Appendix CAM Plan

Mosaic Fertilizer, LLC
New Wales Facility Permit No.: 1050059-083-AV

The following 2 emissions units are subject to the CAM provisions only for the pollutants indicated:

E.U. ID No.	Brief Description	Pollutant(s) Subject to CAM
-056	DAP Plant No. 2 - East Product Cooler	PM
-078	GMAP Plant	PM

CAM Applicability & Monitoring Approach Notes

Certain pieces of equipment were considered to be 'inherent' to the fertilizer manufacturing process for CAM purposes, making this equipment exempt from CAM. The applicant listed the equipment that specifically met the inherent process criteria. To be considered equipment inherent to the process instead of an air pollution control device all 3 questions required a "yes" answer:

a. Is the primary purpose of the equipment other than to control emissions relative to the applicable emissions limit (e.g., product recovery, worker safety)?
2. Would the equipment be installed if there were no applicable emissions limit in place for the pollutant specific emission unit?
3. Is the efficiency at which the equipment is operated by design for purposes other than compliance with the applicable emissions limit more than sufficient to assure compliance with the applicable emissions limit (e.g., a significant margin of compliance)?

{A more detailed analysis on the applicability of CAM to pieces of equipment at the facility was provided by the applicant, referenced in Table CAM Applicability.}

Emission Unit ID Nos. -056 DAP Plant No. 2 - East Product Cooler and -078 GMAP Plant are regulated under the new MACT 40 CFR 63 Subpart BB, therefore F (fluoride) emissions are not subject to CAM; however, PM emissions are subject to CAM. EPA mentions particulate matter in the MACT but does not establish emission standards or limitations for PM. The same pieces of equipment are regulated under the MACT and CAM (see e-mail dated May 15, 2007). Different monitoring approaches could lead to confusion with daily operations. For these reasons only one monitoring approach is used for these emissions units and is patterned after the MACT.

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These CAM related documents are on file with permitting authority:
a. Table C-1 CAM Applicability;
b. Table C-2.a.1. Summary of Allowable Range Values for CAM - MACT Option (1);
c. Table C-2.a.2. Summary of Allowable Range Values for CAM - MACT Option (2);

CAM Plan Exceptions
The following specific exceptions were made to the CAM Plan submitted by the applicant**:**
a. Indicator Range. For purposes of CAM, an 'excursion' is defined specifically as operation outside the averaging periods specified in Section II. of the approved CAM Plan**;**
b. Indicator Range. Indicator range values are established specifically from the spreadsheets provided by the applicant labeled with the subtitle "Compliance Tests Results" for each emission unit as shown in Table C.2.b. Individual Emission Unit Compliance Test Results for CAM. Each indicator range is comprised of a minimum (min.) value and a maximum (max.) value. The min. and max. values are not derived from the individual test runs. The values are from the "Test Average" values in the spreadsheets;
c. Indicator Range. A ±20% adjustment to the "baseline average value" to create an "allowable range" is not specifically cited in the methodology of paragraph (2) of the MACTs nor the ASP, DEP Order No. 06-H-AP;
d. Indicator Range. The applicant's proposed procedure to establish and reestablish indicator range values was changed by the Department. See Section II. of the approved CAM Plan; and,
e. Averaging Period. The averaging periods are defined specifically in Section II. of the CAM Plan {the applicant proposed a daily (24-hour) average}.
[40 CFR 64; and, Rules 62-204.800 and 62-213.440(1)(b)1.a., F.A.C.]

For ease of reference the following definitions are cited from 40 CFR 64.1 Definitions (10/03/1997):

> *Exceedance shall mean a condition that is detected by monitoring that provides data in terms of an emission limitation or standard and that indicates that emissions (or opacity) are greater than the applicable emission limitation or standard (or less than the applicable standard in the case of a percent reduction requirement) consistent with any averaging period specified for averaging the results of the monitoring.*
>
> *Excursion shall mean a departure from an indicator range established for monitoring under this part, consistent with any averaging period specified for averaging the results of the monitoring.*

Appendix CAM Plan

Mosaic Fertilizer, LLC
New Wales Facility **Permit No.:** 1050059-083-AV

I. Background.

A. Emissions Unit.

Description: DAP Plant No. 2 – East Product Cooler
Emissions Unit ID No.: -056

B. Applicable Regulations, Emission Limits and Monitoring Requirements.

Applicable Regulations: [See below conditions referenced from permit which contain regulatory citations.]

Emission Limits:

PM 6.06 lb/hr
[See Condition F.5.]

F 3.34 lb/hr, 0.0417 lb/ton P_2O_5 input
[See Condition F.3.]

