



*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

October 31, 2024

Mr. Jim Zografos  
Senior Director, Portfolio Management Group  
Digital Realty  
10 Post Office Square, Suite 500  
Boston, MA 02109

Location: Loudoun County  
Registration No.: 74212

Dear Mr. Zografos:

Attached is an amendment to your permit to construct and operate a data center in accordance with the provisions of the Virginia State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution. This amended permit supersedes your permit dated March 23, 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 October 30, 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 Digital Realty/Digital Western Lands, LLC of the responsibility to comply with all other local, state, and federal permit regulations.

The proposed engine gen-sets (gen-sets) may be subject to 40 CFR 63, Maximum Achievable Control Technology, (MACT) Subpart ZZZZ and 40 CFR 60, New Source Performance Standard (NSPS), Subpart III. Virginia has not accepted delegation of these rules. In summary, the units may be required to comply with certain federal emission standards and operating limitations. The Department of Environmental Quality (DEQ) advises you to review the referenced MACT and NSPS to ensure compliance with applicable emission and operational limitations. As the owner/operator you may be also responsible for any monitoring, notification, reporting and recordkeeping requirements of the MACT 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 <http://www.ecfr.gov>, Title 40, Part 60 and/or 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.

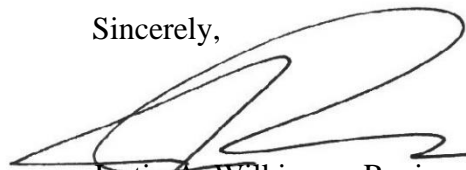
As provided by Rule 2A:2 of the Supreme Court of Virginia, you have 30 days from the date you actually received this permit or the date on which it was mailed to you, whichever occurred first, within which to initiate an appeal of this decision by filing a Notice of Appeal with:

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](mailto:katie.devoss@deq.virginia.gov).

Sincerely,

A handwritten signature in black ink, appearing to read 'Justin A. Wilkinson', is written over the typed name and contact information.

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/74212 mNSR (2024-10-31)

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 March 23, 2023.

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

Digital Realty/Digital Western Lands, LLC  
10 Post Office Square, Suite 500  
Boston, MA 02109  
Registration No.: 74212

is authorized to construct and operate

emergency engine gen-sets

located at

Buildings 7 and 9 at 43704 and 43714 Efficiency Dr.  
Sterling, Virginia 20166 (Loudoun County)

in accordance with the Conditions of this permit.

Approved on

October 31, 2024.

A stylized, handwritten signature in black ink, appearing to read "Justin A. Wilkinson".

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

Permit consists of 22 pages.  
Permit Conditions 1 to 33.

## **INTRODUCTION**

This permit approval is based on the permit applications dated October 7, 2024 and December 15, 2020, revised applications dated December 22, 2021 and December 12, 2022, and supplemental information dated March 3, 2023, March 22, 2023, and October 17, 2024. 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 9VAC5-10-10 of the State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution. The regulatory reference or authority for each condition is listed in parentheses () after each condition.

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:

Reference Nos.	Equipment Description	Maximum Rated Capacity	Add-on Control Technology	Delegated Federal Requirements	Original Permit Date
EG-1 through EG-120	(120) diesel-fired non-emergency engine gen-sets, consisting of Cummins Model C3000 D6e and/or Caterpillar Model 3516E	4,361 bhp 3,000 ekW (Cummins)  4,393 bhp 3,000 ekW (Caterpillar)  (each)	Selective Catalytic Reduction (SCR)*	N/A	March 23, 2023
PBB1000-1 through PBB1000-5	Five (5) diesel-fired emergency engine gen-sets, Cummins Model 1000DQFAD and/or CAT Model C32	1,482 bhp 1,000 ekW (Cummins)  1,483 bhp 1,000 ekW (Caterpillar)  (each)	N/A	N/A	March 23, 2023
PBB750-1 through PBB750-11	Eleven (11) diesel-fired emergency engine gen-sets, consisting of Cummins Model 750DQCB and/or CAT Model C18	1,110 bhp 750 ekW (Cummins)  1,112 bhp 750 ekW (Caterpillar)  (each)	N/A	N/A	March 23, 2023

