



Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

NORTHERN REGIONAL OFFICE
13901 Crown Court, Woodbridge, Virginia 22193
(703) 583-3800 FAX (804) 698-4178

www.deq.virginia.gov

Travis A. Voyles
Acting Secretary of Natural and Historic Resources

Michael S. Rolband, PE, PWD, PWS Emeritus
Director
(804) 698-4020

Thomas A. Faha
Regional Director

February 21, 2023

Ms. Andrea Zanin
Chief, Support Division
Aerospace Data Facility-East
7900 Telegraph Road
Fort Belvoir, VA 22060

Location: Fairfax County
Registration No.: 74154

Dear Ms. Zanin:

Attached is a permit to construct and operate emission units at Aerospace Data Facility-East (ADF-E) in accordance with the provisions of the Virginia State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution. This permit document combines the terms and conditions from and supersedes your permit document dated September 1, 2020.

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 November 22, 2022.

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 ADF-E of the responsibility to comply with all other local, state, and federal permit regulations.

The currently operating and proposed diesel fired emergency engine generator sets (engine gensets) may be subject to 40 CFR 63, Maximum Achievable Control Technology, (MACT) Subpart ZZZZ and 40 CFR 60, New Source Performance Standard (NSPS), Subpart IIII. Virginia has not accepted delegation of this rule. 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 www.ecfr.gov, Title 40, Part 60 and 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.

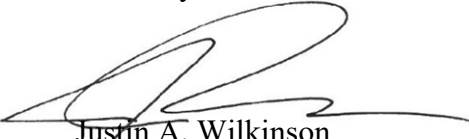
As provided by Rule 2A:2 of the Supreme Court of Virginia, you have 30 days from the date you actually received this permit or the date on which it was mailed to you, whichever occurred first, within which to initiate an appeal of this decision by filing a Notice of Appeal with:

Michael 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 Mr. K. Dean Gossett at (571) 866-6081 or kevin.gossett@deq.virginia.gov.

Sincerely,



Justin A. Wilkinson
Regional Air Permit Manager

JAW/KDG/74154 mNSR (2-21-2023)

Attachment: Permit



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Thomas A. Faha
Regional Director

STATIONARY SOURCE PERMIT TO CONSTRUCT AND OPERATE

This permit document supersedes the permit document dated September 1, 2020.

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

Aerospace Data Facility – East
7900 Telegraph Road
Fort Belvoir, VA 22060-5928
(Fairfax County)

is authorized to construct and operate

emergency diesel engine generator sets (gen-sets)

located at

Aerospace Data Facility – East
7900 Telegraph Road
Fort Belvoir, VA 22060-5928
(Fairfax County)

in accordance with the Conditions of this permit.

Approved on

February 21, 2023

A stylized signature of Justin A. Wilkinson, consisting of a large, flowing 'J' and 'W' followed by a horizontal line.

Justin A. Wilkinson
Regional Air Permit Manager

Permit consists of 18 pages (without attachment).

Permit Conditions 1 to 37.

Attachment A: Source Testing Report Format (1 page)

INTRODUCTION

This permit approval is based on the permit application dated April 25, 2022 (including supplemental information dated November 14, 2022, and November 22, 2022), April 20, 2020, August 1, 2019 and April 2, 2018. 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 9 VAC 5-10-10 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 9 VAC 5-170-60 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:

| Ref. No(s). | Equipment Description | Rated Capacity | Add-on Control Technology | Delegated Federal Requirements | Original Permit Date |
|---------------------|--|------------------------------|-------------------------------------|--------------------------------|----------------------|
| EG-74 through EG-80 | Seven (7) Caterpillar C175-16 diesel fired emergency engine gen-sets | 3,988 bhp / 2,725 ekW (each) | Selective Catalytic Reduction (SCR) | N/A | 2/21/2023 |

Equipment Previously Permitted:

| Ref. No(s). | Equipment Description | Rated Capacity | Delegated Federal Requirements | Original Permit Date |
|---------------------|---|-------------------------------|--------------------------------|----------------------|
| EG-70 through EG-73 | Four (4) Caterpillar model 3516B emergency diesel engine gen sets | 1,620* ekW / 2,377 bhp (each) | N/A | 7/01/2002 |
| EG-13 through EG-22 | Ten (10) Caterpillar model 3516 emergency diesel engine gen sets | 1,500 ekW / 2,011 bhp (each) | N/A | 4/20/1995 |

