



*Commonwealth of Virginia*

**VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY**

[www.deq.virginia.gov](http://www.deq.virginia.gov)

Travis A. Voyles  
Secretary of Natural and Historic Resources

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

December 18, 2024

Mr. Vincent K. Moore  
Sr. EHS Compliance Operations Analyst  
Equinix, LLC  
21551 Beaumeade Circle  
Ashburn, VA 20147

Location: Loudoun County  
Registration No.: 74189

Dear Mr. Moore:

Attached is a permit document to construct and operate diesel engine generator sets (gen-sets) at Equinix, LLC's data center facility in accordance with the provisions of the Virginia Regulations for the Control and Abatement of Air Pollution. This permit document supersedes your permit document dated February 17, 2023.

In the course of evaluating the application and arriving at a final decision to approve the project, the Department of Environmental Quality (DEQ) deemed the application complete on December 17, 2024.

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 Equinix, LLC 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](http://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 30 days after this case decision notice was mailed or delivered to you. Please consult the relevant regulations for additional requirements for such requests.

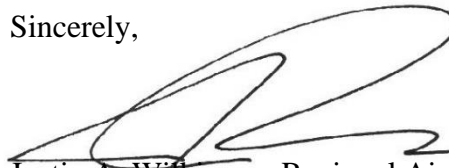
As provided by Rule 2A:2 of the Supreme Court of Virginia, you have 30 days from the date you actually received this permit document or the date on which it was mailed to you, whichever occurred first, within which to initiate an appeal of this decision by filing a Notice of Appeal with:

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

If this permit document 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 Katie DeVoss by phone at (571) 866-6090 or via e-mail at [katie.devoss@deq.virginia.gov](mailto:katie.devoss@deq.virginia.gov).

Sincerely,



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

JAW/KD/74189 mNSR (2024-12-18)

Attachment: Permit



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Travis A. Voyles  
Secretary of Natural and Historic Resources

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

**STATIONARY SOURCE PERMIT TO CONSTRUCT AND OPERATE**

This permit document supersedes the permit document dated February 17, 2023.

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

Equinix, LLC  
21551 Beaumeade Circle  
Ashburn, VA 20147  
Registration No.: 74189

is authorized to construct and operate

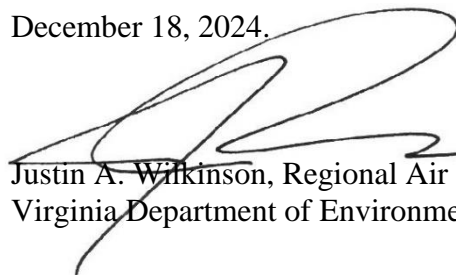
diesel engine gen-sets

located at

DC-21 at 22175 Beaumeade Circle  
DC-22 at 22165 Beaumeade Circle  
Ashburn, VA 20147

in accordance with the Conditions of this permit.

Approved on: December 18, 2024.

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

Permit consists of 22 pages.  
Permit Conditions 1 to 35.

## 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 December 18, 2024, based on the permit application dated November 25, 2024, including supplemental information dated November 26, 2024, December 3, 2024, and December 17, 2024;
- mNSR permit dated February 17, 2023, based on the permit application dated August 22, 2022, including supplemental information dated December 16, 2022, and December 21, 2022;
- mNSR permit dated May 25, 2021, based on the permit application dated January 13, 2021, including supplemental information dated March 10, 2021, May 7, 2021, and May 17, 2021; and
- mNSR permit dated April 9, 2020, based on the permit application dated September 23, 2019, including supplemental information dated March 30, 2020.

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 covered by this permit consists of:

Equipment to be Constructed:

Engine Group	Reference No.	Equipment Description	Rated Capacity	Add-on Controls	Delegated Federal Requirements	Permit Date
DC-22	DC-22-Gen 1 through DC-22-Gen 26	(26) Kohler Model KD103V20 Non-emergency Diesel Engine Gen-sets (Low NO <sub>x</sub> Configuration)	5,753 bhp 4,000 kWe (each)	Selective Catalytic Reduction (SCR)*	None	December 18, 2024
DC-22Z	DC-22-Gen Z	One (1) Kohler Model KD27V12 Emergency Diesel Engine Gen-set	1,195 bhp 800 kWe	None	None	December 18, 2024

