FINAL PERMIT FILED
ELECTRONICALLY

July 2016

SECTION A. Plan Approval Inventory List

Source ID	Source Name	Capacity/Throughput	Fuel/Material
101A	PLANT 1, THREE STORAGE SILOS	NO CONTROLS	
101B	PLANT 2, THREE STORAGE SILOS		
102A	PLANT 1 POLYPROPYLENE MFG SOURCES	Steam assisted flare CO2	
102B	PLANT 2 POLYPROPYLENE MFG SOURCES		
103A	PLANT 1 FUGITIVE SOURCES	NO CONTROLS	
103B	PLANT 2 FUGITIVE SOURCES		
106	PROPYLENE SPLITTER PROCESS & CAVERN 4	C100	
107	PROPYLENE UNLOADING RACK		

PERMIT MAPS

Where are the maps?
any controls
where is stack (all in De?)

C100 - flare?
CO2 - flare for source 102A + B

SECTION B. General Plan Approval Requirements

#001 [25 Pa. Code § 121.1]
Definitions

Words and terms that are not otherwise defined in this plan approval shall have the meanings set forth in Section 3 of the Air Pollution Control Act (35 P.S. § 4003) and 25 Pa. Code § 121.1.

#002 [25 Pa. Code § 127.12b (a) (b)]
Future Adoption of Requirements

The issuance of this plan approval does not prevent the future adoption by the Department of any rules, regulations or standards, or the issuance of orders necessary to comply with the requirements of the Federal Clean Air Act or the Pennsylvania Air Pollution Control Act, or to achieve or maintain ambient air quality standards. The issuance of this plan approval shall not be construed to limit the Department's enforcement authority.

#003 [25 Pa. Code § 127.12b]
Plan Approval Temporary Operation

This plan approval authorizes temporary operation of the source(s) covered by this plan approval provided the following conditions are met.

(a) When construction, installation, modification, or reactivation is being conducted, the permittee shall provide written notice to the Department of the completion of the activity approved by this plan approval and the permittee's intent to commence operation at least five (5) working days prior to the completion of said activity. The notice shall state when the activity will be completed and when the permittee expects to commence operation. When the activity involves multiple sources on different time schedules, notice is required for the commencement of operation of each source.

(b) Pursuant to 25 Pa. Code § 127.12b (d), temporary operation of the source(s) is authorized to facilitate the shakedown of sources and air cleaning devices, to permit operations pending the issuance of a permit under 25 Pa. Code Chapter 127, Subchapter F (relating to operating permits) or Subchapter G (relating to Title V operating permits) or to permit the evaluation of the air contaminant aspects of the source.

(c) This plan approval authorizes a temporary operation period not to exceed 180 days from the date of commencement of operation, provided the Department receives notice from the permittee pursuant to paragraph (a), above.

(d) The permittee may request an extension of the 180-day shakedown period if further evaluation of the air contamination aspects of the source(s) is necessary. The request for an extension shall be submitted, in writing, to the Department at least 15 days prior to the end of the initial 180-day shakedown period and shall provide a description of the compliance status of the source, a detailed schedule for establishing compliance, and the reasons compliance has not been established. This temporary operation period will be valid for a limited time and may be extended for additional limited periods, each not to exceed 180 days.

(e) The notice submitted by the permittee pursuant to subpart (a) above, prior to the expiration of the plan approval, shall modify the plan approval expiration date on Page 1 of this plan approval. The new plan approval expiration date shall be 180 days from the date of commencement of operation.

#004 [25 Pa. Code § 127.12(a) (10)]
Content of Applications

The permittee shall maintain and operate the sources and associated air cleaning devices in accordance with good engineering practice as described in the plan approval application submitted to the Department.

#005 [25 Pa. Code §§ 127.12(c) and (d) & 35 P.S. § 4013.2]
Public Records and Confidential Information

(a) The records, reports or information obtained by the Department or referred to at public hearings shall be available to the public, except as provided in paragraph (b) of this condition.

(b) Upon cause shown by the permittee that the records, reports or information, or a particular portion thereof, but not emission data, to which the Department has access under the act, if made public, would divulge production or sales figures or methods, processes or production unique to that person or would otherwise tend to affect adversely the

SECTION B. General Plan Approval Requirements

competitive position of that person by revealing trade secrets, including intellectual property rights, the Department will consider the record, report or information, or particular portion thereof confidential in the administration of the act. The Department will implement this section consistent with sections 112(d) and 114(c) of the Clean Air Act (42 U.S.C.A. § § 7412(d) and 7414(c)). Nothing in this section prevents disclosure of the report, record or information to Federal, State or local representatives as necessary for purposes of administration of Federal, State or local air pollution control laws, or when relevant in a proceeding under the act.

#006 [25 Pa. Code § 127.12b]

Plan Approval terms and conditions.

[Additional authority for this condition is derived from 25 Pa. Code Section 127.13]

(a) This plan approval will be valid for a limited time, as specified by the expiration date contained on Page 1 of this plan approval. Except as provided in § § 127.11a and 127.215 (relating to reactivation of sources; and reactivation), at the end of the time, if the construction, modification, reactivation or installation has not been completed, a new plan approval application or an extension of the previous approval will be required.

(b) If construction has commenced, but cannot be completed before the expiration of this plan approval, an extension of the plan approval must be obtained to continue construction. To allow adequate time for departmental action, a request for the extension shall be postmarked at least thirty (30) days prior to the expiration date. The request for an extension shall include the following:

(i) A justification for the extension,
(ii) A schedule for the completion of the construction

If construction has not commenced before the expiration of this plan approval, then a new plan approval application must be submitted and approval obtained before construction can commence.

(c) If the construction, modification or installation is not commenced within 18 months of the issuance of this plan approval or if there is more than an 18-month lapse in construction, modification or installation, a new plan approval application that meets the requirements of 25 Pa. Code Chapter 127, Subchapter B (related to plan approval requirements), Subchapter D (related to prevention of significant deterioration of air quality), and Subchapter E (related to new source review) shall be submitted. The Department may extend the 18-month period upon a satisfactory showing that an extension is justified.

#007 [25 Pa. Code § 127.32]

Transfer of Plan Approvals

(a) This plan approval may not be transferred from one person to another except when a change of ownership is demonstrated to the satisfaction of the Department and the Department approves the transfer of the plan approval in writing.

(b) Section 127.12a (relating to compliance review) applies to a request for transfer of a plan approval. A compliance review form shall accompany the request.

(c) This plan approval is valid only for the specific source and the specific location of the source as described in the application.

#008 [25 Pa. Code § 127.12(4) & 35 P.S. § 4008 & § 114 of the CAA]

Inspection and Entry

(a) Pursuant to 35 P.S. § 4008, no person shall hinder, obstruct, prevent or interfere with the Department or its personnel in the performance of any duty authorized under the Air Pollution Control Act.

(b) The permittee shall also allow the Department to have access at reasonable times to said sources and associated air cleaning devices with such measuring and recording equipment, including equipment recording visual observations, as the Department deems necessary and proper for performing its duties and for the effective enforcement of the Air Pollution Control Act and regulations adopted under the act.

SECTION B. General Plan Approval Requirements

(c) Nothing in this plan approval condition shall limit the ability of the Environmental Protection Agency to inspect or enter the premises of the permittee in accordance with Section 114 or other applicable provisions of the Clean Air Act.

#009 [25 Pa. Code 127.13a]

Plan Approval Changes for Cause

This plan approval may be terminated, modified, suspended or revoked and reissued if one or more of the following applies:

(a) The permittee constructs or operates the source subject to the plan approval in violation of the act, the Clean Air Act, the regulations promulgated under the act or the Clean Air Act, a plan approval or permit or in a manner that causes air pollution.

(b) The permittee fails to properly or adequately maintain or repair an air pollution control device or equipment attached to or otherwise made a part of the source.

(c) The permittee fails to submit a report required by this plan approval.

(d) The Environmental Protection Agency determines that this plan approval is not in compliance with the Clean Air Act or the regulations thereunder.

#010 [25 Pa. Code §§ 121.9 & 127.216]

Circumvention

(a) The permittee, or any other person, may not circumvent the new source review requirements of 25 Pa. Code Chapter 127, Subchapter E by causing or allowing a pattern of ownership or development, including the phasing, staging, delaying or engaging in incremental construction, over a geographic area of a facility which, except for the pattern of ownership or development, would otherwise require a permit or submission of a plan approval application.

(b) No person may permit the use of a device, stack height which exceeds good engineering practice stack height, dispersion technique or other technique which, without resulting in reduction of the total amount of air contaminants emitted, conceals or dilutes an emission of air contaminants which would otherwise be in violation of this plan approval, the Air Pollution Control Act or the regulations promulgated thereunder, except that with prior approval of the Department, the device or technique may be used for control of malodors.

#011 [25 Pa. Code § 127.12c]

Submissions

Reports, test data, monitoring data, notifications shall be submitted to the:

Regional Air Program Manager
PA Department of Environmental Protection
(At the address given on the plan approval transmittal letter or otherwise notified)

#012 [25 Pa. Code § 127.12(9) & 40 CFR Part 68]

Risk Management

(a) If required by Section 112(r) of the Clean Air Act, the permittee shall develop and implement an accidental release program consistent with requirements of the Clean Air Act, 40 CFR Part 68 (relating to chemical accident prevention provisions) and the Federal Chemical Safety Information, Site Security and Fuels Regulatory Relief Act (P.L. 106-40).

(b) The permittee shall prepare and implement a Risk Management Plan (RMP) which meets the requirements of Section 112(r) of the Clean Air Act, 40 CFR Part 68 and the Federal Chemical Safety Information, Site Security and Fuels Regulatory Relief Act when a regulated substance listed in 40 CFR § 68.130 is present in a process in more than the listed threshold quantity at the facility. The permittee shall submit the RMP to the Environmental Protection Agency according to the following schedule and requirements:

(1) The permittee shall submit the first RMP to a central point specified by the Environmental Protection Agency no later than the latest of the following:

SECTION D. Source Level Plan Approval Requirements

Source ID: 101A Source Name: PLANT 1, THREE STORAGE SILOS

Source Capacity/Throughput:

what is used?

I. RESTRICTIONS.

Emission Restriction(s).

 # 001 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
The Particulate Matter (PM/PM10) emissions from the Polypropylene Plant No.1 shall be less than 7.10 tons per twelve (12) month rolling sum.

Throughput Restriction(s).

 # 002 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
Polypropylene production from Plant 1 shall not exceed 595,680,000 pounds per 12-month rolling sum.

II. TESTING REQUIREMENTS.

No additional testing requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

PM2.5?

III. MONITORING REQUIREMENTS.

No additional monitoring requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

IV. RECORDKEEPING REQUIREMENTS.

 # 003 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
(a) The permittee shall keep polypropylene production records on a monthly and a 12-month rolling sum basis.

(b) The permittee shall calculate and record PM10 emissions on a monthly and 12-month rolling sum basis. — include calculations

V. REPORTING REQUIREMENTS.

No additional reporting requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

VI. WORK PRACTICE REQUIREMENTS.

No additional work practice requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

VII. ADDITIONAL REQUIREMENTS.

No additional requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

SECTION D. Source Level Plan Approval Requirements

Source ID: 101B Source Name: PLANT 2, THREE STORAGE SILOS

Source Capacity/Throughput:

I. RESTRICTIONS.

Emission Restriction(s).

 # 001 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
The combined Particulate Matter (PM/PM10) emissions from the Polypropylene Plant No.2 shall be less than 7.10 tons per twelve (12) month rolling sum.

 # 002 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.560]
Subpart DDD - Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry
Applicability and designation of affected facilities.
The Total Organic Compound (TOC) from the silos' stack shall be less than 0.10 percent by weight.

Throughput Restriction(s).

 # 003 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
Polypropylene production from Plant 2 shall not exceed 595,680,000 pounds per 12-month rolling sum. — what this limit?

II. TESTING REQUIREMENTS.

 # 004 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
[Additional authority of these conditions are derived from 40 CFR §60.564(a)(1) and 60.565(b)(1) and (h).]

(a) As per 40 CFR §60.564(a)(1), whenever changes are made in production capacity. the permittee shall determine compliance with the 40 CFR §60.560(g), and must use as reference methods and procedures in appendix A of 40 CFR 60 or other methods and procedures specified in 40 CFR §60.564(d) for weight percent VOC of the uncontrolled individual vent stream.

(b) The test shall be performed within 180 days after startup of the source. The test shall be conducted while the source is operating at or above 90 percent of the production rate.

