



STATE OF DELAWARE

**DEPARTMENT OF NATURAL RESOURCES AND
ENVIRONMENTAL CONTROL**DIVISION OF AIR QUALITY
STATE STREET COMMONS
100 W. WATER STREET, SUITE 6A
DOVER, DELAWARE 19904**ENGINEERING &
COMPLIANCE**PHONE
(302) 739-9402

December 11, 2020

Draft Permit: APC-2018/0060-CONSTRUCTION/OPERATION(Amendment 1)(VOC
RACT)(SM)(MNSR)

Catalytic Oxidizer (CATOX), Coating Lines 1&2, and Associated Baghouses

Datwyler Pharma Packaging USA, Inc.
Catalytic Oxidizer (CATOX)
571 Merrimac Avenue
Middletown, Delaware 19709ATTENTION: Frank Schoubben
Project Manager

Dear Mr. Schoubben:

SUBJECT: Datwyler Pharma Packaging USA, Inc. Draft Synthetic Minor Permit

Dear Mr. Schoubben:

Enclosed is a copy of Synthetic Minor Draft Permit: APC-2018/0060-
CONSTRUCTION/OPERATION(Amendment 1)(VOC RACT)(SM)(MNSR) that was sent to EPA for review. The Draft Permit will also be advertised for public comment on Sunday, December 13, 2020 in the Sunday News Journal and the Delaware State News. Please note that the public comment period ends Monday, January 11, 2021. Please make any comments before this date.

Prior to the issuance of the Final Synthetic Minor Permit: APC-2018/0060 -
CONSTRUCTION/OPERATION(Amendment 1)(VOC RACT)(SM)(MNSR), Datwyler Pharma Packaging USA, Inc. shall contact the Department to arrange a construction to operation inspection. Upon a satisfactory demonstration by the on-site inspection that the equipment or process complies with all of the terms and conditions of the above mentioned permit, the Department shall issue a Final Approval to operate under 7 DE Admin. Code 1102.

Please note that, the provisions of 7 DE Admin. Code 1102 Sections 2.1 and 11.3 shall not apply to the operation of equipment or processes for the purposes of initially demonstrating satisfactory performance to the Department following construction, installation, modification, or alteration of the equipment or processes.

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Catalytic Oxidizer (CATOX), Coating Lines 1&2, & Two (2) Associated Dust Collectors
Datwyler Pharma Packaging USA, Inc.

Middletown, Delaware

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If you have any questions, I can be reached at (302) 323-4542.

Sincerely,



Bradley A. Klotz
Environmental Engineer
Engineering & Compliance Branch

ADM:KAM:BAK:bak

F:\EngAndCompliance\BAK\bak20163

pc: Dover File\Angela D. Marconi, P.E., BCEE\ Karen A. Mattio, P.E.\Lou Sierra, Jr., Sr. Process Engineer – Datwyler (*sent via email*)



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Datwyler Pharma Packaging USA, Inc.
Catalytic Oxidizer (CATOX)
571 Merrimac Avenue
Middletown, Delaware 19709

ATTENTION: Frank Schoubben
Project Manager

Dear Mr. Schoubben:

Pursuant to 7 **DE Admin. Code** 1102, Section 2, approval of the Department of Natural Resources and Environmental Control (the Department) is hereby granted for the construction and operation of 1 (one) Standardkessel Baumgarte Catalytic Oxidizer (CATOX), Coating Lines 1 & 2, and 2 (two) Donaldson Model DFO2-8-R Dust Collectors located at the Datwyler Pharma Packaging USA, Inc. in Middletown, Delaware, in accordance with the application submitted on Form Nos. AQM-1 and AQM-2, AQM-3.1, AQM-4.1, AQM-4.6, and AQM-5 dated September 10, 2020 signed by Frank Schoubben, Plant Manager, under cover letter dated September 10, 2020.

This permit is issued subject to the following conditions all of which are federally enforceable except Condition 2.3 and 6.1:

1. General Provisions

- 1.1 Datwyler Pharma Packaging USA, Inc. agrees that all limits, restrictions and requirements in this permit are necessary to limit their potential to emit below major source thresholds. Violation of any limit, restriction or requirement contained herein may be grounds for suspension or revocation of the permit or other enforcement action for noncompliance with the permit, the failure to apply for a Title V permit, or the failure to obtain a Title V permit.
- 1.2 The operational limitations of Conditions 2.1.1.5, 2.1.2.1, and 2.1.2.2 are voluntary restrictions to limit HAP emissions to below the five (5) ton per year applicability threshold

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Datwyler Pharma Packaging USA, Inc.

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of 7 **DE Admin. Code** 1125, Section 4, *Minor New Source Review*. The owner and/or operator shall meet the control technology requirements of 7 **DE Admin. Code** 1125, Section 4, *Minor New Source Review* if an increase in the operational limitations of Condition 3.1.1 that results in an increase in VOCs or HAPs potential to emit above five tons per year.

- 1.3 The project shall be constructed in accordance with the application described above. If any changes are necessary, revised plans must be submitted and supplemental approval issued prior to actual construction.
- 1.4 Representatives of the Department may, at any reasonable time, inspect this facility.
- 1.5 This permit may not be transferred to another location or to another piece of equipment or process.
- 1.6 This permit may not be transferred to another person, owner, or operator unless the transfer has been approved in advance by the Department. Approval (or disapproval) of the permit transfer will be provided by the Department in writing. A request for a permit transfer shall be received by the Department at least thirty days before the date of the requested permit transfer. This request shall include:
 - 1.6.1 Signed letters from each person stating the permit transfer is agreeable to each person; and
 - 1.6.2 An Applicant Background Information Questionnaire pursuant to 7 Del.C, Chapter 79 if the person receiving the permit has not been issued any permits by the Department in the previous five (5) years.
- 1.7 The owner or operator shall not initiate construction, install, or alter any equipment or facility or air contaminant control device which will emit or prevent the emission of an air contaminant prior to submitting an application to the Department pursuant to 7 **DE Admin. Code** 1102, and, when applicable 7 **DE Admin. Code** 1125, and receiving approval of such application from the Department; except as exempted in 7 **DE Admin. Code** 1102 Section 2.2.

