Golder Associates Inc.

6026 NW 1st Place
Gainesville, FL 32607
Telephone (352) 336-5600
Fax (352) 336-6603

Golder Associates

May 4, 2009

063-7642

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

Attention: Mr. Syed Arif, P.E.

RE: MOSAIC FERTILIZER, LLC – NEW WALES FACILITY
PROJECT NO. 0570059-061-AC
BEST AVAILABLE RETROFIT TECHNOLOGY EXEMPTION APPLICATION

Dear Mr. Arif:

Mosaic Fertilizer, LLC (Mosaic) submitted the best available retrofit technology (BART) exemption application for the New Wales facility in September 2008, and it is currently being reviewed by the Florida Department of Environmental Protection (FDEP). Mosaic has proposed two alternative BART exemption scenarios, both based on emissions reductions, and has requested the flexibility to choose strategies from both scenarios if necessary in order to meet the exemption criteria. Under each scenario, Mosaic described its tentative plans to meet the new emission limits. It has come to our attention that certain descriptions were missing for the Sulfuric Acid Plant (SAP) Nos. 1, 2, and 3 under Scenario A. As a result, a revised description for work proposed for the SAPS under Scenario A is presented in this letter. The proposed SAP work is identical to the work proposed for the SAPs under Scenario B.

The following description of SAP Nos. 1, 2, and 3 under BART Exemption Scenario A supersedes the description of SAP Nos. 1, 2, and 3 originally presented in Section 2.7.1 of the BART Exemption application submitted in September 2008:

SAP Nos. 1, 2, and 3

Under Scenario A, Mosaic is proposing to lower the sulfuric acid mist (SAM) emission limits for SAP Nos. 1, 2, and 3 in order to meet the BART exemption criteria, as follows:

SAM emissions from SAP Nos. 1, 2, and 3 each are reduced from 14.0 lb/hr to 7.1 lb/hr.

The total proposed reduction in allowable SAM emissions is 20.7 lb/hr.

Most of the actual SAM emission rates from the SAPs are lower than the proposed 7.1 lb/hr, as shown in Table 2-1, which summarizes the recent test data from the SAPs. The control strategy described below will ensure that the proposed lower SAM limits will be met consistently.

Mosaic's intended strategies for achieving the lower SAM emission rates on the SAPs are as follows. Currently, SAP No. 3 employs Brownian-type candles for mist elimination, while SAP Nos. 1 and 2 employ impaction media in the form of high velocity (HV) panels for mist elimination. Under Scenario A, SAP Nos. 1 and 2 will install Brownian-type candles during upcoming turnarounds when the final towers in the SAPs are replaced. These are currently planned for June 2012 for SAP No. 1, and June 2011 for SAP No. 2 (subject to change).

Although Mosaic is currently planning to install Brownian diffusion-type candles on SAPs No. 1 and 2, and maintain the current Brownian-type candles on SAP No. 3, if these technologies are later deemed by Mosaic to be insufficient, Mosaic may consider other technologies, and Mosaic requests that the air construction permit reflect this flexibility.

Mosaic is not proposing any reduction in SO_2 or NO_x emission rates from the SAPs under Scenario A.

In addition, Mosaic has planned the following additional improvements for SAP Nos. 1 and 2 under Scenario A.

SAP No. 1 – During the planned June 2012 turnaround, the interpass absorption (IPA) tower will be replaced with a heat recovery system (HRS) tower. Although this change is not necessary to achieve the proposed lower SAM emission rate, the Final Absorption Tower is 33 years old, and is in need of replacement. It therefore is appropriate to convert to the HRS tower at this time in order to improve energy recovery in the SAP and increase steam generation. At this time, the IPA tower will become the final absorption tower with the Brownian candles installed, and the existing final tower will be removed. During the planned January 2012 turnaround, the sulfur furnace and the drying tower will be replaced. The current estimated cost to perform this work is approximately $38 million including the HRS tower. Flow diagrams of the SAP Nos. 1, 2, and 3, which indicate the proposed configurations, are included with the permit application form attached.

SAP No. 2 – During the June 2011 turnaround, the IPA tower will be replaced with an HRS absorption tower, the drying tower will be replaced, and the sulfur furnace will be replaced. Although the IPA tower replacement not necessary to achieve the proposed lower SAM emission rate, the Final Absorption Tower is 33 years old, and is in need of replacement. It therefore is appropriate to convert to the HRS tower at this time in order to improve energy recovery in the SAP and increase steam generation. At this time, the IPA tower will become the final absorption tower with the Brownian candles installed, and the existing final absorption tower will be removed (see attached flow diagram). The current estimated cost to perform this work is approximately $38 million.

Pursuant to your telephone conversation with Mr. Rama Iyer, a revised flow diagram is included with this submission showing further detail regarding the HRS for SAP Nos. 1 and 2. As shown in the diagram, the HRS is shown as the new HRS Tower with the HRS dotted block shown with

the HRS diluter, HRS boiler, heater, preheater, and Viper block flows in and out of it. The Viper block is essentially to absorb SO_3 using low-pressure steam which provides heat that can be recovered. The HRS diluter, as the name implies, provides for water and acid balance into the system. Thus, with these HRSs in effect, the high-pressure steam in the superheaters is enhanced to provide for overall higher heat utilization, allowing increases in the overall system electricity generation.

Thank you for the opportunity to provide you with this additional information. If you have any questions, please do not hesitate to call me at (352) 336-5600.

