



Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

www.deq.virginia.gov

Stefanie K. Taillon
Acting Secretary of Natural and Historic Resources

Michael S. Rolband, PE, PWD, PWS Emeritus
Director

March 12, 2025

Mr. Robb Truedinger
Authorized Representative
c/o Mr. Steven Botic
Amazon Data Services, Inc.
13200 Woodland Park Road
Herndon, VA 20171

Location: Fairfax County
Registration No.: 74300

Dear Mr. Truedinger:

Attached is a permit to construct and operate diesel engine generator sets (gen-sets) at Amazon Data Services' IAD-500 and IAD-501 data center campus, in accordance with the provisions of the Commonwealth of Virginia State Air Pollution Control Board (Board's) Regulations for the Control and Abatement of Air Pollution (Regulations).

In the course of evaluating the application and arriving at a final decision to approve the stationary source, the Department of Environmental Quality (DEQ) deemed the application complete on March 11, 2025.

This permit contains legally enforceable conditions. Failure to comply may result in a Notice of Violation and/or civil charges. Please read all permit conditions carefully.

This permit approval to construct and operate shall not relieve Amazon Data Services, Inc. of the responsibility to comply with all other local, state, and federal permit regulations.

The diesel engine gen-sets may be subject to the requirements of 40 CFR 60, New Source Performance Standard (NSPS) Subpart IIII – *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines* and 40 CFR 63, National Emission Standards for Hazardous Air Pollutants for Source Categories (NESHAP) Subpart ZZZZ – *National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*. In summary, the units may be required to comply with certain federal emission standards and operating limitations. DEQ advises you to review the referenced NESHAP and NSPS to ensure compliance with applicable emission and operational limitations. As the owner/operator, you are also responsible for any monitoring, notification, reporting and recordkeeping requirements of the NESHAP and NSPS. Notifications shall only be sent to EPA, Region III.

To review any federal rules referenced in the above paragraph or in the attached permit, the US Government Publishing Office maintains the text of these rules at www.ecfr.gov, Title 40, Part 60 and Part 63.

The Board's Regulations as contained in Title 9 of the Virginia Administrative Code 5-170-200 provide that you may request a formal hearing from this case decision by filing a petition with the Board within thirty days after this case decision notice was mailed or delivered to you. 9VAC5-170-200 provides that you may request direct consideration of the decision by the Board if the Director of DEQ made the decision. Please consult the relevant regulations for additional requirements for such requests.

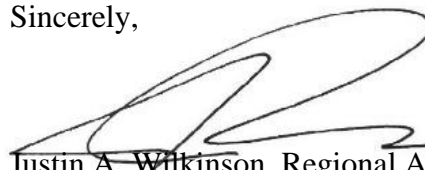
As provided by Rule 2A:2 of the Supreme Court of Virginia, you have thirty days from the date you actually received this permit or the date on which it was mailed to you, whichever occurred first, within which to initiate an appeal of this decision by filing a Notice of Appeal with:

Michael S. Rolband, Director
Department of Environmental Quality
P. O. Box 1105
Richmond, VA 23218

If this permit was delivered to you by mail, three days are added to the thirty-day period in which to file an appeal. Please refer to Part Two A of the Rules of the Supreme Court of Virginia for information on the required content of the Notice of Appeal and for additional requirements governing appeals from decisions of administrative agencies.

If you have any questions concerning this permit, please contact Ms. Katie DeVoss at (571) 866-6090 or katie.devoss@deq.virginia.gov.

Sincerely,



Justin A. Wilkinson, Regional Air Permit Manager
Virginia Department of Environmental Quality
justin.wilkinson@deq.virginia.gov
Northern Regional Office
13901 Crown Court, Woodbridge, VA 22193
(703) 583-3800

JAW/KD/74300 mNSR (2025-03-12)
Attachments: Permit



Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

www.deq.virginia.gov

Stefanie K. Taillon
Acting Secretary of Natural and Historic Resources

Michael S. Rolband, PE, PWD, PWS Emeritus
Director

STATIONARY SOURCE PERMIT TO CONSTRUCT AND OPERATE

In compliance with the Federal Clean Air Act and the Commonwealth of Virginia Regulations for the Control and Abatement of Air Pollution,

Amazon Data Services, Inc.
13200 Woodland Park Road
Herndon, Virginia 20171
Registration No.: 74300

is authorized to construct and operate

diesel generator sets (gen-sets)

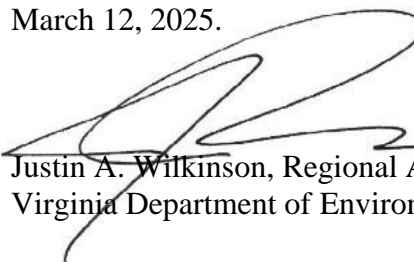
located at

IAD-500 and IAD-501
13860 and 13876 Redskin Drive
Herndon, Virginia
(Fairfax County)

in accordance with the Conditions of this permit.

Approved on

March 12, 2025.



Justin A. Wilkinson, Regional Air Permit Manager
Virginia Department of Environmental Quality

Permit consists of 22 pages.

Permit Conditions 1 to 36.

Attachments: Attachment A: Source Test Report Format (1 pg.)

INTRODUCTION

This permit document is based on and combines permit terms and conditions in accordance with 9VAC5-80-1255 from the following permit approvals and the respective permit applications:

- mNSR permit dated March 12, 2025, based on the permit application dated September 21, 2024, including supplemental information dated October 22, 2024, February 7, 2025, and March 11, 2025.

Any changes in the permit application specifications or any existing facilities which alter the impact of the facility on air quality may require a permit. Failure to obtain such a permit prior to construction may result in enforcement action. In addition, this facility may be subject to additional applicable requirements not listed in this permit.