2. Emission Limitations

- 2.1 Air contaminant emission levels shall not exceed those specified in 7 **DE Admin. Code** 1102 and the following:
 - 2.1.1 **Emission Point (CATOX Unit) – Products of Combustion**
 - 2.1.1.1 Nitrogen Oxide (NO_x) Emissions
NO_x emissions shall not exceed 0.117 pound per hour and 0.351 ton per twelve month rolling period;

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2.1.1.2 Carbon Monoxide (CO) Emissions

CO emissions shall not exceed 0.098 pound per hour and 0.295 ton per twelve month rolling period;

2.1.1.3 Sulfur Dioxide (SO_x) Emissions

SO₂ emissions shall not exceed 0.0007 pound per hour and 0.0021 ton per twelve month rolling period;

2.1.1.4 Particulate Matter (PM) Emissions

2.1.1.4.1 PM emissions shall not exceed 0.0089 pound per hour and 0.027 ton per twelve month rolling period; and

2.1.1.4.2 PM emissions shall not exceed 0.3 pound per million BTU heat input, maximum two-hour average; and

2.1.1.5 Volatile Organic Compound (VOC) Emissions

VOC emissions shall not exceed 0.006 pound per hour and 0.019 ton per twelve month rolling period.

2.1.2 **Emission Point (Coaters 1 & 2)**

2.1.2.1 Total Volatile Organic Compounds (VOC) Emissions

VOC emissions shall not exceed 0.10 pound per hour and 0.31 ton per rolling twelve (12) month rolling period;

2.1.2.2 Hazardous Air Pollutants (HAPs) Emissions [Methyl Isobutyl Ketone (MIBK)]

HAP emissions shall not exceed 0.10 pound per hour and 0.31 ton per rolling twelve (12) month rolling period; and

2.1.2.3 Total Non-Volatile Organic Compounds (as Acetone) Emissions

Non-VOCs (as Acetone) emissions shall not exceed 0.82 pound per hour and 2.45 ton per rolling twelve (12) month rolling period.

2.1.3 **Emission Point (Donaldson Model DFO2-8-R Dust Collectors)**

2.1.3.1 Particulate Matter (PM) Emissions

PM emissions shall not exceed 0.008914 pound per hour and 0.027043 ton per twelve month rolling period; and

2.1.3.2 Particulate Matter (PM) Emissions

0.2 grains per standard cubic foot of exhaust air from the baghouse vent.

- 2.2 No person shall cause or allow the emission of visible air contaminants and/or smoke from a stationary or mobile source, the shade or appearance of which is greater than twenty (20%) percent opacity for an aggregate of more than three (3) minutes in any one (1) hour or more than fifteen (15) minutes in any twenty-four (24) hour period.

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- 2.3 Odors from this source shall not be detectable beyond the plant property line in sufficient quantities such as to cause a condition of air pollution.
- 2.4 At least 30 calendar days before changing the method of compliance from control device to another such method permitted in 7 **DE Admin Code** 1124, the owner or operator shall comply with all requirements of section 4.3.1 or 4.4.1 of 7 **DE Admin Code** 1124 as well as 7 **DE Admin Code** 1102.

3. Operational Limitations

- 3.1 The owner or operator shall comply with the following operational limits:
 - 3.1.1 The Catalytic Oxidizer shall operate on natural gas only and shall not exceed a total of 6,000 hours per rolling twelve (12) month rolling period.
 - 3.1.2 All emissions from the coating operation equipment shall be directed to the Catalytic Oxidizer.
 - 3.1.3 The Catalyst Bed operational hours shall not exceed 15,000 hours.
 - 3.1.4 Coating lines 1 & 2 shall not exceed a combined total of 6,000 hours per rolling twelve (12) month rolling period.
 - 3.1.5 The Catalytic Oxidizer shall be capable of achieving a minimum destructive efficiency of 98.5%, as per the manufacturer's guarantees.
 - 3.1.6 The temperature of the catalyst bed shall range from 536°F - 1058°F at all times when waste gases are being oxidized.
 - 3.1.7 The pressure drop across the Catalytic Oxidizer Bed shall be less than 10.05 inches of water.
 - 3.1.8 The stack exit gas flow rate of the Catalytic Oxidizer shall be approximately 7,695 ACFM when in operation.
 - 3.1.9 Methyl Isobutyl Ketone (MIBK) and Acetone may be the only solvents used in the coating line and vented to the Catalytic Oxidizer.
 - 3.1.10 The pressure differential across the filters in the Donaldson Model DFO2-8-R Dust Collectors shall be maintained between 0.40 and 4.4 inches of water column.
 - 3.1.11 The Donaldson Model DFO2-8-R Dust Collectors shall be operated with functional differential pressure gauges.
- 3.2 At all times, including periods of startup, shutdown, and malfunction, the owner or operator shall, to the extent practicable, maintain and operate the facility including

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associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating procedures are being used will be based on information available to the Department which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

- 3.3 All structural and mechanical components of the equipment or process covered by this Permit shall be maintained in proper operating condition.

4. Testing and Monitoring Requirements

- 4.1 The Department reserves the right to require that the owner or operator perform emission tests using methods approved in advance by the Department.

- 4.2 For all emission testing required under Condition 4.1 this permit, the following procedures shall be implemented.

4.2.1 One (1) original and one (1) copy of the test protocol shall be submitted a minimum of forty-five (45) days in advance of the tentative test date to the address in Condition 4.2.3. The tests shall be conducted in accordance with the State of Delaware and Federal requirements.

4.2.2 The test protocol shall be approved by the Department prior to initiating any testing. Upon approval of the test protocol the Company shall schedule the compliance demonstration with the Source Testing Engineer. The Department must observe the test for the results to be considered for acceptance.