\*ecoCUBE SCR

Previously Permitted Equipment:

Engine Group	Reference No.	Equipment Description	Rated Capacity	Delegated Federal Requirements	Permit Date
DC-21Z	DC-21-Gen Z	Cummins Model QSX15-G9 Diesel Emergency Engine Gen-set	755 bhp 500 kWe	None	May 25, 2021
DC-21-3250	DC-21-Gen A DC-21-Gen B DC-21-Gen R	Three (3) Cummins Model QSK95-G12 Emergency Diesel Engine Gen-sets	4,701 bhp 3,250 kWe (de-rated from 5,051 bhp, 3,500 kWe) (each)	None	February 17, 2023
DC-21-3350	DC-21-Gen C DC-21-Gen E DC-21-Gen F	Three (3) Cummins Model QSK95-G15 Emergency Diesel Engine Gen-sets	4,841 bhp 3,350 kWe (de-rated from 5,051 bhp, 3,500 kWe) (each)	None	February 17, 2023

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

## PROCESS REQUIREMENTS

1. **Emission Controls** – Emissions from the diesel engine gen-sets shall be controlled by the following:
  - a. Nitrogen oxides (NO<sub>x</sub>) emissions from the engine gen-sets (Engine Groups DC-21-3250, DC-21-3350, and DC-22) shall be controlled by low NO<sub>x</sub> emission configuration. The permittee shall maintain documentation that demonstrates the configuration has been programmed into the engine gen-sets.
  - b. Nitrogen oxides (NO<sub>x</sub>) emissions from the emergency engine gen-sets (Engine Groups DC-21-3250, DC-21-3350, DC-21Z, and DC-22Z) shall be controlled by engine design.
  - c. Visible emissions, particulate emissions, carbon monoxide (CO) emissions, volatile organic compound (VOC) emissions, and NO<sub>x</sub> emissions from the engine gen-sets (Engine Groups DC-21-3250, DC-21-3350, DC-21Z, DC-22, and DC-22Z) shall be controlled by the use of good operating practices and performing appropriate maintenance in accordance with the manufacturer recommendations. In addition, the permittee may only change those settings that are permitted by the manufacturer and does not increase air emissions.

(9VAC5-80-1180 and 9VAC5-50-260) [12/18/2024]

2. **Emission Controls (SCR)** – Nitrogen oxide (NO<sub>x</sub>) emissions from the non-emergency diesel engine gen-sets (Engine Group DC-22) shall be controlled by closed loop Selective Catalytic Reduction (SCR). Each SCR system shall be equipped with a temperature probe to continuously monitor the catalyst bed inlet temperature while the engine gen-set is operational. Engine exhaust gas shall be treated with urea when the catalyst bed inlet 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 catalyst bed inlet temperature does not exceed 1,000°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) [12/18/2024]

3. **Engine Electrical Power Output** –

- a. Each emergency engine gen-set (Engine Group DC-21-3250) shall be equipped with a Cummins controller to limit the electrical power output of each emergency engine gen-set to not more than 3,250 kW.
- b. Each emergency engine gen-set (Engine Group DC-21-3350) shall be equipped with a Cummins controller to limit the electrical power output of each emergency engine gen-set to not more than 3,350 kW.

Each controller shall be programmed to initiate a shutdown timer of no more than 120 seconds, if the gen-set exceeds its capacity limit. Each emergency engine gen-set above shall also be equipped with a device to monitor and record the engine gen-set kilowatt output at a minimum frequency of once every fifteen minutes.  
(9VAC5-80-1180 and 9VAC5-50-260) [12/18/2024]

4. **Monitoring Devices –**

- a. Engine Operating Hours: Each engine gen-set (Engine Groups DC-21-3250, DC-21-3350, DC-21Z, DC-22, and DC-22Z) shall be equipped with a non-resettable hour metering device to monitor the operating hours.
- b. Fuel Flow: Each engine gen-set (Engine Groups DC-21-3250, DC-21-3350, and DC-22) shall be equipped with a fuel flow monitoring device used to continuously measure and record fuel consumption (in gallons) for each engine gen-set.

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 Air Compliance Manager of the DEQ Northern Regional Office (NRO).