\* Miratech Model Safety Power, EcoCube LP and/or Johnson Matthey cSCR3000

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** – Nitrogen oxide (NO<sub>x</sub>) emissions from the non-emergency engine gen-sets (Ref. Nos. EG-1 through EG-120) shall be controlled by closed loop Selective Catalytic Reduction (SCR). Each SCR system shall be equipped with a temperature probe to continuously monitor and record the catalyst bed exhaust temperature while the engine gen-set is operational. Engine exhaust gas shall be treated with urea, except for periods of start-up, shutdown, or malfunction, when the catalyst bed exhaust temperature of 575°F is achieved for the Cummins Model C3000 D63 and Caterpillar Model 3516E engines.

In the event that the Cummins Model C3000 D63 engine exhaust gas temperature exceeds 920°F, urea injection shall be discontinued and any operations above that level will be considered a malfunction.

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) [10/31/2024]

2. **Emission Controls** – Emissions from the engine gen-sets shall be controlled by the following:
  - a. Nitrogen oxides (NO<sub>x</sub>) emissions from each emergency engine gen-set (Ref. Nos. PBB1000-1 through PBB1000-5 and PBB750-1 through PBB750-11) shall be controlled by engine design.
  - b. Carbon monoxide (CO) emissions, particulate matter (PM<sub>10</sub>/PM<sub>2.5</sub>) emissions, volatile organic compounds (VOCs) emissions, and visible emissions from the engine gen-sets (Ref. Nos. EG-1 through EG-120, PBB1000-1 through PBB1000-5, and PBB750-1 through PBB750-11) 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 emergency diesel engine gen-sets.

(9VAC5-80-1180 and 9VAC5-50-260) [3/23/2023]

3. **Monitoring Devices** – The SCR for each non-emergency engine gen-set (Ref. Nos. EG-1 through EG-120) shall be equipped with a device to continuously measure and record the SCR catalyst bed exhaust temperature and the urea injection rate. The status of the SCR control system shall be recorded continuously when each engine gen-set (Ref. Nos. EG-1 through EG-120) is in operation, and correlated to run date, engine load/kilowatt output, and engine operating hours.

The monitoring device shall be equipped with a mechanism to detect parameters which exceed manufacturer's recommended thresholds and trigger an alarm to operators when the

unit is not operating within the manufacture's recommended conditions. The device shall be equipped with a mechanism which immediately alerts the operator when the status of the SCR monitoring system indicates a parameter is not within manufacturer's recommended thresholds.

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) [10/31/2024]

#### 4. **Monitoring Devices –**

- a. Fuel Flow: Each diesel engine gen-set (Ref. Nos. EG-1 through EG-120, PBB1000-1 through PBB1000-5, and PBB750-1 through PBB750-11) shall be equipped with a device to continuously measure and record individual fuel consumption (in gallons) for each engine gen-set.
- b. Engine Operating Hours: Each diesel engine gen-set (Ref. Nos. EG-1 through EG-120, PBB1000-1 through PBB1000-5 and PBB750-1 through PBB750-11) shall be equipped with a non-resettable hour meter which measures the duration of time that each engine gen-set 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 diesel 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 Northern Regional Office (NRO).

Each monitoring device shall be provided with adequate access for inspection and shall be in operation when the engine gen-set is operating.

(9VAC5-80-1180 D and 9VAC5-50-20 C) [3/23/2023]

## OPERATING LIMITATIONS

5. **Emergency Power Generation** – The emergency diesel engine gen-sets (Ref. Nos. PBB1000-1 through PBB1000-5 and PBB750-1 through PBB750-11) shall only be operated for the following purposes:
- 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 that results in a loss of power;
    - iii. Public service emergencies such as flood, fire, natural disaster, or severe weather conditions.
  - b. An Independent System Operator (ISO) declared emergency, where an ISO emergency is any of the following:
    - 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 sources electrical system.



