Plant

The objective of the proposed TOPGUN testing is to evaluate plant capabilities, and particularly to determine optimized sulfur dioxide (SO₂) emissions rates at the plant's current and future anticipated production levels. To achieve this objective, the proposed testing includes first performing a TOPGUN test at the current production rate to establish baseline performance, to determine the apparent activity of the catalysts and to identify any temperature indication discrepancies. The expected emissions can then be modeled at incremental gas strengths to determine how emissions can be minimized across the range of anticipated production rates. From this modeling, the theoretical optimum converter bed temperatures can be determined to aid the plant operators during actual functional testing. The functional testing would be performed by maintaining the airflow at a fixed rate and then increasing the gas strength in approximately 0.1% SO₂ increments. During this time, the TOPGUN analyzer would be used to confirm the feed gas strength and emissions and also to optimize the catalyst performance if there are any discrepancies. The following is a brief outline of the steps to be taken.

A. Pre-production testing

1. Perform TOPGUN test on the D plant at current production rates (approximately 2,600 tons per day).
2. Model the plant performance in Haldor Topsoe's proprietary GIPS program to determine the apparent activity of the catalyst in each converter bed.
3. Compare actual plant temperature indications versus theoretical optimum temperatures.
4. Resolve any temperature indication discrepancies or at least identify the variance of any temperature indications.

B. Predictive modeling – Utilizing the data gathered in the preproduction testing.

1. Model the expected plant performance at incremental production rates by maintaining a fixed airflow rate and increasing the gas strength by 0.1% SO₂ increments (for example, 11.5%, 11.6%, 11.7%, 11.8% etc.).
2. Calculate the theoretical lbs of SO₂ per hour of emissions.
3. Determine the minimized SO₂ emissions across the range of projected gas strength and production rates.
4. Determine the optimum inlet temperature for each bed at each production rate using Mosaic's temperature indications and any variances determined in section A. (For example-if the theoretical inlet temperature to bed 1 was 805°F but the TI was reading 820°F, then add 15°F to all theoretical 1st bed inlet temperatures predicted in section B.)
5. Put all information in a table/spreadsheet that can be used by the plant operators during the functional testing. The information should include but not be limited to production rate, gas strength, expected furnace temperature, expected SO₂ emissions and expected optimum inlet and outlet temperatures.

C. Functional testing –

Testing Protocol

1. Maintaining a constant airflow, increase the furnace temperature to the desired level and allow the plant operators to make any adjustments to the converter inlet temperatures to minimize emissions.
2. Compare the emissions to the theoretical emissions. If there is a big discrepancy, compare the actual bed temperatures to the theoretical temperatures and adjust accordingly.
3. If the emissions are around the theoretical level or less, take gas samples to verify the inlet gas strength and emissions using the TOPGUN analyzer.
4. If the emissions are much higher than theoretical, take gas samples around each converter bed to determine where the problem is.
5. Make adjustments to the converter temperatures, as required, to reduce the emissions to the desired level.
6. Determine the emissions level in lbs of SO₂/hr and ensure it is still below the permitted level.
7. Repeat the steps above in approximately 0.1% SO₂ increments across the range of emissions rates.