4.2.3 The final results of the testing shall be submitted to the Department within sixty (60) days of the test completion. One (1) original and one (1) copy of the test report shall be submitted to the addresses below:

Original to:
Engineering & Compliance
Attn: Permitting Engineer
State Street Commons
100 W. Water Street, Suite 6A
Dover, DE 19904

One (1) Copy to:
Engineering & Compliance
Attn: Source Testing Engineer
715 Grantham Lane
New Castle, DE 19720

- 4.2.4 The final report of the results must meet the following requirements to be considered valid:

4.2.4.1 The full report shall include the emissions test report (including raw data from the test) as well as a summary of the results and statement of compliance or non-compliance with permit conditions;

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4.2.4.2 Summary of Results and Statement of Compliance or Non-Compliance

The owner or operator shall supplement the report from the emissions testing firm with a summary of results that includes the following information:

4.2.4.2.1 A statement that the owner or operator has reviewed the report from the emissions testing firm and agrees with the findings.

4.2.4.2.2 Permit number(s) and condition(s) which are the basis for the compliance evaluation.

4.2.4.2.3 Summary of results with respect to each permit condition.

4.2.4.2.4 Statement of compliance or non-compliance with each permit condition.

4.2.5 The results must demonstrate to the Department's satisfaction that the emission unit is operating in compliance with the applicable regulations and conditions of this permit; if the final report of the test results shows non-compliance the owner or operator shall propose corrective action(s). Failure to demonstrate compliance through the test may result in enforcement action.

4.3 When in operation and processing a waste stream, the catalyst bed operational temperature shall be continuously monitored to ensure compliance with the range stated in Condition 3.1.6. If the Catalyst Bed operational temperature falls outside of the permitted range, the equipment shall be shut-down and corrective action taken to complete any necessary repairs or maintenance prior to re-starting. Operation, outside the permitted range, other than for re-testing and to show compliance with the permitted range outlined in Condition 3.1.6 is not authorized.

4.4 Once per day, during operation of the associated equipment, the pressure drop across the Catalytic Oxidizer Bed shall be monitored to ensure compliance with the range stated in Condition 3.1.7. If the differential pressure falls above the permitted limit, the equipment shall be shut-down and corrective action taken to complete any necessary repairs or maintenance prior to re-starting. Operation, outside the permitted limit, other than for re-testing and to show compliance with the permitted range outlined in Condition 3.1.7 is not authorized.

4.5 Once per day, during operation of the associated equipment, the pressure drop across the Donaldson Model DFO2-8-R Dust Collectors shall be monitored to ensure compliance with the range stated in Condition 3.1.10. If the differential pressure falls above the permitted limit, the equipment shall be shut-down and corrective action taken to complete any necessary repairs or maintenance prior to re-starting. Operation, outside the permitted limit, other than for re-testing and to show compliance with the permitted range outlined in Condition 3.1.10 is not authorized.

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- 4.6 The owner/operator shall monitor the operational hours of the Catalytic Oxidizer, and the Catalytic Oxidizer Bed.
- 4.7 The owner/operator shall monitor the natural gas usage of the Catalytic Oxidizer.
- 4.8 Once per week, during operation of the associated equipment and during daylight hours, the Company shall observe the Catalytic Oxidizer's stack for a period of three (3) minutes to determine compliance with Condition 2.2 of this permit. The detection of the presence or absence of visible emissions shall be in accordance with the procedures of EPA Reference Method 22 (40 CFR 60, Appendix A) paragraphs 4 and 5. This procedure does not require that the opacity of the emissions be determined. Since this procedure requires only the determination of whether a visible emission occurs and does not require the determination of opacity levels, observer certification according to the procedures of EPA Reference Method 9 (40 CFR 60, Appendix A) is not required. However, it is necessary that the observer is educated on the general procedures for determining the presence of visible emissions. At a minimum, the observer must be trained and knowledgeable regarding the effects on visibility of emissions caused by background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor).

5. Record Keeping Requirements

- 5.1 The owner or operator shall maintain all records necessary for determining compliance with this permit in a readily accessible location for five (5) years and shall make these records available to the Department upon written or verbal request
- 5.2 The following information shall be recorded, initialed and maintained in a log at the frequency specified:
 - 5.2.1 The Company shall continuously monitor the catalyst bed operational temperature and shall record the operational temperature once per day while a waste stream is being destroyed as outlined in Condition 4.3. Should the catalyst bed operational temperature result in an alarm condition, the Company shall note the date, time, duration, temperature, reason, and corrective action(s) taken to restore the operational temperature to within the permitted range.
 - 5.2.2 The Company shall record at least one differential pressure reading for the Catalytic Oxidizer as outlined in Condition 4.4, each day.
 - 5.2.3 The Company shall record at least one differential pressure reading for the Donaldson Model DFO2-8-R Dust Collectors as outlined in Condition 4.5, each day
 - 5.2.4 The Company shall record the operational hours of the Catalytic Oxidizer Bed.
 - 5.2.5 The Company shall maintain records of the natural gas usage for the Catalytic Oxidizer.

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- 5.2.6 The Company shall maintain records of all visible emissions observations performed in accordance with Condition 4.8 of this permit. These shall include the time, date, and results of the observation. If the equipment did not operate during the period (week or month, as applicable) the observations were to have been performed, this fact shall be so noted.
- 5.2.7 The following shall be collected and recorded each day:
- 5.2.7.1 The name and identification number of each coating used on each coating unit, line, or operation.
- 5.2.7.2 The mass of VOC per unit volume of coating, as applied, and the volume, as applied, of each coating used each day on each coating unit, line, or operation.
- 5.2.7.3 The maximum VOC content (mass of VOC per unit volume of coating, as applied) or the daily-weighted average VOC content (mass of VOC per unit volume of coating, as applied) of the coatings used each day on each coating unit, line, or operation.
- 5.2.7.4 The required overall emission reduction efficiency for each day for each coating unit, line, or operation as determined in 3.0 of Appendix C of regulation 7 **DE Admin Code** 1124.
- 5.2.7.5 The actual overall emission reduction efficiency achieved for each day for each coating unit, line, or operation as determined in 3.0 of Appendix D of regulation 7 **DE Admin Code** 1124.
- 5.2.7.6 Control device monitoring data.
- 5.2.7.7 A log of operating time for the Catalytic Oxidizer and the associated coating operations.
- 5.2.7.8 A maintenance log for the Catalytic Oxidizer detailing all routine and non-routine maintenance performed including dates and duration of any outages. This is to include any corrective action taken per Conditions 4.3, and 4.4.
- 5.2.7.9 All 3-hour periods of operation in which the average temperature of the process vent stream immediately before the catalyst bed is more than 28°C (50°F) below the average temperature of the process vent stream immediately before the catalyst bed.
- 5.2.8 Daily pressure drop readings, as measured across the inlet and outlet of the dust collectors whenever the equipment is in operation.