(c) At least sixty (60) days prior to the test, the permittee shall submit to the Department for approval the procedures for the test and a sketch with dimensions indicating the location of sampling ports and other data to ensure the collection of representative samples.

(d) At least thirty (30) days prior to the test, the Regional Air Quality Manager, shall be informed of the date and time of the test.

(e) Within sixty (60) days after the source test(s), two copies of the complete test report, including all operating conditions, shall be submitted to the Regional Air Quality Manager for approval.

(f) In the event that any of the above deadlines cannot be met, the permittee may request an extension for the due date(s) in writing and include a justification for the extension. The Department may grant an extension for a reasonable cause.

III. MONITORING REQUIREMENTS.

No additional monitoring requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

IV. RECORDKEEPING REQUIREMENTS.

 # 005 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

SECTION D. Source Level Plan Approval Requirements

(a) The permittee shall keep polypropylene production records on a monthly and a 12-month rolling sum basis.

(b) The permittee shall calculate and record PM10 emissions on a monthly and 12-month rolling sum basis.

 # 006 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.565]
Subpart DDD - Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry
Reporting and recordkeeping requirements.

(a) As per 40 CFR §60.565(a)(10), the permittee shall keep an up-to-date, readily-accessible record of each process operating variable that may result in an increase in the uncontrolled annual emissions or the TOC weight percent, should such operating variable be changed.

(b) As per 40 CFR §60.565(h), the permittee shall keep up-to-date, readily-accessible records of any change in process operation that increases the uncontrolled annual emissions or the VOC weight percent of the individual stream.

V. REPORTING REQUIREMENTS.

 # 007 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.565]
Subpart DDD - Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry
Reporting and recordkeeping requirements.

(a) As per 40 CFR §60.565(k), the permittee shall submit to the Department semiannual reports of any change in process operation that increases the uncontrolled annual emissions or the VOC weight percent of the individual stream, as recorded in 40 CFR §60.565(h).

(b) The initial report shall be submitted with other semiannual reports due March 1, or September 1, whichever is ealier.

(c) As per 40 CFR §60.565(l), the permittee shall notify the Department of the specifications of 40 CFR §60.562 with which the permittee elected to comply. Notification shall be submitted with the notification of initial startup required by 40 CFR §60.7(a)(3).

VI. WORK PRACTICE REQUIREMENTS.

No additional work practice requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

VII. ADDITIONAL REQUIREMENTS.

No additional requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

SECTION D. Source Level Plan Approval Requirements

Source ID: 102A Source Name: PLANT 1 POLYPROPYLENE MFG SOURCES

Source Capacity/Throughput:

PM2.5?

I. RESTRICTIONS.

Emission Restriction(s).

 # 001 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
The Particulate Matter (PM/PM10) emissions from the Polypropylene Plant No.1 shall be less than 7.10 tons per twelve (12) month rolling sum.

Throughput Restriction(s).

when this limit?

 # 002 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
Polypropylene production from Plant 1 shall not exceed 595,680,000 pounds per 12-month rolling sum.

II. TESTING REQUIREMENTS.

No additional testing requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

III. MONITORING REQUIREMENTS.

No additional monitoring requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

IV. RECORDKEEPING REQUIREMENTS.

 # 003 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

(a) The permittee shall keep polypropylene production records on a monthly and a 12-month rolling sum basis.

(b) The permittee shall calculate and record PM10 emissions on a monthly and 12-month rolling sum basis.

 # 004 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.565]
Subpart DDD - Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry
Reporting and recordkeeping requirements.

(a) As per 40 CFR §60.565(a)(3), the permittee shall keep an up-to-date, readily-accessible record of the following information measured during each performance test, and shall include the following information in the report of the initial performance test in addition to the written results of such performance tests as required under §60.8.

(1) All visible emission readings, heat content determinations, and exit velocity determinations made during the performance test,
(2) Continuous records of the pilot flame heat-sensing monitoring, and
(3) Records of all periods of operations during which the pilot flame is absent.

(b) As per 40 CFR §60.565(b)(2), if a vent system containing valves that could divert the emission stream away from the control device is used, the permittee shall keep up-to-date, readily accessible continuous records of:

(1) All periods when flow is indicated if flow indicators are installed under §69.563(d)(1).

(2) All times when maintenance is performed on car-sealed valves, when the car seal is broken, and when the valve position is changed (i.e., from open to closed for valves in the vent piping to the control device and from closed to open for valves that vent the stream directly or indirectly to the atmosphere bypassing the control device).

(c) As per 40 CFR §565(e), the permittee shall keep readily accessible continuous records of:

SECTION D. Source Level Plan Approval Requirements

(1) The flare or pilot light flame heat sensing monitoring specified under 40 CFR §60.563(b)(2), and
(2) All periods of operation in which the flare or pilot flame is absent.

(d) As per 40 CFR §60.565(g), the permittee shall keep up-to-date, readily accessible records of:

(1) Any changes in production capacity, or of any replacement, removal or addition of product recovery equipment; and
(2) The results of any performance test performed pursuant to the procedures specified by 40 CFR §60.564.

V. REPORTING REQUIREMENTS.

 # 005 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.565]
Subpart DDD - Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry
Reporting and recordkeeping requirements.

(a) As per 40 CFR §60.565(b)(1), the permittee shall submit with the initial performance test an engineering report describing in detail the vent system used to vent each affected vent stream to the flares. This report shall include all valves and vent pipes that could vent the stream to the atmosphere, thereby bypassing the flares, and identify which valves are car-sealed opened and which valves are car-sealed closed.

(b) As per 40 CFR §60.565(k), the permittee shall submit to the Department semiannual reports of the following recorded information. The initial report shall be submitted within 6 months after the initial start-up date.

(1) All periods the flare or pilot light flame heat sensing monitoring specified under 40 CFR §60.563(b)(2); and
(2) All periods of operation in which the flare or pilot flame is absent.

VI. WORK PRACTICE REQUIREMENTS.

No additional work practice requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

VII. ADDITIONAL REQUIREMENTS.

No additional requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

SECTION D. Source Level Plan Approval Requirements

Source ID: 102B Source Name: PLANT 2 POLYPROPYLENE MFG SOURCES

Source Capacity/Throughput:

I. RESTRICTIONS.

how ensure compliance?

Emission Restriction(s).

 # 001 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
The combined Particulate Matter (PM/PM10) emissions from the Polypropylene Plant No.2 shall be less than 7.10 tons per twelve (12) month rolling sum.

Throughput Restriction(s).

relationship?

 # 002 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
Polypropylene production from Plant 2 shall not exceed 595,680,000 pounds per 12-month rolling sum.

II. TESTING REQUIREMENTS.

 # 003 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

[Additional authority of these conditions are derived from 40 CFR §60.564(a)(1), (e), (f), and (g).]

(a) As per 40 CFR §60.564(a)(1), whenever changes are made in production capacity, the permittee shall determine compliance with the 40 CFR §60.562-1(a)(1)(i)(C) and 60.18, and must use as reference methods and procedures in appendix A of 40 CFR 60 or other methods and procedures specified in 40 CFR §60.564(e) for visible emission and flame present provisions, §60.564(f) for net heating value provisions, and §60.564(g) for the exit velocity provisions.

(b) The test shall be performed within 180 days after startup of the source. The test shall be conducted while the source is operating at or above 90 percent of the production rate.

(c) At least sixty (60) days prior to the test, the permittee shall submit to the Department for approval the procedures for the test and a sketch with dimensions indicating the location of sampling ports and other data to ensure the collection of representative samples.

(d) At least thirty (30) days prior to the test, the Regional Air Quality Manager, shall be informed of the date and time of the test.

(e) Within sixty (60) days after the source test(s), two copies of the complete test report, including all operating conditions, shall be submitted to the Regional Air Quality Manager for approval.

(f) In the event that any of the above deadlines cannot be met, the permittee may request an extension for the due date(s) in writing and include a justification for the extension. The Department may grant an extension for a reasonable cause.

III. MONITORING REQUIREMENTS.

No additional monitoring requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

IV. RECORDKEEPING REQUIREMENTS.

 # 004 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

(a) The permittee shall keep polypropylene production records on a monthly and a 12-month rolling sum basis.

(b) The permittee shall calculate and record PM10 emissions on a monthly and 12-month rolling sum basis.

 # 005 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.565]
Subpart DDD - Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry

SECTION D. Source Level Plan Approval Requirements

Reporting and recordkeeping requirements.

(a) As per 40 CFR §60.565(a)(3), the permittee shall keep an up-to-date, readily-accessible record of the following information measured during each performance test, and shall include the following information in the report of the initial performance test in addition to the written results of such performance tests as required under §60.8.

(1) All visible emission readings, heat content determinations, and exit velocity determinations made during the performance test,
(2) Continuous records of the pilot flame heat-sensing monitoring, and
(3) Records of all periods of operations during which the pilot flame is absent.

(b) As per 40 CFR §60.565(b)(2), if a vent system containing valves that could divert the emission stream away from the control device is used, the permittee shall keep up-to-date, readily accessible continuous records of:

(1) All periods when flow is indicated if flow indicators are installed under §69.563(d)(1).

(2) All times when maintenance is performed on car-sealed valves, when the car seal is broken, and when the valve position is changed (i.e., from open to closed for valves in the vent piping to the control device and from closed to open for valves that vent the stream directly or indirectly to the atmosphere bypassing the control device).

(c) As per 40 CFR §565(e), the permittee shall keep readily accessible continuous records of:

(1) The flare or pilot light flame heat sensing monitoring specified under 40 CFR §60.563(b)(2), and
(2) All periods of operation in which the flare or pilot flame is absent.

(d) As per 40 CFR §60.565(g), the permittee shall keep up-to-date, readily accessible records of:

(1) Any changes in production capacity, or of any replacement, removal or addition of product recovery equipment; and
(2) The results of any performance test performed pursuant to the procedures specified by 40 CFR §60.564.

V. REPORTING REQUIREMENTS.

 # 006 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.565]
Subpart DDD - Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry
Reporting and recordkeeping requirements.

(a) As per 40 CFR §60.565(b)(1), the permittee shall submit with the initial performance test an engineering report describing in detail the vent system used to vent each affected vent stream to the flares. This report shall include all valves and vent pipes that could vent the stream to the atmosphere, thereby bypassing the flares, and identify which valves are car-sealed opened and which valves are car-sealed closed.

(b) As per 40 CFR §60.565(k), the permittee shall submit to the Department semiannual reports of the following recorded information. The initial report shall be submitted within 6 months after the initial start-up date.

(1) All periods the flare or pilot light flame heat sensing monitoring specified under 40 CFR §60.563(b)(2); and
(2) All periods of operation in which the flare or pilot flame is absent.

VI. WORK PRACTICE REQUIREMENTS.

No additional work practice requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

VII. ADDITIONAL REQUIREMENTS.

No additional requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

SECTION D. Source Level Plan Approval Requirements

Source ID: 103A Source Name: PLANT 1 FUGITIVE SOURCES

Source Capacity/Throughput:

basis? how assess compliance? PM2.5?

I. RESTRICTIONS.

Emission Restriction(s).

 # 001 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
The Particulate Matter (PM/PM10) emissions from the Polypropylene Plant No.1 shall be less than 7.10 tons per twelve (12) month rolling sum.

Throughput Restriction(s).

 # 002 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
Polypropylene production from Plant 1 shall not exceed 595,680,000 pounds per 12-month rolling sum.

II. TESTING REQUIREMENTS.

No additional testing requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

III. MONITORING REQUIREMENTS.

No additional monitoring requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

IV. RECORDKEEPING REQUIREMENTS.

 # 003 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

(a) The permittee shall keep polypropylene production records on a monthly and a 12-month rolling sum basis.

(b) The permittee shall calculate and record PM10 emissions on a monthly and 12-month rolling sum basis.

 # 004 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.562-2]
Subpart DDD - Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry
Standards: Equipment leaks of VOC.

The permittee shall comply with 40 CFR §60.486 for all applicable recordkeeping requirements.

V. REPORTING REQUIREMENTS.

 # 005 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.562-2]
Subpart DDD - Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry
Standards: Equipment leaks of VOC.

The permittee shall comply with 40 CFR §60.487 for all applicable reporting requirements.

VI. WORK PRACTICE REQUIREMENTS.

 # 006 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.562-2]
Subpart DDD - Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry
Standards: Equipment leaks of VOC.

(a) The permittee shall comply with the requirements specified in §60.482-1 through §60.482-10 as soon as practicable, but no later than 180 days after initial startup.

