



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

Insert Date

Draft Permit: APC-2023/0086-CONSTRUCTION (VOC RACT)

Noramco Inc.
D8/D9 Production
500 Swedes Landing Rd.
Wilmington, DE 19801

ATTENTION: Ryan Haemmerle
Director of Operations

Dear Mr. Haemmerle:

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 installation of a vacuum pump and production of D8/D9 located at the Wilmington site in Wilmington, Delaware, in accordance with the application submitted on Form Nos. AQM-1, AQM-2, AQM-4.2, AQM-4.4, AQM-5, and AQM-6 dated April 13, 2023 signed by Alexandra Vanaman, Senior EHS Engineer, and letter dated April 13, 2023 signed by Alexandra Vanaman, Senior EHS Engineer, and revised application dated August 14, 2023 signed by Alexandra Vanaman, Senior EHS Engineer.

This permit is issued subject to the following conditions:

1. General Provisions

- 1.1 This permit expires on **insert date**. If the equipment covered by this permit will not be constructed by **insert date**, an application for a new construction permit must be submitted by **insert date**.
- 1.2 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.

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- 1.3 Representatives of the Department may, at any reasonable time, inspect this facility.
- 1.4 This permit may not be transferred to another location or to another piece of equipment or process.
- 1.5 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 (30) days before the date of the requested permit transfer. This request shall include:
 - 1.5.1 Signed letters from each person stating the permit transfer is agreeable to each person; and
 - 1.5.2 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.
- 1.6 The applicant shall, upon completion of the construction, installation, or alteration, request in writing that the Department grant approval to operate.
 - 1.6.1 A separate application to operate pursuant to 7 **DE Admin. Code** 1102 does not need to be submitted to the Department for the equipment or process covered by this construction permit. Upon a satisfactory demonstration by an on-site inspection that the equipment or process complies with all of the terms and conditions of this permit, the Department shall issue a 7 **DE Admin. Code** 1102 Operating Permit for this equipment or process.
 - 1.6.2 The applicant shall notify the Department sufficiently in advance of the demonstration and shall obtain the Department's prior concurrence of the operating factors, time period, and other pertinent details relating to the demonstration.
 - 1.6.3 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.
- 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.
- 1.8 The owner or operator shall submit a complete application for a significant permit modification to **Permit: AQM-003/00324 – Renewal (1) Revision (2)** pursuant to 7 **DE Admin. Code** 1130 Section 7.5.3 within twelve calendar months of requesting permission to operate. The application shall address all applicable requirements including those of 40 CFR Part 64 (Compliance Assurance Monitoring) if applicable.

2. Emission Limitations

- 2.1 Air contaminant emission levels shall not exceed those specified in 7 **DE Admin. Code** 1100 and the following:
 - 2.1.1 Ethanol Emissions
Ethanol emissions shall not exceed 0.02 pounds per hour and 0.015 tons per twelve (12) month rolling period;
 - 2.1.2 Ethyl Acetate Emissions
Ethyl Acetate emissions shall not exceed 0.07 pounds per hour and 0.13 tons per twelve (12) month rolling period;
 - 2.1.3 Hydrogen Chloride Emissions
Hydrogen Chloride emissions shall not exceed 0.001 pounds per hour and 0.0007 tons per twelve (12) month rolling period;
 - 2.1.4 n-butanol Emissions
n-butanol emissions shall not exceed 0.002 pounds per hour and 0.0006 tons per twelve (12) month rolling period;
 - 2.1.5 Tetrahydrofuran Emissions
Tetrahydrofuran emissions shall not exceed 0.08 pounds per hour and 0.015 tons per twelve (12) month rolling period;
 - 2.1.6 Toluene Emissions
Toluene emissions shall not exceed 0.07 pounds per hour and 0.13 tons per twelve (12) month rolling period;
 - 2.1.7 Triethylamine Emissions
Triethylamine emissions shall not exceed 0.0009 pounds per hour and 0.001 tons per twelve (12) month rolling period;
 - 2.1.8 Acetone Emissions
Acetone emissions shall not exceed 0.07 pounds per hour and 0.11 tons per twelve (12) month rolling period;
 - 2.1.9 Methanol Emissions
Methanol emissions shall not exceed 0.06 pounds per hour and 0.08 tons per twelve (12) month rolling period;
 - 2.1.10 Total Volatile Organic Compound (VOC) Emissions
Total VOC emissions shall not exceed 0.36 pounds per hour and 0.5 tons per twelve (12) month rolling period;
 - 2.1.11 Total Hazardous Air Pollutant (HAP) Emissions
Total HAP emissions shall not exceed 0.2 pounds per hour and 0.22 tons per twelve (12) month rolling period;

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- 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.
- 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.