Words or terms used in this permit shall have meanings as provided in 9VAC5-80-1110 and 9VAC5-10-10 of the Commonwealth of Virginia State Air Pollution Control Board (Board's) Regulations (Regulations) for the Control and Abatement of Air Pollution. The regulatory reference or authority for each condition is listed in parentheses () after each condition. The enabling permit program, or permit programs is provided below each permit condition in the regulatory authority parenthetical as follows: 9VAC5-80-850 for Article 5, 9VAC5-80-1180 for Article 6, 9VAC5-80-1985 for Article 8, and 9VAC5-80-2050 for Article 9. The most recent effective date for a term or condition is listed in brackets []. When identical conditions for one or more emission units are combined, the effective date listed in this permit does not alter the prior effective date(s) for any such conditions as issued in a previous permit action. In accordance with 9VAC5-80-1120F, any condition not marked as state-only enforceable (SOE) is state and federally enforceable.

Annual requirements to fulfill legal obligations to maintain current stationary source emissions data will necessitate a prompt response by the permittee to requests by the DEQ or the Board for information to include, as appropriate: process and production data; changes in control equipment; and operating schedules. Such requests for information from the DEQ will either be in writing or by personal contact.

The availability of information submitted to the DEQ or the Board will be governed by applicable provisions of the Freedom of Information Act, §§ 2.2-3700 through 2.2-3714 of the Code of Virginia, § 10.1-1314 (addressing information provided to the Board) of the Code of Virginia, and 9VAC5-170-60 of the State Air Pollution Control Board Regulations. Information provided to federal officials is subject to appropriate federal law and regulations governing confidentiality of such information.

Equipment List – Equipment at this facility consists of the following:

Equipment to be Constructed:					
Ref. No(s).	Equipment Description	Rated Capacity	Add-on Controls	Delegated Federal Requirements	Original Permit Date
1 through 70	(70) MTU 20V4000 DS2800 non-emergency diesel-fired engine gen-sets	2,750 ekW 4,036 bhp (each)	Selective Catalytic Reduction and Catalyzed Diesel Particulate Filter*	None	March 12, 2025
71 and 72	Two (2) MTU 16V2000 DS1000 emergency diesel-fired engine gen-sets	1,000 ekW 1,839 bhp	None	None	March 12, 2025
T1 and T2	Two (2) Caterpillar 3516C emergency diesel-fired engine gen-sets	2,000 ekW 2,937 bhp	None	None	March 12, 2025

* Caterpillar (5X4X3 SCR + DPF System, #547-2580); Safety Power (9550-H3C29), or Miratech (#SP-KIT-M3-SW550-TLI-23120476)

Specifications included in the above table are for informational purposes only and do not form enforceable terms or conditions of the permit.

PROCESS REQUIREMENTS

1. **Emission Controls** – Emissions from the emergency diesel engine gen-sets (Ref. Nos. 71, 72, T1, and T2) shall be controlled by the following:
 - a. Nitrogen oxides (NO_x) emissions from each emergency diesel engine gen-sets shall be controlled by engine design.
 - b. Carbon monoxide (CO), particulate matter (PM₁₀/PM_{2.5}), volatile organic compounds (VOCs), and visible emissions from the emergency diesel engine gen-sets shall be controlled by the use of good operating practices and performing maintenance in accordance with the manufacturer recommendations. In addition, the permittee may only change those settings that are permitted by the manufacturer and do not degrade the air emissions from the engines.

(9VAC5-80-1180 and 9VAC5-50-260) [3/12/2025]

2. **Emission Controls (SCR)** – Nitrogen oxide (NO_x) emissions from the non-emergency diesel engine gen-sets (Ref. Nos. 1 through 70) shall be controlled by closed loop Selective Catalytic Reduction (SCR). Each SCR system shall be equipped with a temperature probe to continuously monitor the exhaust temperature at the outlet of the entire SCR+cDPF emissions control system while the engine gen-set is operational. Engine exhaust gas shall be treated with urea when the catalyst bed exhaust temperature of 572°F is achieved, except for periods of start-up, shutdown, or malfunction.

The permittee shall operate the engine gen-set and SCR such that the exhaust temperature at the outlet of the entire SCR+cDPF emissions control system does not exceed 1,022°F. The SCR shall be provided with adequate access for inspection and shall be in operation when the engine gen-sets are operating as stated above.
(9VAC5-80-1180 and 9VAC5-50-260) [3/12/2025]

3. **Emission Controls (cDPF)** – Particulate matter (PM₁₀ and PM_{2.5}), carbon monoxide (CO), and volatile organic compounds (VOC) emissions from the non-emergency diesel engine gen-sets (Ref. Nos. 1 through 70) shall be controlled by catalyzed Diesel Particulate Filter (cDPF). The cDPF shall be provided with adequate access for inspection and shall be in operation when the non-emergency diesel engine gen-sets are operating.
(9VAC5-80-1180 and 9VAC5-50-260) [3/12/2025]

4. **Monitoring Devices (SCR and cDPF)** – Each non-emergency diesel engine gen-set (Ref. Nos. 1 through 70) shall be equipped with devices to continuously measure and record the following, as applicable:

- a. The SCR exhaust temperature at the outlet of the entire SCR+cDPF emissions control system. The information shall be recorded at a minimum frequency of once every fifteen minutes and correlated to run date and engine operating hours.
- b. The NO_x concentration measured after the SCR catalyst, expressed in ppm. The information shall be recorded at a minimum frequency of once every fifteen minutes and correlated to run date and engine operating hours.
- c. The differential pressure drop across the entire SCR+cDPF emissions control system to demonstrate proper function. The backpressure monitor shall notify the permittee when the high backpressure limit of the engine is approached. The differential pressure drop shall be recorded by the permittee with a frequency as recommended by the process/control equipment manufacturer.
- d. The exhaust temperature at the inlet of the entire SCR+cDPF emissions control system. The information shall be recorded at a minimum frequency of once every fifteen minutes and correlated to run date and engine operating hours.