{MACT 0.060 lb/ton P_2O_5 input}
The limit for F from BACT is more stringent than the MACT limit.
The BACT limit for F is ~ 30% less than the MACT limit.}

VE 15%
[See Condition F.7]

CAM applies to PM only.

Monitoring Requirements: Monitor the mass flow of P_2O_5 in the East Production Train, scrubber liquid flow rate, scrubber gas pressure drop, and fan motor amperage.
[See Conditions MACT BB.3.(a), (b), and DEP Order 06-H-AP, Attachment B]

Annual PM, F and VE tests.
[See Condition F.13.2.]

C. Control Technology.

This emission unit uses one (1) venturi scrubber, specifically referred to as the "Cooler Venturi Scrubber" (See Appendix Flow Diagrams for CAM submitted with permit renewal application). This scrubber is used to control PM emissions.

Appendix CAM Plan

Mosaic Fertilizer, LLC
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II. Monitoring Approach.

E.U. ID No. -056	Indicator No. 1	Indicator No. 2
A. Indicator	Pressure drop across each scrubber.	Scrubber liquid flow rate to each scrubber.
Measurement Approach	Differential pressure meter.	Flow meter.
B. Indicator Range Equipment	dP: min. - max. " H_2O Cooler Venturi Scrubber The indicator range is established based on compliance test data as described in II.1. & 2. An 'excursion' is defined as operation outside of the indicator range. Excursions trigger an inspection, corrective action, and a reporting requirement.	GPM: min. - max. gpm Cooler Venturi Scrubber The indicator range is established based on compliance test data as described in II.1. & 2. An 'excursion' is defined as operation outside of the indicator range. Excursions trigger an inspection, corrective action, and a reporting requirement.
C. Performance Criteria 1. Data Representativeness	The minimum accuracy of the device is ± 5 percent.	The minimum accuracy of the device is ± 5 percent.
2. Verification of Operational Status	Operator check	Operator check
3. QA/QC Practices and Criteria	The differential pressure meter is calibrated at least annually.	The flow meter is calibrated at least annually.
4.a. Monitoring Frequency	The pressure drop is monitored continuously.	The scrubber liquid flow is monitored continuously.
b. Data Collection Procedures	The scrubber pressure drop is electronically recorded at least every 15-minutes. Averages are computed using 15-minute block averages of the pressure indicator readings.	The scrubber liquid flow rate is electronically recorded at least every 15-minutes. Averages are computed using 15-minute block averages of the flow indicator readings.
c. Averaging Period	24-hour (daily) block average of the 15-minute readings.	24-hour (daily) block average of the 15-minute readings.

II. Establishment & Reestablishment of Indicator Range.

The permittee shall use either MACT option (1) as specified in A. or MACT option (2) as specified in B.
[Rule 62-213.440(2), F.A.C.]

A. MACT option (1) + AMP, DEP Order No. 06-H-AP

Indicator Range Defined.

1. Each indicator range is established in accordance with this procedure under this CAM Plan. The permittee shall follow the specific procedures referred to as MACT option (1) (see 40 CFR 63.625(f)(1) as it applies to a DAP Plant). The indicator (allowable) range under this approved CAM Plan is established based on the most recently completed compliance test results for the individual emission unit provided by the applicant (see Table C-2.b.).

a. The indicator range consists of a minimum and maximum value. The minimum value is 20% less than the test average value. The maximum value is 20% more than the test average value. Table C-2.c.1., a spreadsheet, shows how the range is calculated from the individual emission unit compliance test results submitted by the applicant. The test average value shall be the average of three valid individual compliance test runs, not the value from an individual test run. In no case shall failed tests be used in establishing ranges.

   Table C.2.b. shows how the current indicator range values are derived from the individual emission unit compliance test results data set submitted by the applicant.

   Table C-2.a.1. summarizes the initial allowable (indicator) range values, e.g., the minimum and maximum values.

[40 CFR 64.6(c)(2); Rule 62-213.440(1)(b)1.a., F.A.C.]

Reestablishment of Indicator Range.

2. Each indicator range is reestablished in accordance with this procedure under this CAM Plan. The permittee shall follow the specific procedures referred to as MACT option (1) (see 40 CFR 63.625(f)(1) as it applies to a DAP Plant) to reestablish each indicator range.

The indicator range shall be reestablished in accordance with the following additional conditions:

a. Upon successful completion of each required annual compliance test, the indicator values during testing shall be used to reestablish the indicator range;

b. Updated individual spreadsheets, as shown in Table C.2.c.1., shall be submitted with each compliance test results. The reestablished minimum and maximum values of the indicator range shall be clearly shown in the individual spreadsheets submitted; and,

c. Upon establishment of a new indicator range the permittee shall operate under the new indicator range.