6. **Operation of the Engine Gen-Sets** – The permittee shall operate and maintain each engine gen-set (Ref. Nos. EG-1 through EG-120, PBB1000-1 through PBB1000-5, and PBB750-1 through PBB750-11) 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) [3/23/2023]
7. **Operating Limitations (Ozone Season)** – No engine gen-set (Ref. Nos. EG-1 through EG-120, PBB1000-1 through PBB1000-5, and PBB750-1 through PBB750-11) 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 the ozone season of May 1 through September 30. The permittee may petition the DEQ’s NRO Regional Air Compliance Manager for exceptions to this requirement, with approvals made on a case-by-case basis.  
(9VAC5-80-1180) [3/23/2023]
8. **Operating Limitations (Ozone Season) – Integration Operational Period** – During the integration operational period of each engine gen-set (Ref. Nos. EG-1 through EG-120, PBB1000-1 through PBB1000-5, and PBB750-1 through PBB750-11), 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](http://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)
9. **Operating Hours** – Each individual emergency diesel engine gen-set (Ref. Nos. PBB1000-1 through PBB1000-5 and PBB750-1 through PBB750-11) shall not operate more than 20 hours per year for scheduled maintenance checks and readiness testing (Scheduled MCRT, as provided in Condition 5.c).

Each individual emergency diesel engine gen-set (Ref. Nos. PBB1000-1 through PBB1000-5 and PBB750-1 through PBB750-11) shall not operate more than 500 hours per year for all purposes (as provided in Condition 5) combined.

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) [3/23/2023]

10. **Fuel Specification** – The approved fuel for the engine gen-sets (Ref. Nos. EG-1 through EG-120, PBB1000-1 through PBB1000-5, and PBB750-1 through PBB750-11) is ultra-low sulfur diesel fuel oil, and shall meet the specifications below:

**ULTRA LOW SULFUR DIESEL FUEL OIL:**

- a. Does not exceed the American Society for Testing and Materials (ASTM) specification, D975, for grade ultra-low sulfur 2-D 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 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 and 9VAC5-50-260) [3/23/2023]

11. **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 distillate oil complies with the requirements of Condition 10 (Fuel Specification).

Alternatively, 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 10.

(9VAC5-80-1180) [3/23/2023]

**12. Diesel Fuel Throughput Limit –**

- a. The emergency diesel engine gen-sets (Ref. Nos. PBB750-1 through PBB750-11) combined shall consume no more than 7,573 gallons of diesel fuel oil per year, calculated daily as the sum of each consecutive 365-day period (all uses).
- b. The emergency diesel engine gen-sets (Ref. Nos. PBB1000-1 through PBB1000-5) combined shall consume no more than 4,512 gallons of diesel fuel oil per year, calculated daily as the sum of each consecutive 365-day period (all uses).

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 totals for the preceding 364 days.

(9VAC5-80-1180) [3/23/2023]

- 13. Diesel Fuel Throughput Limit –** The non-emergency diesel engine gen-sets (Ref. Nos. EG-1 through EG-120) shall only consume a combined quantity of diesel fuel oil (in gallons) each consecutive 365-day period (all uses), as demonstrated by using the following equation:

$$\frac{\text{Group 1 Fuel Consumption}}{2,727,607 \text{ gallons}} + \frac{\text{Group 2 Fuel Consumption}}{499,059 \text{ gallons}} + \frac{\text{Group 3 Fuel Consumption}}{4,177,343 \text{ gallons}} + \frac{\text{Group 4 Fuel Consumption}}{829,602 \text{ gallons}} \leq 1$$

Where:

Engine Gen-Set Group	Engine Gen-Set Model (SCR Status)
Group 1	Caterpillar (Controlled)*
Group 2	Caterpillar (Uncontrolled)
Group 3	Cummins (Controlled)*
Group 4	Cummins (Uncontrolled)

\* - Exhaust gas treated with SCR

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 totals for the preceding 364 days.