3. Operational Limitations

- 3.1 The owner or operator shall comply with the following operational limits:
 - 3.1.1 For reactors, distillation operations, crystallizers, centrifuges, and vacuum dryers, the facility shall control the VOC emissions from all vents from reactors, distillation operations, crystallizers, centrifuges, and vacuum dryers at any facility that emits 6.8 kilograms per day (kg/day) (15 pounds per day [lb/day]) or more of VOC as determined by the procedure in "Control of Volatile Organic Emissions from Manufacture of Synthesized Pharmaceutical Products," Appendix B, EPA-450/2-78-029, December 1978. Surface condensers or equivalent controls shall be used, provided that:

3.1.1.1 If surface condensers are used, the condenser outlet gas temperature shall not exceed the allowable temperature limit described for each associated vapor pressure in the following table:

Allowable condenser outlet gas temperature, °C (°F)	VOC vapor pressure at 20°C, kPa (psi)	
-25 (-13)	>40.01	(5.8)
-15 (5)	>20.0	(2.9)
0 (32)	>10.0	(1.5)
10 (50)	>7.0	(1.0)
25 (77)	>3.5	(0.5)

- 3.1.1.2 If equivalent controls such as carbon absorption or incineration are used, the VOC emissions shall be reduced by at least as much as they would be by using a surface condenser. The owner or operator shall calculate the efficiency equivalent to a condenser in accordance with the procedures specified on pages 4-2 through 4-6 in "Control of Volatile Organic Emissions from Manufacture of Synthesized Pharmaceutical Products," Appendix B, EPA-450/2-78-029, December 1978.
- 3.1.2 A monitor showing the outlet gas temperature of the condenser and a condenser flow monitoring device such as a differential pressure device on the conservation vent or a flow switch shall be considered a necessary part of proper operation of the condenser according to the following:
 - 3.1.2.1 The continuous monitor shall be equipped with a recording device;

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- 3.1.2.2 If chart recorders attached to the continuous monitor are used, they shall be calibrated quarterly; and
 - 3.1.2.3 The outlet gas temperature of the condenser shall be continuously monitored and recorded at all times that the condenser is operating.
 - 3.1.3 The flow monitoring device such as the switches or differential pressure devices shall be calibrated on an annual basis.
- 3.2 The owner or operator shall not cause, allow, or permit the disposal of more than five kilograms (kg) (11 pounds [lb]) of any VOC, or of any materials containing more than five kg (11 lb) of any VOCs, at that facility in any one day in a manner that would permit the evaporation of VOC into the ambient air. This provision does not apply to:
 - 3.2.1 Any VOC or material containing VOC emitted from a regulated entity that is subject to a VOC standard under 7 **DE Admin. Code** 1124.
 - 3.2.2 Any VOC or material containing VOCs used during process maintenance turnarounds for cleaning purposes, provided that the provisions of Conditions 3.3, 3.4, and 3.5 are followed.
- 3.3 The owner or operator shall not use open containers for the storage or disposal of cloth or paper impregnated with VOCs. Containers for the storage or disposal of cloth or paper impregnated with VOCs shall be kept closed, except when adding or removing material.
- 3.4 The owner or operator shall not store in open containers spent or fresh VOC or VOC containing material. Containers for the storage of spent or fresh VOCs or VOC containing material shall be kept closed, except when adding or removing material.
- 3.5 The owner or operator shall:
 - 3.5.1 Convey VOC-containing cleaning materials from one location to another in closed containers or pipes.
 - 3.5.2 Handle and transfer all fresh and spent cleaning solvent and other VOC-containing material to or from any container, tank, vat, vessel, mixing vessel, or piping system, etc. in such a manner that minimizes spills and other losses.
 - 3.5.3 Clean up spills of fresh and spent cleaning solvent and other VOC-containing material immediately.
- 3.6 The owner or operator shall reduce the VOC emissions from all air dryers and production equipment exhaust systems either:
 - 3.6.1 By at least 90 weight % if emissions are 150 kg/day (330 lb/day) or more of VOC before controls.
 - 3.6.2 To 15.0 kg/day (33 lb/day) or less if emissions are less than 150 kg/day (330 lb/day) of VOC.

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- 3.7 The owner or operator shall reduce the VOC emissions from storage tanks by:
 - 3.7.1 Providing a vapor balance system or equivalent control that is at least 90% effective by weight in reducing emissions from truck or railcar deliveries to storage tanks with capacities greater than 7,500 liters (L) (2,000 gallons [gal]) that store VOC with vapor pressures greater than 28.0 kiloPascals (kPa) (4.1 pounds per square inch [psi]) at 20°C (68°F).
 - 3.7.2 Installing pressure/vacuum conservation vents set at ± 0.2 kPa (0.03 psi) on all storage tanks that store VOC with vapor pressures greater than 10.0 kPa (1.5 psi) at 20°C (68°F).
- 3.8 The owner or operator shall enclose all centrifuges, rotary vacuum filters, and other filters having an exposed liquid surface where the liquid contains VOC and exerts a total VOC vapor pressure of 3.50 kPa (0.5 psi) or more at 20°C (68°F).
- 3.9 The owner or operator shall install covers on all in-process tanks that contain VOC at any time. These covers shall remain closed, unless production, sampling, maintenance, or inspection procedures require operator access.
- 3.10 The owner or operator shall repair all leaks from which a liquid containing VOC can be observed running or dripping. The repair shall be completed as soon as practicable but no later than 15 calendar days after the leak is found. If the leaking component cannot be repaired until the process is shut down, the leaking component shall then be repaired before the process is restarted.
- 3.11 The owner or operator shall minimize air circulation around cleaning operations and shall implement equipment practices that minimize emissions including keeping parts cleaners covered when not in use and maintaining cleaning equipment to repair solvent leaks.
- 3.12 The owner or operator shall emit less than five tons of VOCs from all cleaning activities at the facility per twelve month rolling period.
- 3.13 The operation of this process shall not contravene a permit term or condition contained in the most recent revision of the facility's Title V permit.
- 3.14 The facility shall operate this process only when all associated control devices are operating properly and in compliance with the requirements of this permit and the existing requirements of **Permit: AQM-003/00324 Renewal (1) Revision (2)**.
- 3.15 The total number of batches produced shall not exceed [REDACTED] per twelve month rolling period.
- 3.16 Proper operation of the packed scrubber includes operation of gauges showing the pressure differential across the packed scrubber whenever the scrubber is operating.
- 3.17 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 associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating