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- 5.2.9 All maintenance performed on the dust collector, including maintenance performed in response to troubleshooting or inspections.
- 5.2.10 The occurrence and duration of any malfunction of the dust collectors.
- 5.2.11 Any period the dust collectors are not operational, with beginning of downtime, end of downtime, and reason for downtime.
- 5.2.12 Filter replacements in the dust collectors.
- 5.3 The Company shall keep vendor documents describing the destruction efficiency and maintenance requirements of the Catalytic Oxidizer. The records shall also detail all catalyst bed replacements to include date of replacement and the type of catalyst used.
- 5.4 The Company shall keep vendor documents describing the removal efficiency for all filters used in the dust collector.
- 5.5 The Company shall keep manufacturer documents describing the recommended maintenance and differential pressure rangers for the dust collector.
- 5.6 The rolling twelve (12) month totals shall be calculated and recorded each month in a log for each of the following items:
 - 5.6.1 Particulate Matter (PM₁₀) Emissions;
 - 5.6.2 Sulfur Oxides (SO_x) Emissions;
 - 5.6.3 Nitrogen Oxide (NO_x) Emissions;
 - 5.5.4 Carbon Monoxide (CO) Emissions;
 - 5.6.5 Total Volatile Organic Compounds (VOC) Emissions;
 - 5.6.6 Hazardous Air Pollutants (HAP) Emissions; and
 - 5.6.7 Total Non-Volatile Organic Compounds (as Acetone) Emissions.

6. Reporting Requirements

- 6.1 Emissions in excess of any permit condition or emissions which create a condition of air pollution shall be reported to the Department immediately upon discovery by calling the Environmental Emergency Notification and Complaint number, (800) 662-8802.
- 6.2 In addition to complying with condition 6.1 of this permit, any reporting required by 7 **DE Admin. Code 1203 "Reporting of Discharge of a Pollutant or an Air Contaminant"**, and any other reporting requirements mandated by the State of Delaware, the owner or operator shall for each occurrence of excess emissions, within thirty (30) calendar days of

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becoming aware of such occurrence, supply the Department in writing with the following information:

- 6.2.1 The name and location of the facility;
 - 6.2.2 The subject source(s) that caused the excess emissions;
 - 6.2.3 The time and date of the first observation of the excess emissions;
 - 6.2.4 The cause and expected duration of the excess emissions;
 - 6.2.5 For sources subject to numerical emission limitations, the estimated rate of emissions (expressed in the units of the applicable emission limitation) and the operating data and calculations used in determining the magnitude of the excess emissions; and
 - 6.2.6 The proposed corrective actions and schedule to correct the conditions causing the excess emissions.
- 6.3 One (1) original and one (1) copy of all required reports shall be sent to the address below:

Division of Air Quality
State Street Commons
100 W. Water Street, Suite 6A
Dover, DE 19904

7. Administrative Conditions

- 7.1 This permit shall be made available on the premises.
- 7.2 Failure to comply with the provisions of this permit may be grounds for suspension or revocation.
- 7.3 This permit supersedes **Permit: APC-2018/0060-OPERATION-(MNSR)**, dated April 9, 2019.

Sincerely,


Angela D. Marconi, P.E., BCEE
Program Manager
Engineering & Compliance Branch


ADM:KAM:BAK:bak
F:\EngAndCompliance\BAK\bak20161


pc: Dover File\Karen A. Mattio, P.E.\Bradley A. Klotz

DRAFT

MEMORANDUM

TO: Angela D. Marconi, P.E., BCEE 

THROUGH: Karen A. Mattio, P.E. 

FROM: Bradley A. Klotz 

SUBJECT: Datwyler Pharma Packaging USA, Inc.
Middletown, Delaware
DRAFT Permit: APC-2018/0060-CONSTRUCTION/OPERATION(Amendment 1)(VOC RACT)(SM)(MNSR)
Catalytic Oxidizer (CATOX), Coating Lines 1&2, & Two (2) Associated Dust Collectors

DATE: December 8, 2020

BACKGROUND

Datwyler Pharma Packaging USA, Inc. (Datwyler) – Middletown, DE operates a facility which manufactures rubber products for use in the pharmaceutical industry (e.g. rubber stoppers for syringes, rubber membranes for vial bottles, and miscellaneous items for intravenous bags). The facility consists of one (1) manufacturing building with ancillary office and maintenance space. The facility falls under the SIC Code 3069 for Fabricated Rubber Products. On June 30, 2020, **it came to the Division of Air Quality's (DAQ's)** attention that Datwyler installed an additional coating line (Coater 2) and also installed an interior baghouse to the coating lines which vent to the existing Catalytic Oxidizer (CATOX) Unit without first having obtained a construction permit. Datwyler indicated that the components that they manufacture at the facility are in the direct supply chain for COVID-19 Vaccines and as such are in high demand. On July 8, 2020, the facility submitted a construction permit application for the installation of the above mentioned unpermitted coating line (Coater 2) and associated baghouse. The application went through several iterations which required additional information and subsequent submittals due to incomplete information. It was decided based on the upcoming demand of the components that the facility manufactures, that the facility would be permitted to operate the coating lines at the maximum possible hourly operations with a limitation on the yearly operation capped at 6,000 hours/year (24 hrs/day x 5 days/week x 50 weeks/year). When reviewing the process flow diagram included in the final submittal of the application, dated September 10, 2020, I contacted the facility to determine whether each coating line had a separate baghouse. The facility indicated that each coating line had a dedicated dust collector for a total of two (2) dust collectors for the coating lines, which was not clearly indicated in the permit application. While these dust collectors are located inside the facility, they both vent through the CATOX Unit. Thus, it was determined that the facility actually had installed two (2) unpermitted dust collectors.

The Company has not requested confidentiality.

The Company is not located within the Coastal Zone.

The local zoning was provided by the Town of Middletown in a letter dated September 10, 2020, signed by Morris Deputy, Town Manager, which indicated that the Manufacturing-Industrial District, in which the Datwyler facility is located, is the appropriate location for the operation.