(9VAC5-80-1180) [3/23/2023]

## EMISSION LIMITS

14. **Emission Limits (Hourly)** – Emissions from the operation of each non-emergency engine gen-set (Ref. Nos. EG-1 through EG-120) shall not exceed the limits specified below:

Pollutant	Caterpillar (Controlled)*	Caterpillar (Uncontrolled)	Cummins (Controlled)*	Cummins (Uncontrolled)
Nitrogen Oxides (NO <sub>x</sub> as NO <sub>2</sub> )	5.81 lbs/hr	58.11 lbs/hr	5.01 lbs/hr	50.09 lbs/hr
Sulfur Dioxide (SO <sub>2</sub> )	0.05 lbs/hr		0.05 lbs/hr	
Carbon Monoxide (CO)	6.39 lbs/hr		3.85 lbs/hr	
Volatile Organic Compounds (VOC)	0.58 lbs/hr		2.65 lbs/hr	
Particulate Matter (PM <sub>2.5</sub> )	0.92 lbs/hr		1.20 lbs/hr	
Particulate Matter (PM <sub>10</sub> )	0.92 lbs/hr		1.20 lbs/hr	

\* - Exhaust gas treated with SCR

Compliance with these emission limits shall be based on the proper operation and maintenance of the non-emergency engine gen-sets or by testing, if required.  
(9VAC5-80-1180 and 9VAC5-50-260) [3/23/2023]

15. **Emission Limits (Hourly)** – Emissions from the operation of each emergency engine gen-set (Ref. Nos. PBB1000-1 through PBB1000-5 and PBB750-1 through PBB750-11) shall not exceed the limits specified below:

Pollutant	750 kW Caterpillar	750 kW Cummins	1,000 kW Caterpillar	1,000 kW Cummins
Nitrogen Oxides (NO <sub>x</sub> as NO <sub>2</sub> )	14.34 lbs/hr	14.55 lbs/hr	19.52 lbs/hr	16.13 lbs/hr
Carbon Monoxide (CO)	4.73 lbs/hr	0.81 lbs/hr	2.78 lbs/hr	2.70 lbs/hr
Volatile Organic Compounds (VOC)	1.91 lbs/hr	0.58 lbs/hr	0.34 lbs/hr	0.29 lbs/hr
Particulate Matter (PM <sub>2.5</sub> )	0.33 lbs/hr	0.22 lbs/hr	0.26 lbs/hr	0.53 lbs/hr
Particulate Matter (PM <sub>10</sub> )	0.33 lbs/hr	0.22 lbs/hr	0.26 lbs/hr	0.53 lbs/hr

Compliance with these emission limits shall be based on the proper operation and maintenance of the emergency diesel engine gen-sets or by testing, if required.  
(9VAC5-80-1180 and 9VAC5-50-260) [3/23/2023]

16. **Emission Limits (Annual)** – Emissions from the operation of the diesel engine gen-sets (Ref. Nos. EG-1 through EG-120, PBB1000-1 through PBB1000-5, and PBB750-1 through PBB750-11) shall not exceed the limits specified below:

<b>Pollutant</b>	<b>3,000 kW Units Combined</b>	<b>1,000 kW Units Combined</b>	<b>750 kW Units Combined</b>
Nitrogen Oxides (NO <sub>x</sub> as NO <sub>2</sub> )	94.71 tpy	0.67 tpy	1.09 tpy
Sulfur Dioxide (SO <sub>2</sub> )	0.49 tpy	--	--
Carbon Monoxide (CO)	94.03 tpy	0.50 tpy	1.85 tpy
Volatile Organic Compounds (VOC)	46.13 tpy	0.06 tpy	0.75 tpy
Particulate Matter (PM <sub>2.5</sub> )	13.57 tpy	0.04 tpy	0.13 tpy
Particulate Matter (PM <sub>10</sub> )	13.57 tpy	0.04 tpy	0.13 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, 12, 13, 14, and 15.  
(9VAC5-80-1180) [3/23/2023]

17. **Visible Emission Limit** – Visible emissions from each non-emergency engine gen-set (Ref. Nos. EG-1 through EG-120) shall not exceed 5% opacity as determined by EPA Method 9 (reference 40 CFR 60, Appendix A).