*continuous (not standby) ekW rating

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

PROCESS REQUIREMENTS

- Emission Controls** - Nitrogen oxide emissions from the ten Caterpillar model 3516 emergency diesel engine gen-sets (Ref. Nos. EG-13 through EG-22) shall be controlled by fuel injection set at three degrees retarded timing. The permittee shall keep records on site to provide certification that the injection timing for each engine has been properly set. All engines shall be provided with adequate access for inspection.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)
- Emission Controls** - Carbon monoxide (CO) emissions from the emergency diesel engine gen-sets (Ref. Nos. EG-74 through EG-80) shall be controlled by a diesel oxidation catalyst (DOC). The DOC shall be provided with adequate access for inspection and shall be in operation when the engine-generator sets are operating.
(9 VAC 5-80-1180)
- Emission Controls** - Carbon monoxide (CO) emissions, particulate matter (PM₁₀/PM_{2.5}) emissions, volatile organic compounds (VOC) emissions, nitrogen oxides (NO_x) emissions, and visible emissions from the emergency diesel engine gen-sets (Ref. Nos. EG-74 through EG-80) 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.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)
- Emission Controls** - Nitrogen oxide (NO_x) emissions from the emergency diesel engine gen-sets (Ref. Nos. EG-74 through EG-80) shall be controlled by closed loop Selective Catalytic Reduction (SCR) systems. Each SCR system shall be equipped with a temperature probe to continuously monitor the catalyst bed exhaust temperature while the emergency

diesel engine gen-set is operational. Engine exhaust gas shall be treated with urea when the emergency diesel engine gen-sets are operating at or above ten percent (10%) load and the catalyst bed exhaust temperature of 842°F is achieved for thirty minutes or a catalyst bed exhaust temperature of 797°F is achieved for ninety minutes. The SCR shall be provided with adequate access for inspection and shall be in operation when the emergency diesel engine gen-sets are operating as stated above.

(9 VAC 5-80-1180 and 9 VAC 5-50-260)

5. **Monitoring**

Engine Operating Hours: Each emergency diesel engine gen-set (Ref. Nos. EG-74 through EG-80) 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 above) shall be observed by the permittee with a frequency of not less than once each day the emergency 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 Department of Environmental Quality's (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.

(9 VAC 5-80-1180 D)

6. **Monitoring Devices** - Each emergency diesel engine gen-set (Ref. Nos. EG-74 through EG-80) shall also be equipped with a device to monitor and record the engine-generator kilowatt output at a minimum frequency of once every fifteen minutes.

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. Each monitoring device shall be provided with adequate access for inspection and shall be in operation when the emergency diesel engine gen-sets are operating.

(9 VAC 5-80-1180 D)

7. **Monitoring Devices** - The emergency diesel engine gen-sets (Ref. Nos. EG-74 through EG-80) shall be equipped with devices to continuously measure and record the SCR catalyst bed exhaust temperature and the NO_x emissions measured after the catalyst, expressed in ppm. The information shall be recorded at a minimum frequency of once every fifteen minutes, and correlated to run date, engine load/kilowatt output, and engine operating hours.

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.

(9 VAC 5-80-1180 D)

OPERATING/EMISSION LIMITATIONS

8. **Operating Limit** - The emergency diesel engine gen-sets (Ref. Nos. EG-74 through EG-80) shall not be operated above their manufacturer rating of 2,725 ekw and 3,988 bhp.

(9 VAC 5-80-1180 D)

9. **Emergency Power Generation** - The emergency diesel engine gen-sets (Ref. Nos. EG-13 through EG-22 and EG-70 through EG-73) shall only be operated in the following modes:

a. Emergency / Critical Power Generation:

