



NRO-329-07

# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

L. Preston Bryant, Jr.  
Secretary of Natural Resources

NORTHERN VIRGINIA REGIONAL OFFICE  
13901 Crown Court, Woodbridge, Virginia 22193  
(703) 583-3800 Fax (703) 583-3801  
[www.deq.virginia.gov](http://www.deq.virginia.gov)

David K. Paylor  
Director

~~Jeffery A. Steers~~  
Regional Director

July 26, 2007

Mr. John R. Becker  
Manager, IT Facilities and Engineering  
Freddie Mac  
8200 Jones Branch Drive  
McLean, VA 22102

Registration No.:73105

Dear Mr. Becker :

Attached is a permit to modify and operate four diesel engine-generators sets at your corporate data center in Herndon, Virginia, in accordance with the provisions of the Commonwealth of Virginia State Air Pollution Control Board's (Board) Regulations for the Control and Abatement of Air Pollution (Regulations).

In the course of evaluating the application and arriving at a final decision to approve the project, the Department of Environmental Quality (DEQ) deemed the application complete on March 14, 2007.

This permit approval to modify and operate shall not relieve Freddie Mac of the responsibility to comply with all other local, state, and federal permit regulations.

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

As provided by Rule 2A:2 of the Supreme Court of Virginia, you have thirty days from the date you actually received this permit or the date on which it was mailed to

Mr. Becker  
July 26, 2007  
Page 2

you, whichever occurred first, within which to initiate an appeal of this decision by filing a Notice of Appeal with:

David K. Paylor, 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 the regional office at 703.583.3800.

Sincerely,

  
K. Dean Gossett  
Environmental Engineer, Sr.

THD/KDG/MCL/07329mnsr

Attachments: Permit  
Source Test Report Format

cc: Director, OAPP (electronic file submission)  
Manager/Inspector, Air Compliance



NRO-329-07

# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

L. Preston Bryant, Jr.  
Secretary of Natural Resources

NORTHERN VIRGINIA REGIONAL OFFICE  
13901 Crown Court, Woodbridge, Virginia 22193  
(703) 583-3800 Fax (703) 583-3801  
[www.deq.virginia.gov](http://www.deq.virginia.gov)

David K. Paylor  
Director

~~Jeffery A. Steers~~  
Regional Director

### STATIONARY SOURCE PERMIT TO MODIFY AND OPERATE

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

Freddie Mac  
8200 Jones Branch Drive  
McLean, VA 22102  
Registration No.: 73105

is authorized to modify and operate a

corporate data center

located at

544 Herndon Parkway

in accordance with the Conditions of this permit.

Approved on: July 26, 2007.

A handwritten signature in black ink, appearing to read "T. Darton".

Terry H. Darton  
Regional Air Permit Manager

Permit consists of 11 pages.  
Permit Conditions 1 to 23.

## **INTRODUCTION**

This permit approval is based on the permit application dated October 12, 2006, and supplemental information dated January 8, 2007, and March 12, 2007. 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.

Words or terms used in this permit shall have meanings as provided in 9 VAC 5-80-1110 (definitions) and 9 VAC 5-10-20 of the State Air Pollution Control Board's (Board) Regulations for the Control and Abatement of Air Pollution (Regulations). 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 Department of Environmental Quality (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.

## **PROCESS REQUIREMENTS**

1. **Equipment List** - Equipment at this facility consists of the following:

<b>Equipment to be Modified</b>				
<b>Reference No.</b>	<b>Equipment Description</b>	<b>Rated Capacity</b>	<b>Add-On Control Technology</b>	<b>Federal Requirements</b>
1 – 4	Four Caterpillar 3516B, diesel driven engine-generator sets with turbocharger and aftercooler.	2000 ekW, 2848 HP each	N/A	N/A

Specifications included in the permit under this Condition are for informational purposes only and do not form enforceable terms or conditions of the permit.  
(9 VAC 80-1180 D 3)

2. **Emission Controls** - Combustion and visible emissions from the diesel engine-generator sets (Ref. No's 1 - 4) shall be controlled by the use of good operating practices and performing maintenance in accordance with manufacturer recommendations. In addition, the permittee may only change those settings that are permitted by the manufacturer and do not affect air emissions.  
(9 VAC 5-80-1180)
3. **Monitoring** -
  - a. Each diesel engine-generator set (Ref. No.'s 1 - 4) shall be equipped with a device to continuously monitor the engine operating hours. A record of the engine operation shall be maintained to provide dates, run times, and reason operated.
  - b. Each monitoring device shall be installed, maintained, calibrated and operated in accordance with the manufacturer's written requirements or recommendations. Each monitoring device shall be provided with adequate access for inspection and shall be in operation when its respective diesel engine-generator set is operating.  
(9 VAC 5-80-1180 D)