Each monitoring device shall be provided with adequate access for inspection and shall be in operation when the engine gen-sets are operating.  
(9VAC5-80-1180 D) [12/18/2024]

5. **Monitoring Devices (SCR) –** Each non-emergency diesel engine gen-set (Engine Group DC-22) shall be equipped with devices to continuously measure and record the following:

- a. The SCR catalyst bed inlet temperature.
- b. The NO<sub>x</sub> emissions measured after the SCR catalyst, expressed in ppm.

The information (as required in a. and b. above) shall be recorded at a minimum frequency of once every fifteen minutes and correlated to run date. Each monitoring device shall be installed, maintained, calibrated and operated in accordance with approved procedures which shall include, as 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 SCR is operating.  
(9VAC5-80-1180 D) [12/18/2024]

## OPERATING/EMISSION LIMITATIONS

6. **Emergency Power Generation** – The emergency engine gen-sets (Engine Groups DC-21-3250, DC-21-3350, DC-21Z, and DC-22Z) 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 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 unit is 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 each engine gen-set (Engine Groups DC-21-3250, DC-21-3350, DC-21Z, DC-22, and DC-22Z) and control device 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) [12/18/2024]
8. **Operating Limitations (Ozone Season)** – No engine gen-set (Engine Groups DC-21-3250, DC-21-3350, DC-21Z, DC-22, and DC-22Z) shall be operated for scheduled maintenance and readiness testing (Scheduled MCRT), testing, or operational training (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. The permittee may petition the Air Compliance Manager of the DEQ’s NRO for exceptions to this requirement, with approvals made on a case by case basis.  
(9VAC5-80-1180) [12/18/2024]
9. **Operating Limitations (Ozone Season) – Integration Operational Period** – During the integration operational period of each engine gen-set (Engine Groups DC-21-3250, DC-21-3350, DC-21Z, DC-22, and DC-22Z), 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 (<http://airnow.gov>) for Northern Virginia for that day is  $\leq 100$ . In the event that AirNow-EnviroFlash ([www.enviroflash.info](http://www.enviroflash.info)) issues an Air Alert for Metropolitan Washington, D.C. for a day which the forecasted AQI for ozone was  $\leq 100$ , operation of each unit (which involves fuel combustion) shall be minimized to the maximum extent practical.  
(9VAC5-80-1180) [12/18/2024]
10. **Operating Hours** –
  - a. No single unit (Engine Groups DC-21-3250, DC-21-3350, DC-21Z, DC-22, and DC-22Z) shall operate more than 500 hours per year for all purposes (as provided in Condition 6), calculated monthly as the sum of each consecutive 12-month period.
  - b. No single unit (Engine Groups DC-21-3250 and DC-21-3350) shall operate more than 36 hours per year for scheduled maintenance checks and readiness testing (Scheduled MCRT) (as provided in Condition 6.c).
  - c. The emergency engine gen-set (Engine Group DC-21Z) shall not operate more than 11 hours per year for scheduled maintenance checks and readiness testing (Scheduled MCRT) (as provided in Condition 6.c).

- d. The emergency engine gen-set (Engine Group DC-22Z) shall not operate more than 15 hours per year for scheduled maintenance checks and readiness testing (Scheduled MCRT) (as provided in Condition 6.c).

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) [12/18/2024]

- 11. **Fuel** – The approved fuel for the engine gen-sets (Engine Groups DC-21-3250, DC-21-3350, DC-21Z, DC-22, and DC-22) is diesel fuel. For the purposes of this permit document, diesel fuel is defined as ultra-low sulfur diesel fuel, hydrotreated vegetable oil (HVO) fuel, or a blend of these fuels, and shall meet the specifications below:

- a. Does not exceed the American Society for Testing and Materials (ASTM) D975 specification for Grade No. 1-D S15 or Grade No. 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 40 or maximum aromatic content of 35 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) [12/18/2024]

- 12. **Fuel Throughputs** –

- a. The emergency engine gen-sets (Engine Groups DC-21-3250 and DC-21-3350) combined shall consume no more than 240,000 gallons of diesel fuel per year, calculated monthly as the sum of each consecutive 12-month period for all purposes (as provided in Condition 6).
- b. The non-emergency engine gen-sets (Engine Group DC-22) combined shall consume no more than 800,000 gallons of diesel fuel per year, for all operations, calculated monthly as the sum of each consecutive 12-month period for all purposes (as provided in Condition 6).
- c. The non-emergency engine gen-sets (Engine Group DC-22) combined shall consume no more than 240,000 gallons of diesel fuel per year, when exhaust gas is not treated with urea, calculated monthly as the sum of each consecutive 12-month period for all purposes (as provided in Condition 6).