Visible emissions from each emergency engine gen-set (Ref. Nos. PBB1000-1 through PBB1000-5 and PBB750-1 through PBB750-11) 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).

During startup and shutdown, visible emissions from each engine gen-set (Ref. Nos. EG-1 through EG-120, PBB1000-1 through PBB1000-5, and PBB750-1 through PBB750-11) shall not exceed 10% opacity except during one 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, 9VAC5-50-260, and 9VAC5-170-160) [3/23/2023]

## INITIAL COMPLIANCE DETERMINATION

18. **Stack Tests** – Initial performance tests shall be conducted on at least twenty percent (20%) of the units installed for each type of engine model (Caterpillar 3516E and Cummins C3000 D6e) of the one-hundred-twenty (120) non-emergency diesel engine gen-sets (Ref. Nos. EG-1 through EG-120) 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 outlet of the SCR catalyst bed of the emergency diesel engine gen-set to demonstrate compliance with the NO<sub>x</sub> (controlled) 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 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 diesel fuel oil;
    - iii. NO<sub>x</sub> concentration after the catalyst;
    - iv. SCR catalyst bed exhaust temperature; and
    - v. Urea solution injection rate.
  - d. Perform testing to demonstrate compliance within 180 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) [10/31/2024]

19. **Stack Tests** – Initial performance tests shall be conducted on two (2) of the 750 ekW emergency engine gen-sets (Ref. Nos. PBB750-1 through PBB750-11) and two (2) of the 1,000 ekW emergency engine gen-sets (Ref. Nos. PBB1000-1 through PBB1000-5) for nitrogen oxides (as NO<sub>2</sub>), using EPA Reference Method 7 or 7E, and carbon monoxide, using EPA Reference Method 10 or 10A, or other applicable methods as approved by the DEQ's NRO Regional Air Compliance, to determine compliance with the emission limits contained in Condition 15.
- a. Emissions testing for each selected emergency engine gen-set shall consist of three one-hour test runs under load. The average of the three runs shall be reported as the short-term emission rate for that emergency engine gen-set;
  - b. Testing shall be performed on the exhaust stack of the emergency engine gen-sets to demonstrate compliance with the NO<sub>x</sub> and CO emission limits specified in Condition 15. Testing shall be conducted with the emergency engine gen-set operating at ≥ 90 percent of its rated capacity, unless multiple load band testing is approved by DEQ;
  - c. Recorded emergency engine gen-set operational information shall include, but not be limited to:
    - i. Generator load/kilowatt output and
    - ii. Fuel consumption and fuel sulfur content of the fuel oil.
  - d. Perform testing to demonstrate compliance within 180 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, DEQ's NRO. The permittee shall submit the test protocol to the Regional Air Compliance Manager, DEQ's NRO at least thirty days prior to testing to ensure adequate time for DEQ approval. If the test protocol is received by the DEQ with less than thirty 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, DEQ's NRO in writing, within seven days of the scheduled test date or as soon as the rescheduling is deemed necessary; and
- g. Two copies, one paper copy and one on removable electronic media, 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, 9VAC5-80-1200, and 9VAC5-50-410) [3/23/2023]

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 emergency 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 A).