Sincerely,

GOLDER ASSOCIATES INC.

David A. Buff

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

DB/tz

Enclosures

cc: D. Turley, Mosaic
D. Jagiella, Mosaic
D. Jellerson, Mosaic
R. Iyer, Mosaic
S. Mohammad, Golder

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APPLICATION INFORMATION

Professional Engineer Certification

1. Professional Engineer Name: **David A. Buff**
   Registration Number: **19011**
2. Professional Engineer Mailing Address...
   Organization/Firm: **Golder Associates Inc.****
   Street Address: **6026 NW 1st Place**
   City: **Gainesville** State: **FL** Zip Code: **32607**
3. Professional Engineer Telephone Numbers...
   Telephone: **(352) 336-5600** ext. **21145** Fax: **(352) 336-6603**
4. Professional Engineer E-mail Address:
5. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

(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

(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.

(3) If the purpose of this application is to obtain a Title V air operation permit (check here ☐, 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.

(4) If the purpose of this application is to obtain an air construction permit (check here ☒, 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 ☐, 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.

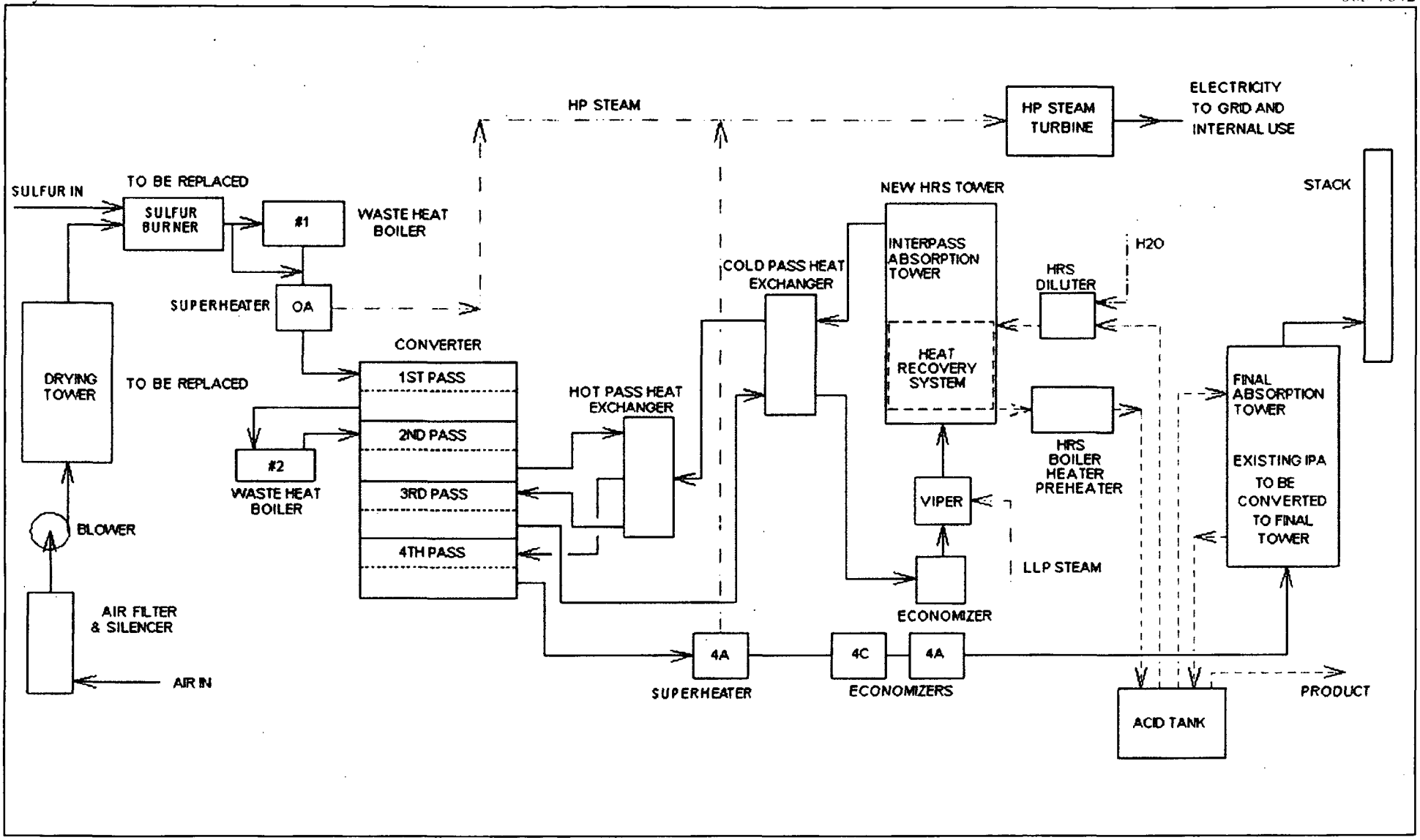
(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here ☐, if so), I further certify that, with the exception of any changes detailed as part of this application, 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.

David A. Buff
Signature

5/4/09
Date

(seal)

* Attach any exception to certification statement.
**Board of Professional Engineers Certificate of Authorization #00001670.



Revised Flow Diagram – SAP Nos. 1 and 2
New Wales Facility, Mosaic Fertilizer, LLC

Correspondence/BART 0509/Flow Diagram.docx

Source: Golder, 2009.

Golder Associates