SECTION D. Source Level Plan Approval Requirements

VII. ADDITIONAL REQUIREMENTS.

 # 007 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

Prior to the incorporation of this Plan Approval into the TVOP, the permittee shall provide to the Department a list of the new components that are subject to the requirements of 40 C.F.R. 60 Subpart DDD and the methods to comply with the requirements for each type of components.

~~Add to TV permit~~
No! Is too much info + NSPS allows 180 days to submit

SECTION D. Source Level Plan Approval Requirements

Source ID: 103B Source Name: PLANT 2 FUGITIVE SOURCES

Source Capacity/Throughput:

I. RESTRICTIONS.

Emission Restriction(s).

 # 001 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
The combined Particulate Matter (PM/PM10) emissions from the Polypropylene Plant No.2 shall be less than 7.10 tons per twelve (12) month rolling sum.

Throughput Restriction(s).

 # 002 [25 Pa. Code §127.12b]
Plan approval terms and conditions.
Polypropylene production from Plant 2 shall not exceed 595,680,000 pounds per 12-month rolling sum.

redundant

II. TESTING REQUIREMENTS.

No additional testing requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

III. MONITORING REQUIREMENTS.

No additional monitoring requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

IV. RECORDKEEPING REQUIREMENTS.

 # 003 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

(a) The permittee shall keep polypropylene production records on a monthly and a 12-month rolling sum basis.

(b) The permittee shall calculate and record PM10 emissions on a monthly and 12-month rolling sum basis.

 # 004 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.562-2]
Subpart DDD - Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry
Standards: Equipment leaks of VOC.

The permittee shall comply with 40 CFR §60.486 for all applicable recordkeeping requirements.

V. REPORTING REQUIREMENTS.

 # 005 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.562-2]
Subpart DDD - Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry
Standards: Equipment leaks of VOC.

The permittee shall comply with 40 CFR §60.487 for all applicable reporting requirements.

VI. WORK PRACTICE REQUIREMENTS.

 # 006 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.562-2]
Subpart DDD - Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry
Standards: Equipment leaks of VOC.

(a) The permittee shall comply with the requirements specified in §60.482-1 through §60.482-10 as soon as practicable, but no later than 180 days after initial startup.

SECTION D. Source Level Plan Approval Requirements

VII. ADDITIONAL REQUIREMENTS.

 # 007 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

Prior to the incorporation of this Plan Approval into the TVOP, the permittee shall provide to the Department a list of the new components that are subject to the requirements of 40 C.F.R. 60 Subpart DDD and the methods to comply with the requirements for each type of components.

SECTION D. Source Level Plan Approval Requirements

Source ID: 106 Source Name: PROPYLENE SPLITTER PROCESS & CAVERN 4

Source Capacity/Throughput:

I. RESTRICTIONS.

No additional requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

II. TESTING REQUIREMENTS.

No additional testing requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

III. MONITORING REQUIREMENTS.

No additional monitoring requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

IV. RECORDKEEPING REQUIREMENTS.

 # 001 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.562-2]
Subpart DDD - Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry
Standards: Equipment leaks of VOC.

The permittee shall comply with 40 CFR §60.486 for all applicable recordkeeping requirements.

 # 002 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.565]
Subpart DDD - Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry
Reporting and recordkeeping requirements.

(a) As per 40 CFR §60.565(b)(2), if a vent system containing valves that could divert the emission stream away from the control device is used, the permittee shall keep up-to-date, readily accessible continuous records of:

(1) All periods when flow is indicated if flow indicators are installed under §69.563(d)(1).
(2) All times when maintenance is performed on car-sealed valves, when the car seal is broken, and when the valve position is changed (i.e., from open to closed for valves in the vent piping to the control device and from closed to open for valves that vent the stream directly or indirectly to the atmosphere bypassing the control device).

(b) As per 40 CFR §565(e), the permittee shall keep readily accessible continuous records of:

(1) The flare or pilot light flame heat sensing monitoring specified under 40 CFR §60.563(b)(2), and
(2) All periods of operation in which the flare or pilot flame is absent.

(c) As per 40 CFR §60.565(g), the permittee shall keep up-to-date, readily accessible records of:

(1) Any changes in production capacity, or of any replacement, removal or addition of product recovery equipment; and
(2) The results of any performance test performed pursuant to the procedures specified by 40 CFR §60.564.

V. REPORTING REQUIREMENTS.

 # 003 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.562-2]
Subpart DDD - Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry
Standards: Equipment leaks of VOC.

The permittee shall comply with 40 CFR §60.487 for all applicable reporting requirements.

 # 004 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.565]
Subpart DDD - Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry
Reporting and recordkeeping requirements.

SECTION D. Source Level Plan Approval Requirements

As per 40 CFR §60.565(b)(1), the permittee shall submit with the initial performance test an engineering report describing in detail the vent system used to vent each affected vent stream to the flares. This report shall include all valves and vent pipes that could vent the stream to the atmosphere, thereby bypassing the flares, and identify which valves are carsealed opened and which valves are car-sealed closed.

VI. WORK PRACTICE REQUIREMENTS.

 # 005 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.562-2]
Subpart DDD - Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry
Standards: Equipment leaks of VOC.

Check There

(a) The permittee shall comply with the requirements specified in §60.482-1 through §60.482-10 as soon as practicable, but no later than 180 days after initial startup.

VII. ADDITIONAL REQUIREMENTS.

 # 006 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

Prior to the incorporation of this Plan Approval into the TVOP, the permittee shall provide to the Department a list of the new components that are subject to the requirements of 40 C.F.R. 60 Subpart DDD and the methods to comply with the requirements for each type of components.

Put in plan app

These are subpart W, stds for equipment leaks

Recommend not IBR to 40 CFR applicable parts

TOO long IBR as here

SECTION D. Source Level Plan Approval Requirements

Source ID: 107 Source Name: PROPYLENE UNLOADING RACK

Source Capacity/Throughput:

I. RESTRICTIONS.

No additional requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

II. TESTING REQUIREMENTS.

No additional testing requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

III. MONITORING REQUIREMENTS.

No additional monitoring requirements exist except as provided in other sections of this plan approval including Section B (Plan Approval General Requirements).

IV. RECORDKEEPING REQUIREMENTS.

 # 001 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.562-2]
Subpart DDD - Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry
Standards: Equipment leaks of VOC.

cite to paragraph?

The permittee shall comply with 40 CFR §60.486 for all applicable recordkeeping requirements.

 # 002 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.565]
Subpart DDD - Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry
Reporting and recordkeeping requirements.

(a) As per 40 CFR §60.565(b)(2), if a vent system containing valves that could divert the emission stream away from the control device is used, the permittee shall keep up-to-date, readily accessible continuous records of:

(1) All periods when flow is indicated if flow indicators are installed under §69.563(d)(1).
(2) All times when maintenance is performed on car-sealed valves, when the car seal is broken, and when the valve position is changed (i.e., from open to closed for valves in the vent piping to the control device and from closed to open for valves that vent the stream directly or indirectly to the atmosphere bypassing the control device).

(b) As per 40 CFR §565(e), the permittee shall keep readily accessible continuous records of:

(1) The flare or pilot light flame heat sensing monitoring specified under 40 CFR §60.563(b)(2), and
(2) All periods of operation in which the flare or pilot flame is absent.

(c) As per 40 CFR §60.565(g), the permittee shall keep up-to-date, readily accessible records of:

(1) Any changes in production capacity, or of any replacement, removal or addition of product recovery equipment; and
(2) The results of any performance test performed pursuant to the procedures specified by 40 CFR §60.564.

V. REPORTING REQUIREMENTS.

 # 003 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.562-2]
Subpart DDD - Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry
Standards: Equipment leaks of VOC.

The permittee shall comply with 40 CFR §60.487 for all applicable reporting requirements.

 # 004 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.565]
Subpart DDD - Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry
Reporting and recordkeeping requirements.

SECTION D. Source Level Plan Approval Requirements

As per 40 CFR §60.565(b)(1), the permittee shall submit with the initial performance test an engineering report describing in detail the vent system used to vent each affected vent stream to the flares. This report shall include all valves and vent pipes that could vent the stream to the atmosphere, thereby bypassing the flares, and identify which valves are carsealed opened and which valves are car-sealed closed.

VI. WORK PRACTICE REQUIREMENTS.

 # 005 [40 CFR Part 60 Standards of Performance for New Stationary Sources §40 CFR 60.562-2]
Subpart DDD - Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry
Standards: Equipment leaks of VOC.

(a) The permittee shall comply with the requirements specified in §60.482-1 through §60.482-10 as soon as practicable, but no later than 180 days after initial startup.

VII. ADDITIONAL REQUIREMENTS.

 # 006 [25 Pa. Code §127.12b]
Plan approval terms and conditions.

Prior to the incorporation of this Plan Approval into the TVOP, the permittee shall provide to the Department a list of the new components that are subject to the requirements of 40 C.F.R. 60 Subpart DDD and the methods to comply with the requirements for each type of components.

put into TV

SECTION E. Alternative Operation Requirements.

No Alternative Operations exist for this Plan Approval facility.

July 2016

EPA Comments on

Proposed Plan Approval 23-0012C

For Braskem America, Inc.

This proposed plan approval is to increase the total polypropylene production rate from plants 1 and 2 at Braskem America, located in Marcus Hook, Pennsylvania, from 455,900 tpy to 595,680 tpy. The facility is a major VOC NNSR source.

Significant comments are highlighted.

1. NNSR Analysis
   a. Step One to the NNSR applicability determination must be delineated. Baseline actual VOC emissions for all affected units must be included and an explanation of the basis for those emissions (CEMs, bases for any emissions factors used, etc.); The Baseline Period must be clear. (January 2014 through December 2015?)
   b. The proposed throughput limit of 595,680,000 pounds per year for each plant would establish potential to emit (PTE) for VOC emissions. If PTE is used [and not projected actual emissions (PAE)], no emissions may be excluded in the analysis.
   c. Please provide the calculations used that show the VOC emissions associated with the new PTE limits.
   d. Please show how the VOC increase from the project is determined, i.e., PTE minus Baseline Actual Emissions (BAE). Without this information, the NNSR analysis is incomplete and the submission to EPA is incomplete.

2. PSD Analysis
   a. Please identify if the source is a major PSD source so that the reader may ascertain whether the modification is a modification to a major source.
   b. Assuming the source is a major PSD source, or if not, to ascertain whether the modification itself is a major source, Step One to the NSR applicability determination must be delineated. The Baseline Period must be identified (January 2014 through December 2015?) BAE for all affected units must be included.
   c. Please provide the calculations used that show the emissions for all NSR regulated pollutants, including $PM_{2.5}$ and excluding VOCs, associated with the BAE and the new PTE limits. (See above comment regarding PTE compared to PAE)
   d. Please show how the increase from the project is determined, i.e., PTE minus Baseline Actual Emissions (BAE). Without this information, the PSD NSR analysis is incomplete and the submission to EPA is incomplete.

3. CAM – The review memo states that CAM does not apply because the emissions controlled by the flares do not have an emissions standard.
   a. Flare C02 - Condition #001 to Sources 102a and b in the title V permit specify VOC emissions limits, so the above statement is not correct. The flare is a control device

as defined in 40 CFR 64.1. This assertion, even if correct, is not one of the exemptions found at 40 CFR 64.2(b).

b. Flare C100 – The review memo should state, in the CAM discussion, that the applicability of CAM to the Sunoco flare should be addressed in the DNREC permit. From looking at the DNREC permit, one might conclude that the flare is exempt from CAM because the flare is subject to MACT and NSPS requirements.

4. The project –
   a. The permit map is not included in the draft permit and should be, as the map would show which units have controls and how emissions are directed via stacks.
   b. Because downstream (flares) and upstream (boilers) are affected by the project, we expect that the permits for SPMT in Delaware as well as FPL would be modified. We previously advised that the steam demand is not part of the project because the Braskem facility is not aggregated with FPL. Please note this in the review memo. Also please note, in the review memo, whether DNREC has been informed about this project and whether the FPL permit is being modified accordingly.

5. PM10 and PM2.5 emissions - Please explain the purpose of and basis for the proposed PM_{10} emissions limits. Why are PM_{10} Limits proposed but not $PM_{2.5}$ limits? Depending on the purpose of these limits, a means of assuring compliance with the limits may need to be specified in the plan approval.