Each monitoring device shall be installed, maintained, calibrated and operated in accordance with approved procedures which shall include, at a minimum, the manufacturer's written requirements or recommendations. Each monitoring device shall be provided with adequate access for inspection and shall be in operation when the SC and cDPF are operating.

(9VAC5-80-1180 D) [3/12/2025]

5. Monitoring –

- a. Fuel Flow: Each diesel engine gen-set (Ref. Nos. 1 through 72, T1, and T2) shall be equipped with a device to continuously measure and record individual fuel consumption (in gallons) for each diesel engine gen-set.
- b. Engine Operating Hours: Each diesel engine gen-set (Ref. Nos. 1 through 72, T1, and T2) shall be equipped with a non-resettable hour meter which measures the duration of time that each engine is operated.

Each monitoring device (as required in a. and b. above) shall be observed by the permittee with a frequency of not less than once each day the engine gen-set is operated. The permittee shall keep a log of these observations.

Each monitoring device shall be installed, maintained, calibrated (as appropriate), and operated in accordance with approved procedures which shall include, as a minimum, the manufacturer's written requirements or recommendations. The details of the monitoring device calibrations are to be arranged with the Regional Air Compliance Manager of the DEQ's NRO.

Each monitoring device shall be provided with adequate access for inspection and shall be in operation when the engines are operating.

(9VAC5-80-1180 D) [3/12/2025]

OPERATING LIMITATIONS

6. **Emergency Power Generation** – The emergency diesel engine gen-sets (Ref. Nos. 71, 72, T1, and T2) shall only be operated in the following modes:
- a. In situations that arise from sudden and reasonably unforeseeable events where the primary energy or power source is disrupted or disconnected due to conditions beyond the control of an owner or operator of a facility including:
 - i. A failure of the electrical grid;
 - ii. On-site disaster or equipment failure; or
 - iii. Public service emergencies such as flood, fire, natural disaster, or severe weather conditions.
 - b. For participation in an independent system operator (ISO)-declared emergency, where an ISO emergency is:
 - i. An abnormal system condition requiring manual or automatic action to maintain system frequency, to prevent loss of firm load, equipment damage, or tripping of system elements that could adversely affect the reliability of an electric system or the safety of persons or property;
 - ii. Capacity deficiency or capacity excess conditions;
 - iii. A fuel shortage requiring departure from normal operating procedures in order to minimize the use of such scarce fuel;
 - iv. Abnormal natural events or man-made threats that would require conservative operations to posture the system in a more reliable state; or
 - v. An abnormal event external to the ISO service territory that may require ISO action.
 - c. For scheduled maintenance checks and readiness testing (Scheduled MCRT).
 - d. For unscheduled maintenance, testing, and operational training.
 - e. For the integration operational period which is the period of time beginning with the first time the affected units are started on-site and ending when the affected unit is fully integrated with the source's electrical system.

7. **Operation of the Engine Gen-Sets** – The permittee shall operate and maintain the diesel engine gen-sets (Ref. Nos. 1 through 72, T1, and T2) and control devices according to the manufacturer’s written instructions or procedures developed by the permittee that are approved by the engine manufacturer. In addition, the permittee may only change those settings that are permitted by the manufacturer and do not increase air emissions.
(9VAC5-80-1180) [3/12/2025]
8. **Operating Limitations (Ozone Season)** – Except for during the integration operational period, no diesel engine gen-set (Ref. Nos. 1 through 72, T1, and T2) shall be operated for scheduled maintenance checks and readiness testing (Scheduled MCRT), stack testing, or operational training (that involves fuel combustion) between the hours of 7 a.m. to 5 p.m. any day during May 1 through September 30. The permittee may petition the Regional Air Compliance Manager of DEQ’s NRO for exceptions to this requirement, with approvals made on a case by-case basis.
(9VAC5-80-1180) [3/12/2025]
9. **Operating Limitations (Ozone Season) – Integration Operational Period** – During the integration operational period of the diesel engine gen-sets (Ref. Nos. 1 through 72, T1, and T2), any operation of the unit (that involves fuel combustion) between the hours of 7 a.m. to 5 p.m. any day during the ozone season of May 1 through September 30 shall only occur if the forecast Air Quality index (AQI) for ozone as published on the AirNow website (<https://airnow.gov>) for Northern Virginia for that day is less than or equal to 100. In the event that AirNow-EnviroFlash (www.enviroflash.info) issues an Air Alert for Metropolitan Washington, D.C. for a day which the forecasted AQI for ozone was less than or equal to 100, operation of each unit (which involves fuel combustion) shall be minimized to the maximum extent practical.
(9VAC5-80-1180) [3/12/2025]
10. **Operating Hours** –
 - a. Each emergency diesel engine gen-set (Ref. Nos. 71, 72, T1, and T2) shall not operate more than 500 hours per year for all purposes (as provided in Condition 6) combined.
 - b. Each emergency diesel engine gen-set (Ref. Nos. 71, 72, T1, and T2) shall not operate more than 35 hours per year for Scheduled MCRT (as provided in Condition 6.c).

The annual limits for hours of operation shall be calculated monthly as the sum of each consecutive 12-month period. Compliance for the consecutive 12-month period shall be demonstrated monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding 11 months.
(9VAC5-80-1180) [3/12/2025]

11. **Fuel Specification** – The approved fuel for the diesel engine gen-sets (Ref. Nos. 1 through 72, T1, and T2) is diesel fuel oil. For the purposes of this permit document, diesel fuel oil is defined as ultra-low sulfur diesel fuel oil (ULSD), renewable diesel, or a blend of these fuels, and shall meet the specifications below:

DIESEL FUEL OIL:

- a. Does not exceed the American Society for Testing and Materials (ASTM) specification, D975, for grade ultra-low sulfur 1-D S15 or grade 2-D S15, or
- b. Has a maximum sulfur content not to exceed 0.0015% by weight (15 ppm), and either a minimum cetane number of forty or maximum aromatic content of thirty-five volume percent.