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) [12/18/2024]

13. **Fuel Certification** – The permittee shall obtain a certification from the fuel supplier with each shipment of diesel fuel. Each fuel supplier certification shall include the following:
- a. The name of the fuel supplier;
  - b. The date on which the fuel was received;
  - c. The quantity of fuel delivered in the shipment;
  - d. A statement that the diesel fuel:
    - i. complies with the ASTM specifications for Grade No. 1-D S15 or Grade No. 2-D S15 (also known as ultra-low sulfur diesel (ULSD)); or
    - ii. has a sulfur content per shipment not to exceed 0.0015% by weight (15 ppm) and either a minimum cetane number of forty or maximum aromatic content of thirty-five percent by volume.
  - e. The sulfur content of the fuel.

Fuel sampling and analysis, independent of that used for certification, as may be periodically required or conducted by DEQ, may be used to determine compliance with the fuel specifications stipulated in Condition 11. Exceedance of these specifications may be considered credible evidence of the exceedance of emission limits.  
(9VAC5-80-1180) [12/18/2024]

## EMISSION LIMITS

14. **Emission Limits (Hourly)** – Emissions from the operation of each engine gen-set shall not exceed the limits specified below:

Pollutant	Engine Group DC-21-3250	Engine Group DC-21-3350	Engine Group DC-21Z	Engine Group DC-22Z
Nitrogen Oxides (NO <sub>x</sub> as NO <sub>2</sub> )	60.63 lbs/hr	63.82 lbs/hr	7.15 lbs/hr	15.80 lbs/hr
Carbon Monoxide (CO)	8.29 lbs/hr	8.54 lbs/hr	0.63 lbs/hr	2.95 lbs/hr
Volatile Organic Compounds (VOC)	2.70 lbs/hr	2.62 lbs/hr	0.23 lbs/hr	0.09 lbs/hr
Particulate Matter (PM <sub>10</sub> )	1.08 lbs/hr	1.11 lbs/hr	0.9 lbs/hr	0.27 lbs/hr
Particulate Matter (PM <sub>2.5</sub> )	1.08 lbs/hr	1.11 lbs/hr	0.9 lbs/hr	0.27 lbs/hr

Pollutant	Engine Group DC-22	
	Uncontrolled by SCR	Controlled by SCR
Nitrogen Oxides (as NO <sub>2</sub> )	75.66 lbs/hr	7.61 lbs/hr
Carbon Monoxide (CO)	9.93 lbs/hr	
Volatile Organic Compounds (VOC)	3.22 lbs/hr	
Particulate Matter (PM <sub>10</sub> )	1.58 lbs/hr	
Particulate Matter (PM <sub>2.5</sub> )	1.58 lbs/hr	

Compliance with these emission limits shall be based on the proper operation and maintenance of the diesel engine gen-sets and pollution control devices, or by testing, if required.

(9VAC5-80-1180 and 9VAC5-50-260) [12/18/2024]

15. **Emission Limits (Annual)** – Total emissions from the engine gen-sets shall not exceed the limits specified below:

<b>Pollutant</b>	<b>Engine Groups DC-21-3250 and DC-21-3350</b>	<b>Engine Group DC-21Z</b>	<b>Engine Group DC-22Z</b>
Nitrogen Oxides (as NO <sub>2</sub> )	31.52 tpy	1.79 tpy	3.95 tpy
Carbon Monoxide (CO)	4.22 tpy	0.16 tpy	0.74 tpy
Volatile Organic Compounds (VOC)	2.69 tpy	0.06 tpy	0.02 tpy
Particulate Matter (PM <sub>10</sub> )	1.48 tpy	0.23 tpy	0.07 tpy
Particulate Matter (PM <sub>2.5</sub> )	1.48 tpy	0.23 tpy	0.07 tpy