6. VOC emissions - We note that the current VOC caps on the production lines in Plants 1 and 2 are not changed. We also note that the current permit allows ***The permittee shall calculate the VOC emissions on a monthly basis and 12 month rolling sum, using DEP approved methods***. The methods to assure compliance with the various VOC caps for this facility must be specified in order to make this permit enforceable as a practical matter, i.e., to confirm that the source remains in compliance with the VOC caps.

7. HAP emissions – Please identify the HAP PTE, after the proposed change, in the review memo. If this change affects its current minor HAP status, affected applicable MACT requirements should be fully addressed.

8. The same production limits on plants 1 and 2 are stated in various conditions, including Condition #2 on pages 11, 14 and 18 and Condition #3 on pages 12, 16 and 20. We recommend that the throughput limit should be set forth once, perhaps in Section C, for brevity/clarity.

Prepared by
Gerallyn Duke
Office of Permits and State Programs
3AP10
June 27, 2016

July 2016

EPA Comments on

Proposed Plan Approval 23-0012C

For Braskem America, Inc.

This proposed plan approval is to increase the total polypropylene production rate from plants 1 and 2 at Braskem America, located in Marcus Hook, Pennsylvania, from 455,900 tpy to 595,680 tpy. The facility is a major VOC NNSR source.

Significant comments are highlighted.

1. NNSR Analysis
   a. Step One to the NNSR applicability determination must be delineated. Baseline actual VOC emissions for all affected units must be included and an explanation of the basis for those emissions (CEMs, bases for any emissions factors used, etc.); The Baseline Period must be clear. (January 2014 through December 2015?)

please provide

The review memo is revised to specify that the baseline period is October 2013 through September 2015 for any modified sources. To provide more details to the emissions calculations, the following sections in the Plan Approval application are attached to this response document:

- Section 3 (Detailed Project Emissions Analysis), and
- Attachment C (Back-up Emissions Calculations).

Need a call to discuss, Can't ID BAE

The table below summarizes the sources and the baseline determination.

TVOP Source ID	Project Source	Baseline Discussion
H-5 AREA		
107	RGP Storage Expansion (a)	New source; therefore, no baseline.
	PGP Unloading and Transfer Expansion (b)	New source; therefore, no baseline.
SPLITTER AREA		
106	IRPL Connection (a)	New source; therefore, no baseline.
	Propane Return Line from the Polymers Units (b)	New source; therefore, no baseline.
	P1/P2 PGP Product Transfer Pumps Upgrade[1] (c)	New source; therefore, no baseline.
	Incremental Dryer Regenerations (d)	PAE - BAE analysis shown in Att. C page 15 of 28
C100	SPMT Ethylene Complex Flare	Flows to the flare are either new or the PAE - BAE analysis for each flow is provided in other sections of Attachment C. ?
POLYMERS UNITS		
101A/B	Incremental Storage Silos Purging	PAE - BAE analysis shown in Att. C page 24 of 28 23? Basis does not match baseline period
102A/B	Propylene Charge Pumps Modifications[2] (a)	New source; therefore, no baseline.
	Plant 1/2 Manufacturing Baghouses (b)	PAE - BAE analysis shown in Att. C page 18 of 28
102A/B	Propane Return Line Filter Changing (c)	PAE - BAE analysis shown in Att. C page 20 of 28 pg19
	Incremental Propylene Degassing Column (d)	PAE - BAE analysis shown in Att. C page 21 of 28 pg20
	Incremental Propylene Dryer Regenerations (e)	PAE - BAE analysis shown in Att. C page 22 of 28 21
	Incremental Product Purge Bin Purging (f)	PAE - BAE analysis shown in Att. C page ~~23~~ 22 of 28
New	Railcar Cleaning Station and Baghouse	New source; therefore, no baseline.
C02	Braskem Flare	Flows to the flare are either new or the PAE - BAE analysis for each flow is provided in other sections of Attachment C. ?

1 - The P1/P2 PGP Transfer Pumps are proposed to have new impellers installed; however, this change will not result in an emissions increase. The emissions increases will occur from new periodic maintenance purges and new fugitive VOC piping components. Therefore, there are no baseline emissions for this change.
2 - The Propylene Charge Pumps are proposed to have new impellers installed; however, this change will not result in an emissions increase. The emissions increases will occur from new periodic maintenance purges and new fugitive VOC piping components. Therefore, there are no baseline emissions for this change.

   b. The proposed throughput limit of 595,680,000 pounds per year for each plant would establish potential to emit (PTE) for VOC emissions. If PTE is used [and not projected actual emissions (PAE)], no emissions may be excluded in the analysis.

The production rate of the facility is not directly proportional to VOC emissions as certain operating parameters vary. For example, the fugitive emissions from the existing components will not change under current work practices. The fugitive emission increases are from the new components only. The production rate

increase related emission increases are detailed in Attachment C. Response to Comment 1.a. above also describes the baseline to projected actual emissions. Excludable VOC emissions (that the sources were capable of accommodating) were factored into the projected actual analysis for only the Polymers Units including Manufacturing Baghouses, and Purge Bins. (Source IDs 102A and 102B), Storage Silos (Source IDs 101A and 101B).

Braskem did not request any increases to VOC emissions limits in the current Title V Operating Permit 23-00012. The production limit is set for each production line.

c. Please provide the calculations used that show the VOC emissions associated with the new PTE limits.

See attached Section C.

d. Please show how the VOC increase from the project is determined, i.e., PTE minus Baseline Actual Emissions (BAE). Without this information, the NNSR analysis is incomplete and the submission to EPA is incomplete.

See Response to Comment #1.a.

2. PSD Analysis
   a. Please identify if the source is a major PSD source so that the reader may ascertain whether the modification is a modification to a major source.

      The review memo was revised to state:

      "The facility is not major for all regulated pollutants in an attainment area. The facility is major for VOC emissions and located in an ozone marginal nonattainment area."

   b. Assuming the source is a major PSD source, or if not, to ascertain whether the modification itself is a major source, Step One to the NSR applicability determination must be delineated. The Baseline Period must be identified (January 2014 through December 2015?) BAE for all affected units must be included.

      The project is not a major PSD source. See response to Comment 1.a.

   c. Please provide the calculations used that show the emissions for all NSR regulated pollutants, including $PM_{2.5}$ and excluding VOCs, associated with the BAE and the new PTE limits. (See above comment regarding PTE compared to PAE)

      See response to Comment 1.

   d. Please show how the increase from the project is determined, i.e., PTE minus Baseline Actual Emissions (BAE). Without this information, the PSD NSR analysis is incomplete and the submission to EPA is incomplete.

      See response to Comment 1.

3. CAM – The review memo states that CAM does not apply because the emissions controlled by the flares do not have an emissions standard.
   a. Flare C02 - Condition #001 to Sources 102a and b in the title V permit specify VOC emissions limits, so the above statement is not correct. The flare is a control device as defined in 40 CFR 64.1. This assertion, even if correct, is not one of the exemptions found at 40 CFR 64.2(b).

      Flare C02 is subject to CAM. The review memo was revised to address the requirements to comply with CAM.

   b. Flare C100 – The review memo should state, in the CAM discussion, that the applicability of CAM to the Sunoco flare should be addressed in the DNREC permit. From looking at the DNREC permit, one might conclude that the flare is exempt from CAM because the flare is subject to MACT and NSPS requirements.

      This flare complies with MACT, and is exempt from CAM requirments.

4. The project –
   a. The permit map is not included in the draft permit and should be, as the map would show which units have controls and how emissions are directed via stacks.

      Maps were added.

   b. Because downstream (flares) and upstream (boilers) are affected by the project, we expect that the permits for SPMT in Delaware as well as FPL would be modified. We previously advised that the steam demand is not part of the project because the Braskem facility is not aggregated with FPL. Please note this in the review memo. Also please note, in the review memo, whether DNREC has been informed about this project and whether the FPL permit is being modified accordingly.

As noted in Sections 3.5 and 3.6 of the January 2016 Plan Approval application, the Ethylene Complex Flare and Auxiliary Boilers will not be modified in any way and will only experience increased utilization within existing capacities as part of the project. Sunoco Partners Marketing & Terminals owns and operates these sources and is aware of their respective impacts as a result of this project. There are no changes required to the existing operating permits for either of these sources.

5. PM10 and PM2.5 emissions - Please explain the purpose of and basis for the proposed PM_{10} emissions limits. Why are PM_{10} Limits proposed but not $PM_{2.5}$ limits? Depending on the purpose of these limits, a means of assuring compliance with the limits may need to be specified in the plan approval.

   The PM10/PM2.5 limits are based on BAT of 25 Pa. Code §127.12(a)(5).

6. VOC emissions - We note that the current VOC caps on the production lines in Plants 1 and 2 are not changed. We also note that the current permit allows *The permittee shall calculate the VOC emissions on a monthly basis and 12 month rolling sum, using DEP approved methods*. The methods to assure compliance with the various VOC caps for this facility must be specified in order to make this permit enforceable as a practical matter, i.e., to confirm that the source remains in compliance with the VOC caps.

   For the Source ID 101A/B Plant 1/Plant 2 Storage Silos stack test emissions information is used to calculate VOC emissions.

   For the Source ID 102A/B Plant 1/Plant 2 Polypropylene Manufacturing Sources and Source ID 106 Propylene Splitter Process mass balance calculations using mass flow meter data are used to calculate VOC emissions.

   For the Source ID 107 H-5 Propylene Unloading Rack, mass balance calculations and engineering estimates are used to calculate VOC emissions.

   For the Source ID 103A/B Plant 1/Plant 2 Fugitive sources, the actual VOC leak information collected via the LDAR programs is used to calculate VOC emissions.

   These methods to assure compliance with the VOC caps are specified in the Plan Approval.

7. HAP emissions – Please identify the HAP PTE, after the proposed change, in the review memo. If this change affects its current minor HAP status, affected applicable MACT requirements should be fully addressed.

   The Braskem Marcus Hook Polymers facility is an area source of HAP emissions. The increase in production rate associated with this project will not increase the potential for HAP emissions from the facility or change the area source HAP status.

   VOC are not HAPs

8. The same production limits on plants 1 and 2 are stated in various conditions, including Condition #2 on pages 11, 14 and 18 and Condition #3 on pages 12, 16 and 20. We recommend that the throughput limit should be set forth once, perhaps in Section C, for brevity/clarity.

These emission limits are source specific, and not a facility wide emission limit. Therefore, it is better to specify them under each source ID. OK

July 2016

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

SOUTHEAST REGIONAL OFFICE

MEMO

TO James Rebarchak
Regional Manager
Air Quality

FROM Xiaoyin Sun
Engineering Specialist
New Source Review Section
Air Quality

THROUGH James A. Beach, P.E.
Environmental Engineer Manager
New Source Review Section
Air Quality

DATE May 27, 2016

RE Plan Approval Application Review
Braskem America, Inc.
Marcus Hook Borough, Delaware County
Application No.: **23-0012C**
APS ID: 890017, AUTH ID: 1106345

On January 14, 2015, the Department of Environmental Protection (DEP) received a Plan Approval application (No. 23-0012C) from Braskem America, Inc. (Braskem) for the expansion (debottlenecking) of its existing polypropylene manufacturing plant located at 750 West 10th Street, in Marcus Hook Borough, Delaware County.

Facility Information

Braskem polypropylene manufacturing plant is a major facility for VOC emissions located in an ozone marginal nonattainment area, and PM2.5 nonattainment area.

The Standard Industrial Classification (SIC) Code for this plant is 2821 - Plastics Material and Synthetic Resins; and the North America Industrial Classification System (NAICS) Code is 325211 – Plastics Material and Resin Manufacturing.

Existing Source Information

The facility is designated into three (3) areas as follows:

- H-5 Area — propylene unloading and storing (Source ID 107)
- Splitter Area — propylene purification (Source ID 106)
- Polymer Units Area — polypropylene production (Source IDs 101A, 101B, 102A, 102B, 103A, and 103B)

The H-5 Area includes refinery grade propylene (RGP) and polymer grade propylene (PGP) unloading from trucks and railcars, and RGP and PGP storage tanks. The VOC emissions from this area are either fugitives or controlled by a flare (Source ID C100) located in the State of Delaware, and owned and operated by Sunoco Partners Marketing and Terminals, LP (SPMT).

The Splitter Area includes RGP and PGP purification and preparation processes. The VOC emissions from this area are either fugitives or controlled by a flare (Source ID C100) located in the State of Delaware, and owned and operated by SPMT.