The Company has paid appropriate construction application fees.

The facility is currently permitted to operate one coating line (Coater 1) with associated CATOX Unit, under Permit: APC-2018/0060-OPERATION(MNSR), and one mixing station/extruder with an associated

MEMORANDUM

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cartridge-style dust collector (Donaldson Model DFE 2-24), under Permit: APC-2018/0061-OPERATION. The total permitted PM emissions under Permit: APC-2018/0061-OPERATION are 0.06 lbs/hr and 0.046 TPY. The facility indicated, that with the requested increase in operation of Coaters 1 & 2, there will be no increase in emissions for the mixing station/extruder and associated baghouse since this unit is a separate operation and is already permitted to meet the demand for the increase in operation of Coaters 1 & 2. The emissions for the mixing station/extruder are vented through a separate emission point, which is an externally located Donaldson Model DFE 2-24 Baghouse, and not through the CATOX unit as are Coaters 1 & 2 and the unpermitted dust collectors. Since the mixing station/extruder is vented to an external Donaldson Model DFE 2-24 Baghouse, in an effort to expedite the issuance of this permit, it is recommended that the requirements of Permit: APC-2018/0061-OPERATION remain under the separate permit and be incorporated into the facility-wide synthetic minor permit when the facility applies for an amendment to construct and operate two (2) additional planned coating units, which will be designated as Coaters 3 & 4. This permit application is expected in early 2021.

TECHNICAL INFORMATION

As stated previously, the Facility is requesting a synthetic minor permit which includes the installation of an additional coating line (Coater 2) and two (2) interior dust collectors on the coating lines which vent to the existing Catalytic Oxidizer (CATOX) Unit to control VOC and HAP emissions from the coating operations. The facility requested federally enforceable emission limits to limit the Potential-To-Emit (PTE) of the coating lines and dust collectors based on the solvents usage for both coating line batch processes operating for 6,000 hours/year (24 hrs/day x 5 days/week x 50 weeks/year) with the Catalytic Oxidizer Control Unit maintaining a removal efficiency of 98.5%.

Catalytic Oxidizers are designed to destroy air pollutants and volatile organic compounds in air from process exhaust streams. The basic design concept of catalytic oxidation is to utilize an industrial grade catalyst to promote the chemical reaction at lower temperatures as compared to thermal oxidation. The air pollutant is mixed with oxygen, heated to an elevated temperature and passed through a catalyst, thus destroying the pollutant in the air stream by converting it to CO₂, H₂O and heat. The rate of reaction is controlled by the temperature of the catalyst chamber and the amount of time that the pollutant spends within the catalyst itself. In this case the catalyst bed is designed of Copper and Manganese. The design life of the catalyst bed is stated to have a life of 15,000 hours. The temperature of the catalyst chamber will be operated between 536°F and 1058°F. To maintain the set point temperature for uniformity, auxiliary fuel (natural gas) is introduced if necessary. There are four (4) temperature measurement devices in the reactor, as well as one (1) at the waste air incoming, and one (1) at the exit of the unit to the exhaust stack.

In several exchanges with facility representatives, they argued that since the coating lines were interlocked for safety reasons and they could not be operated without the online use of the CATOX, they considered this an "inherent constraint" **and that the facility's Potential-To-Emit should be based on the outlet emission from the control device.** The Department disagreed with their argument because it failed to meet all of the **criteria in EPA's November 27, 1995 Guidance Document for determining whether equipment was air pollution control equipment or process equipment, and the facility's PTE is based on the emissions prior to the control device.**

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The estimated emissions for the products of combustion (NO_x, CO, SO₂, PM, and VOC) from natural gas consumption in the Catalytic Oxidizer are tabulated below in Table 1 and are based on operating 6,000 hours/year. The CATOX and associated coating line emissions (VOC, HAPs, and Acetone) are tabulated below in Table 3. Potential-To-Emit (PTE) for the solvents are based on both coating line batch processes operating for 6,000 hours/year (24 hrs/day x 5 days/week x 50 weeks/year) with the Catalytic Oxidizer Control Unit maintaining a destruction efficiency of 98.5%. Additionally, total PM emissions from the two (2) dust collectors from the coating lines and vented through the CATOX unit are tabulated below in Table 4 operating at 6,000 hrs/year with a 99.9% removal efficiency. The total resulting requested emissions are tabulated below in Table 5.

Table 1
Emission Estimates from Natural Gas Combustion of CATOX unit*
Products of Combustion

Pollutant	Emission Factor** (lb/10 ⁶ SCF)	Emission Factor** (lb/MMBtu)	Emission Rate (lb/hr)	Emission Rate (lb/yr)	Emission Rate (TPY)
NO _x	100	0.0980	0.1171	702.3529	0.35117
CO	84	0.0824	0.0983	589.9765	0.29498
SO ₂	0.6	0.0006	0.0007	4.2141	0.00211
PM	7.6	0.0075	0.0089	53.3788	0.02669
VOC	5.5	0.0054	0.0064	38.6294	0.01931

* CATOX unit has a 1.194 MMBtu/hr natural gas burner operating at 6000 hrs/year limitation (24 hrs/day x 5 days/week x 50 weeks/year)

**AP-42, Fifth Edition, Tables 1.4-1 & 1.4-2 Natural Gas Combustion

Table 2
Inlet to the CATOX Emissions

Batch Coating Units Inlet Emissions		
Process Step	MIBK (Liters)	Acetone (Liters)
Primer Step	0	61.2
Intermediate Step	0	12.4
Barrier Step	11.8	21
Top Step	3.5	28.1
Total per batch per shift	15.3	122.7

The coater units are proprietarily customized pill coaters designed specifically by the Company to coat rubber products with a fluoropolymer using acetone and methyl isobutyl ketone (MIBK) in step batch process. The process is performed one time per eight-hour shift. The inlet & outlet emissions of these processes to the Catalytic Oxidizer (CATOX) were calculated based on the batch coating units from the above batch process steps and associated chemical usage:

UNCONTROLLED (MIBK)

$$MIBK = \frac{15.3 \text{ liters}}{\text{batch shift}} * \frac{\text{gallons}}{3.758 \text{ liters}} = 4.07 \text{ gallons}$$