- i. **Emergency:** The emergency diesel engine gen-sets (Ref. Nos. EG-13 thru EG-22 and EG-70 thru EG-73) may be operated in situations where immediate action on the part of the facility is needed due to a failure or loss of electrical power service resulting from a failure of the primary power provider and the failure or loss of power service is beyond the reasonable control of the facility. Operation under these circumstances shall be allowed for the period of time the primary electrical power provider service is unavailable. Once primary electrical power provider service is available, the engine gen-sets may be operated in accordance with Critical Power Generation as defined below.
- ii. **ISO-Declared Emergency:** The emergency diesel engine gen-sets (Ref. Nos. EG-13 thru EG-22 and EG-70 thru EG-73) may be operated for participation in an Independent System Operator's (ISO) Emergency Load Response Program (ELRP) during times of an ISO-declared emergency, as defined in the ISO's emergency operations manual. Operations under this scenario shall not exceed 60 hours per generator each calendar year.
- iii. **Critical Power Generation:** The emergency diesel engine gen-sets (Ref. Nos. EG-13 thru EG-22 and EG-70 thru EG-73) may be operated in situations where immediate action on the part of the facility is needed due to a loss or anticipated loss of acceptable electrical power service from the primary provider and the loss or anticipated loss of power service is beyond the reasonable control of the facility. Operation under these circumstances shall be allowed until such time as acceptable power provider service is restored or the loss of acceptable power provider service is no longer reasonably anticipated.

- b. Alternate Power Generation: The emergency diesel engine gen-sets (Ref. Nos. EG-13 thru EG-22 and EG-70 thru EG-73) shall not be used for peak shaving, demand response or as part of an interruptible power supply arrangement with a power provider, other market participant or system operator, under any circumstances.
- c. The emergency diesel engine gen-sets may be operated for periodic maintenance, testing, and operational training.

Total emissions for any 12 month period, calculated as the sum of all emissions from operations under scenarios 9.a. through 9.c above, shall not exceed the limits stated in Condition 19.

(9 VAC 5-80-1180 D and 9 VAC 5-50-260)

10. **Emergency Power Generation** - The emergency diesel engine gen-sets (Ref. Nos. EG-74 through EG-80) 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.

- d. For unscheduled maintenance, testing and operational training.
- e. For the integration operational period, which is the period of time beginning with the first time the affected units is started on-site and ending when the affected unit is fully integrated with the sources electrical system.

(9 VAC 5-80-1180)

11. **Operation of the Engine Gen-Sets** - The permittee shall operate and maintain each emergency diesel engine gen-set (Ref. Nos. EG-13 through EG-22, EG-70 through EG-73 and EG-74 through EG-80) and control devices according to the manufacturer's written instructions or procedures developed by the permittee that are approved by the engine manufacturer. In addition, the permittee may only change those settings that are permitted by the manufacturer and do not increase air emissions.

(9 VAC 5-80-1180)

12. **Operating Hours** - Each individual emergency diesel engine gen-set (Ref. Nos. EG-13 through EG-22 and EG-70 through EG-73) shall not operate more than 500 hours per year for all purposes (as provided in Condition 9) 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.

(9 VAC 5-80-1180)

13. **Operating Hours** - Each individual emergency diesel engine gen-set (Ref. Nos. EG-74 through EG-80) shall not operate more than 500 hours per year for all purposes (as provided in Condition 10) combined.

The emergency diesel engine gen-sets (Ref. Nos. EG-74 through EG-80) combined shall not operate more than:

200 hours per year without the SCR operating
and
1,800 hours per year with the SCR operating

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.

(9 VAC 5-80-1180)

14. **Fuel Specification** - The approved fuel for the emergency diesel engine gen-sets (Ref. Nos. EG-13 through EG-22 and EG-70 through EG-80) 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.
(9 VAC 5-80-1180)

15. **Fuel Certification** - The permittee shall obtain a certification from the fuel supplier with each shipment of ultra-low sulfur diesel fuel oil and renewable diesel fuel. Each fuel supplier certification shall include the following:

- a. The name of the fuel supplier;
- b. The date on which the diesel fuel was received;
- c. The quantity of diesel fuel delivered in the shipment; and
- 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.

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

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 14. Exceedance of these specifications may be considered credible evidence of the exceedance of emission limits.
(9 VAC 5-80-1180)

- 16. Diesel Fuel Throughput Limit** - The four Caterpillar model 3516B emergency diesel engine gen sets (Ref. Nos. EG-70 through EG-73) and ten Caterpillar model 3516 emergency diesel engine gen sets (Ref. Nos. EG-13 through EG-22) combined shall:

Consume no more than a combined total of 225,500 gallons/year of total fuel per year, with type of fuel specified in Condition 14, 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.
(9 VAC 5-80-1180)