The Polymer Units Area includes two (2) identical polypropylene production lines Plant 1 and Plant 2. Each plant is divided into three (3) sources based on the emissions types. The following are the source names and IDs in Braskem's TVOP No. 23-00012:

Plant	Source Name (Source ID)	Emission types	Emission Limits
1	Three Storage Silos (101A) Polypropylene MFG Sources (102A) Fugitive Sources (103A)	Stack (S01) Flare (C02) Fugitives (Z01)	37.10 TPY (VOC)
2	Three Storage Silos (101B) Polypropylene MFG Sources (102B) Fugitive Sources (103B)	Stack (S02) Flare (C02) Fugitives (Z02)	24.30 TPY (VOC)

Plant 1 has a polypropylene production rate of 430 million pounds per year (215,000 tons per year), according to RACT Application No. OP-23-0012 submitted in August 1995.

Plant 2 is limited to 240,900 tons polypropylene production per year in the TVOP.

Project

The project is to increase polypropylene production rate to 68,000 lb/hr (297,840 tons per year) per plant.

To achieve the proposed production rate, the project will involve the modification of the feedstock unloading, splitter, polymerization plant operations, additional piping and fugitive components. The proposed changes that are related to air emission sources are detailed below:

planning? (PTE to follow-up)

current PTE

PTE (not PAE)

In the H-5 Area, the project will

- Install one (1) refinery grade propylene (RGP) storage bullet (90,000 gallon tank)
- Install piping and fugitive components to:
    - Modify the polymer grade propylene (PGP) railcar unloading process;
    - Connect RGP and PGP feed headers in H-5 and Splitter areas
    - Transfer PGP from the H-5 Area directly to PGP treaters or dryers bypassing a portion of the Splitter area

In the Splitter Area, the project will:

- Re-tray the T-9 De-ethanizer Tower
- Install additional piping and fugitive components to
    - Tie into existing Inter Refinery Pipeline (IRPL) to feed RGP directly to the Splitter Area
    - Tie the polymers propane return line into the propane-propylene treating system and C3 Splitter
    - Install larger PGP transfer pumps.

In the Polymers Units Area, the project will:

- Update the melt pump sizes
- Install larger PGP pumps
- Install additional piping and fugitive components to:
    - Increase the size of the propylene charge pumps; and
    - Increase the capacity of the filters on the Propane Return line.

Railcar Cleaning Station:

In its original PA application, Braskem proposed to install a railcar cleaning station. However, on May 25, 2016, it decided to not construct this station due to financial restraints.

Emission Increases

From Steam Demand Increase

Braskem purchases steam from FPL Energy Marcus Hook (FPL), who operates under TVOP Nos. 23-00084 and 23-00089. The Braskem and FPL facilities are not aggregated for determination of Prevention of Significant Determination (PSD) and Non-attainment New Source Review (NNSR) as determined by DEP and EPA. After consulting with Ms. Gerallyn Duke, EPA Region III, the emission increases from steam demand aren't part of this project.

"because these units are not aggregated, steam demand is not part of this project"

~~Explain why Is there debottle [illegible]?~~

need to see FPL plan approval

From Production Increase

The VOC emission increases from the project can be divided into three (3) types:

- Uncontrolled intermittent emissions
- Controlled continuous and intermittent emissions
- Fugitive emissions

The controlled continuous and intermittent emission increases are estimated based on the production rate increase and the flare destruction efficiencies of 98% or 99.5% dependent on which flare is used for controlling emissions.

The uncontrolled intermittent emission increases are from the silos (Source IDs 101A and 101B). The VOC emission rates are based on actual emissions and the percent of the production increase.

The fugitive emission increases are from the new leaking components. Braskem estimated the emission increases based on the numbers of new components, types of these components, and the leak percentages from Braskem past several years' LDAR data and inspections.

Baseline Actual Emissions Determination

Table 1 – Actual Production Rates

Date	Plant 1 Production	Plant 2 Production
	lbs/month	
14-Jan	26,782,850	27,358,750
14-Feb	28,242,300	18,931,600
14-Mar	22,481,550	35,197,400
14-Apr	30,135,769	27,983,460
14-May	29,363,643	32,119,550
14-Jun	27,306,788	30,629,500
14-Jul	33,575,953	26,304,850
14-Aug	29,154,600	32,362,550
14-Sep	30,401,877	30,269,650
14-Oct	35,533,134	38,750,700
14-Nov	29,495,600	35,073,500
14-Dec	36,058,000	33,213,100
15-Jan	31,659,658	27,772,300
15-Feb	24,439,207	20,533,550
15-Mar	15,688,400	22,496,400
15-Apr	36,443,312	34,603,000
15-May	34,274,600	34,901,731
15-Jun	31,407,908	29,022,900
15-Jul	35,731,218	32,528,200
15-Aug	32,672,185	40,965,300
15-Sep	33,174,419	38,331,736
15-Oct	33,926,825	37,498,850
15-Nov	33,286,404	40,592,823
15-Dec	33,389,450	37,962,310

Table 1 above shows the actual monthly production rates from January 2014 through December 2015. The highest production rates achieved were 36,443,312 lbs/month in April 2015 for Plant 1 and 40,965,300 lbs/month in August 2015 for Plant 2. The production rates that could have accommodated were 437,319,744 lbs/yr for Plant 1 and 491,583,600 lbs/yr for Plant 2. Table 2 below shows the production rate baselines and percent increases for both plants:

Table 2 – Production Rate Baselines

Plant	Production Rate (lbs/yr)				
	Current Limit	Could have accommodated	Baseline	Proposed Limit	Increase %
1	430,000,000	437,319,744	430,000,000	595,680,000	38.53
2	481,800,000	491,583,600	481,800,000	595,680,000	23.64

Σ = 911,800,000 lbs = 455,900 T

Σ 1,191,360,000 lbs = 595,680 tons

The emission increases from the project are summarized in Table 3. The emissions were estimated and calculated by Braskem, and verified by DEP. The emissions from the cooling towers are not affected as a result of the project, because there is no additional cooling water demand.

BAE ?
PAE ?

NO. This is PTE

PM2.5?

provide underlying tables for PTE or PAE

Table 3 - Emission Increases from the Project

Source ID	Sources	Emission Types	VOC	PM/PM10	NOx	CO	CO2e
107	RGP Storage Bullet	Maintenance Purges	0.02				
		Fugitives	0.49				
	PGP Unloading Compressors	Railcar System Depressurizations	0.12				
		Maintenance Purges	0.03				
		Fugitives	0.68				
		Truck System Depressurizations	0.44				
		Truck System Fugitive Emissions	0.11				
106	IRPL Connection	IRPL Meter Proving	0.01				
		Maintenance Purges	0.001				
		Fugitives	0.57				
	PGP Product Transfer Pumps	Maintenance Purges	9.7E-05				
		Fugitives	0.14				
	Dryers	Incremental Dryer Regeneration	0.08				
Polymer Plants	Propylene Charge Pumps (both plants)	Maintenance Purges	1.12E-4				
		Fugitives	0.16				
	Propane Return Line Filter Changing	Plant 1	0.05				
		Plant 2	0.05				
	Polymers Units Baghouses	Plant 1		2.49/2.49			
		Plant 2		4.84/4.84			
	Propylene Degassing Column	Plant 1	0.25				
		Plant 2	0.03				
	Propylene Dryer Regenerations	Plant 1	0.21				
		Plant 2	0.26				
	Product Purge Bin Purging	Plant 1	0.76				
		Plant 2	0.45				
	Storage Silos Purging	Plant 1	0.70	0.21/0.21			
		Plant 2	0.45	0.15/0.15			
C02*			0.52		0.81	3.67	34,631
Project Total Emission Increases			6.58	7.68/7.68	0.81	3.67	34,631

*: Emissions from natural gas combustion only.

Regulatory Review

1. ***PSD*** IS it a major PSD source?

The project is not subject to the prevention of significant deterioration (PSD), because the project itself does not create significant emission increase (SEI) for attainment area pollutants as shown in Table 4.

PM2.5?

Table 4 – PSD Step 1 Analysis

Pollutants	NOx	SO_2	CO	PM	PM	H_2SO_4	Lead	CO_{2e}
Increases	0.8	0	3.8	7.9	7.9	0	0	35,915
PSD Significant Level	40	40	100	25	15	7	0.6	75,000
PSD Triggered	No	No	No	No	No	No	No	No

2. ***NSR – 25 Pa. Code Chapter 127 Subchapter E***

- ***25 Pa. Code 127.201(d) – Significant Emission Increases for VOC and NOx*** Is it a major VOC or NOx source?

As per 25 Pa. Code §127.201(d), this project is not subject to New Source Review (NSR), because the net NOx and VOC emission increases from the project are not significant as determined in accordance with 25 Pa. Code §127.203a(a) (relating to applicability determination. Table 5 shows the emission aggregations in accordance with 25 Pa. Code §127.203a(a)(5).

Table 5 – VOC and NOx Emission Aggregations

PA/RFD	Project Description	Date	Emission (TPY)	
			VOC	NOx
Exemption	Cooling Tower Emission Factor Revision	01/30/2008	1.80	0.00
RFD-495	Propylene Dryers Regeneration Venting	07/15/2008	0.03	0.00
PA-23-0012A	RTO Decommissioning	01/14/2010	4.64	0.00
RFD-3191	Propane Loadout Rack	11/02/2012	0.85	0.00
RFD-3275	Propane Return & H-5 Jumpover	11/02/2012	0.73	0.00
RFD-3276	Moleseive Dryer Recovery	11/02/2012	0.22	0.00
RFD-3309	H-5 Railcar Heel Reduction (Phase 1)	11/14/2012	0.24	0.00
RFD-3187	P-Tank Retrofit	12/05/2012	0.33	0.00
RFD-3706	H-5 Railcar Safety Improvement	06/03/2013	0.47	0.00
RFD-2846	H-5 Railcar Heel Reduction (Phase 2)	08/07/2013	1.65	0.00
RFD-4348	Splitter Sulfur Treatment	04/18/2014	0.59	0.00
RFD-4496	Cooling Tower Optimization	06/13/2014	2.67	0.00
RFD-4912	Splitter #1 Isolation	01/16/2015	0.00	0.00
RFD-5243	Splitter Sulfur Treatment Expansion	08/19/2015	1.53	0.00
23-0012C	Polypropylene Production Expansion	01/14/2016	6.58	0.76
Emission Aggregation (10 Years)			22.33	0.76

- ***25 Pa. Code 127.201 – Significant Emission Increases for PM2.5***

The PM2.5 emission increase from the project is below the significant level of 10 TPY. Therefore, the project is not subject to NNSR for PM2.5.

3. ***NSPS***

The facility is subject to 40 CFR 60 Subpart DDD - Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry, except the silos (Source IDs 101A and 101B) for the final product. The silos are not subject to the provisions of Subpart DDD, because:

good citations

- Plant I "commenced" construction before January 10, 1989, as per 40 CFR §60.560(b)(1)(i) and (ii).
- Plant II emits continuous emissions with a weight percent TOC of less than 0.10 percent, as per 40 CFR §60.560(g). However, the source is required to conduct a test as per 40 CFR §60.564(a)(1) and (d).

  Braskem stated in an email dated May 10, 2016 that there were no planned physical changes and thus no capital expenditure planned for the Source ID 101A – Plant I Three Storage Silos. As per 40 CFR §60.14(e)(2), this production rate increase without expenditure is not considered as "modification".

As per 40 CFR §60.564(a)(1), "Whenever changes are made in production capacity, each owner or operator shall conduct a performance test according to the procedures in this section as appropriate, in order to determine compliance with §60.562-1".

- Braskem is required to conduct a test for Plant 2 silos (Source ID 101B) in order to determine compliance with the TOC weight percent limit of 0.10 percent.
- Braskem is required to conduct a test of the flair (Source ID C01) to demonstrate compliance with 40 CFR §60.18.

The other applicable requirements of 40 CFR 60 Subpart DDD are stated in the current TVOP No. 23-00012. Braskem is required to comply with the requirements that are already specified in TVOP No. 23-00012.

4. ***CAM***

40 C.F.R. PART 64 - COMPLIANCE ASSURANCE MONITORING

CAM does not apply, because the emissions are controlled by the flares that do not have an emission standard.

? NO!

5. ***25 Pa. Code***

§127.12(a)(5) – Best Available Technology (BAT)

The project will comply with the provisions of 40 CFR 60 Subpart DDD for VOC emissions, which is considered as BAT for the source category.

§127.44 – Public Notice

Notice of intent to issue this Plan Approval will be published in PA Bulletin and local newspaper. To be updated.

Recommendation

To be updated.

Is this an NSPS modification?