Exceedance of these specifications may be considered credible evidence of an exceedance of emission limits. A change in the fuel type or the fuel sulfur content may require a permit to modify and operate.

(9VAC5-80-1180 and 9VAC5-50-260) [3/12/2025]

12. **Fuel Certification** – The permittee shall obtain a certification from the fuel supplier with each shipment of diesel fuel oil. Each fuel supplier certification shall include the following:

- a. The name of the fuel supplier;
- b. The date on which the diesel fuel oil was received;
- c. The quantity of diesel fuel oil delivered in the shipment; and
- d. A statement that the diesel fuel oil complies with the requirements of Condition 11 Fuel Specification.

Alternately, the permittee shall obtain approval from the Regional Air Compliance Manager of the DEQ's NRO if other documentation will be used to certify the diesel fuel oil type.

Fuel sampling and analysis, independent of that used for certification, as may be periodically required or conducted by the DEQ, may be used to determine compliance with the fuel specifications stipulated in Condition 11.

(9VAC5-80-1180) [3/12/2025]

13. **Fuel Throughputs** – The diesel engine gen-sets (Ref. Nos. 1 through 72, T1, and T2) for all operations shall only consume a combined quantity of diesel fuel (in gallons) each consecutive 365-day period, as demonstrated by using the following equation:

$$\frac{\text{Group 1 Fuel Consumption}}{7,908,808 \text{ gallons}} + \frac{\text{Group 2 Fuel Consumption}}{656,431 \text{ gallons}} + \frac{\text{Group 3 Fuel Consumption}}{565,417 \text{ gallons}} + \frac{\text{Group 4 Fuel Consumption}}{682,223 \text{ gallons}} \leq 1$$

Engine Gen-Set Group	Ref. Nos.	Engine Gen-Set Model (SCR & cDPF Status)
Group 1	1 through 70	MTU 20V4000 DS2800 (SCR & cDPF operating)
Group 2	1 through 70	MTU 20V4000 DS2800 (SCR not operating & cDPF operating)
Group 3	71 and 72	MTU 16V2000 DS1000
Group 4	T1 and T2	Caterpillar Model 3516C

Compliance for the consecutive 365-day period shall be demonstrated daily by adding the total for the most recently completed calendar day to the individual daily total for the preceding 364 days.
(9VAC5-80-1180) [3/12/2025]

EMISSION LIMITS

14. **Emission Limits (Hourly - Non-Emergency)** – Emissions from the operation of each non-emergency diesel engine gen-set (Ref. Nos. 1 through 70) shall not exceed the limits specified below:

Pollutant	MTU 20V4000 DS2800 (Ref. Nos. 1 through 70)	
	Uncontrolled	Controlled by SCR
Nitrogen Oxides (NO _x as NO ₂)	53.30 lb/hr	4.42 lb/hr
Particulate Matter (PM)	0.27 lb/hr	
Particulate Matter (PM ₁₀)	0.27 lb/hr	
Particulate Matter (PM _{2.5})	0.27 lb/hr	
Carbon Monoxide (CO)	3.63 lb/hr	
Volatile Organic Compounds (VOC)	0.73 lb/hr	
Sulfur Dioxide (SO ₂)	0.04 lb/hr	

Compliance with these pollutant limits shall be based on the proper operation and maintenance of the diesel engines and pollution control devices, or by testing, if required.
(9VAC5-80-1180 and 9VAC5-50-260) [3/12/2025]

15. **Emission Limits (Hourly - Emergency)** – Emissions from the operation of each emergency diesel engine gen-set (Ref. Nos. 71, 72, T1, and T2) shall not exceed the limits specified below:

Pollutant	MTU 16V2000 DS1000 Ref. Nos. 71 and 72	CAT 3516C Ref. Nos. T1 and T2
Nitrogen Oxides (NO _x as NO ₂)	24.29 lb/hr	38.85 lb/hr
Particulate Matter (PM)	0.13 lb/hr	0.57 lb/hr
Particulate Matter (PM ₁₀)	0.13 lb/hr	0.57 lb/hr
Particulate Matter (PM _{2.5})	0.13 lb/hr	0.57 lb/hr
Carbon Monoxide (CO)	2.25 lb/hr	3.95 lb/hr
Volatile Organic Compounds (VOC)	0.71 lb/hr	1.14 lb/hr
Sulfur Dioxide (SO ₂)	0.02 lb/hr	0.03 lb/hr

Compliance with these pollutant limits shall be based on the proper operation and maintenance of the diesel engines or by testing, if required.
(9VAC5-80-1180 and 9VAC5-50-260) [3/12/2025]

16. **Emission Limits (Annual)** – Emissions from the operation of the diesel engine gen-sets (Ref. Nos. 1 through 72, T1, and T2) combined, shall not exceed the limits specified below for all operations:

Pollutant	All Units Ref. Nos. 1 through 72, T1, and T2
Nitrogen Oxides (NO _x as NO ₂)	94.45 tpy
Particulate Matter (PM)	5.76 tpy
Particulate Matter (PM ₁₀)	5.76 tpy
Particulate Matter (PM _{2.5})	5.76 tpy
Carbon Monoxide (CO)	77.18 tpy
Volatile Organic Compounds (VOC)	15.61 tpy
Sulfur Dioxide (SO ₂)	0.82 tpy

These emissions are derived from the estimated overall emission contribution from operating limits. Exceedance of the operating limits may be considered credible evidence of the exceedance of emission limits. Compliance with the annual emission limits may be determined as stated in Conditions 1, 2, 3, 13, 14, and 15.

(9VAC5-80-1180) [3/12/2025]

17. Visible Emission Limit –

- a. Visible emissions from each non-emergency engine gen-set (Ref. Nos. 1 through 70) shall not exceed 5% opacity as determined by EPA Method 9 (reference 40 CFR 60, Appendix A). This requirement applies at all times except during startup, shutdown and malfunction.
- b. Visible emissions from each emergency engine gen-set (Ref. Nos. 71, 72, T1, and T2) shall not exceed 5% opacity except during one six-minute period in any one hour in which visible emissions shall not exceed 10% opacity as determined by the EPA Method 9 (reference 40 CFR 60, Appendix A). This requirement applies at all times except during startup, shutdown and malfunction.