MIBK = 6.67 lbs/gallon

$$MIBK = \frac{6.67 \text{ lbs}}{\text{gallon}} * \frac{4.07 \text{ gallons}}{\text{batch shift}} = \frac{27.16 \text{ lbs}}{\text{batch shift}} * \frac{\text{batch shift}}{8 \text{ hrs}} = 3.39 \text{ lbs/hr}$$

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$$MIBK \text{ Daily Total} = \frac{27.16 \text{ lbs}}{\text{batch shift}} * 3 \text{ shifts} * 2 \text{ coaters} = 162.96 \text{ lbs/day}$$

$$MIBK \text{ Hourly Total (2 coaters operating simultaneously)} = 3.39 \frac{\text{lbs}}{\text{hr}} * 2 \text{ coaters} = 6.78 \text{ lbs/hr}$$

$$MIBK \text{ (Rolling 12 – Month Total)} = 162.96 \frac{\text{lbs}}{\text{day}} * \frac{5 \text{ days}}{\text{week}} * \frac{50 \text{ weeks}}{\text{year}} = 40740 \text{ lbs/year}$$

$$MIBK \text{ (Rolling 12 – Month Total)} = 40733.50 \frac{\text{lbs}}{\text{year}} * \frac{\text{Ton}}{2000 \text{ lbs}} = 20.37 \text{ TPY}$$

The waste gas from the coater lines is directed to the CATOX, with a 98.5% Destruction Efficiency. Thus, the controlled emissions are as follows:

CONTROLLED CATOX 98.5% Destruction Efficiency (MIBK)

$$MIBK \text{ Hourly Total (2 coaters operating simultaneously)} = 6.78 \frac{\text{lbs}}{\text{hr}} * \frac{(100 - 98.5\%)}{100\%} = \mathbf{0.10 \text{ lbs/hr}}$$

$$MIBK \text{ (Rolling 12 – Month Total)} = 20.37 \frac{\text{tons}}{\text{yr}} * \frac{(100 - 98.5\%)}{100\%} = \mathbf{0.31 \text{ TPY}}$$

UNCONTROLLED (Acetone)

$$\text{Acetone} = \frac{122.7 \text{ liters}}{\text{batch shift}} * \frac{\text{gallons}}{3.758 \text{ liters}} = 32.65 \text{ gallons}$$

Acetone = 6.67 lbs/gallon

$$\text{Acetone} = \frac{6.67 \text{ lbs}}{\text{gallon}} * \frac{32.65 \text{ gallons}}{\text{batch shift}} = \frac{217.78 \text{ lbs}}{\text{batch shift}} * \frac{\text{batch shift}}{8 \text{ hrs}} = 27.22 \text{ lbs/hr}$$

$$\text{Acetone Daily Total} = \frac{217.78 \text{ lbs}}{\text{batch shift}} * 3 \text{ shifts} * 2 \text{ coaters} = 1306.68 \text{ lbs/day}$$

$$\text{Acetone Hourly Total (2 coaters operating simultaneously)} = 27.22 \frac{\text{lbs}}{\text{hr}} * 2 \text{ coaters} = 54.44 \text{ lbs/hr}$$

$$\text{Acetone (Rolling 12 – Month Total)} = 1306.686 \frac{\text{lbs}}{\text{day}} * \frac{5 \text{ days}}{\text{week}} * \frac{50 \text{ weeks}}{\text{year}} = 326670 \text{ lbs/year}$$

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$$\text{Acetone (Rolling 12 – Month Total)} = 326670 \frac{\text{lbs}}{\text{year}} * \frac{\text{Ton}}{2000 \text{ lbs}} = 163.33 \text{ TPY}$$

The waste gas from the coater lines is directed to the CATOX, with a 98.5% Destruction Efficiency. Thus, the controlled emissions are as follows:

CONTROLLED CATOX 98.5% Destruction Efficiency (Acetone)

$$\text{Acetone Hourly Total (2 coaters operating simultaneously)} = 54.44 \frac{\text{lbs}}{\text{hr}} * \frac{(100 - 98.5\%)}{100\%} = \mathbf{0.82 \text{ lbs/hr}}$$

$$\text{Acetone (Rolling 12 – Month Total)} = 163.33 \frac{\text{tons}}{\text{yr}} * \frac{(100 - 98.5\%)}{100\%} = \mathbf{2.45 \text{ TPY}}$$

Table 3
Emission Estimates for Coater Lines 1 & 2

Pollutants	Uncontrolled Emissions (lb/hr)	PTE* (TPY)	Controlled Permit Limits** (lb/hr)	Controlled Permit Limits** (TPY)	Major Source Threshold (TPY)
VOCs	6.78	20.37	0.10	0.31	25
HAPs	6.78	20.37	0.10	0.31	10 Individual 25 Aggregate
Non-VOC (Acetone)	163.33	163.33	0.82	2.45	100

*PTE based on 2 coating line batch process solvent usage based on 6,000 hrs/year (24 hrs/day x 5 days/week x 50 weeks/year) hours/year operation of the Catalytic Oxidizer

**Permit limits are based on the Catalytic Oxidizer Operating with a 98.5% Destruction Efficiency with the 2 coating line batch process operating a total of 6,000 hours/year (24 hrs/day x 5 day/week x 50 weeks/year).

Table 4
Emission Estimates from Donaldson Model DFO2-8-R Dust Collectors*

Pollutants	Inlet Loading (lb/hr)	Maximum Controlled* (lb/hr)	PTE** (TPY)	Requested* Permitted (TPY)
PM	0.01444	1.444 x 10 ⁻⁵	0.04322	4.32 x 10 ⁻⁵

* Dust collectors have a 99.9% removal efficiency operating at 6000 hrs/year limitation (24 hrs/day x 5 days/week x 50 weeks/year)

** PTE based on 6000 hrs/year (24 hrs/day x 5 days/week x 50 weeks/year)

There are 26.2 grams PM/batch.

Each coater can operate 1 batch/8-hour shift and each coater will be permitted to operate three 8-hour shifts/day. So, the total PM to the inlet of the dust collectors equals (2 coaters x 3 shift) x (26.2 grams PM) = 157.2 grams/day.