EMISSION LIMITS

- 17. Emission Limits (Hourly)** - Emissions from the operation of each emergency diesel engine gen-set (Ref. Nos. EG-13 through EG-22 and EG-70 through EG-73) shall not exceed the limits specified below:

| Pollutant | Ref. Nos. EG-13 through EG-22 (each unit) | Ref. Nos. EG-70 through EG-73 (each unit) |
|---|---|---|
| Nitrogen Oxides (NO _x as NO ₂) | 51.2 lbs/hr | 34.2 lbs/hr |
| Carbon Monoxide (CO) | 12.4 lbs/hr | 2.9 lbs/hr |
| Volatile Organic Compounds (VOC) | 1.5 lbs/hr | 1.2 lbs/hr |
| Particulate Matter (PM ₁₀) | 1.7 lbs/hr | 0.8 lbs/hr |
| Particulate Matter (PM _{2.5}) | 1.7 lbs/hr | 0.8 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.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

- 18. Emission Limits (Hourly)** - Emissions from the operation of the emergency diesel engine gen-sets (Ref. Nos. EG-74 through EG-80) shall not exceed the limits specified below:

| Pollutant | Ref. Nos. EG-74 through EG-80 (each unit) | |
|---|---|---------------------|
| | Uncontrolled | Controlled with SCR |
| Nitrogen Oxides (NO _x as NO ₂) | 57.43 lb/hr | 6.55 lb/hr |
| Carbon Monoxide (CO) | 0.97 lb/hr | |
| Volatile Organic Compounds (VOC) | 0.42 lb/hr | |
| Particulate Matter (PM ₁₀) | 0.17 lb/hr | |
| Particulate Matter (PM _{2.5}) | 0.17 lb/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.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

19. **Emission Limits (Annual)** - Emissions from the operation of the emergency diesel engine gen-sets (Ref. Nos. EG-13 through EG-22 and EG-70 through EG-73) shall not exceed the limits specified below:

| Pollutant | Ref. Nos. EG-13 through EG-22 and EG-70 through EG-73 (All Units Combined) |
|---|---|
| Nitrogen Oxides (NO _x as NO ₂) | 54.7 tpy |
| Carbon Monoxide (CO) | 13.3 tpy |
| Volatile Organic Compounds (VOC) | 1.6 tpy |
| Particulate Matter (PM ₁₀) | 1.8 tpy |
| Particulate Matter (PM _{2.5}) | 1.8 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 12, 14, 16 and 17 or as stated below:

Where: mgal = 1,000 gallons

- a. Nitrogen Oxides (as NO₂) emissions are determined as follows:

(Gallons of diesel fuel used by gen sets x 485.31 lbs/mgal of diesel fuel) x 1 ton/2000 lbs

- b. Carbon monoxide emissions are determined as follows:

(Gallons of diesel fuel used by gen sets x 117.54 lbs/mgal of diesel fuel) x 1 ton/2000 lbs

- c. Volatile Organic Compounds emissions are determined as follows:

(Gallons of diesel fuel used by gen sets x 14.22 lbs/mgal of diesel fuel) x 1 ton/2000 lbs

- d. Particulate Matter emissions are determined as follows:

(Gallons of diesel fuel used by gen sets x 16.11 lbs/mgal of diesel fuel) x 1 ton/2000 lbs

Annual emissions shall be calculated monthly as the sum of each consecutive twelve-month period.

(9 VAC 5-80-1180)

20. **Emission Limits (Annual) - Emissions** from the operation of the emergency diesel engine gen-sets (Ref. Nos. EG-74 through EG-80) shall not exceed the limits specified below:

| Pollutant | Ref. Nos. EG-74 through EG-80 (All Units Combined) |
|--|---|
| Nitrogen Oxides (NO _x as NO ₂) | 11.64 tpy |
| Carbon Monoxide (CO) | 0.97 tpy |
| Volatile Organic Compounds (VOC) | 0.42 tpy |
| Particulate Matter (PM ₁₀) | 0.17 tpy |
| Particulate Matter (PM _{2.5}) | 0.17 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 pollutant emission limits may be determined as stated in Conditions 3, 4, 13, and 18.

(9 VAC 5-80-1180)

21. **Visible Emission Limit** - Visible emissions from each emergency diesel engine gen-set (Ref. Nos. EG-13 through EG-22 and EG-70 through EG-73) exhausts shall not exceed 20% opacity except during one 6-minute period in any one hour in which visible emissions shall not exceed 30% 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.
 (9 VAC 5-80-1180)

22. **Visible Emission Limit** - Visible emissions from each emergency diesel engine gen-set (Ref. Nos. EG-74 through EG-80) exhausts 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 emergency diesel 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).