Summary of Plan Approval No. 23-0012C:

Event	Regulations	Date	Comments
Submittal of Application	NSPS - DDD BAT	Received on 1/14/2016	
Coordination	No		
Acceptance of a complete application		2/2/2016	
Publication in PA Bulletin	Required	5/28/2016	
Publication in local newspaper	Required	To be updated	
Comments from public received			
Comments from U.S. EPA Received			

BAE

Unit		BAE	VOC	PAE?	△	PM	PAE?	△
		Not NEW						
107	a	Ø	[illegible]	0.01				
	b	Ø						
106	a	Ø						
	b	Ø						
	c	Ø						
	d	[illegible]	0.45					
~~C100~~								
C								
C101 A/B								
C102 A	(a)	0				[illegible]		
	(b)					1.26	3.75	2.49
C102 B	(b)					1.40	6.24	4.84
C102 A	(c)		0.01	0.06	0.05			
C102 B	(c)		0.005	0.059	0.05			
C102 A	(d)		1.48	1.73	0.25			
C102 B	(d)		0.12	0.15	0.03			
C102 A	(e)		2.36	2.58	0.21			
C102 B	(e)		1.18	1.45	0.26			
C102 A	(f)		1.98	2.75	0.76			
C102 B	(f)		1.88	2.33	0.45			
Railcar Cleaning		0	Not part of revised protocol					
CO2 ?	(part of 106)							

massbalance

PERMIT MAPS

propylene mfg

PROC 102A → CNTL C02 (flare)
→ STAC S05A
→ STAC S06A
→ STAC S07A

calculated based on maintenance #s needed
+↑ in throughput x EFs

propylene mfg

PROC 102B → CNTL C02 (flare)
→ STAC S05B
→ STAC S06B1
→ STAC S07B
→ STAC S06B2

calculated based on maintenance #s needed
This is only time emissions occur
+↑ in throughput

3-3-16
Xiaoyin Sun (PADEP)
I told her if use of steam from FPL increases, the BAE for the 2 Braskem units (Pro. 102A+B) + may be fugitive sources 103A+B need to be calculated + compared to the future PTE or PAE. If FPL is increasing steam production, that may be a modification that would involve a separate NSR analysis by FPL.

O Duke

fugitive

PROC 103A → STAC Z01

fugitive

PROC 103B → STAC Z02

PROC 105 → STAC Z03

fugitive

PROC 106 → STAC Z106
→ CNTL C100 → STAC S100

Throughput stacks + fug

fugitive

PROC 107 → STAC Z107
→ CNTL C100 → STAC S100

Throughput stacks + fug

PROC 108 → STAC S108

FML L002 →

SECTION A. Site Inventory List

Source ID	Source Name	Capacity/Throughput	Fuel/Material
101A	PLANT 1, THREE STORAGE SILOS	N/A	polypropylene pellets
101B	PLANT 2, THREE STORAGE SILOS	N/A	polypropylene pellets
102A	PLANT 1 POLYPROPYLENE MFG SOURCES	N/A	Prop & Ethylene
102B	PLANT 2 POLYPROPYLENE MFG SOURCES	N/A	prop & ethylene
103A	PLANT 1 FUGITIVE SOURCES	N/A	fugitives
103B	PLANT 2 FUGITIVE SOURCES	N/A	fugitives
105	MAINTENANCE PARTS WASHER		
106	PROPYLENE SPLITTER PROCESS & CAVERN 4	N/A	
107	PROPYLENE UNLOADING RACK	N/A	
108	FIRE WATER PUMP ENGINES		
C02	FLARE SYSTEM (STEAM-ASSISTED)	N/A	
C100	SUNOCO FLARE		
FML002	DIESEL TANKS (2) FOR FIRE PUMP ENGINES		
S01	PLANT 1 STACK (SILO EXHAUST)		
S02	PLANT 2 STACK (SILO EXHAUST)		
S05A	ADDITIVE BLENDER BAGHOUSE STACK (PLANT 1)		
S05B	ADDITIVE BLENDER BAGHOUSE STACK (PLANT 2)		
S06A	EXTRUDER BAGHOUSE VENT STACK (PLANT 1)		
S06B1	EXTRUDER BAGHOUSE VENT STACK I (PLANT 2)		
S06B2	EXTRUDER BAGHOUSE VENT STACK II (PLANT 2)		
S07A	ELUTRIATOR VENT STACK (PLANT 1)		
S07B	ELUTRIATOR VENT STACK (PLANT 2)		
S100	SUNOCO FLARE STACK		
S108	FIRE WATER PUMP ENGINES STACK		
Z01	PLANT 1 FUGITIVES		
Z02	PLANT 2 FUGITIVES		
Z03	FUGITIVE EMISSIONS FROM DEGREASER		
Z106	PROPYLENE SPLITTER PROCESS & CAVERN 4 FUGITIVES		
Z107	PROPYLENE LOADING RACK FUGITIVES		

PERMIT MAPS

PROC 101A → STAC S01

PROC 101B → STAC S02

Response to EPA Comments on

Proposed Plan Approval 23-0012C

For Braskem America, Inc.

August 2, 2016

This proposed plan approval is to increase the total polypropylene production rate from plants 1 and 2 at Braskem America, located in Marcus Hook, Pennsylvania, from 455,900 tpy to 595,680 tpy. The facility is a major VOC NNSR source.

Significant comments are highlighted.

1. NNSR Analysis
   a. Step One to the NNSR applicability determination must be delineated. Baseline actual VOC emissions for all affected units must be included and an explanation of the basis for those emissions (CEMs, bases for any emissions factors used, etc.); The Baseline Period must be clear. (January 2014 through December 2015?)

A discussion of each source and the applicable baseline are shown in Attachment C of the plan approval application and the table below. The baseline period is October 2013 through September 2015) as described in Attachment C of the plan approval application (p. 24 of 27).

TVOP Source ID	Project Source	Baseline Discussion
H-5 AREA		
107	RGP Storage Expansion	New source; therefore, no baseline.
	PGP Unloading and Transfer Expansion	New source; therefore, no baseline.
SPLITTER AREA		
106	IRPL Connection	New source; therefore, no baseline.
	Propane Return Line from the Polymers Units	New source; therefore, no baseline.
	P1/P2 PGP Product Transfer Pumps Upgrade[1]	New source; therefore, no baseline.
	Incremental Dryer Regenerations	PAE - BAE analysis shown in Att. C page 15 of 27

C100	SPMT Ethylene Complex Flare	This flare is not modified by this Project. The flare will only experience increased utilization within operating parameters. Establishment of a baseline is not required; however, the estimated emissions increases are included in the 25 Pa. Code 127.203a applicability determination. Analysis for each flow from each source based on the maximum production rate of the facility is provided in other sections of Attachment C.
POLYMERS UNITS		
101A/B	Incremental Storage Silos Purging	PAE - BAE analysis shown in Att. C page 23 of 27
102A/B	Propylene Charge Pumps Modifications[2]	New source; therefore, no baseline.
	Plant 1/2 Manufacturing Baghouses	PAE - BAE analysis shown in Att. C page 18 of 27
	Propane Return Line Filter Changing	PAE - BAE analysis shown in Att. C page 19 of 27
	Incremental Propylene Degassing Column	PAE - BAE analysis shown in Att. C page 20 of 27
	Incremental Propylene Dryer Regenerations	PAE - BAE analysis shown in Att. C page 21 of 27
	Incremental Product Purge Bin Purging	PAE - BAE analysis shown in Att. C page 22 of 27
C02	Braskem Flare	This flare is not modified by this Project. The flare will only experience increased utilization within operating parameters. Establishment of a baseline is not required; however, the estimated emissions increases are included in the 25 Pa. Code 127.203a applicability determination. Analysis for each flow from each source based on the maximum production rate of the facility is provided in other sections of Attachment C.

1 - The P1/P2 PGP Transfer Pumps are proposed to have new impellers installed; however, this change will not result in an emissions increase. The emissions increases will occur from new periodic maintenance purges and new fugitive VOC piping components. Therefore, there are no baseline emissions for this change.

2 - The Propylene Charge Pumps are proposed to have new impellers installed; however, this change will not result in an emissions increase. The emissions increases will occur from new periodic maintenance purges and new fugitive VOC piping components. Therefore, there are no baseline emissions for this change.

increases. However, these numbers do not double when production rate doubles, because these emissions are from work related activities. These emissions are considered PAE instead of PTE since the emissions are estimated based on historical production records and experience of running the chemical plants.

c. Please provide the calculations used that show the VOC emissions associated with the new PTE limits.

Braskem did not request any increases to VOC emissions limits in the current Title V Operating Permit 23-00012. The production limit is set for each production line.

d. Please show how the VOC increase from the project is determined, i.e., PTE minus Baseline Actual Emissions (BAE). Without this information, the NNSR analysis is incomplete and the submission to EPA is incomplete.

See response to Comment 1.a and Section 3 and Attachment C of the Plan Approval application as they are attached to this response.

- Section 3 (Detailed Project Emissions Analysis), and
- Attachment C (Back-up Emissions Calculations).

2. PSD Analysis

a. Please identify if the source is a major PSD source so that the reader may ascertain whether the modification is a modification to a major source.

The review memo was revised to state:

"The facility is major for VOC emissions only and located in an ozone marginal nonattainment area. Therefore, this facility is **not** a PSD source."

b. Assuming the source is a major PSD source, or if not, to ascertain whether the modification itself is a major source, Step One to the NSR applicability determination must be delineated. The Baseline Period must be identified (January 2014 through December 2015?) BAE for all affected units must be included.

The review memo was revised to state that the source is not a PSD source, and the project is not a major project. The details are explained in the review memo.

c. Please provide the calculations used that show the emissions for all NSR regulated pollutants, including $PM_{2.5}$ and excluding VOCs, associated with the

Braskem has evaluated the emissions increases from existing units following the Applicability determination of 25 Pa Code §127.203a(1)(i)(A) which describes the use of projected actual emissions (PAE). The PAE for this project are based on the maximum polypropylene production rate after the proposed modifications of 595,680,000 pounds per year. This production rate has been included in the Draft 23-0012C Plan Approval as a limit. Based on the nature of operations, this limit is the most practical and enforceable way to limit the facility's potential to emit (PTE). Additionally, new and revised limits associated with this project include:

- Source ID 101A – Plant 1, Three Storage Silos – PM/PM10 emissions limit of 7.10 tons per 12 month rolling sum
- Source ID 101B – Plant 2, Three Storage Silos – PM/PM10 emissions limit of 7.10 tons per 12 month rolling sum
- Source ID 102A – Plant 1 Polypropylene MFG Sources – Polypropylene production limit of 595,680,000 pounds per 12-month rolling sum
- Source ID 102B – Plant 2 Polypropylene MFG Sources – Polypropylene production limit of 595,680,000 pounds per 12-month rolling sum

b. The proposed throughput limit of 595,680,000 pounds per year for each plant would establish potential to emit (PTE) for VOC emissions. If PTE is used [and not projected actual emissions (PAE)], no emissions may be excluded in the analysis.

The increase of the production rate of the facility may not be directly proportional to VOC emissions increase as certain operating parameters vary. For example,

- The fugitive emissions from the existing piping components will not change under current work practices. The fugitive emission increases are from the new components/piping only. The fugitive emissions from the new components are estimated based on the facility current work practice LDAR results and the percentage of leaking components. DEP believes that the estimation is reasonable and reflects the required implementation of the work practice standards in the plan approval. No fugitive emissions were excluded in the emissions analysis.

- For certain sources [Polymers Units (Source IDs 102A and 102B) and Storage Silos (Source IDs 101A and 101B)], the emissions increases are proportional to the production rate. Further, since production rate limits are being set, the PTE and PAE values are equivalent. For these sources, the production rate "that could have accommodated" was used in calculating BAE.

- For all other emission sources the numbers of maintenance events and equipment purges, etc. will generally increase when production rate

BAE and the new PTE limits. (See above comment regarding PTE compared to PAE)

The calculation of PM2.5 emission increase from the project is included in PM emissions, which is below the significant level of 10 TPY. Therefore, the project is not subject to NNSR for PM2.5.

d. Please show how the increase from the project is determined, i.e., PTE minus Baseline Actual Emissions (BAE). Without this information, the PSD NSR analysis is incomplete and the submission to EPA is incomplete.

See responses to Comment 1.a and b.

3. CAM – The review memo states that CAM does not apply because the emissions controlled by the flares do not have an emissions standard.
   a. Flare C02 - Condition #001 to Sources 102a and b in the title V permit specify VOC emissions limits, so the above statement is not correct. The flare is a control device as defined in 40 CFR 64.1. This assertion, even if correct, is not one of the exemptions found at 40 CFR 64.2(b).