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UNCONTROLLED PM:

$$\text{Daily Usage Rate} = 157.2 \frac{\text{grams}}{\text{day}} * \frac{\text{lb}}{453.5924 \text{ grams}} = 0.34656 \frac{\text{lbs}}{\text{day}}$$

$$\text{Yearly Usage Rate} = 0.34656 \frac{\text{lbs}}{\text{day}} * 5 \frac{\text{days}}{\text{week}} * 50 \frac{\text{weeks}}{\text{year}} = 86.64 \frac{\text{lbs}}{\text{year}}$$

$$\text{Hourly Usage Rate} = 86.64 \frac{\text{lbs}}{\text{year}} * \frac{\text{year}}{6000 \text{ hours}} = 0.01444 \frac{\text{lbs}}{\text{hour}}$$

$$86.64 \frac{\text{lbs}}{\text{year}} * \frac{\text{ton}}{2000 \text{ lbs}} = 0.04332 \frac{\text{ton}}{\text{year}}$$

CONTROLLED PM:

$$\text{Hourly Emission Rate} = 0.01444 \frac{\text{lbs}}{\text{hour}} * \frac{(100 - 99.9\% \text{ Removal Efficiency})}{100\%} = 0.0001444 \frac{\text{lbs}}{\text{hour}}$$

$$\text{Yearly Emission Rate} = 0.0001444 \frac{\text{lbs}}{\text{hour}} * 6000 \frac{\text{hours}}{\text{year}} * \frac{\text{ton}}{2000 \text{ lbs}} = 0.000432 \frac{\text{ton}}{\text{year}}$$

Table 5
Total Facility Emissions Estimates

Pollutants	CATOX Products of Combustion		Donaldson Dust Collectors		Coating Lines 1 & 2 with CATOX (98.5% Removal Efficiency)		Total Emissions		Major Source Threshold
	(lb/hr)	(TPY)	(lb/hr)	(TPY)	(lb/hr)	(TPY)	(lb/hr)	(TPY)	(TPY)
VOCs	0.006	0.0193			0.10	0.31	0.106	0.329	25
HAPs					0.10	0.31	0.10	0.31	10 Individual 25 Aggregate
Non-VOC (Acetone)					0.82	2.45	0.82	2.45	100
NO _x	0.117	0.351					0.117	0.351	25
SO ₂	0.0007	0.002					0.0007	0.0021	100
PM	0.0089	0.027	0.00001444	0.0000432			0.00891444	0.0270432	100
CO	0.098	0.295					0.098	0.295	100

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AERSCREEN RESULTS

The stack parameters, and the AERSCREEN modeling results can be seen below in the Tables 6 & 7 and were taken as per the application for the CATOX:

Table 6: Stack Parameters

Stack Parameters	Catalytic Oxidizer
Stack Height (ft)	75
Stack Diameter (ft)	2.5
Gas Exit Temp (°F)	500
Ambient Temp (°F)	68
Exhaust Gas Flow (ACFM)	7,695

Table 7: AERSCREEN Modeling Results

Air Pollutants	Emission Rate (lb/hr)	MDC _{8-hr} (µg/m ³)	TLV (mg/m ³)	MDC _{8-hr} (mg/m ³)	TLV:MDC	Distance (m)
PM	0.00891	0.02883	3	0.00002883	104058	37
SO ₂	0.0007	0.002264	0.49	0.000002264	216431	37
NO ₂ ^[1]	0.0936	0.3026	31	0.0003026	102445	37
NO ^[1]	0.0234	0.07567	0.38	0.00007567	5022	37
CO	0.098	0.3170	28.6	0.000317	90221	37
VOC	0.106	0.3429	1.6	0.0003429	4666	37
HAP(MIBK)	0.10	0.3429	204.82	0.0003429	597317	37
Acetone	0.82	2.652	1187	0.002652	447587	37

^[1] Assume NOx composition 80% NO₂; 20% NO (Where NOx = 0.117 lb/hr)

The TLV for PM was conservatively assumed as all PM_{2.5} or 3 mg/m³.

The emissions of VOC were conservatively assumed as all benzene and a TLV of 1.6 mg/m³ was used.

Finally, the TLV for HAP's, assumed as all Methyl Isobutyl Ketone (MIBK), used was 204.82 mg/m³.

As Table 4 indicates, all **emissions pass AERSCREEN modeling, meeting the Department's requirement of having the TLV:MDC>100 for all air pollutants, at the emission rates written into the Permit under Condition 2.0.** The public health, safety, and welfare are presumed to not be adversely impacted by the operation of coating lines, dust collectors, and associated StandardKessel Baumgarte Model CatOx C6.7 Catalytic Oxidizer.

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REGULATORY REVIEW

- ✓ 7 DE Admin. Code 1102: Permits
- ✓ 7 DE Admin. Code 1104: Particulate Emissions from Fuel Burning Equipment
- ✓ 7 DE Admin. Code 1108: Sulfur Dioxide Emissions from Fuel Burning Equipment
- ✓ 7 DE Admin. Code 1114: Visible Emissions
- ✓ 7 DE Admin. Code 1119: Control of Odorous Air Contaminants
- ✗ 7 DE Admin. Code 1120: New Source Performance Standards
- ✓ 7 DE Admin. Code 1124: Control of Volatile Organic Compound Emissions
- ✓ 7 DE Admin. Code 1125: Requirements for Preconstruction Review
- ✗ 7 DE Admin. Code 1130: Title V State Operating Permit Program
- ✗ 7 DE Admin. Code 1138: Emission Standards for Hazardous Air Pollutants for Source Categories

✓ 7 DE Admin. Code 1102 – Permits:

The Catalytic Oxidizer with associated coating line will emit over 10 pounds of pollutants in a day and a permit is required and is thereby subject to this regulation.

✓ 7 DE Admin. Code 1104 - Particulate Emissions from Fuel Burning Equipment:

This standard applies because the burner is rated at 1.194 ^{MMBtu}/hr. The standard exempts equipment which is less than 1 ^{MMBtu}/hr. As this is above the exemption level this standard is applicable and has been incorporated into the permit under Condition 2.1.1.4.2.