(9VAC5-50-30 and 9VAC5-80-1200) [3/23/2023]



## CONTINUING COMPLIANCE DETERMINATION

21. **Facility Construction** – The engine gen-sets (Ref. Nos. EG-1 through EG-120, PBB1000-1 through PBB1000-5, and PBB750-1 through PBB750-11) shall be constructed so as to allow for emissions testing upon reasonable notice, using appropriate methods. This includes constructing 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) [3/23/2023]
22. **Emission Testing/Visible Emissions Evaluation** – Upon request by the DEQ, the permittee shall conduct stack tests and/or visible emission evaluations of the engine gen-sets (Ref. Nos. EG-1 through EG-120, PBB1000-1 through PBB1000-5, and PBB750-1 through PBB750-11) 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) [3/23/2023]

## RECORDS AND REPORTING

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 device monitoring records for each non-emergency engine gen-set equipped with a SCR (Ref. Nos. EG-1 through EG-120) as required in Condition 3. This includes records of the SCR catalyst exhaust bed temperature and urea injection rate.
  - b. A daily log of the monitoring device observations as required by Condition 4.
  - c. The reasons for operation for each emergency diesel engine gen-set (Ref. Nos. PBB1000-1 through PBB1000-5 and PBB750-1 through PBB750-11) as required in Condition 5, including, but not limited to, the date, cause of operation, cause of the emergency, the ISO-declared emergency notification, and the hours of operation.
  - d. Records, as necessary, to demonstrate compliance with the operating limitations of Condition 7; which includes but is not limited to: times, dates and reasons for operation of each engine gen-set (Ref. Nos. EG-1 through EG-120, PBB1000-1 through PBB1000-5, and PBB750-1 through PBB750-11) that was operating between May 1 and September 30.

- e. To verify compliance with Condition 8, maintain records for the engine gen-sets (Ref. Nos. EG-1 through EG-120, PBB1000-1 through PBB1000-5, and PBB750-1 through PBB750-11) of:
  - i. The forecasted AQI, as determined by the AirNow website for Northern Virginia, for ozone for the days 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 days that an engine gen-set operated during the integration operational period;
  - iii. Documentation recording 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.
- f. Monthly and annual hours of operation of each emergency diesel engine gen-set (Ref. Nos. PBB1000-1 through PBB1000-5 and PBB750-1 through PBB750-11) as required in Condition 9, with annual hours of operation calculated monthly as the sum of each consecutive 12-month period.
- g. Monthly and annual hours of operation of each emergency diesel engine gen-set (Ref. Nos. PBB1000-1 through PBB1000-5 and PBB750-1 through PBB750-11) as required in Condition 9, for purposes of scheduled maintenance checks and readiness testing (Scheduled MCRT), calculated monthly as the sum of each consecutive 12-month period.
- h. All fuel supplier certifications as required in Condition 11.
- i. Daily and annual fuel consumption for each emergency diesel engine gen-set (Ref. Nos. PBB1000-1 through PBB1000-5 and PBB750-1 through PBB750-11) as required in Condition 12, calculated daily as the sum of each consecutive 365-day period.
- j. Daily and annual fuel consumption for the combined operation of the emergency diesel engine gen-sets (Ref. Nos. PBB750-1 through PBB750-11), calculated daily as the sum of each consecutive 365-day period, to verify compliance with the fuel throughput limitations in Condition 12.
- k. Daily and annual fuel consumption for the combined operation of the emergency diesel engine gen-sets (Ref. Nos. PBB1000-1 through PBB1000-5), calculated daily as the sum of each consecutive 365-day period, to verify compliance with the fuel throughput limitations in Condition 12.