      Flare C02 is subject to CAM. The review memo was revised to address the requirements to comply with CAM.

   b. Flare C100 – The review memo should state, in the CAM discussion, that the applicability of CAM to the Sunoco flare should be addressed in the DNREC permit. From looking at the DNREC permit, one might conclude that the flare is exempt from CAM because the flare is subject to MACT and NSPS requirements.

      This flare complies with MACT, and is exempt from CAM requirements.

4. The project –
   a. The permit map is not included in the draft permit and should be, as the map would show which units have controls and how emissions are directed via stacks.

      The maps were added.

   b. Because downstream (flares) and upstream (boilers) are affected by the project, we expect that the permits for SPMT in Delaware as well as FPL would be modified. We previously advised that the steam demand is not part of the project because the Braskem facility is not aggregated with FPL. Please note this in the review memo. Also please note, in the review memo, whether DNREC has been informed about this project and whether the FPL permit is being modified accordingly.

As noted in Sections 3.5 and 3.6 of the January 2016 Plan Approval application, the Ethylene Complex Flare (Source ID C100) and Auxiliary Boilers will not be modified, since the increased utilizations are within the existing capacities as part of the project. Both SPMT and FPL are aware of the respective impacts as a result of this project. There are no changes required to the existing operating permits for the boiler. The SPMT flare permit is under current discussion with DNREC.

5. PM10 and PM2.5 emissions - Please explain the purpose of and basis for the proposed PM_{10} emissions limits. Why are PM_{10} Limits proposed but not $PM_{2.5}$ limits? Depending on the purpose of these limits, a means of assuring compliance with the limits may need to be specified in the plan approval.

   The PM10/PM2.5 limits are based on best available technology (BAT) of 25 Pa. Code §127.12(a)(5). It is assumed that PM2.5 emissions are the same as PM10 emissions for this project.

6. VOC emissions - We note that the current VOC caps on the production lines in Plants 1 and 2 are not changed. We also note that the current permit allows *The permittee shall calculate the VOC emissions on a monthly basis and 12 month rolling sum, using DEP approved methods*. The methods to assure compliance with the various VOC caps for this facility must be specified in order to make this permit enforceable as a practical matter, i.e., to confirm that the source remains in compliance with the VOC caps.

   a. For the Source ID 101A/B Plant 1/Plant 2 Storage Silos – Braskem monitors loading and hours of operation of Plant 1 or Plant 2 and applies a stack test emission factor to calculate VOC emissions.

   b. For the Source ID 102A/B Plant 1/Plant 2 Polypropylene Manufacturing Sources and Source ID 106 Propylene Splitter Process – Braskem monitors mass flow meter data and material balances to calculate VOC emissions from point sources. For VOC emissions from fugitive sources, Braskem monitors emissions through application of a work practice standard (LDAR program) which is the only practically enforceable approach for fugitive emissions.

   c. For the Source ID 107 H-5 Propylene Unloading Rack – Braskem monitors the number of railcars unloaded per day and applies mass balance calculations and engineering estimates to calculate VOC emissions from point sources. For VOC emissions from fugitive sources, Braskem monitors emissions through application of a work practice standard (LDAR program) which is the only practically enforceable approach for fugitive emissions.

d. For the Source ID 103A/B Plant 1/Plant 2 Fugitive sources – Braskem monitors emissions through application of a work practice standard (LDAR program) which is the only practically enforceable approach for fugitive emissions.

To assure compliance with the VOC caps, the following condition was added in Section C of the Plan Approval to assure that the above methods are enforceable:

Before obtaining an Operating Permit for this project, the permittee shall submit to the Department for approval the methods of emission calculations, the emission factors and the operating parameters used in the calculations, and the methods of monitoring and recording the operating parameters. Once approved, the methods of emission calculations, the parameters monitored and recorded will be specified in the Operating Permit when an amendment to incorporate this Plan Approval is issued.

7. HAP emissions – Please identify the HAP PTE, after the proposed change, in the review memo. If this change affects its current minor HAP status, affected applicable MACT requirements should be fully addressed.

   The Braskem Marcus Hook Polymers facility is an area source of HAP emissions. The HAP emissions are from combustion sources only, boilers, flares, and pump engines. The production rate increase will not change the HAP status as an area source.

8. The same production limits on plants 1 and 2 are stated in various conditions, including Condition #2 on pages 11, 14 and 18 and Condition #3 on pages 12, 16 and 20. We recommend that the throughput limit should be set forth once, perhaps in Section C, for brevity/clarity.

   These emission limits are source specific, and not a facility wide emission limit. Therefore, it is better to specify them under each source ID.

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

SOUTHEAST REGIONAL OFFICE

MEMO

TO James Rebarchak
Regional Manager
Air Quality

FROM Xiaoyin Sun
Engineering Specialist
New Source Review Section
Air Quality

THROUGH James A. Beach, P.E.
Environmental Engineer Manager
New Source Review Section
Air Quality

DATE August 2, 2016

RE Plan Approval Application Review
Braskem America, Inc.
Marcus Hook Borough, Delaware County
Application No.: **23-0012C**
APS ID: 890017, AUTH ID: 1106345

On January 14, 2015, the Department of Environmental Protection (DEP) received a Plan Approval application (No. 23-0012C) from Braskem America, Inc. (Braskem) for the expansion (debottlenecking) of its existing polypropylene manufacturing plant located at 750 West 10th Street, in Marcus Hook Borough, Delaware County.

Facility Information

Braskem polypropylene manufacturing plant is a major facility for VOC emissions located in an ozone marginal nonattainment area, and PM2.5 nonattainment area.

The Standard Industrial Classification (SIC) Code for this plant is 2821 - Plastics Material and Synthetic Resins; and the North America Industrial Classification System (NAICS) Code is 325211 – Plastics Material and Resin Manufacturing.

Existing Source Information

The facility is designated into three (3) areas as follows:

- H-5 Area — propylene unloading and storing (Source ID 107)
- Splitter Area — propylene purification (Source ID 106)
- Polymer Units Area — polypropylene production (Source IDs 101A, 101B, 102A, 102B, 103A, and 103B)

The H-5 Area includes refinery grade propylene (RGP) and polymer grade propylene (PGP) unloading from trucks and railcars, and RGP and PGP storage tanks. The VOC emissions from this area are either fugitives or controlled by a flare (Source ID C100) located in the State of Delaware, and owned and operated by Sunoco Partners Marketing and Terminals, LP (SPMT).

The Splitter Area includes RGP and PGP purification and preparation processes. The VOC emissions from this area are either fugitives or controlled by a flare (Source ID C100) located in the State of Delaware, and owned and operated by SPMT.

The Polymer Units Area includes two (2) identical polypropylene production lines Plant 1 and Plant 2. Each plant is divided into three (3) sources based on the emissions types. The following are the source names and IDs in Braskem's TVOP No. 23-00012:

Plant	Source Name (Source ID)	Emission types	Emission Limits
1 (VOC)	Three Storage Silos (101A) Polypropylene MFG Sources (102A)	Stack (S01) Flare (C02)	37.10 TPY
	Fugitive Sources (103A)	Fugitives (Z01)	
2 (VOC)	Three Storage Silos (101B) Polypropylene MFG Sources (102B)	Stack (S02) Flare (C02)	24.30 TPY
	Fugitive Sources (103B)	Fugitives (Z02)	

Plant 1 has a polypropylene production rate of 430 million pounds per year (215,000 tons per year), according to RACT Application No. OP-23-0012 submitted in August 1995.

Plant 2 is limited to 240,900 tons polypropylene production per year in the TVOP.

Project

The project is to increase polypropylene production rate to 68,000 lb/hr (297,840 tons per year) per plant.

To achieve the proposed production rate, the project will involve the modification of the feedstock unloading, splitter, polymerization plant operations, additional piping and fugitive components. The proposed changes that are related to air emission sources are detailed below:

In the H-5 Area, the project will

- Install one (1) refinery grade propylene (RGP) storage bullet (90,000 gallon tank)
- Install piping and fugitive components to:
    - Modify the polymer grade propylene (PGP) railcar unloading process;
    - Connect RGP and PGP feed headers in H-5 and Splitter areas
    - Transfer PGP from the H-5 Area directly to PGP treaters or dryers bypassing a portion of the Splitter area

In the Splitter Area, the project will:

- Re-tray the T-9 De-ethanizer Tower
- Install additional piping and fugitive components to
    - Tie into existing Inter Refinery Pipeline (IRPL) to feed RGP directly to the Splitter Area
    - Tie the polymers propane return line into the propane-propylene treating system and C3 Splitter
    - Install larger PGP transfer pumps.

In the Polymers Units Area, the project will:

- Update the melt pump sizes
- Install larger PGP pumps
- Install additional piping and fugitive components to:
    - Increase the size of the propylene charge pumps; and
    - Increase the capacity of the filters on the Propane Return line.

Railcar Cleaning Station:

This is a D

In its original PA application, Braskem proposed to install a railcar cleaning station. However, on May 25, 2016, it decided to not construct this station due to financial restraints.

Emission Increases

From Steam Demand Increase

Braskem purchases steam from FPL Energy Marcus Hook (FPL), who operates under TVOP Nos. 23-00084 and 23-00089. The Braskem and FPL facilities are not aggregated for determination of Prevention of Significant Determination (PSD) and Non-attainment New Source Review (NNSR) as determined by DEP and EPA. After consulting with Ms. Gerallyn Duke, EPA Region III, the emission increases from steam demand aren't part of this project.

The Ethylene Complex Flare (Source ID C100) are owned and operated by Sunoco Partners Marketing & Terminals (SPMT). The flare will not be modified, since the increase from this project is within the existing capacities.

Both FPL and SPMT are aware of the respective impacts as a result of this project. There are no changes required to the existing operating permits for either of these sources. The permit for the SPMT flare is under current discussions with DNREC.

From Production Increase

The VOC emission increases from the project can be divided into three (3) types:

- Controlled continuous and intermittent emissions
- Uncontrolled intermittent emissions
- Fugitive emissions

The controlled continuous and intermittent emission increases are estimated based on the production rate increase and the flare destruction efficiencies of 98% or 99.5% dependent on which flare is used for controlling emissions.

The uncontrolled intermittent emission increases are from the silos (Source IDs 101A and 101B). The VOC emission increases are calculated using the emission factor from the stack test results and the percent of the production increase.

The fugitive emission increases are from the new leaking components. Braskem estimated the emission increases based on the numbers of new components, types of these components, and the leak percentages from Braskem past several years' LDAR data and inspections.

Additional explanation of the emission increase calculation:

- The fugitive emissions from the existing components will not change under current work practices. The fugitive emission increases are from the new components only. The fugitive emissions from the new components are estimated based on the facility current work practice, the LDAR results, and the percentage of leaking components. DEP agrees that the estimation is reasonable and reflects the required implementation of the work practice standards in the regulations. No fugitive emissions were excluded in the emissions analysis.

- For certain sources (Source IDs 101A, 101B, 102A, and 102B), the emission increases are proportional to the production rate. Further, since production rate limits are being

set, the PTE and PAE values are equivalent. For these sources, the production rate "that could have accommodated" was used in calculating BAE. The production rates "that could have accommodated" are explained in Tables 1 and 2.

- For all other emission sources, the numbers of maintenance events and equipment purges, etc. will generally increase when production rate increases. However, these numbers do not double if the production rate doubles, because these emissions are from work related activities. These emissions are considered as PAE instead of PTE since the emissions are estimated based on historical production records and experience of running the chemical plants.

