March 13, 2003

Re: Duke Energy Vermillion 165-15845-00022

TO: Interested Parties / Applicant

FROM: Paul Dubenetzky
Chief, Permits Branch
Office of Air Quality

Notice of Decision - PSD Permit Approval

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision on the enclosed Prevention of Significant Deterioration (PSD) Permit. Pursuant to IC 13-15-5-3 and the federal requirements codified at 40 CFR Part 124.15 (b), this permit is effective thirty (30) days after the service of this notice. This permit may be revoked or modified in accordance with the provisions of IC 13-15-7-1.

If you wish to challenge this decision, IC 4-21.5-3-7 and IC 13-15-6-1 require that you file a petition for administrative review. This petition describing your intent must be submitted to the Office of Environmental Adjudication, ISTA Building, 150 W. Market Street, Suite 618, Indianapolis, IN 46204, **within eighteen (18) days of service of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

(1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
(2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
(3) the date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location and date of this notice. Additionally, IC 13-15-6-2 requires that a petition include:

(1) the name and address of the person making the request; and
(2) the interest of the person making the request; and
(3) identification of any persons represented by the person making the request; and
(4) the reasons, with particularity, for the request; and
(5) the issues, with particularity, proposed for consideration at the hearing; and

(6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

(over)

If you wish to challenge this decision under federal law, 40 CFR 124.19 requires that you petition the Environmental Appeals Board **within thirty (30) days of the service of this notice**, at the following address:

U.S. Environmental Protection Agency
Environmental Appeals Board (MC-1103B)
Ariel Rios Building
1200 North Pennsylvania Ave., N.W.
Washington, D.C. 20406

Pursuant to 40 CFR Part 124.19, the petition must include a statement of the reasons supporting review, including a demonstration that any issues being raised were raised during the public comment period or public hearing. When appropriate, the petition must also include a showing that the permit condition in question is based on:

(1) a finding of fact or conclusion of law which is clearly erroneous; or,
(2) an exercise of discretion or an important policy consideration which the Environmental Appeals Board should, in its discretion, review.

Pursuant to 40 CFR Part 124.19, the Environmental Appeals Board shall provide public notice of any grant or review. Notice of denial or review shall be sent only to the person(s) requesting review.

If you technical questions regarding the enclosed document, please call the Office of Air Quality, Permits Branch at 317-233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178

Enclosures

CONSTRUCTION PERMIT
PREVENTION OF SIGNIFICANT DETERIORATION (PSD)
OFFICE OF AIR QUALITY

Vermillion Generating Station
CR 300 N and SR 63
Eugene Township, Indiana 47928

This permit is issued to the above mentioned company (herein known as the Permittee) under the provisions of 326 IAC 2-1, 326 IAC 2-2, 40 CFR 52.780 and 40 CFR 124, with conditions listed on the attached pages.

Construction Permit No.: PSD-165-10476-00022	
Issued by: Paul Dubenetzky, Branch Chief Office of Air Management	Issuance Date: July 1, 1999

Construction Permit No.: PSD-165-15845-00022	
Issued by: Original Signed by Paul Dubenetzky Paul Dubenetzky, Branch Chief Office of Air Quality	Issuance Date: March 13, 2003

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SECTION A SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM), and presented in the permit application.

A.1 General Information

The Permittee owns and operates a stationary merchant power plant.

Responsible Official:	Gus Eghneim
Source Address:	CR 300 N and SR 63, Eugene Township, Indiana 47928
Mailing Address:	5400 Westheimer Court, Houston, Texas 77056
SIC Code:	4911
County Location:	Vermillion
County Status:	Attainment for all criteria pollutants
Source Status:	Major Source, Part 70 Permit Program Major Source, under PSD Rules

A.2 Emission Units and Pollution Control Equipment Summary

This construction permit consists of the following emission units and pollution control devices:

(a) Eight (8) simple cycle, natural gas-fired combustion turbines, designated as units #1-#8, with a maximum heat input capacity of 1,272 mmBtu/hr each, a nominal output of 80 MW each, utilizing diesel fuel as a back-up fuel source, controlled by low-NOx combustors in conjunction with natural gas usage, controlled by wet-injection in conjunction with diesel fuel usage and exhausts to stacks designated as #1-#8.

(b) Two (2) Emergency diesel generators, designated as units #9 and #10, with a maximum heat input capacity of 17.21 mmBtu/hr each and exhausts to stacks designated as #9 and #10.