- l. Daily and annual fuel consumption for each non-emergency diesel engine gen-set (Ref. Nos. EG-1 through EG-120) 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.
- m. Daily and annual results of the computed fuel throughput equation used by the non-emergency diesel engine gen-sets (Ref. Nos. EG-1 through EG-120) 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.
- n. Daily and annual emissions calculations for NO<sub>x</sub> (as NO<sub>2</sub>), CO, VOC, PM<sub>10</sub>, and PM<sub>2.5</sub> from the non-emergency engine gen-sets (Ref. Nos. EG-1 through EG-120,) combined, with annual emissions, calculated daily as the sum of each consecutive 365-day period, to verify compliance with the annual emission limits in Condition 16.
- o. Daily and annual emissions calculations for NO<sub>x</sub> (as NO<sub>2</sub>), CO, VOC, PM<sub>10</sub>, and PM<sub>2.5</sub> from the emergency engine gen-sets (Ref. Nos. PBB750-1 through PBB750-11) combined, with annual emissions, calculated daily as the sum of each consecutive 365-day period, to verify compliance with the annual emission limits in Condition 16.
- p. Daily and annual emissions calculations for NO<sub>x</sub> (as NO<sub>2</sub>), CO, VOC, PM<sub>10</sub>, and PM<sub>2.5</sub> from the emergency engine gen-sets (Ref. Nos. PBB1000-1 through PBB1000-5) combined, with annual emissions, calculated daily as the sum of each consecutive 365-day period, to verify compliance with the annual emission limits in Condition 16.
- q. Documentation from the manufacturer that each engine gen-set (Ref. Nos. EG-1 through EG-120, PBB1000-1 through PBB1000-5, and PBB750-1 through PBB750-11) is certified to meet the EPA Tier 2 emission standards.
- r. Engine information including make, model, serial number, model year, maximum engine power (bhp), and engine displacement for each engine gen-set (Ref. Nos. EG-1 through EG-120, PBB1000-1 through PBB1000-5, and PBB750-1 through PBB750-11).
- s. Results of all stack tests and visible emission evaluations.
- t. A copy of the records of scheduled and unscheduled maintenance and operator training in accordance with Condition 28.
- u. 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 (Ref. Nos. EG-1 through EG-120, PBB1000-1 through PBB1000-5, and PBB750-1 through PBB750-11).

- v. Records of changes in settings that are permitted by the manufacturer of the engine gen-sets.

Compliance for the consecutive 12-month period in the 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.

Compliance for the consecutive 365-day period in the subsections above (as applicable) shall be demonstrated daily by adding the total for the most recently completed day to the individual daily totals for the preceding 364 days.

These records shall be available for inspection by the DEQ and shall be current for the most recent five years.

(9VAC5-80-1180 and 9VAC5-50-50) [10/31/2024]

## NOTIFICATIONS

- 24. **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  
13901 Crown Court  
Woodbridge, VA 22193

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

- a. The actual date on which installation of the engine gen-sets (Ref. Nos. EG-1 through EG-120, PBB1000-1 through PBB1000-5, and PBB750-1 through PBB750-11) commenced in the building, or phase, within thirty (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 (Ref. Nos. EG-1 through EG-120, PBB1000-1 through PBB1000-5, and PBB750-1 through PBB750-11) within fifteen (15) days after the last generator at each building or

construction phase 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 fifteen (15) days after completion of the integration operational period for the most recently installed engine gen-set. The notification must contain the following:

- i. Engine information including make, model, engine family, serial number, model year, maximum engine power, engine displacement, fuel used;
- ii. Installation date;
- iii. Unit reference number; 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.  
(9VAC5-540-20) [3/23/2023]

## GENERAL CONDITIONS

25. **Permit Invalidation** – This permit to construct the engine gen-sets (Ref. Nos. EG-1 through EG-120, PBB1000-1 through PBB1000-5, and PBB750-1 through PBB750-11) 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.
- 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)

26. **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)

27. **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)

28. **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 the engine gen-sets and the associated pollution control equipment (Ref. Nos. EG-1 through EG-120, PBB750-1 through PBB750-11, and PBB600-1 through PBB600-5):

- 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)

29. **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)

30. **Notification for Facility or Control Equipment Malfunction** – The permittee shall furnish notification to the DEQ's NRO Regional Air Compliance Manager 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 DEQ's NRO Regional Air Compliance Manager.

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

31. **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)
32. **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 DEQ's NRO of the change of ownership within 30 days of the transfer.  
(9VAC5-80-1240)
33. **Permit Copy** – The permittee shall keep a copy of this permit on the premises of the facility to which it applies.  
(9VAC5-80-1180)



## **Attachment 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

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\* Not applicable to visible emission evaluations