#### **OPERATING LIMITATIONS**

4. **Operating Hours** - The combined operating hours for the diesel engine-generator sets (Ref. No.'s 1 - 4) shall not exceed 1400 hours per year, calculated monthly as the sum of each consecutive twelve month period. Compliance for the consecutive twelve 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 eleven months.  
(9 VAC 5-80-1180)
5. **Load Shedding** - When the permittee is required to operate the diesel engine-generator sets (Ref. No.'s 1 - 4), the permittee shall be allowed to bring on line all diesel engine-generator sets. Once the facility is meeting the power demand, the permittee shall begin shedding diesel engine-generator sets to the level necessary to meet the power demand. One additional diesel engine-generator set shall be allowed to operate as an idling back up.  
(9 VAC 5-170-160 and 9 VAC 5-80-1180)
6. **Fuel** - The approved fuel for the diesel engine-generator sets is diesel fuel oil. A change in the fuel may require a permit to modify and operate.  
(9 VAC 5-80-1180)

7. **Fuel Specification** - The diesel fuel oil shall meet the specifications below:  
DIESEL FUEL OIL:
- a) that conforms to the American Society for Testing and Materials (ASTM) specification, D975, for grade No. 2-D or Grade No. 2-D S5000,  
or
  - b) with sulfur content per shipment not to exceed 0.5% by weight (5000 ppm).  
(9 VAC 5-80-1180)
8. **Fuel Certification** - The permittee shall obtain a certification from the fuel supplier with each shipment of diesel fuel oil. Each fuel supplier certification shall include the following:
- a. The name of the fuel supplier;
  - b. The date on which the diesel fuel oil was received;
  - c. The quantity of diesel fuel oil delivered in the shipment; and
  - d. A statement that the diesel fuel oil:
    - 1) conforms to the American Society for Testing and Materials (ASTM) specification, D975, for grade sulfur No. 2-D or Grade No. 2-D S5000,  
or
    - 2) has a sulfur content per shipment not to exceed 0.5% by weight (5000 ppm).

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 7. Non-conformance with these specifications may be considered credible evidence of the exceedance of emission limits.  
(9 VAC 5-80-1180)

### **EMISSION LIMITS**

9. **Emission Limits** - Emissions from the operation of the diesel engine-generator sets (Ref. No.'s 1 - 4) shall not exceed the limits specified below:

	<u>Each Engine-Generator Set</u>	<u>All Engine-Generator Sets</u>
Nitrogen Oxides (as NO <sub>2</sub> )	41.16 lbs/hr	24.4 tons/yr

Carbon Monoxide	4.01 lbs/hr	1.56 tons/yr
Sulfur Dioxide	11.52 lbs/hr	8.06 tons/yr

The hourly emission rates are derived from the manufacturer's not-to-exceed data at maximum design capacity of the diesel engine. Compliance with the hourly emission limits may be based on testing, if required by the DEQ.

The annual emissions are derived from the manufacturer's nominal emissions data at maximum design capacity of the diesel engines. Exceedance of the operating limits may be considered credible evidence of the exceedance of annual emission limits.  
(9 VAC 5-80-1180)

10. **Visible Emission Limit** - Visible emissions from each diesel engine-generator set (Ref. No.'s 1 - 4) 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 the EPA Method 9 (reference 40 CFR 60, Appendix A). This condition applies at all times except during startup, shutdown, and malfunction.