[40 CFR 64.6(c)(2); Rule 62-213.440(1)(b)1.a., F.A.C. and Rule 62-297.310(7)(b), F.A.C.]

Additional Requirements.

3. The following additional requirements apply under this CAM Plan:

a. No changes shall be made to the indicators, indicator range setting methodology or the averaging periods specified;

b. All tests must comply with the notification, testing and reporting requirements in Rule 62-297, F.A.C.;

c. If the compliance authority has reason to believe a test was not done in accordance with regulatory requirements applicable to a test then the compliance authority shall require a special compliance test pursuant to Rule 62-297.310(7)(b), F.A.C. {see Condition CC.6.(b) of the permit};

d. The maximum pressure drop (dP) may be satisfied by establishing minimum and maximum fan amps in accordance with the AMP, DEP Order No. 06-H-AP, Approving Alternate Monitoring Plan dated April 21, 2006. If the owner/operator elects to use fan amps in lieu of the maximum dP, then the owner/operator shall submit to the Department updated individual emission unit test result spreadsheets shown as attached in Table C.2.b. and request a revision to this CAM Plan. The updated spreadsheets (Table C.2.b.) shall include the scrubber parameters e.g., dP, Q and fan amps. {Note two additional columns can simply be added to the existing spreadsheets (Table C.2.b.) with the corresponding minimum and maximum fan amp test averages.}

[40 CFR 64.6(c)(2); Rule 62-213.440(1)(b)1.a., F.A.C.; Rule 62-297.310(7)(b), F.A.C.; and, AMP, DEP Order No. 06-H-AP, Approving Alternate Monitoring Plan dated April 21, 2006.]

B. MACT option (2) + AMP, DEP Order No. 06-H-AP

Indicator Range Defined.

1. Each indicator range is defined in accordance with this procedure under this CAM Plan which is intended to require that the permittee follow the specific procedures referred to as MACT option (2) (see 40 CFR 63.625(f)(2) as it applies to a DAP Plant). The initial indicator (allowable) range under this approved CAM Plan is established based on the completed compliance test results for the individual emission unit provided by the applicant (see Table C.2.b.).

a. The indicator range consists of a minimum and maximum value. The minimum value is the lowest test average value from the historical data set. The maximum value is the highest test average value from the historical data set. The test average value shall be the average of three valid individual compliance test runs, not the value from an individual test run. In no case shall failed tests be used in establishing ranges.

   Table C.2.b. shows how the current indicator range values are derived from the individual emission unit historical compliance test results data set submitted by the applicant.

   Table C-2.a.2. summarizes the initial allowable (indicator) range values, e.g., the minimum and maximum values.

b. The initial "allowable range" as established under the MACTs used for this CAM Plan must be submitted to the Department for review and approval.

[40 CFR 64.6(c)(2); Rule 62-213.440(1)(b)1.a., F.A.C.]

Reestablishment of Indicator Range.

2. Each indicator range shall be reestablished in accordance with this procedure under this CAM Plan which is intended to require that the permittee follow the specific procedures referred to as MACT option (2) (see 40 CFR 63.625(f)(2) as it applies to a DAP Plant) to reestablish each indicator range.

The indicator range shall be reestablished in accordance with the following additional conditions:

a. Upon successful completion of each required annual compliance test, the indicator values during testing shall be used to reestablish the indicator range;

b. The indicator values during testing shall be added into the individual emission unit compliance test results historical data set (shown in Table C.2.b.) and a new indicator range as defined in 1.a. above shall be reestablished;

c. Updated individual spreadsheets, as shown in Table C.2.b., shall be submitted with each compliance test results. The permittee shall indicate whether or not the indicator range has changed as a result of the annual compliance testing. The reestablished minimum

and maximum values of the indicator range shall be clearly shown in the individual spreadsheets submitted; and,

d. Upon establishment of a new indicator range the permittee shall operate under the new indicator range.

[40 CFR 64.6(c)(2); Rule 62-213.440(1)(b)1.a., F.A.C.]

Additional Requirements.