<b>Pollutant</b>	<b>Engine Group DC-22 (All Operations)</b>	<b>Engine Group DC-22 (Uncontrolled by SCR)</b>
Nitrogen Oxides (as NO <sub>2</sub> )	40.04 tpy	32.43 tpy
Carbon Monoxide (CO)	42.15 tpy	12.65 tpy
Volatile Organic Compounds (VOC)	15.09 tpy	4.53 tpy
Particulate Matter (PM <sub>10</sub> )	4.02 tpy	1.21 tpy
Particulate Matter (PM <sub>2.5</sub> )	4.02 tpy	1.21 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 these emission limits may be determined by Conditions 1, 2, 3, 10, 11, 12, and 14.  
 (9VAC5-80-1180) [12/18/2024]

16. **Emission Limits (Annual – Facility Wide)** – Total emissions from the engine gen-sets shall not exceed the limits specified below:

<b>Pollutant</b>	<b>All Operation (all units combined)</b>
Nitrogen Oxides (NO <sub>x</sub> as NO <sub>2</sub> )	77.30 tpy
Carbon Monoxide (CO)	47.26 tpy
Volatile Organic Compounds (VOC)	17.86 tpy
Particulate Matter (PM <sub>10</sub> )	5.80 tpy
Particulate Matter (PM <sub>2.5</sub> )	5.80 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 these emission limits may be determined by Conditions 1, 2, 3, 10, 11, 12, 14, and 15.  
 (9VAC5-80-1180) [12/18/2024]

17. **Visible Emission Limit** –

- a. Visible emissions from each non-emergency engine gen-set (Engine Group DC-22) 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 exhaust (Engine Groups DC-21-3250, DC-21-3350, DC-21Z, and DC-22Z) shall not exceed 5% opacity except during one 6-minute period in any one hour in which visible emissions shall not exceed 10% opacity as determined by EPA Method 9 (reference 40 CFR 60, Appendix A). This condition 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 6-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) [12/18/2024]

## INITIAL COMPLIANCE DETERMINATION

18. **Stack Test** – Initial performance tests shall be conducted on two (2) emergency diesel engine gen-sets (Engine Groups DC-21-3250 and DC-21-3350) for NO<sub>x</sub> (as NO<sub>2</sub>) 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 Condition 14.
- a. Emissions testing of each pollutant for each selected 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 emergency diesel engine gen-set;
  - b. Testing shall be performed on the exhaust stack of the emergency diesel engine gen-set to demonstrate compliance with the NO<sub>x</sub> and CO emission limits specified in Condition 14. Testing shall be conducted with the emergency diesel engine gen-set operating at  $\geq 90$  percent of its de-rated capacity, unless multiple load band testing is approved by DEQ;
  - c. Recorded 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 fuel.
  - d. Perform testing to demonstrate compliance within 120 days from the date that the unit was programmed to de-rate its electrical output as specified in the equipment list. 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) [12/18/2024]

- 19. **Stack Test** – Initial performance tests shall be conducted on five (5) non-emergency diesel engine gen-sets (Engine Group DC-22) for NO<sub>x</sub> (as NO<sub>2</sub>) 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 non-emergency diesel engine gen-sets to demonstrate compliance with the controlled NO<sub>x</sub> and CO emission limits specified in Condition 14. Testing shall be conducted with the non-emergency diesel engine gen-set operating at  $\geq 90$  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<sub>x</sub> concentration after the catalyst.
    - iv. SCR catalyst bed inlet temperature.
    - v. Urea solution injection rate.
  - d. 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. 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. 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) [12/18/2024]

20. **Visible Emissions Evaluation** – Concurrent 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 selected engine gen-sets selected for initial performance testing. The details of the tests shall be arranged with the 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 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 operating conditions as the initial performance tests.
- b. Two (2) copies of the test result (one hard copy and one on electronic media) shall be submitted to the 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 A).

(9VAC5-50-30 and 9VAC5-80-1200) [12/18/2024]

21. **Electrical Power Output Control Device Validation** – An electrical power output control device validation shall be conducted on the engine gen-sets (Engine Groups DC-21-3250 and DC-21-3350) to validate that its electrical power output control device (required by Condition 3) prevents each engine gen-set from exceeding its permitted capacity. The validation shall be performed, reported, and demonstrate compliance within 60 days from the date that the unit was programmed to de-rate its electrical output but in no event later than 120 days after said date. The details of the validation are to be arranged with the Regional Air Compliance Manager of the DEQ's NRO. The permittee shall submit a protocol at least 30 days prior to testing. One copy of the test results shall be submitted to the DEQ within 60 days after test completion and shall conform to the test report format enclosed with this permit.  
(9VAC5-80-1180) [12/18/2024]