Baseline Actual Emissions Determination

Table 1 – Actual Production Rates

Date	Plant 1 Production	Plant 2 Production
	lbs/month	
13-Oct	248,030,640	28,666,570
13- Nov	408,049,560	34,812,050
13-Dec	398,702,640	36,959,700
14-Jan	26,782,850	27,358,750
14-Feb	28,242,300	18,931,600
14-Mar	22,481,550	35,197,400
14-Apr	30,135,769	27,983,460
14-May	29,363,643	32,119,550
14-Jun	27,306,788	30,629,500
14-Jul	33,575,953	26,304,850
14-Aug	29,154,600	32,362,550
14-Sep	30,401,877	30,269,650
14-Oct	35,533,134	38,750,700
14-Nov	29,495,600	35,073,500
14-Dec	36,058,000	33,213,100
15-Jan	31,659,658	27,772,300
15-Feb	24,439,207	20,533,550
15-Mar	15,688,400	22,496,400
15-Apr	36,443,312	34,603,000
15-May	34,274,600	34,901,731
15-Jun	31,407,908	29,022,900
15-Jul	35,731,218	32,528,200
15-Aug	32,672,185	40,965,300
15-Sep	33,174,419	38,331,736

Table 1 above shows the actual monthly production rates from October 2013 through September 2015. The highest production rates achieved were 36,443,312 lbs/month in April 2015 for Plant 1 and 40,965,300 lbs/month in August 2015 for Plant 2. The production rates that could have accommodated were 437,319,744 lbs/yr for Plant 1 and 491,583,600 lbs/yr for Plant 2. Table 2 below shows the production rate baselines and percent increases for both plants:

Table 2 – Production Rate Baselines

Plant	Production Rate (lbs/yr)				
	Current Limit	Could have accommodated	Baseline	Proposed Limit	Increase %
1	430,000,000	437,319,744	430,000,000	595,680,000	38.53
2	481,800,000	491,583,600	481,800,000	595,680,000	23.64

The emission increases from the project are summarized in Table 3. The emissions were estimated and calculated by Braskem, and verified by DEP. The emissions from the cooling towers are not affected as a result of the project, because there is no additional cooling water demand.

Table 3 - Emission Increases from the Project

TVOP Source ID	Project Source	VOC Emissions (TPY)	NO_x Emissions (TPY)	PM Emissions (TPY)	PM_{10} Emissions (TPY)	$PM_{2.5}$ Emissions (TPY)	CO Emissions (TPY)	CO_2e Emissions (TPY)
	H-5 AREA							
107	RGP Storage Expansion	---	---	---	---	---	---	---
	Maintenance Purges	0.02	---	---	---	---	---	---
	Fugitive Emissions	0.49	---	---	---	---	---	---
	PGP Unloading and Transfer Expansion	---	---	---	---	---	---	---
	Railcar System Depressurizations	0.25	---	---	---	---	---	---
	Maintenance Purges	0.03	---	---	---	---	---	---
	Fugitive Emissions	0.69	---	---	---	---	---	---
	SPLITTER AREA							
106	IRPL Connection	---	---	---	---	---	---	---
	IRPL Meter Proving	0.01	---	---	---	---	---	---
	Maintenance Purges	0.001	---	---	---	---	---	---
	Fugitive Emissions	0.57	---	---	---	---	---	---
	Propane Return Line from the Polymers Units	---	---	---	---	---	---	---
	Maintenance Purges	0.05	---	---	---	---	---	---
	Fugitive Emissions	0.34	---	---	---	---	---	---
	P1/P2 PGP Product Transfer Pumps Upgrade	---	---	---	---	---	---	---
	Maintenance Purges	9.7E-05	---	---	---	---	---	---
	Fugitive Emissions	0.14	---	---	---	---	---	---
	Incremental Dryer Regenerations	0.05	---	---	---	---	---	---
C100[1]	SPMT Ethylene Complex Flare	---	0.05	---	---	---	0.14	1,283
	POLYMERS UNITS							
101A	Incremental Storage Silos Purging	0.70	---	0.21	0.21	0.21	---	---
102A	Propylene Charge Pumps Modifications	---	---	---	---	---	---	---
	Maintenance Purges	5.6E-05	---	---	---	---	---	---
	Fugitive Emissions[2]	0.05	---	---	---	---	---	---
	Plant 1 Manufacturing Baghouses	---	---	2.49	2.49	2.49	---	---
	Propane Return Line Filter Changing	0.05	---	---	---	---	---	---
	Incremental Propylene Degassing Column	0.23	---	---	---	---	---	---
	Incremental Propylene Dryer Regenerations	0.21	---	---	---	---	---	---
	Incremental Product Purge Bin Purging	0.76	---	---	---	---	---	---
101B	Incremental Storage Silos Purging	0.45	---	0.15	0.15	0.15	---	---
102B	Propylene Charge Pumps Modifications	---	---	---	---	---	---	---
	Maintenance Purges	5.6E-05	---	---	---	---	---	---
	Fugitive Emissions[2]	0.05						
	Plant 2 Manufacturing Baghouses	---	---	4.54	4.54	4.54	---	---
	Propane Return Line Filter Changing	0.05	---	---	---	---	---	---
	Incremental Propylene Degassing Column	0.05	---	---	---	---	---	---
	Incremental Propylene Dryer Regenerations	0.26	---	---	---	---	---	---
	Incremental Product Purge Bin Purging	0.45	---	---	---	---	---	---
C02	Braskem Flare	0.52	0.81	---	---	---	3.67	34,631
	Total Emissions (TPY)	6.59	0.84	7.65	7.68	7.68	3.81	35,915

1 - Ethylene Complex Flare (Source ID C100) located at the Marcus Hook Industrial Complex (MHIC) operated by Sunoco Partners Marketing & Terminals, L.P. (SPMT).

2 - Fugitive components for the Charge Pump Jumper will be installed in both Plant 1 (102A) and Plant 2 (102B). Accordingly the fugitive emissions associated with this piping connection have been evenly split between Plant 1 and Plant 2.

Regulatory Review

1. *Prevention of Significant Deterioration (PSD)*

The facility is currently major for VOC emissions only, and is located in an ozone marginal nonattainment area. Therefore, this facility is not a PSD source.

Due to the major facility status, it is needed to determine if the project is subject to PSD. Table 4.showes the emission increases for attainment area pollutants

Table 4 – PSD Step 1 Analysis

Pollutants	NOx	SO_2	CO	PM	PM10	H_2SO_4	Lead	CO_{2e}
Increases	0.8	0	3.8	7.9	7.9	0	0	35,915
PSD Significant Level	40	40	100	25	15	7	0.6	75,000
PSD Triggered	No	No	No	No	No	No	No	No

Since none of the pollutants emission increases exceeds the PSD significant level, the project is not subject to the provision of PSD.

2. *NSR – 25 Pa. Code Chapter 127 Subchapter E*

- ***25 Pa. Code 127.201(d) – Significant Emission Increases for VOC and NOx***

As per 25 Pa. Code §127.201(d), this project is not subject to New Source Review (NSR), because the net NOx and VOC emission increases from the project are not significant as determined in accordance with 25 Pa. Code §127.203a(a) (relating to applicability determination. Table 5 shows the emission aggregations in accordance with 25 Pa. Code §127.203a(a)(5).

Table 5 – VOC and NOx Emission Aggregations

PA/RFD	Project Description	Date	Emission (TPY)	
			VOC	NOx
Exemption	Cooling Tower Emission Factor Revision	01/30/2008	1.80	0.00
RFD-495	Propylene Dryers Regeneration Venting	07/15/2008	0.03	0.00
PA-23-0012A	RTO Decommissioning	01/14/2010	4.64	0.00
RFD-3191	Propane Loadout Rack	11/02/2012	0.85	0.00
RFD-3275	Propane Return & H-5 Jumpover	11/02/2012	0.73	0.00
RFD-3276	Moleseive Dryer Recovery	11/02/2012	0.22	0.00
RFD-3309	H-5 Railcar Heel Reduction (Phase 1)	11/14/2012	0.24	0.00
RFD-3187	P-Tank Retrofit	12/05/2012	0.33	0.00
RFD-3706	H-5 Railcar Safety Improvement	06/03/2013	0.47	0.00
RFD-2846	H-5 Railcar Heel Reduction (Phase 2)	08/07/2013	1.65	0.00
RFD-4348	Splitter Sulfur Treatment	04/18/2014	0.59	0.00
RFD-4496	Cooling Tower Optimization	06/13/2014	2.67	0.00
RFD-4912	Splitter #1 Isolation	01/16/2015	0.00	0.00
RFD-5243	Splitter Sulfur Treatment Expansion	08/19/2015	1.53	0.00
23-0012C	Polypropylene Production Expansion	01/14/2016	6.59	0.81
		Emission Aggregation (10 Years)	22.34	0.84

- ***25 Pa. Code 127.201 – Significant Emission Increases for PM2.5***

PM2.5 emission increase from the project is included in PM/PM10 emissions, which is below the significant level of 10 TPY. Therefore, the project is not subject to NNSR for PM2.5.

3. ***NSPS***

The facility is subject to 40 CFR 60 Subpart DDD - Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry, except the silos (Source IDs 101A and 101B) for the final product. The silos are not subject to the provisions of Subpart DDD, because:

- Plant I "commenced" construction before January 10, 1989, as per 40 CFR §60.560(b)(1)(i) and (ii).

- Plant II emits continuous emissions with a weight percent TOC of less than 0.10 percent, as per 40 CFR §60.560(g). However, the source is required to conduct a test as per 40 CFR §60.564(a)(1) and (d).

  Braskem stated in an email dated May 10, 2016 that there were no planned physical changes and thus no capital expenditure planned for the Source ID 101A – Plant 1 Three Storage Silos. As per 40 CFR §60.14(e)(2), this production rate increase without expenditure is not considered as "modification".

As per 40 CFR §60.564(a)(1), "Whenever changes are made in production capacity, each owner or operator shall conduct a performance test according to the procedures in this section as appropriate, in order todetermine compliance with §60.562-1".

- Braskem is required to conduct a test for Plant 2 silos (Source ID 101B) in order to determine compliance with the TOC weight percent limit of 0.10 percent.

- Braskem is required to conduct a test of the flare (Source ID C01) to demonstrate compliance with 40 CFR §60.18.

The other applicable requirements of 40 CFR 60 Subpart DDD are stated in the current TVOP No. 23-00012. Braskem is required to comply with the requirements that are already specified in TVOP No. 23-00012.

4. ***CAM***

40 C.F.R. PART 64 - COMPLIANCE ASSURANCE MONITORING (CAM)

§64.2 Applicability Determination

(a) General applicability. The requirements of this part shall apply to a pollutant-specific emissions unit at a major source that is required to obtain a part 70 or 71 permit if the unit satisfies all of the following criteria:

The sources that may be subject to CAM are Source IDs 102A, 102B, 106 and 107.

(1) The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or a surrogate thereof), other than an emission limitation or standard that is exempt under paragraph (b)(1) of this section;

These sources do not have an emission limitation or standard for regulated air pollutant. However, as per the definition of 40 CFR §64.1, *an emission limitation or standard may be expressed as the relationship of uncontrolled to controlled emissions (e.g., percentage capture and destruction efficiency of VOC).* The flares are required to achieve a VOC destruction efficiency of 95% or 98%.

(2) The unit uses a control device to achieve compliance with any such emission limitation or standard; and

These sources use flares to achieve 95 or 98% VOC destruction efficiencies.

(3) The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source.

Each source has potential pre-control device emissions of greater than 100 tons of VOC.

(b) Exemptions—(1) Exempt emission limitations or standards. The requirements of this part shall not apply to any of the following emission limitations or standards:

(i) Emission limitations or standards proposed by the Administrator after November 15, 1990 pursuant to section 111 or 112 of the Act.

Source IDs 106 and 107 are controlled by the flare owned by Sunoco, Inc. (Source ID C100). The flare is required to compliance with the provisions of 40 CFR §§60.18 and 63.11. 40 CFR §63.11 was proposed on August 11, 1993. Therefore, Source IDs 106 and 107 are exempt from the provisions of CAM.

Source IDs 102A and 102B are subject to the provisions of 40 CFR 60 Subpart DDD. The emission limitations or standards were proposed on September 30, 1987 that was before November 15, 1990. Therefore, Source ID 102A and 102B are subject to the provisions of CAM.

The flare monitoring is required in accordance with 40 CFR §§60.18 and 60.653.

5. *25 Pa. Code*

§127.12(a)(5) – Best Available Technology (BAT)

The project will comply with the provisions of 40 CFR 60 Subpart DDD for VOC emissions, which is considered as BAT for the source category.

§127.44 – Public Notice

Notice of intent to issue this Plan Approval was published in PA Bulletin on May 28, 2016, and in Delaware County Daily Times on May 28, June 16, and 17, 2016. Comments were received from the USEPA and Braskem. DEP's responses to the comments are attached to this review memo.

Recommendation

To be updated.

Attachment: Expansion Project Emissions Calculations

Summary of Plan Approval No. 23-0012C:

Event	Regulations	Date	Notes
Submittal of Application	NSPS - DDD BAT	Received on 1/14/2016	
Coordination	No		
Acceptance of a complete application		2/2/2016	
Publication in PA Bulletin	Required	5/28/2016	
Publication in local newspaper	Required	5/28, 6/16, and 17, 2016	
Comments from public/applicant received	Yes	6/8/2016	
Comments from U.S. EPA Received	Yes	6/28/2016	