3. The following additional requirements apply under this CAM Plan:

a. No changes shall be made to the indicators, indicator range setting methodology or the averaging periods specified;

b. No changes shall be made to the historical test result data set. The Department will reevaluate the historical test result data set used to establish the indicator ranges under this CAM Plan during renewal of this permit;

c. All tests must comply with the notification, testing and reporting requirements in Rule 62-297, F.A.C.;

d. If the compliance authority has reason to believe a test was not done in accordance with regulatory requirements applicable to a test then the compliance authority shall require a special compliance test pursuant to Rule 62-297.310(7)(b), F.A.C. {see Condition CC.6.(b) of the permit};

e. The owner/operator shall certify in the test results from MACT used for CAM - "*that the control devices and processes have not been modified subsequent to the testing upon which the data used to establish the allowable ranges were obtained.*"; and,

f. The maximum pressure drop (dP) may be satisfied by establishing minimum and maximum fan amps in accordance with the AMP, DEP Order No. 06-H-AP, Approving Alternate Monitoring Plan dated April 21, 2006. If the owner/operator elects to use fan amps in lieu of the maximum dP, then the owner/operator shall submit to the Department updated individual emission unit test result spreadsheets shown as attached in Table C.2.b. and request a revision to this CAM Plan The updated spreadsheets (Table C.2.b.) shall include the scrubber parameters e.g., dP, Q and fan amps. {Note two additional columns can simply be added to the existing spreadsheets (Table C.2.b.) with the corresponding minimum and maximum fan amp test averages.}

[40 CFR 64.6(c)(2); Rule 62-213.440(1)(b)1.a., F.A.C.; Rule 62-297.310(7)(b), F.A.C.; and, AMP, DEP Order No. 06-H-AP, Approving Alternate Monitoring Plan dated April 21, 2006.]

III. Justification.

Emissions Unit ID No.: -056

A. Rationale for Selection of Performance Indicators.

Based on EPA regulations and industry practice, the performance indicators selected were the scrubber liquid flow rate and pressure drop. These parameters have been widely accepted by the Department to provide reasonable assurance of proper scrubber operation and the resulting emission control.

B. Rationale for Defining Performance Indicator Ranges.

Under CAM, an “indicator range” is similar to a MACT “allowable range” for an air pollution control device’s operating parameter. Under MACT, the “allowable range” is established based on compliance tests.

The indicator range in this CAM Plan is based on the MACT. Each indicator (allowable) range is established based on completed compliance test results as described in Condition II.

The MACTs contain two methodologies to establish “allowable ranges.” The MACT "allowable range" must be established using the methodology of either 40 CFR 63.625(f)(1) or (2) as it applies to a DAP plant. The first methodology in paragraph (1) referred to as MACT option (1) uses the most recent compliance test establishing an “allowable range” equal to ±20% of the “baseline average.”

The second methodology in paragraph (2) referred to as MACT option (2), requires the "allowable range" to be submitted to the Department for review and approval. Under (2) an "allowable range" may be based upon "baseline average values" recorded during previous performance tests. Under (2), as an alternative, the owner/operator can establish the "allowable ranges" using the results of performance tests conducted specifically for the purposes of this paragraph. A ±20% adjustment to the "baseline average value" to create an “allowable range” is not specifically cited in the methodology of paragraph (2). As part of the methodology of paragraph (2) the owner/operator is required to certify - "*that the control devices and processes have not been modified subsequent to the testing upon which the data used to establish the allowable ranges were obtained*." The applicant requested that this CAM Plan be patterned after the MACT using the methodology of paragraphs (1) & (2).

DEP Order No. 06-H-AP condition number 1. specifically does not require a maximum dP to be established. Instead condition number 3. requires minimum and maximum fan amps to be established. For the two emissions units regulated under the MACT fan amps may be utilized as stated in 3.f.

C. Rationale for Reestablishment of Indicator Ranges.

The federal regulation for CAM allows the permit to specify the procedures to change ("reestablish") indicator ranges, see 40 CFR 64.6(c)(2). The procedure developed to change an indicator range under this CAM Plan as outlined in Section II. was based on the EPA regulations for phosphate fertilizer plants, contained in 40 CFR 63 Subpart BB. The specific procedures requiring changes to a "baseline average" and the "allowable range" under Subpart BB are found at 40 CFR 63.625(f)(1) & (2).

D. Rationale for Selection of Averaging Periods.

EPA suggests data be averaged "consistent with the characteristics and typical variability of the pollutant-specific emissions unit …" (see 40 CFR 64.3(b)(4)(i)). The averaging period could be based on the size of the PSEU (pollutant specific emissions unit) (see 40 CFR 64.3(b)(4)(ii) & (iii)). Also, at 40 CFR 64.3(c) "the level of actual emissions relative to the compliance limitation" could be considered in the monitoring design, e.g., averaging period. The CAM regulation implies a minimum averaging period of daily (24-hours) at 40 CFR 64.3(b)(4)(iii). This PSEU is classified as a 'non-major PSEU' for PM and F emissions under 40 CFR 64.3(b)(4)(ii).

