NRO-105-14

COMMONWEALTH of VIRGINIA

Molly Joseph Ward
Secretary of Natural Resources

DEPARTMENT OF ENVIRONMENTAL QUALITY
NORTHERN REGIONAL OFFICE
13901 Crown Court, Woodbridge, Virginia 22193-1453
(703) 583-3800 Fax (703) 583-3821
www.deq.virginia.gov

David K. Paylor
Director

Thomas A. Faha
Regional Director

July 16, 2014

Mr. Mark Long
Manager, Computer Operations
Inova Nokes Data Center
45745 Nokes Boulevard
Dulles, Virginia 20166

Location: Loudoun County
Registration No.: 73363
Facility ID No. 51-107-01041

Dear Mr. Long:

Attached is a minor amendment to your permit dated August 15, 2006, to construct and operate two (2) diesel engine generator sets at Inova Nokes Data Center, located at 45745 Nokes Boulevard, Dulles, Virginia 20166 (Loudoun County), in accordance with the provisions of the Commonwealth of Virginia State Air Pollution Control Board (Board's) Regulations for the Control and Abatement of Air Pollution (Regulations). This amended permit document supersedes your permit document dated August 15, 2006.

The Department of Environmental Quality (DEQ) deemed the application complete on June 20, 2014, and has determined that the application meets the requirements of 9 VAC 5-80-1280 A for a minor amendment to a new source review permit.

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 Inova Nokes Data Center of the responsibility to comply with all other local, state, and federal permit regulations.

Please note that the two (2) Caterpillar 3512B diesel engine generator sets are affected facilities under 40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants for Source Categories (MACT) Subpart ZZZZ (Stationary Reciprocating Internal Combustion Engines). As the owner/operator of the affected units, DEQ advises you to review the MACT to ensure compliance with applicable emission standards, operational limitations, and the

monitoring, notification, reporting and recordkeeping requirements. Applicable notifications shall be sent to EPA, Region III. The MACT may be found at **www.ecfr.gov**.

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. 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 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:

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 30-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 me at (703) 583-3928 or via email at **james.lafratta@deq.virginia.gov**.

Sincerely,

James B. LaFratta
Regional Air Permit Manager

TAF/JBL/14-105 mNSR (7-16-14)

Attachment: Permit

cc: DEQ NRO Regional Air Compliance Manager (pdf copy via email)

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David K. Paylor
Director

Thomas A. Faha
Regional Director

STATIONARY SOURCE PERMIT TO CONSTRUCT AND OPERATE

This permit document supersedes your permit document dated August 15, 2006.

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

Inova Nokes Data Center
45745 Nokes Boulevard
Dulles, Virginia 20166
Registration No.: 73363
AFS ID No.: 51-107-01041

is authorized to construct and operate

two (2) Caterpillar 3512DE3B diesel engine generator sets

located at

45745 Nokes Boulevard
Dulles, Virginia 20166
(Loudoun County)

in accordance with the Conditions of this permit.

Approved on August 15, 2006
Amended on July 16, 2014

Thomas A. Faha
Regional Director

Permit consists of 11 pages.
Permit Conditions 1 to 23.
Source Testing Report Format, 1 page.

INTRODUCTION

This permit approval is based on the permit applications dated May 5, 2006 (including supplemental information dated July 3, 2006) and April 22, 2014 (including supplemental information dated June 20, 2014). 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 5-80-1110 and 9 VAC 5-10-10 *et seq.* of the Commonwealth of Virginia State Air Pollution Control Board's (Board's) Regulations (Regulations) for the Control and Abatement of Air Pollution. The regulatory reference or authority for each condition is listed in parentheses () after each condition.

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 Board's 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:

Equipment to be Constructed:				
Reference No.	**Equipment Description**	**Rated Capacity**	**Federal Requirements**	**Original Permit Date**
G1	Caterpillar 3512DE3B Generator Set	2155 bhp 1500 ekW	9 VAC 5-60-100	August 15, 2006
G2	Caterpillar 3512DE3B Generator Set	2155 bhp 1500 kW	9 VAC 5-60-100	August 15, 2006

Equipment Exempt from Air Permitting:				
Reference No.	**Equipment Description**	**Rated Capacity**	**Exemption Citation**	**Exemption Date**
Main Fuel Tank	AST for diesel fuel	5,000 gallons	9 VAC 5-80-1105.B.8 and NSPS Subpart Kb	August 15, 2006

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 5-80-1180 D 3)

2. **Emission Controls** – Emissions from each diesel engine-generator set (Ref. Nos. G1 & G2) shall be controlled by the following:

   a. Oxides of nitrogen (NO_x) emissions shall be controlled by good engine design to include direct diesel injection, engine control module, turbocharger and charge air cooler.

   b. Sulfur dioxide (SO_2) emissions shall be controlled by the use of low sulfur diesel fuel oil with a sulfur content not to exceed 0.05%.

   c. Carbon monoxide (CO) emissions shall be controlled by good combustion practices.

   d. Visible emissions shall be controlled by good operating practices.