(c) One (1) emergency diesel fire pump, designated as unit #11, with a maximum heat input capacity of 1.6 mmBtu/hr and exhausts to a stack designated as #11.

(d) Four (4) diesel fuel storage tanks, designated as tanks #1-#4, with a maximum capacity of 519, 000 gallons per tank, a maximum volume of 69,400 ft3 per tank and exhausts to vents designated as #12-#15.

A.3 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

(a) It is a major source, as defined in 326 IAC 2-7-1(22).

(b) This source has submitted their Part 70 application, this permit is a modification to that application.

A.4 Acid Rain Permit Applicability [40 CFR Part 72.30]

This stationary source shall be required to have a Phase II, Acid Rain permit by 40 CFR Part 72.30 (Applicability) because:

(a) The combustion turbines are new units under 40 CR Part 72.6.

(b) The source cannot operate the combustion units until their Phase II, Acid Rain permit has been issued.

(c) The source submitted their Phase II, Acid Rain permit application on April 4, 2000.

SECTION B GENERAL CONSTRUCTION AND OPERATION CONDITIONS

THIS SECTION OF THE PERMIT IS BEING ISSUED UNDER THE PROVISIONS OF 326 IAC 2-1 AND 40 CFR 52.780, WITH CONDITIONS LISTED BELOW.

Construction Conditions [326 IAC 2-1-3]

B.1 General Construction Conditions

(a) The data and information supplied with the application shall be considered part of this permit. Prior to any proposed change in construction which may affect allowable emissions, the change must be approved by the Office of Air Management (OAM).

(b) This permit to construct does not relieve the Permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

B.2 Effective Date of the Permit [IC13-15-5-3]

Pursuant to 40 CFR Parts 124.15, 124.19 and 124.20, the effective date of this permit will be thirty (30 days from its issuance. Three (3) days shall be added to the thirty (30) day period, if service of notice is by mail.

B.3 Revocation of Permits [326 IAC 2-1-9(b)]

Pursuant to 326 IAC 2-1-9(b)(Revocation of Permits), the Commissioner may revoke this permit if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.

B.4 Significant Source Modification [326 IAC 2-7-10.5(h)]

This document shall also become the approval to operate pursuant to 326 IAC 2-7-10.5(h) when, prior to start of operation, the following requirements are met:

(a) The attached affidavit of construction shall be submitted to the Office of Air Quality (OAQ), Permit Administration & Development Section, verifying that the emission units were constructed as proposed in the application. The emissions units covered in the Significant Source Modification approval may begin operating on the date the affidavit of construction is postmarked or hand delivered to IDEM if constructed as proposed.

(b) If actual construction of the emissions units differs from the construction proposed in the application or the permit in a manner that is regulated under the provisions of 326 IAC 2-2, the source may not begin operation until the source modification has been revised pursuant to the provisions of that rule and the provisions of 326 IAC 2-1.1-6 and an Operation Permit Validation Letter is issued.

(c) If actual construction of the emissions units differs from the construction proposed in the application or the permit in a manner that is not regulated under the provisions of 326 IAC 2-2, the source may not begin operation until the source modification has been revised pursuant to the provisions of that rule and the provisions of 326 IAC 2-7-11 or 326 IAC 2-7-12 and an Operation Permit Validation Letter is issued.

(d) The Permittee shall receive an Operation Permit Validation Letter from the Office of Air Quality and attach it to this document.

(e) The changes covered by the Significant Source Modification will be included in the Title V draft.

Operation Conditions

B.5 General Operation Conditions

(a) The data and information supplied in the application shall be considered part of this permit. Prior to any change in the operation which may result in an increase in allowable emissions exceeding those specified in 326 IAC 2-1-1 (Construction and Operating Permit Requirements), the change must be approved by the Office of Air Management (OAM).

(b) The Permittee shall comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC13-17) and the rules promulgated thereunder.

B.6. Preventive Maintenance Plan [326 IAC 1-6-3]

Pursuant to 326 IAC 1-6-3 (Preventive Maintenance Plans), the Permittee shall prepare and maintain a preventive maintenance plan, including the following information:

(a) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices.

(b) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions.

(c) Identification of the replacement parts which will be maintained in inventory for quick replacement.

The preventive maintenance plan shall be submitted to IDEM, OAM upon request and shall be subject to review and approval.