During startup and shutdown, visible emissions from each engine gen-set shall not exceed 10% opacity except during one (1) six-minute period in any one-hour in which visible emissions shall not exceed 20% opacity as determined by EPA Method 9 (reference 40 CFR 60, Appendix A).

(9VAC5-80-1180 and 9VAC5-50-260) [3/12/2025]

INITIAL COMPLIANCE DETERMINATION

- 18. Stack Test (ULSD) –** Initial performance tests shall be conducted on fourteen (14) of the non-emergency diesel engine gen-sets (Ref. Nos. 1 through 70) for NO_x (as NO₂) and CO using appropriate EPA reference methods as approved by the Regional Air Compliance Manager of the DEQ's NRO to determine compliance with the controlled emission limits contained in Condition 14.

- a. Emissions testing of each pollutant for each selected non-emergency diesel engine gen-set shall consist of three (3) one-hour test runs under load. The average of the three (3) runs shall be reported as the short-term emission rate for that non-emergency diesel engine gen-set;
- b. Testing shall be performed on the exhaust stack of the non-emergency diesel engine gen-set to demonstrate compliance with the controlled NO_x and CO emission limits specified in Condition 14. Testing shall be conducted with the non-emergency diesel engine gen-set operating at ≥ 90 percent of its rated capacity, unless multiple load band testing is approved by DEQ;
- c. Recorded non-emergency diesel engine gen-set operational information shall include, but not be limited to:

- i. Generator load/kilowatt output;
 - ii. Fuel consumption and fuel sulfur content of the diesel fuel oil;
 - iii. NO_x concentration after the SCR+cDPF emissions control system;
 - iv. Exhaust temperature at the outlet of the entire SCR+cDPF emissions control system;
 - v. Urea solution injection rate; and
 - vi. Differential pressure drop across the entire SCR+cDPF emissions control system.
- d. Perform testing to demonstrate compliance within 120 days after the integration operational period has commenced. The integration operational period is defined as: the period of time beginning with the first time the affected unit is started on-site and ending when the affected unit is fully integrated with the source electrical system. If this deadline falls within the ozone season (May 1 through September 30), the facility shall perform testing to demonstrate compliance within 30 days after the end of the ozone season. Tests shall be conducted and reported and data reduced as set forth in 9VAC5-50-30;
- e. The details of the tests are to be arranged with the Regional Air Compliance Manager of DEQ's NRO. The permittee shall submit the test protocol to the Regional Air Compliance Manager of DEQ's NRO, at least 30 days prior to testing to ensure adequate time for DEQ approval. If the test protocol is received by the DEQ with less than 30 days for review and acceptance, DEQ approval may not be issued in a timely manner to allow for testing to take place according to the permittee's schedule;
- f. Should conditions occur which would require rescheduling the testing, the permittee shall notify the Regional Air Compliance Manager of DEQ's NRO, in writing, within seven (7) days of the scheduled test date or as soon as the rescheduling is deemed necessary; and
- g. Two (2) copies (one (1) paper copy and one (1) electronic copy) of the test results shall be submitted to the Regional Air Compliance Manager, DEQ's NRO within 60 days after test completion and shall conform to the test report format enclosed with this permit.

(9VAC5-50-30 and 9VAC5-80-1200) [3/12/2025]

19. **Stack Test (Renewable Diesel)** – Performance tests shall be conducted on two (2) diesel engine gen-sets (Ref. Nos. 1 through 72) while utilizing renewable diesel or a blend of renewable diesel and ULSD for NO_x (as NO₂) and CO using appropriate EPA reference methods as approved by the Regional Air Compliance Manager of the DEQ's NRO to determine compliance with the emission limits contained in Conditions 14 and 15.
- a. Emissions testing of each pollutant for each selected diesel engine gen-set shall consist of three (3) one-hour test runs under load. The average of the three (3) runs shall be reported as the short-term emission rate for that diesel engine gen-set.
 - b. Testing shall be performed on the exhaust stack of the diesel engine gen-sets to demonstrate compliance with the NO_x and CO emission limits specified in Conditions 14 and 15. Testing shall be conducted with the diesel engine gen-set operating at ≥ 90 percent of its rated capacity, unless multiple load band testing is approved by DEQ;
 - c. Recorded diesel engine gen-set operational information shall include, but not be limited to:
 - i. Generator load/kilowatt output.
 - ii. Fuel consumption and fuel sulfur content of the diesel fuel oil.
 - d. For any engine gen-set that has not commenced the integration operational period upon receipt of the first shipment of renewable diesel or a blend of renewable diesel and ULSD utilized by the units: Perform testing to demonstrate compliance within 120 days after the integration operational period has commenced. If this deadline falls within the ozone season (May 1 through September 30), the facility shall perform testing to demonstrate compliance within 30 days after the end of the ozone season. Tests shall be conducted and reported and data reduced as set forth in 9VAC5-50-30;
 - e. For any engine gen-set that has commenced the integration operational period upon receipt of the first shipment of renewable diesel or a blend of renewable diesel and ULSD utilized by the units: Perform testing to demonstrate compliance within 120 days of the renewable diesel fuel or a blend of renewable diesel and ULSD first utilized by the affected units. The permittee may petition the DEQ's NRO Air Compliance Manager for an extension to this deadline, with approvals made on a case-by-case basis. If the applicable deadline falls within the ozone season (May 1 through September 30), the facility shall perform testing to demonstrate compliance within 30 days after the end of the ozone season. Tests shall be conducted and reported and data reduced as set forth in 9VAC5-50-30;

- f. The details of the tests are to be arranged with the Regional Air Compliance Manager of DEQ's NRO. The permittee shall submit the test protocol to the Regional Air Compliance Manager of DEQ's NRO, at least 30 days prior to testing to ensure adequate time for DEQ approval. If the test protocol is received by the DEQ with less than 30 days for review and acceptance, DEQ approval may not be issued in a timely manner to allow for testing to take place according to the permittee's schedule;
- g. Should conditions occur which would require rescheduling the testing, the permittee shall notify the Regional Air Compliance Manager of DEQ's NRO, in writing, within seven (7) days of the scheduled test date or as soon as the rescheduling is deemed necessary; and
- h. Two (2) copies (one (1) paper copy and one (1) electronic copy) of the test results shall be submitted to the Regional Air Compliance Manager, DEQ's NRO within 60 days after test completion and shall conform to the test report format enclosed with this permit.