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

3. **Monitoring Devices** – Each diesel engine-generator set (Ref. Nos. G1 & G2) shall be equipped with a non-resettable hour metering device to monitor the operating hours. The non-resettable hour meter used to continuously measure the hours of operation for each engine-generator set shall be observed by the owner with a frequency of not less than once each day the engine-generator set is operated. The owner 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. Each monitoring device shall be provided with adequate access for inspection and shall be in operation when the diesel engine-generator sets are operating.

   (9 VAC 5-80-1180 D)

OPERATING LIMITATIONS

4. **Fuel Specification** – The approved fuel for each diesel engine-generator set (Ref. Nos. G1 & G2) is diesel fuel oil that:

   a. Does not exceed the American Society for Testing and Materials (ASTM) specification, D975, for grade low sulfur 2-D or grade 2-D S500, or,

   b. Has a maximum sulfur content not to exceed 0.05% by weight (500 ppm), and either a minimum cetane number of forty or maximum aromatic content of 35 volume percent.

   (9 VAC 5-80-1180)

5. **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 oil supplier;

b. The date on which the fuel oil was received;

c. The quantity of fuel oil delivered in the shipment;

d. A statement that the fuel oil conforms to the applicable fuel specification requirements of Condition 4; and

e. The sulfur content of the fuel oil.

Alternatively, the permittee shall obtain approval from DEQ 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 DEQ may be used to determine compliance with the fuel specifications stipulated in Condition 4. Exceedance of these specifications may be considered credible evidence of the exceedance of emission limits.
(9 VAC 5-80-850 and 9 VAC 5-80-1180)

EMISSION LIMITS

6. **Hourly Emission Limits** – Emissions from the operation of each diesel engine generator set (Ref. Nos. G1 & G2) shall not exceed the limits specified below:

PM-10	0.3 lbs/hr
Sulfur Dioxide	0.8 lbs/hr
Nitrogen Oxides (as NO_2)	41.6 lbs/hr
Carbon Monoxide (CO)	3.1 lbs/hr
Volatile Organic Compounds	1.8 lbs/hr

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

7. **Annual Emission Limits** – Annual emissions from the combined operation of the diesel engine generator sets (Ref. Nos. G1 & G2) shall not exceed the limits specified below:

Nitrogen Oxides (as NO_2)	20.8 tons/yr

Compliance with this annual limit shall be calculated monthly by adding the total emissions for the most recently completed calendar month to the individual monthly emission totals for the preceding 11 months.
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

8. **Visible Emission Limit** – Visible emissions each diesel engine generator set (Ref. Nos. G1 & G2) shall not exceed 5 percent opacity except during one 6-minute period in any one hour in which visible emissions shall not exceed 10 percent 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.

Visible emissions during start-up, shut-down, and malfunction from each diesel engine generator set (Ref. Nos. G1 & G2) shall not exceed 10 percent except during one six-minute period in any one hour in which visible emissions shall not exceed 20 percent opacity as determined by the EPA Method 9 (reference 40 CFR 60, Appendix A).
(9 VAC 5-80-1180 and 9 VAC 5-50-260)

INITIAL COMPLIANCE DETERMINATION

9. **Stack Test** – Initial performance tests shall be conducted for nitrogen oxides (NOx) from one (1) of the diesel engine generator sets (Ref. Nos. G1 & G2) using the emission compliance testing procedures outlined at 40 CFR 60, Appendix A to demonstrate compliance with the limit in Condition 6.

   a. The tests shall be performed to demonstrate compliance within 60 days after achieving the maximum operating rate at which the facility will operate but in no event later than 180 days after start-up of the permitted facility. Tests shall be conducted, reported, and the data reduced as set forth in 9 VAC 5-50-30. The details of the tests are to be arranged with the NRO Air Compliance Manager.

   b. The permittee shall submit a test protocol at least 30 days prior to testing. Should conditions occur which would require rescheduling the testing, the permittee shall notify the NRO Air Compliance Manager in writing, no less than seven (7) days prior to the scheduled test date or as soon as the rescheduling is deemed necessary. In any case, the emissions testing shall be rescheduled within 30 days. Rescheduled testing shall be conducted under the same conditions (as possible) as the initial performance tests.

   c. Two copies of the test results shall be submitted to the NRO Air Compliance Manager within 60 days after test completion and shall conform to the test report format enclosed with this permit.