(9 VAC 5-80-1180)

INITIAL COMPLIANCE DETERMINATION

23. **Stack Test** - Initial performance tests shall be conducted on two (2) 2,725 kW emergency diesel engine gen-sets (Ref. Nos. EG-74 through EG-80), for NO_x (as NO₂) and CO using appropriate EPA reference methods as approved by the Regional Air Compliance Manager of

the DEQ's NRO to determine compliance with the controlled and uncontrolled emission limits contained in Condition 18.

- a. Emissions testing of each pollutant for each selected emergency diesel 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 diesel engine gen-set.
- b. Testing shall be performed on the inlet and outlet of the SCR catalyst bed of the emergency diesel engine gen-sets to demonstrate compliance with the NO_x and CO emission limits specified in Condition 18. Testing shall be conducted with the emergency diesel engine gen-set operating at ≥ 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. Urea solution consumption.
 - iv. Catalyst bed exhaust temperature.
- d. Perform testing to demonstrate compliance within 120 days after the integration operational period has commenced. The integration operational period is defined as: the period of time beginning with the first time the affected unit is started on-site and ending when the affected unit is fully integrated with the source electrical system. In no case shall the integration operational period exceed 30 days. 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 copies, one paper copy and one 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.

(9 VAC5-50-30 and 9 VAC5-80-1200)

24. Visible Emissions Evaluation - Concurrent with the initial performance tests required in Condition 23, Visible Emission Evaluations (VEE) in accordance with 40 CFR Part 60, Appendix A, Method 9, shall also be conducted by the permittee on the emergency diesel engine gen-sets selected for initial performance testing. The details of the tests are to be arranged with the Regional Air Compliance Manager of DEQ's NRO. The permittee shall submit a VEE protocol in conjunction with the initial stack test protocol required by Condition 23, 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 30 days. Rescheduled testing shall be conducted under the same operating conditions 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 60 days after test completion and shall conform to the test report format enclosed with this permit (Attachment A).

(9 VAC 5-50-30 and 9 VAC 5-80-1200)

CONTINUING COMPLIANCE DETERMINATION

25. Facility Construction - The emergency diesel engine gen-sets (Ref. Nos. EG-13 through EG-22 and EG-70 through EG-80) shall be constructed so as to allow for emissions testing upon reasonable notice at any times, using appropriate methods. This includes constructing the facility/equipment such that volumetric flow rates and pollutant emission rates can be 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.

(9 VAC 5-50-30 F and 9 VAC 5-80-1180)

26. Emission Testing/Visible Emissions Evaluation - Upon request by the DEQ, the permittee shall conduct stack tests and/or VEEs of the emergency diesel engine gen-sets (Ref. Nos. EG-13 through EG-22, EG-70 through EG-73 and EG-74 through EG-80) 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.

(9 VAC 5-80-1200 and 9 VAC 5-50-30 G)

RECORDS

27. 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. Documentation from the manufacturer that each emergency diesel engine gen-set (Ref. Nos. EG-74 through EG-80) is certified to meet the EPA Tier 4 emission standards.
- b. Engine information including make, model, serial number, model year, maximum engine power (bhp), and engine displacement for each emergency diesel engine gen-set (Ref. Nos. EG-13 through EG-22 and EG-70 through EG-80).
- c. A log of monitoring device observations as required by Condition 5.
- d. A log of the emergency diesel engine-gen sets (Ref. Nos. EG-74 through EG-80) kilowatt output on a daily basis (when unit is operating) as required in Condition 6. This log will certify that the engine gen-sets (Ref. Nos. EG-74 through EG-80) are meeting the operating limit set in Condition 8.
- e. Operation and control device monitoring records for each emergency diesel engine gen-set set equipped with a SCR (Ref. Nos. EG-74 through EG-80) as required in Conditions 6 and 7. This includes records of the engine-generator kilowatt output, SCR catalyst exhaust bed temperature, and NO_x emission concentration as measured by SCR continuous monitoring device.
- f. The manufacturer's written operating instructions or procedures developed by the owner/operator that are approved by the engine manufacturer for each emergency diesel engine gen-set (Ref. Nos EG-13 through EG-22 and EG-70 through EG-80).
- g. Monthly and annual hours of operation of each emergency diesel engine gen-set (Ref. EG-13 through EG-22 and EG-70 through EG-80), with date. Annual hours of operation calculated monthly as the sum of each consecutive 12-month period.
- h. All fuel supplier certifications.
- i. Annual fuel consumption of each emergency diesel engine gen-set (Ref. Nos. EG-13 through EG-22 and EG-70 through EG-73) with the annual fuel consumption calculated monthly as the sum of each consecutive 12 month period.
- j. Records as necessary to demonstrate compliance with the emission limits in Conditions 19 and 20, calculated monthly as the sum of each consecutive 12 month period.