Facility-wide condition 14.c. of the initial Title V permit has required a 24-hour averaging period. The MACT at 40 CFR 63.624 specifies an averaging period of daily (24-hours).

A 24-hour (daily) block average period was selected as appropriate in this CAM Plan.

Appendix CAM Plan

Mosaic Fertilizer, LLC
New Wales Facility **Permit No.:** 1050059-083-AV

I. Background.

A. Emissions Unit.

Description: GMAP Plant
Emissions Unit ID No: -078

B. Applicable Regulations, Emission Limits and Monitoring Requirements.

Applicable Regulations: [See below conditions referenced from permit which contain regulatory citations.]

Emission Limits:

PM/PM_{10}	9.68 lb/hr., 0.0645 lb/ton product [Condition M.8.]
F	2.40 lb/hr., 0.032 lb/ton P_2O_5 input [Condition M.7.] {MACT 0.060 lb/ton P_2O_5 input} {The limit for F from BACT is more stringent than the MACT limit. The BACT limit for F is ~ 50% less than the MACT limit.}
VE	20% [Facility-Wide Condition No. FW4.]

CAM applies to PM only.

Monitoring Requirements: Monitor the mass flow of P_2O_5, scrubber liquid flow rate, scrubber gas pressure drop, and fan motor amperage.
[See Conditions MACT BB.3.(a), (b), and DEP Order 06-H-AP, Attachment B]

FFY F test. Five year PM/PM_{10} test.
[See Condition Nos. M.13 and M.14]

C. Control Technology.
This emission unit uses two (2) venturi scrubbers and 1 tailgas scrubber. Only one of the scrubbers is subject to CAM, specifically the scrubber referred to as the "Equipment Venturi Scrubber" (See Appendix Flow Diagrams for CAM submitted with permit renewal application). The Equipment Venturi Scrubber controls PM emissions.

Appendix CAM Plan

Mosaic Fertilizer, LLC
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II. Monitoring Approach.

E.U. ID No. -078	Indicator No. 1	Indicator No. 2
A. Indicator	Pressure drop across each scrubber.	Scrubber liquid flow rate to each scrubber.
Measurement Approach	Differential pressure meter.	Flow meter.
B. Indicator Range Equipment	dP: min. - max. " H_2O Equipment Venturi Scrubber The indicator range is established based on compliance test data as described in II.1. & 2. An 'excursion' is defined as operation outside of the indicator range. Excursions trigger an inspection, corrective action, and a reporting requirement.	GPM: min. - max. gpm Equipment Venturi Scrubber The indicator range is established based on compliance test data as described in II.1. & 2. An 'excursion' is defined as operation outside of the indicator range. Excursions trigger an inspection, corrective action, and a reporting requirement.
C. Performance Criteria 1. Data Representativeness	The minimum accuracy of the device is ± 5 percent.	The minimum accuracy of the device is ± 5 percent.
2. Verification of Operational Status	Operator check	Operator check
3. QA/QC Practices and Criteria	The differential pressure meter is calibrated at least annually.	The flow meter is calibrated at least annually.
4.a. Monitoring Frequency	The pressure drop is monitored continuously.	The scrubber liquid flow is monitored continuously.
b. Data Collection Procedures	The scrubber pressure drop is electronically recorded at least every 15-minutes. Averages are computed using 15-minute block averages of the pressure indicator readings.	The scrubber liquid flow rate is electronically recorded at least every 15-minutes. Averages are computed using 15-minute block averages of the flow indicator readings.
c. Averaging Period	24-hour (daily) block average of the 15-minute readings.	24-hour (daily) block average of the 15-minute readings.

II. Establishment & Reestablishment of Indicator Range.

Same as EU ID No. -056.

III. Justification.

Emissions Unit ID No: -078

A. Rationale for Selection of Performance Indicators.

Based on EPA regulations and industry practice, the performance indicators selected were the scrubber liquid flow rate and pressure drop. These parameters have been widely accepted by the Department to provide reasonable assurance of proper scrubber operation and the resulting emission control.

B. Rationale for Defining Performance Indicator Ranges.

Same as EU ID No. -056.

C. Rationale for Reestablishment of Indicator Ranges.

Same as EU ID No. -056.

D. Rationale for Selection of Averaging Periods.

Same as EU ID No. -056.

[electronic file name: 1050059-083-AV CAM Plan (MACT option 1 & 2 + amp)]