(9VAC5-50-30 and 9VAC5-80-1200) [3/12/2025]

20. **Visible Emissions Evaluation** – Concurrently with the initial performance tests required in Conditions 18 and 19. Visible Emission Evaluations (VEE) in accordance with 40 CFR Part 60, Appendix A, Method 9, shall also be conducted by the permittee on the diesel engine gen-sets selected for initial performance testing. The details of the tests shall be arranged with the Regional Air Compliance Manager of the DEQ's NRO. The permittee shall submit a VEE protocol in conjunction with the initial stack test protocol required by Conditions 18 and 19. at least 30 days prior to testing.

- a. Should conditions prevent concurrent opacity observations, the Regional Air Compliance Manager of the DEQ's NRO shall be notified in writing, within seven (7) days, and visible emissions testing shall be rescheduled within thirty-days. Rescheduled testing shall be conducted under the same conditions (as possible) as the initial performance tests.
- b. Two copies of the test result (one hard copy and one on electronic media) shall be submitted to the Regional Air Compliance Manager of the DEQ's NRO within sixty (60) days after test completion and shall conform to the test report format enclosed with this permit (Attachment B).

(9VAC5-50-30 and 9VAC5-80-1200) [3/12/2025]

CONTINUING COMPLIANCE DETERMINATION

21. **Facility Construction** – The diesel engine gen-sets (Ref. Nos. 1 through 72, T1, and T2) shall be constructed so as to allow for emissions testing upon reasonable notice, using appropriate methods. Sampling ports shall be provided when requested at the appropriate locations in accordance with EPA Reference Method 1 (reference 40 CFR Part 60, Appendix A). In addition, safe sampling platforms and access shall be provided. (9VAC5-50-30 F and 9VAC5-80-1180) [3/12/2025]
22. **Emission Testing/Visible Emissions Evaluation** – Upon request by the DEQ, the permittee shall conduct stack tests and/or visible emission evaluations of the diesel engine gen-sets (Ref. Nos. 1 through 72, T1, and T2) to demonstrate compliance with the emission limits contained in this permit. The details of the tests shall be arranged with the Regional Air Compliance Manager of the DEQ's NRO. (9VAC5-80-1200 and 9VAC5-50-30 G) [3/12/2025]

RECORDS

23. **On Site Records** – The permittee shall maintain records of emission data and operating parameters as necessary to demonstrate compliance with this permit. The content and format of such records shall be arranged with the Regional Air Compliance Manager of the DEQ's NRO. These records shall include, but are not limited to:
 - a. Operation and control system monitoring records for each non-emergency diesel engine gen-set (Ref. Nos. 1 through 70) equipped with a SCR as required in Conditions 4.a and 4.b. This includes records of the SCR exhaust temperature at the outlet of the entire SCR+cDPF emissions control system and NO_x emission concentration as measured by the SCR continuous monitoring device.
 - b. Operation and control system monitoring records for each non-emergency diesel engine gen-set (Ref. Nos. 1 through 70) equipped with a cDPF as required in Condition 4.c. This includes records of the differential pressure drop across the entire SCR+cDPF emissions control system.
 - c. Operation and control system monitoring records for each non-emergency diesel engine gen-set equipped with a cDPF (Ref. Nos. 1 through 70) as required in Condition 4.d. This includes records of the cDPF exhaust temperature at the inlet of the entire SCR+cDPF emissions control system.
 - d. A log of the monitoring device observations as required by Condition 5.
 - e. Records for diesel engine gen-set operations, as necessary, to demonstrate compliance with the operating limitations of Condition 8, which includes but is not limited to: times, dates, and reasons for operation of the diesel engine gen-set that was operating between May 1 and September 30.

- f. To verify compliance with Condition 9, maintain records of:
 - i. The forecasted AQI, as determined by the AirNow website for Northern Virginia, for ozone for the day(s) that a diesel engine gen-set operated during the integration operational period;
 - ii. The measured AQI, as determined by the AirNow website for Northern Virginia, for ozone for the day(s) that the diesel engine gen-set operated during the integration operational period;
 - iii. Documentation recording any Air Alerts issued for the operating day, as determined by AirNow-EnviroFlash; and
 - iv. Details of IOP activities, to include, but not limited to, clock hours and duration.
- g. Monthly and annual hours of operation (all purposes) of each emergency diesel engine gen-set (Ref. Nos. 71, 72, T1, and T2), calculated monthly as the sum of each consecutive rolling 12-month period, as required by Condition 10.a.
- h. Monthly and annual hours of operation of each emergency diesel engine gen-set (Ref. Nos. 71, 72, T1, and T2), for purposes of Scheduled MCRT, with annual hours of operation calculated monthly as the sum of each consecutive 12-month period, as required by Condition 10.b.
- i. Records of the reasons for operation for each emergency diesel engine gen-set (Ref. Nos. 71, 72, T1, and T2), including, but not limited to, the date, cause of operation, cause of the emergency, the ISO-declared emergency notification, and the hours of operation.
- j. Daily and annual fuel consumption of each diesel engine gen-set (Ref. Nos. 1 through 72, T1, and T2), calculated daily as the sum of each consecutive rolling 365-day period, as required by Condition 13.
- k. Daily and annual fuel consumption for each diesel engine gen-set (Ref. Nos. 1 through 72, T1, and T2) by group (Group 1, Group 2, Group 3, and Group 4), calculated daily as the sum of each consecutive 365-day period for the purposes of the compliance demonstration with the diesel fuel throughput limit equation in Condition 13.
- l. Daily and annual results of the computed fuel throughput equation used by the diesel engine gen-sets (Ref. Nos. 1 through 72, T1, and T2) groups (Group 1, Group 2, Group 3, and Group 4), calculated daily as the sum of each consecutive 365 day period for the purposes of the compliance demonstration with the diesel fuel throughput limit equation in Condition 13.