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

10. **Initial Visible Emissions Evaluation** – Visible Emission Evaluations (VEE) in accordance with 40 CFR Part 60, Appendix A, Method 9, shall be conducted by the permittee on the diesel engine generator set not selected for initial performance testing in Condition 9. The testing shall be conducted to determine compliance with the limits contained in Condition 8.

    a. The test shall consist of thirty sets of observations. Each set will consist of 24 consecutive observations, at 15 second intervals, to yield a six minute average.

    b. The details of the tests are to be arranged with the NRO Air Compliance Manager.

    c. The permittee shall submit a test protocol at least 30 days prior to testing.

    d. The evaluation shall be performed within 60 days after achieving the maximum operating rate at which the facility will be operated but in no event later than 180 days after start-up

of the permitted facility.

e. Should conditions occur which would require rescheduling the testing, the permittee shall notify the NRO Air Compliance Manager in writing, within seven (7) days of the scheduled test date or as soon as the rescheduling is deemed necessary. In any case, the visible emissions testing shall be rescheduled within 30 days. Rescheduled testing shall be conducted under the same conditions (as possible) as the initial performance tests.

f. Two copies of the test results shall be submitted to the NRO Air Compliance Manager within 60 days after test completion and shall conform to the test report format enclosed with this permit.

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

RECORDS

11. **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 NRO Air Compliance Manager of DEQ's Northern Regional Office at the following address:

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

    These records shall include, but are not limited to:

    a. Monthly/annual hours of operation of each diesel engine generator set (Ref. Nos. G1 & G2). The annual hours of operation shall be determined monthly by adding the total for the most recently completed calendar month to the individual monthly totals for the preceding eleven months.

    b. Monthly/annual emissions calculations for NOx from each diesel engine generator set (Ref. Nos. G1 & G2) to verify compliance with the ton/yr emissions limitations in Condition 7.

    c. All fuel supplier certifications.

    d. All VEE and emission testing reports.

    e. Scheduled and unscheduled maintenance.

    f. Operator training.

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

12. **Initial Notifications** - The permittee shall furnish written notification of:

    a. The actual date on which construction of the diesel engine generator sets (Ref. Nos. G1 & G2) commenced within 30 days after such date.

    b. The anticipated start-up date of the diesel engine generator sets (Ref. Nos. G1 & G2), postmarked not more than 60 days nor less than 30 days prior to such date.

    c. The actual start-up date of the diesel engine generator sets (Ref. Nos. G1 & G2) within 15 days after such date.

    d. The anticipated date of performance tests of the diesel engine generator sets (Ref. Nos. G1 & G2), postmarked at least 30 days prior to such date.

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

GENERAL CONDITIONS

13. **Testing/Monitoring Ports** – Each diesel engine generator set (Ref. Nos. G1 & G2) shall be constructed so as to allow for emissions testing upon reasonable notice at any time, 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 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)

14. **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 so 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:

        i. 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.

ii. For a partnership or sole proprietorship, a responsible official is a general partner or the proprietor, respectively.

iii. 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 a principal geographic unit of the agency.

b. Any person signing a document under subsection A of this section 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 manage 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 of this section 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.

(9 VAC 5-20-230)

15. **Permit Invalidation** – This permit to construct the diesel engine generator sets (Ref. Nos. G1 & G2) shall become invalid, unless an extension is granted by the DEQ, if:

a. A program of continuous construction or modification is not commenced within the latest of the following:

i. Eighteen months from the 'Original Permit Date' specified in Condition 1 of this permit;

ii. Nine months from the date that the last permit or other authorization was issued from any other government entity;

iii. Nine months from the date of the last resolution of any litigation concerning any such permits or authorization; or

b. A program of construction, reconstruction, or modification is discontinued for a period of eighteen months or more, or is not completed within a reasonable time, except for a DEQ approved period between phases of a phased construction project.

(9 VAC 5-80-1210)

16. **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;

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; or

(9 VAC 5-80-1210 F)

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 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)

19. **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.
    (9 VAC 5-20-180 J and 9 VAC 5-80-1180 D)

20. **Notification for Facility or Control Equipment Malfunction** – The permittee shall furnish notification to the NRO 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, by facsimile transmission, telephone or telegraph. Such notification shall be made as soon as practicable but 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 two weeks 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 DEQ's Northern Regional Office.
    (9 VAC 5-20-180 C and 9 VAC 5-80-1180)

21. **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)

22. **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 DEQ's Northern Regional Office of the change of ownership within 30 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)

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