## CONTINUING COMPLIANCE DETERMINATION

22. **Emissions Testing** – Upon request by the DEQ, the permittee shall conduct stack tests, visible emission evaluations (VEEs), and/or electrical power output control device validations of the engine gen-sets (Engine Groups DC-21-3250, DC-21-3350, DC-21Z, DC-22, and DC-22Z) to demonstrate compliance with the emission limits contained in this permit. The details of the tests shall be arranged with the Air Compliance Manager of the DEQ's NRO.  
(9VAC5-80-1200 and 9VAC5-50-30 G) [12/18/2024]
23. **Facility Construction** – The engine gen-sets (Engine Groups DC-21-3250, DC-21-3350, DC-21Z, DC-22, and DC-22Z) shall be constructed so as to allow for emissions testing upon reasonable notice at any time, using appropriate methods. This includes construction of the facility/equipment such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test methods and providing a stack or duct that is free from cyclonic flow. Sampling ports shall be provided when requested at the appropriate locations and safe sampling platforms and access shall be provided.  
(9VAC5-50-30 F and 9VAC5-80-1180) [12/18/2024]

## RECORDS

24. **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 Northern Regional Office. These records shall include, but are not limited to:
- a. Engine information including make, model, serial number, model year, maximum engine power (bhp), and engine displacement for each engine gen-set.
  - b. The manufacturer's written operating instructions or procedures developed by the owner/operator that are approved by the engine manufacturer for each engine gen-set.

- c. Records of changes in settings that are permitted by the manufacturer of the engine gen-sets.
- d. A log of monitoring device observations in ekW, as required by Condition 3.
- e. A log of the operating hour readings from the hour meter observations, as required by Condition 4.
- f. Operation and control device monitoring records for each non-emergency diesel engine gen-set (Engine Group DC-22) equipped with a SCR as required in Conditions 5.a and 5.b. This includes records of the SCR catalyst bed inlet temperature and NO<sub>x</sub> emission concentration as measured by the SCR continuous monitoring device.
- g. Records of the reasons for operation for each emergency engine gen-set (Engine Groups DC-21-3250, DC-21-3350, DC-21Z, and DC-22Z) including, but not limited to, the date, cause of operation, cause of the emergency, the ISO-declared emergency notification, and the hours of operation.
- h. Records, 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 each engine gen-set that was operating between May 1 and September 30.
- i. 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 an 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 engine gen-set operated during the integration operational period;
  - iii. Documentation recording on any Air Alerts issued for that operating day, as determined by AirNow-EnviroFlash; and
  - iv. Details of commissioning activities, to include, but not limited to, clock hours and duration.
- j. Monthly and annual hours of operation of each engine gen-set (Engine Groups DC-21-3250, DC-21-3350, DC-21Z, DC-22, and DC-22Z) calculated monthly as the sum of each consecutive 12-month period.

- k. Monthly and annual hours of operation of each emergency engine gen-set (Engine Groups DC-21-3250, DC-21-3350, DC-21Z, and DC-22Z), for purposes of scheduled maintenance checks and readiness testing (Scheduled MCRT), calculated monthly as the sum of each consecutive 12-month period.
- l. Annual fuel consumption for the combined operation of the emergency engine gen-sets (Engine Groups DC-21-3250 and DC-21-3350) for all purposes, calculated monthly as the sum of each consecutive 12-month period.
- m. Annual fuel consumption for the combined operation of the non-emergency engine gen-sets (Engine Group DC-22) for all purposes, calculated monthly as the sum of each consecutive 12-month period.
- n. Annual fuel consumption for the combined operation of the non-emergency engine gen-sets (Engine Group DC-22) when exhaust gas is not treated with urea, calculated monthly as the sum of each consecutive 12-month period.
- o. All fuel supplier certifications.
- p. Results of all stack tests, visible emission evaluations, and electrical power output control device validations.
- q. Records of scheduled maintenance checks and readiness testing (Scheduled MCRT).
- r. Records of unscheduled maintenance and operator training.
- s. Scheduled and non-scheduled maintenance and operator training as required by Condition 30.

Compliance for the consecutive 12-month period in subsections above (as applicable) shall be demonstrated monthly by adding the total for the most recently completed month to the individual monthly totals for the preceding 11 months.