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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.

- 3.18 All structural and mechanical components of the equipment or process covered by this Permit shall be maintained in proper operating condition.
- 3.19 The facility shall form a "Community Advisory Board" that engages with and communicates regularly with key stakeholders and members of the community.

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.

4.1.1 One (1) original hard copy and one (1) PDF copy of the test protocol shall be submitted a minimum of forty-five (45) days in advance of the tentative test date to the addresses in Condition 4.1.3. The tests shall be conducted in accordance with the State of Delaware and Federal requirements.

4.1.2 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.

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

Original Hard Copy to:
Engineering & Compliance Section
Attn: Source Testing Engineer
715 Grantham Lane
New Castle, DE 19720

PDF Copy to:
Engineering & Compliance Section
E-mail of Source Testing Engineer
E-mail of Permit Engineer
dnrec_daq_stacktest@delaware.gov

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

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

4.1.4.2 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:

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

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

4.1.4.2.3 Summary of results with respect to each permit condition.

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

4.1.4.3 The Test Report shall be certified by a Responsible Official as to truth, accuracy, and completeness. Such certification shall be signed by a Responsible Official and shall contain the following language:

"I certify, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete."

4.1.5 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.

4.2 The identity and quantity of the raw materials charged shall be monitored for each batch.

4.6 The vapor pressure for each raw material shall be stated along with the corresponding permitted gas outlet temperature of the condensers.

4.7 The differential pressure across the conservation vent shall be continuously monitored.

4.8 All monitoring equipment shall be installed, calibrated, maintained, and operated according to manufacturer's specifications or other written procedures that provide adequate assurance that the equipment would reasonably be expected to monitor accurately.

4.9 Pressure differential across the packed bed scrubber shall be monitored continuously when the scrubber is in use.

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 for each batch:

5.2.1 Volatile Organic Compound (VOC) and Hazardous Air Pollutant (HAP) emissions.

5.2.2 The outlet gas temperature of the condensers.

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- 5.2.3 The identity and quantity of raw materials.
- 5.2.4 The identity and quantity of materials emitted to the air as determined by mass balance calculations.
- 5.2.5 The vapor pressure for each raw material and the corresponding permitted gas outlet temperature of the condensers.
- 5.2.6 The amount of VOC disposed and the method of disposal.
- 5.3 The owner or operator shall record and maintain in a log the date of annual calibrations performed on flow monitoring devices such as flow switches or differential pressure devices and the date of quarterly calibrations performed on temperature transmitters.
- 5.4 If a leaking component is detected, the following shall be recorded and maintained in a log:
 - 5.4.1 The name of the leaking component;
 - 5.4.2 The date and time the leak is detected;
 - 5.4.3 The action taken to repair the leak;
 - 5.4.4 The date and time the leak is repaired; and
 - 5.4.5 The reasons for any delay in repairs.
- 5.5 The facility shall maintain records demonstrating compliance with Condition 3.19. These records may include, but are not limited to: records demonstrating regular meetings with community stakeholders, such as meeting attendance sheets or meeting minutes; records demonstrating communications distributed to the public; any other records that demonstrate compliance with this requirement.
- 5.6 The owner or operator shall comply with the applicable record keeping requirements of **Permit: AQM-003/00324 Renewal (1) Revision (2)**.
- 5.7 The rolling twelve (12) month total emissions shall be calculated and recorded each month in a log for each of the following pollutants.
 - 5.7.1 Ethanol
 - 5.7.2 Ethyl Acetate
 - 5.7.3 Hydrogen Chloride
 - 5.7.4 n-butanol
 - 5.7.5 Tetrahydrofuran
 - 5.7.6 Toluene

- 5.7.7 Triethylamine
- 5.7.8 Acetone
- 5.7.9 Methanol
- 5.7.10 Total Volatile Organic Compounds (VOCs)
- 5.7.11 Total Hazardous Air Pollutants (HAPs)

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 a 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 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 original and one 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

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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.

Sincerely,

Amy S. Mann, P.E.
Administrator
Engineering & Compliance Section

ASM:NTA
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pc: Dover File
NTA