During start-up and shut-down times, visible emissions from each diesel engine-generator (Ref. No.'s 1 - 4) shall not exceed 20% except during one six-minute period in any one hour in which visible emissions shall not exceed 30% opacity as determined by the EPA Method 9 (reference 40 CFR 60, Appendix A).  
(VAC 5-80-1180 and 9 VAC 5-50-80)

## **COMPLIANCE DETERMINATION**

11. **Visible Emissions Evaluation** – A Visible Emission Evaluations (VEE) in accordance with 40 CFR Part 60, Appendix A, Method 9, shall be conducted by the permittee on two of the engine-generator sets during the first load bank test following the permit issue date. The following year, a VEE shall be conducted on the remaining two engine-generator sets during the annual load bank test.
- Testing shall be performed on the exhaust stack of each engine operating at 90% or greater of its rated capacity.
  - Each VEE shall consist of three runs on each engine-generator set to be tested with a run being comprised of five six-minute averages. Each six-minute average shall be made up of twenty-four consecutive observations (at fifteen second intervals).
  - The details of the tests are to be arranged with the Regional Air Compliance

Manager of DEQ's Northern Regional Office (NRO) at the address listed in Condition 13.

- d. The permittee shall submit a test protocol at least thirty days prior to testing.
- e. Should conditions occur which would require rescheduling the testing, the permittee shall notify the Regional Air Compliance Manager of the DEQ's NRO at the address listed in Condition 13 in writing, within seven days of the scheduled test date or as soon as the rescheduling is deemed necessary.
- f. Two copies of the test result shall be submitted to the Regional Air Compliance Manager of the DEQ's NRO at the address listed in Condition 13 within sixty days after test completion and shall conform to the test report format enclosed with this permit.

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

#### **CONTINUING COMPLIANCE DETERMINATION**

- 12. **Testing/Monitoring Ports** - The facility shall be constructed or modified so as to allow for emissions testing upon reasonable notice at any time, using appropriate methods. Sampling ports shall be provided when requested by the DEQ 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)

#### **RECORDS AND NOTIFICATIONS**

- 13. **Correspondence** - All DEQ correspondence concerning this permit should be submitted to the following address:

Regional Air Compliance Manager  
Department of Environmental Quality  
Northern Regional Office  
13901 Crown Court  
Woodbridge, VA 22193

(9 VAC 5-50-50)

- 14. **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 at the address referenced in the Condition 13. These records shall include, but are not limited to:



- a. Annual hours of operation for each diesel engine-generator set (Ref. No.'s 1 - 4), calculated monthly as the sum of each consecutive twelve month period. Compliance for the consecutive twelve 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 eleven months.
- b. All fuel supplier certifications as required by Condition 8.
- c. A record of the date, reason operated, run time, for each diesel engine-generator set, as required in Condition 3.a.
- d. Scheduled and unscheduled maintenance for each diesel engine-generator set, and operator training as required by Condition 18.
- e. 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. The records shall be maintained in a form suitable for inspection and maintained for at least two years (unless a longer period is specified in the applicable emission standard) following the date of the occurrence.
- f. Maintain records of the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer.
- g. Maintain records of changes in settings that are permitted by the manufacturer of the diesel engine-generator sets.

These records shall be available for inspection by the DEQ and shall be current for the most recent five years, unless otherwise noted.  
(9 VAC 5-80-1180 and 9 VAC 5-50-50)

## **GENERAL CONDITIONS**

### **15. Certification of Documents -**

- A. The following documents submitted to the Board shall be signed by a responsible official: (i) any emission statement, application, form, report, or compliance certification; (ii) any document required to be signed by any provision of the regulations of the Board; or (iii) any other document containing emissions data or compliance information the owner wishes the Board to consider in the administration of its air quality programs. A responsible official is defined as follows:

1. For a business entity, such as a corporation, association or cooperative, a responsible official is either:
    - a. The president, secretary, treasurer, or a vice president of the business entity in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the business entity; or
    - b. A duly authorized representative of such business entity if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either (i) the facilities employ more than 250 persons or have gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars) or (ii) the authority to sign documents has been assigned or delegated to such representative in accordance with procedures of the business entity.
  2. For a partnership or sole proprietorship, a responsible official is a general partner or the proprietor, respectively.
  3. For a municipality, state, federal, or other public agency, a responsible official is either a principal executive officer or ranking elected official. A principal executive officer of a federal agency includes the chief executive officer having responsibility for the overall operations of the principal geographic unit of the agency.
- B. Any person signing a document under subsection A above shall make the following certification:
- "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering and evaluating the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."
- C. Subsection B shall be interpreted to mean that the signer must have some form of direction or supervision over the persons gathering the data and preparing the document (the preparers), although the signer need not personally nor directly supervise these activities. The signer need not be in

the same line of authority as the preparers, nor do the persons gathering the data and preparing the form need to be employees (e.g., outside contractors can be used). It is sufficient that the signer has authority to assure that the necessary actions are taken to prepare a complete and accurate document.