- k. Records to provide certification that the injection timing for each emergency diesel engine gen-sets (Ref. Nos. EG-13 through EG-22) has been properly set (as defined in Condition 1).
- l. Results of all stack tests and VEEs.
- m. Records of scheduled maintenance checks and readiness testing.
- n. Records of unscheduled maintenance and operator training.
- o. Records of changes in settings that are permitted by the manufacturer of the emergency diesel engine gen-sets (Ref. Nos. EG-13 through EG-22 and EG-70 through EG-80).
- p. Records of the reasons for operation for each emergency diesel engine gen-set (Ref. Nos. EG-13 through EG-22 and EG-70 through EG-80), including, but not limited to, the date, cause of operation, cause of the emergency, the ISO-declared emergency notification if one has been declared, and the hours of operation.

Compliance for the consecutive 12-month period (as applicable for the items above) 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 (as applicable for the items above) 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.

(9 VAC 5-80-1180 and 9 VAC 5-50-50)

NOTIFICATIONS

28. **Initial Notifications** - The permittee shall furnish written notification of the items below to the Regional 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 written notification(s) for each emergency diesel engine gen-set containing the information as described below:

- a. The actual date on which installation of the emergency diesel engine gen-sets (Ref. Nos. EG-74 through EG-80), commenced within 30 days after such date.
- b. The start and end dates of the integrational operation period for each emergency diesel engine gen-sets (Ref. Nos. EG-74 through EG-80) within 15 days after the emergency diesel engine gen-set completes its integration operational period.
- c. The anticipated date of the performance tests and visible emissions evaluation of the emergency diesel engine gen-sets (Ref. Nos. EG-74 through EG-80) postmarked at least 30 days prior to such date.

(9 VAC 5-50-20)

GENERAL CONDITIONS

29. **Permit Invalidation** - This permit to construct the emergency diesel engine gen-sets (Ref. Nos. EG-74 through EG-80) 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' specified in the equipment list in the Introduction section of this permit, or if
- b. A program of construction is discontinued for a period of 18 months or more, or is not completed within a reasonable time.

(9 VAC 5-80-1210)

30. **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.

(9 VAC 5-80-1210 G)

31. **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.

(9 VAC 5-170-130 and 9 VAC 5-80-1180)

32. **Maintenance/Operating Procedures** - At all times, including periods of start-up, shutdown, soot blowing, 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:

- 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.
(9 VAC 5-50-20 E and 9 VAC 5-80-1180 D)

- 33. **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 of malfunction), corrective action, preventive measures taken and name of person generating the record.
(9 VAC 5-20-180 J and 9 VAC 5-80-1180 D)
- 34. **Notification for Facility or Control Equipment Malfunction** - The permittee shall furnish notification to the Regional Air Compliance Manager of the DEQ's NRO of malfunctions of the affected facility or related air pollution control equipment that may cause excess emissions for more than one hour. Such notification shall be made no later than four daytime business hours after the malfunction is discovered. The permittee shall provide a written statement giving all pertinent facts, including the estimated duration of the breakdown, within 14 days of discovery of the malfunction. When the condition causing the failure or malfunction has been corrected and the equipment is again in operation, the permittee shall notify the Regional Air Compliance Manager of the DEQ's NRO.
(9 VAC 5-20-180 C and 9 VAC 5-80-1180)
- 35. **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.
(9 VAC 5-20-180 I and 9 VAC 5-80-1180)
- 36. **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 NRO of the change of ownership within 30 days of the transfer.
(9 VAC 5-80-1240)
- 37. **Permit Copy** - The permittee shall keep a copy of this permit on the premises of the facility to which it applies.
(9 VAC 5-80-1180)

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

* Not applicable to visible emission evaluations