- m. Daily and annual emissions calculations for NO_x (as NO₂), CO, VOC, SO₂, PM, PM₁₀, and PM_{2.5} from the diesel engine gen-sets (Ref. Nos. 1 through 72, T1, and T2) for all operations, combined, to verify compliance with the annual emissions limitations in Condition 16, with annual emissions calculated daily as the sum of each consecutive 365-day period.
- n. All fuel supplier certifications.
- o. Results of all stack tests and visible emission evaluations.
- p. Records of scheduled and unscheduled maintenance in accordance with Condition 31.
- q. Operator training in accordance with Condition 31.
- r. Records of the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer.
- s. Records of changes in settings that are permitted by the manufacturer of the emergency diesel engine gen-sets.
- t. Documentation from the manufacturer that the diesel engine gen-sets are certified to meet the EPA's Tier 2 emission standards.
- u. Engine information including make, model, serial number, model year, maximum engine power (bhp), and engine displacement for the diesel engine gen-sets (Ref. Nos. 1 through 72, T1, and T2).

These records shall be available for inspection by the DEQ and shall be current for the most recent five years, unless otherwise noted.
(9VAC5-80-1180 and 9VAC5-50-50) [3/12/2025]

SPECIAL CONDITIONS - TRANSITORY ENGINE-GENERATOR SETS

- 24. **Operation of the Transitory Engine Gen-Sets** – The facility shall only operate the transitory emergency diesel engine gen-sets (Ref. Nos. T1 and T2) in support of the facility such as serving as back up during construction, commissioning, and maintenance of the engine gen-sets (Ref. Nos. 1 through 72).
(9VAC5-80-1180) [3/12/2025]
- 25. **Notifications** – The permittee shall furnish the following written notifications to the Regional Air Compliance Manager of the DEQ's NRO of:
 - a. The actual date and reason for each occurrence that each transitory emergency diesel engine gen-set (Ref. Nos. T1 and T2) was placed into service within 15 days after such date. The notification must include the following:

- i. Name and address of the permittee;
 - ii. The address of the affected source;
 - iii. Engine information including make, model, engine family, serial number, model year, maximum engine power and engine displacement;
 - iv. Fuel used; and
 - v. Hours operated.
- b. The actual date of the removal of each transitory emergency diesel engine gen-set (Ref. Nos. T1 and T2) within 15 days after such date.

(9VAC5-80-1180) [3/12/2025]

NOTIFICATIONS

26. **Initial Notifications** – The permittee shall furnish written notification of the items below to the Air Compliance Manager of the DEQ’s Northern Regional Office.

The permittee shall submit one notification for each building containing information on each diesel engine gen-set as described below:

- a. The actual date on which installation of the diesel engine gen-sets (Ref. Nos. 1 through 72) commenced in the building within 30 days after such date. The notification must contain the following:
 - i. Name and address of the permittee;
 - ii. The building;
 - iii. Unit reference number of the initial unit installed; and
 - iv. The date installation commenced.
- b. The date that the integration operational period started for each diesel engine gen-set (Ref. Nos. 1 through 72) within 15 days after the last generator at each building completes its integration operational period. If a period of construction is paused or halted for ≥ 45 days this notification shall be provided to the DEQ within 15 days after completion of the integration operational period for the most recently installed engine-generator set. The notification must contain the following:
 - i. Unit reference number;

- ii. Engine information including make, model, engine family, serial number, model year, maximum engine power, engine displacement, fuel used;
- iii. Installation date; and
- iv. Integration operational period start and end dates.

For the purpose of this notification the integration operational period is defined as: the period of time beginning with the first time the affected unit is started on-site and ending when the affected unit is fully integrated with the sources electrical system.
(9VAC5-50-50 and 9VAC5-80-1180) [3/12/2025]

27. **Renewable Diesel Notification** – Upon receipt of the first shipment of renewable diesel or a blend of renewable diesel and ULSD, the permittee shall furnish written notification of the items below to the Air Compliance Manager of the DEQ’s NRO.
- a. The actual date on which the shipment was received within fifteen (15) days after such date. The notification must include the following:
 - i. Name and address of the permittee;
 - ii. The address of the affected source;
 - iii. Engine gen-sets (with reference numbers) utilizing the fuel in the shipment; and
 - iv. Fuel certification (as provided in Condition 12).

(9VAC5-80-1180) [3/12/2025]

GENERAL CONDITIONS

28. **Permit Invalidation** – This permit to construct the stationary diesel engine gen-sets (Ref. Nos. 1 through 72) shall become invalid, unless an extension is granted by the DEQ, if:
- a. A program of continuous construction or modification of the stationary diesel engine gen-sets (Ref. Nos. 1 through 72) is not commenced within 18 months from the ‘Original Permit Date’ specified in the equipment list in the Introduction section of this permit; or if.
 - b. A program of construction of the stationary diesel engine gen-sets (Ref. Nos. 1 through 72) is discontinued for a period of eighteen months or more, or is not completed within a reasonable time.