PM emissions from the Catalytic Oxidizer shall not exceed 0.3 pound per million BTU heat input, maximum two-hour average.

✓ 7 DE Admin. Code 1108: Sulfur Dioxide Emissions from Fuel Burning Equipment:

Is applicable to this source as the Facility is in New Castle County and uses natural gas which has sulfur. While using natural gas, the sulfur percent by weight will be under 1% by weight. Per an EPA memorandum dated March 24, 2004 which comments on proposed standards of performance for stationary gas turbines (<https://www3.epa.gov/airtoxics/nsps/turbine/oar-2002-0053-0051.pdf>), "Natural gas was defined in the proposed rule as having a sulfur content of 20 grains or less of total sulfur per 100 standard cubic feet, which equates to 0.068 weight percent sulfur, or 680 parts per million by weight (ppmw)". **When natural gas is combusted there is no possibility of exceeding the sulfur limit of 1.0 weight percent.**

✓ 7 DE Admin. Code 1114 - Visible Emissions:

The Catalytic Oxidizer is subject to this regulation. This regulation has been incorporated into the permit per Condition 2.2.

✓ 7 DE Admin. Code 1119 - Control of Odorous Air Contaminants:

Although the potential for odorous air contaminants is low, Condition 2.3 of the permit includes the odor limits of this regulation. It requires that odors from the Catalytic Oxidizer system not

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be detectable beyond the plant property line in sufficient quantities such as to cause a condition of air pollution.

✘ 7 DE Admin. Code 1120 - New Source Performance Standards:

Standard for performance for incinerators, Section 6.0, was reviewed for applicability. Section 6.1 of this sub-section states that the regulation is applicable to each incinerator of more than 3,000 pounds per hour charging rate. The Catalytic Oxidizer has an inlet charging rate less than 3,000 lbs/hr and is hereby exempt from this Regulation. No other New Source Performance standard is applicable to the proposed Catalytic Oxidizer.

✘ 7 DE Admin Code 1121: Emission Standards for Hazardous Air Pollutants:

Even though the construction permit has a HAP emission limit, this regulation is not applicable to the process as per applicability section 1.0 of the Regulation. The Facility does not emit asbestos, beryllium, mercury, vinyl chloride, or benzene.

✔ 7 DE Admin. Code 1124 - Control of Volatile Organic Compound Emissions:

5.0 Compliance Certification, Recordkeeping, and Reporting Requirements for Non-Coating Sources is applicable to sources covered under this regulation.

5.3.2 Recordkeeping:

5.3.2.1 Each owner or operator of a source subject to 5.0 of this regulation shall maintain up-to-date, readily accessible continuous records of any equipment operating parameters specified to be monitored in the applicable section of this regulation as well as up-to-date, readily accessible records of periods of operation during which the parameter boundaries established during the most recent performance test are exceeded. These records shall be maintained for at least five years. The Department may at any time require a report of these data. Periods of operation during which the parameter boundaries established during the most recent performance tests are exceeded are defined as follows:

5.3.2.1.2 For catalytic incinerators, all three-hour periods of operation in which the average temperature of the process vent stream immediately before the catalyst bed is more than 28°C (50°F) below the average temperature of the process vent stream immediately before the catalyst bed during the most recent performance test that demonstrated that the facility was in compliance. The set-point for the process vent stream immediately before the catalyst bed shall be no less than that during the most recent performance test that demonstrated that the facility was in compliance.

Section 50.0 [All Other Facilities that Emit Volatile Organic Compounds (VOCs)] is applicable to the coating process with the associated Catalytic Oxidizer Unit. This section requires at least 81% capture and control of VOC emissions from the source. Since the Catalytic Oxidizer control efficiency is rated at 98.5%, the facility will be able to maintain compliance with the requirements outlined in this section. Compliance with the 81% capture and control requirements of this regulation has been incorporated in the attached permit under Condition 3.1.5.

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✓ 7 DE Admin. Code 1125 - Requirements for Preconstruction Review:

Section 2.0 (Emission Offset Provisions) of this standard does not apply because the application does not meet or exceed major source threshold.

Section 3.0 (Prevention of Significant Deterioration of Air Quality) of this standard does not apply because the application is not a major source.

Section 4.0 (Minor New Source Review) of this standard applies because the PTE for VOC emissions are greater than 5 tons (MIBKO is a VOC and a HAP). The Catalytic Oxidizer will be used as a control device on the coating line to control VOCs/HAPs to less than 15 lb/day as per the requirements in 7 DE Admin Code 1124 Section 1.2.1. The Company estimated actual emissions at the maximum process design VOC inlet to be 20.37 TPY of MIBK. The permitted actual emissions with controls will be 0.31 TPY of MIBK. According to the Catalytic Oxidizer vendor, the Catalytic Oxidizer will maintain a destruction efficiency of 98.5%. This process control technology is a proven technology at other facilities and it is currently successfully being used to control the VOC emissions.

✗ 7 DE Admin. Code 1130 - Title V State Operating Permit Program:

The Catalytic Oxidizer itself is not a major source of emissions when looking at Regulation 1130 as emissions do not hit the threshold limits. Therefore this regulation does not apply.

✗ 7 DE Admin. Code 1138 - Emission Standards for Hazardous Air Pollutants for Source Categories:

This standard is not applicable to the Catalytic Oxidizer because it is not a major source of Hazardous Air Pollutants (HAP's) and does not emit more than twenty-five tons per year of HAPs in the aggregate or more than 10 tons per year of any one HAP.

RECOMMENDATIONS

The draft permit and application will be advertised Sunday, December 13, 2020 for a thirty (30) day review period pursuant to the requirements of 7 DE Admin. Code 1102 Section 12.3. I recommend that a copy of the draft permit and memorandum be sent to EPA Region III by email and that a copy of the draft permit be sent to the Company. The comment period expires January 11, 2021.

The proposed project and attached draft permit comply with all applicable zoning requirements and federal and state air pollution control laws and regulations. Upon satisfactory completion of public and EPA review requirements, I recommend that the attached Permit: APC-2018/0060-CONSTRUCTION/OPERATION(Amendment 1)(VOC RACT)(SM)(MNSR) be issued.

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