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) [12/18/2024]

## NOTIFICATIONS

25. **Initial Notifications** – The permittee shall furnish written notification of the items below to the Air Compliance Manager of the DEQ’s NRO at the following address:

Regional Air Compliance Manager  
Department of Environmental Quality  
13091 Crown Court  
Woodbridge, VA 22193

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

- a. The actual date on which installation of the engine gen-sets (Engine Groups DC-21-3250, DC-21-3350, DC-21Z, DC-22, and DC-22Z) commenced in each 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 engine gen-set (Engine Groups DC-21-3250, DC-21-3350, DC-21Z, DC-22, and DC-22Z) within 15 days after the last gen-set at each building completes its integration operational period. If a period of construction is paused or halted for  $\geq 45$  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 gen-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 source’s electrical system.  
(9VAC5-80-1180 and 9VAC5-50-50) [12/18/2024]

26. **Notifications** – The permittee shall furnish written notification of the items below to the Regional Air Compliance Manager of the DEQ’s NRO:
- a. The actual date on which the emergency diesel engine gen-sets (Engine Groups DC-21-3250 and DC-21-3350) are programmed to the de-rated electrical output in this permit, postmarked no later than 30 days after such date. The notification shall include the following information:
    - i. Name and address of the permittee;
    - ii. The address of the affected source; and
    - iii. Engine information, including make, model, engine family, serial number, model year, maximum engine power, and engine displacement.

(9VAC5-50-50 and 9VAC5-80-1180) [12/18/2024]

#### **GENERAL CONDITIONS**

27. **Permit Invalidation** – This permit to construct the engine gen-sets (Engine Groups DC-21-3250, DC-21-3350, DC-21Z, DC-22, and DC-22Z) shall become invalid, unless an extension is granted by the DEQ, if:
- a. A program of continuous construction is not commenced within 18 months from the “Original Permit Date” in the Equipment List of this permit.
  - b. A program of construction is discontinued for a period of 18 months or more, or is not completed within a reasonable time, except for a DEQ approved period between phases of the phased construction of a new stationary source or project.

(9VAC5-80-1210)

28. **Permit Suspension/Revocation** – This permit may be suspended or revoked if the permittee:
- a. Knowingly makes material misstatements in the permit application or any amendments to it;
  - b. Fails to comply with the 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

- e. Fails to operate in conformance with any applicable control strategy, including any emission standards or emissions limitations, in the State Implementation Plan in effect at the time an application for this permit is submitted.

(9VAC5-80-1210 G)

29. **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)

30. **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 the following measures in order to minimize the duration and frequency of excess emissions, with respect to each emergency engine gen-set:

- 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.

Records of maintenance and training shall be maintained on site for a period of five years and shall be made available to DEQ personnel upon request.  
(9VAC5-50-20 E and 9VAC5-80-1180 D)

31. **Record of Malfunctions** – The permittee shall maintain records of the occurrence and duration of any bypass, malfunction, shutdown or failure of the facility or its associated air pollution control equipment that results in excess emissions for more than one hour. Records shall include the date, time, duration, description (emission unit, pollutant affected, cause), corrective action, preventive measures taken and name of person generating the record.  
(9VAC5-20-180 J and 9VAC5-80-1180 D)
32. **Notification for Facility or Control Equipment Malfunction** – The permittee shall furnish notification to the Northern Regional Office 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 Northern Regional Office.  
(9VAC5-20-180 C and 9VAC5-80-1180)
33. **Violation of Ambient Air Quality Standard** – The permittee shall, upon request of the DEQ, reduce the level of operation or shut down a facility, as necessary to avoid violating any primary ambient air quality standard and shall not return to normal operation until such time as the ambient air quality standard will not be violated.  
(9VAC5-20-180 I and 9VAC5-80-1180)
34. **Change of Ownership** – In the case of a transfer of ownership of a stationary source, the new owner shall abide by any current minor NSR permit issued to the previous owner. The new owner shall notify the Northern Regional Office of the change of ownership within 30 days of the transfer.  
(9VAC5-80-1240)
35. **Permit Copy** – The permittee shall keep a copy of this permit on the premises of the facility to which it applies.  
(9VAC5-80-1180)



## 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

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\* Not applicable to visible emission evaluations