(9VAC5-80-1210)

29. **Permit Suspension/Revocation** – The Board may suspend or revoke any permit if the permittee:
- a. Knowingly makes material misstatements in the permit application or any amendments to it;
 - b. Fails to comply with the terms or conditions of this permit;
 - c. Fails to comply with any emission standards applicable to a permitted emissions unit;
 - d. Causes emissions from the stationary source which result in violations of, or interfere with the attainment and maintenance of, any ambient air quality standard; or fails to operate in conformance with any applicable control strategy, including any emission standards or emission limitations, in the implementation plan in effect at the time that an application is submitted; or
 - e. Fails to comply with the applicable provisions of 9VAC5-80-1100 et seq.
- (9VAC5-80-1210 G)
30. **Right of Entry** – The permittee shall allow authorized local, state, and federal representatives, upon the presentation of credentials:
- a. To enter upon the permittee's premises on which the facility is located or in which any records are required to be kept under the terms and conditions of this permit;
 - b. To have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit or the State Air Pollution Control Board Regulations;
 - c. To inspect at reasonable times any facility, equipment, or process subject to the terms and conditions of this permit or the State Air Pollution Control Board Regulations; and
 - d. To sample or test at reasonable times.

For purposes of this condition, the time for inspection shall be deemed reasonable during regular business hours or whenever the facility is in operation. Nothing contained herein shall make an inspection time unreasonable during an emergency.
(9VAC5-170-130 and 9VAC5-80-1180)

31. **Maintenance/Operating Procedures** – At all times, including periods of start-up, shutdown, and malfunction, the permittee shall, to the extent practicable, maintain and operate the affected source, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions.

The permittee shall take measures in order to minimize the duration and frequency of excess emissions, including the following:

- a. Develop a maintenance schedule and maintain records of all scheduled and non-scheduled maintenance.
- b. Maintain an inventory of spare parts.
- c. Have available written operating procedures for equipment. These procedures shall be based on the manufacturer's recommendations, at a minimum.
- d. Train operators in the proper operation of all such equipment and familiarize the operators with the written operating procedures, prior to their first operation of such equipment. The permittee shall maintain records of the training provided including the names of trainees, the date of training and the nature of the training.

(9VAC5-50-20 E and 9VAC5-80-1180 D)

32. **Record of Malfunctions** – The permittee shall maintain records of the occurrence and duration of any bypass, malfunction, shut-down or failure of the facility or its associated air pollution control equipment that results in excess emissions for more than one hour. The records shall be maintained in a form suitable for inspection and maintained for at least two years (unless a longer period is specified in the applicable emission standard) following the date of occurrence. Records shall include the date, time, duration, description (emission unit, pollutant affected, cause of malfunction), corrective action, preventive measures taken and name of person generating the record.

(9VAC5-20-180 J and 9VAC5-80-1180 D)

33. **Notification for Facility or Control Equipment Malfunction** – The permittee shall furnish notification to the Regional Air Compliance Manager of the DEQ's NRO of malfunctions of the affected facility or related air pollution control equipment that may cause excess emissions for more than one hour. Such notification shall be made no later than four daytime business hours after the malfunction is discovered. The permittee shall provide a written statement giving all pertinent facts, including the estimated duration of the breakdown, within 14 days of discovery of the malfunction. When the condition causing the failure or malfunction has been corrected and the equipment is again in operation, the permittee shall notify the Regional Air Compliance Manager of the DEQ's NRO.

(9VAC5-20-180 C and 9VAC5-80-1180)

34. **Violation of Ambient Air Quality Standard** – Regardless of any other provision of this permit, the permittee shall, upon request of the DEQ, reduce the level of operation of the facility if the DEQ determines that is necessary to prevent a violation of any primary ambient air quality standard. Under worst case conditions, the DEQ may order that the permittee shut down the facility, if there is no other method of operation to avoid a violation of the ambient air quality standard. The DEQ reserves the right to prescribe the method of determining if a facility will cause such a violation. In such cases, the facility shall not be returned to operation until it and the associated air pollution control equipment are able to operate without violation of any primary ambient air quality standard.
(9VAC5-20-180 I and 9VAC5-80-1180)
35. **Change of Ownership** – In the case of a transfer of ownership of a stationary source, the new owner shall abide by any current permit issued to the previous owner. The new owner shall notify the Regional Air Compliance Manager of the DEQ's NRO of the change of ownership within 30 days of the transfer.
(9VAC5-80-1240)
36. **Permit Copy** – The permittee shall keep a copy of this permit on the premises of the facility to which it applies.
(9VAC5-80-1180)

Appendix A:
Source Testing Report Format

SOURCE TESTING REPORT FORMAT

Report Cover

1. Plant name and location
2. Units tested at source (indicate Ref. No. used by source in permit or registration)
3. Test dates
4. Tester; name, address and report date

Certification

1. Signed by team leader/certified observer (include certification date)
2. Signed by responsible company official
3. *Signed by reviewer

Copy of approved test protocol

Summary

1. Reason for testing
2. Test dates
3. Identification of unit tested & the maximum rated capacity
4. *For each emission unit, a table showing:
 - a. Operating rate
 - b. Test Methods
 - c. Pollutants tested
 - d. Test results for each run and the run average
 - e. Pollutant standard or limit
5. Summarized process and control equipment data for each run and the average, as required by the test protocol
6. A statement that test was conducted in accordance with the test protocol or identification & discussion of deviations, including the likely impact on results
7. Any other important information

Source Operation

1. Description of process and control devices
2. Process and control equipment flow diagram
3. Sampling port location and dimensioned cross section. Attached protocol includes: sketch of stack (elevation view) showing sampling port locations, upstream and downstream flow disturbances and their distances from ports; and a sketch of stack (plan view) showing sampling ports, ducts entering the stack and stack diameter or dimensions

Test Results

1. Detailed test results for each run
2. *Sample calculations
3. *Description of collected samples, to include audits when applicable

Appendix

1. *Raw production data
2. *Raw field data
3. *Laboratory reports
4. *Chain of custody records for lab samples
5. *Calibration procedures and results
6. Project participants and titles
7. Observers' names (industry and agency)
8. Related correspondence
9. Standard procedures

* Not applicable to visible emission evaluations