- D. Any person who fails to submit any relevant facts or who has submitted incorrect information in a document shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information.

(9 VAC 5-20-230)

**16. Permit Suspension/Revocation** - The Board may suspend or revoke any permit if the permittee:

- a. Knowingly makes material misstatements in the permit application or any amendments to it;
- b. Fails to comply with the terms or conditions of this permit;
- c. Fails to comply with any emission standards applicable to an emissions unit included in this permit;
- d. Causes emissions from the stationary source which result in violations of, or interfere with the attainment and maintenance of, any ambient air quality standard; or fails to operate in conformance with any applicable control strategy, including any emission standards or emission limitations, in the implementation plan in effect at the time that an application is submitted; or
- e. Fails to comply with the applicable provisions of 9 VAC 5-80-1100 et seq. (9 VAC 5-80-1210 F and 9 VAC 5-80-1210 G)

**17. 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)

- 18. Maintenance/Operating Procedures** - At all times, including periods of startup, shutdown, and malfunction, owners shall, to the extent practicable, maintain and operate any affected facility, including associated air pollution control equipment, in a manner consistent with air pollution control practices for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Regional Air Compliance Manager of the DEQ's NRO at the address referenced in Condition 13, which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

The permittee shall take the following measures in order to minimize the duration and frequency of excess emissions, with respect to the diesel engine-generator sets (Ref. No.'s 1 - 4):

- 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 the installed 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)

- 19. Record of Malfunctions** - The permittee shall maintain records of the occurrence and duration of any bypass, malfunction, shut-down or failure of the facility or its associated air pollution control equipment that results in excess emissions for more than one hour. The records shall be maintained in a form suitable for inspection and

maintained for at least two years (unless a longer period is specified in the applicable emission standard) following the date of occurrence. Records shall include the date, time, duration, description (emission unit, pollutant affected, cause), corrective action, preventive measures taken and name of person generating the record.

(9VAC 5-20-180 J and 9 VAC 5-80-1180 D)

- 20. Notification for Facility or Control Equipment Malfunction** - In the event that any affected facility or related air pollution control equipment fails or malfunctions in such a manner that may cause excess emissions for more than one hour, the owner shall, as soon as practicable but no later than four daytime business hours after the malfunction is discovered, notify the Regional Air Compliance Manager of the DEQ's NRO at the address referenced in Condition 13 by facsimile transmission, telephone or telegraph of such failure or malfunction and shall within two weeks provide a written statement giving all pertinent facts, including the estimated duration of the breakdown. When the Condition causing the failure or malfunction has been corrected and the facility or control equipment is again in operation, the owner shall notify the Regional Air Compliance Manager of the DEQ's NRO at the address referenced in Condition 13.

(9 VAC 5-20-180 C and 9 VAC 5-80-1180)

- 21. Violation of Ambient Air Quality Standard** - Regardless of any other provision of this permit, the permittee shall, upon request of the DEQ, reduce the level of operation of the facility if the DEQ determines that is necessary to prevent a violation of any primary ambient air quality standard. Under worst case conditions, the DEQ may order that the permittee shut down the facility, if there is no other method of operation to avoid a violation of the ambient air quality standard. The DEQ reserves the right to prescribe the method of determining if a facility will cause such a violation. In such cases, the facility shall not be returned to operation until it and the associated air pollution control equipment are able to operate without violation of any primary ambient air quality standard.

(9 VAC 5-20-180 I and 9 VAC 5-80-1180)

- 22. Change of Ownership** - In the case of a transfer of ownership of a stationary source, the new owner shall abide by any current permit issued to the previous owner. The new owner shall notify the Regional Air Compliance Manager of the DEQ's NRO at the address referenced in Condition 13 of the change of ownership within thirty days of the transfer.

(9 VAC 5-80-1240)

- 23. 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)

## **[VEE] 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

### **Copy of approved test protocol**

### **Summary**

1. Reason for testing
2. Test dates
3. Identification of unit tested & the maximum rated capacity
4. Summarized process and control equipment data for each run and the average, as required by the test protocol
5. A statement that test was conducted in accordance with the test protocol or identification & discussion of deviations, including the likely impact on results
6. 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

### **Appendix**

1. Project participants and titles
  2. Observers' names (industry and agency)
  3. Related correspondence
  4. Standard procedures
-