B.7 Malfunctions Report [326 IAC 1-6-2]

Pursuant to 326 IAC 1-6-2 (Records; Notice of Malfunction):

(a) A record of all malfunctions, including startups or shutdowns of any facility or emission control equipment, which result in violations of applicable air pollution control regulations or applicable emission limitations shall be kept and retained for a period of three (3) years and shall be made available to the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM) or appointed representative upon request.

(b) When a malfunction of any facility or emission control equipment occurs which lasts more than one (1) hour, said condition shall be reported to OAM, using the Malfunction Report Forms (2 pages). Notification shall be made by telephone or facsimile, as soon as practicable, but in no event later than four (4) daytime business hours after the beginning of said occurrence.

(c) Failure to report a malfunction of any emission control equipment shall constitute a violation of 326 IAC 1-6, and any other applicable rules. Information of the scope and expected duration of the malfunction shall be provided, including the items specified in 326 IAC 1-6-2(a)(1) through (6).

(d) Malfunction is defined as any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. [326 IAC 1-2-39].

B.8 Transfer of Permit [326 IAC 2-1-6]

Pursuant to 326 IAC 2-1-6 (Transfer of Permits):

(a) In the event that ownership of the eight (8) combustion turbines, two (2) emergency diesel generators, one (1) emergency diesel fire pump and four (4) storage tanks is changed, the Permittee shall notify OAM, Permit Branch, within thirty (30) days of the change. Notification shall include the date or proposed date of said change.

(b) The written notification shall be sufficient to transfer the permit from the current owner to the new owner.

(c) The OAM shall reserve the right to issue a new permit.

B.9 Permit Revocation [326 IAC 2-1-9]

Pursuant to 326 IAC 2-1-9(a)(Revocation of Permits), this permit to construct and operate may be revoked for any of the following causes:

(a) Violation of any conditions of this permit.

(b) Failure to disclose all the relevant facts, or misrepresentation in obtaining this permit.

(c) Changes in regulatory requirements that mandate either a temporary or permanent reduction of discharge of contaminants. However, the amendment of appropriate sections of this permit shall not require revocation of this permit.

(d) Noncompliance with orders issued pursuant to 326 IAC 1-5 (Episode Alert Levels) to reduce emissions during an air pollution episode.

(e) For any cause which establishes in the judgment of IDEM, the fact that continuance of this permit is not consistent with purposes of 326 IAC 2-1 (Permit Review Rules).

B.10 Availability of Permit [326 IAC 2-1-3(l)]

Pursuant to 326 IAC 2-1-3(l), the Permittee shall maintain all applicable permits on the premises of the source and shall make this permit available for inspection by the IDEM, or other public official having jurisdiction.

B.11 NSPS Reporting Requirement

Pursuant to the New Source Performance Standards (NSPS), Part 60, Subpart GG, the source owner/operator is hereby advised of the requirement to report the following at the appropriate times:

(a) Commencement of construction date (no later than 30 days after such date);

(b) Anticipated start-up date (not more than 60 days or less than 30 days prior to such date);

(c) Actual start-up date (within 15 days after such date); and

(d) Date of performance testing (at least 30 days prior to such date), when required by a condition elsewhere in this permit.

Reports are to be sent to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, IN 46206-6015

The application and enforcement of these standards have been delegated to the IDEM-OAM. The requirements of 40 CFR Part 60 are also federally enforceable.

SECTION C SOURCE OPERATION CONDITIONS

Entire Source

Emission Limitation and Standards

C.1 PSD Major Source Status [326 IAC 2-2] [40 CFR 52.21]

(a) The potential to emit of nitrogen oxides (NOx) and carbon monoxide (CO)) for the facilities listed in this construction permit, are greater than 250 tons per year. Therefore, the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration) shall apply to the source.

(b) Any change or modification which may increase the allowable emissions, potential emissions, or potential to emit, as appropriate, to the following:

1.) 25 tons per year or more (326 IAC 2-1),

2.) 10 tons per year for a single HAP or combination HAPs greater than 25 tons per year (326 IAC 2-1-3.4),

3.) Equal to or more than the significant emission rates as defined under 326 IAC 2-2-1 (Definitions),

from the equipment covered in this construction permit must be approved by the Office of Air Management (OAM) before such change may occur.

C.2 326 IAC 5 (Opacity Limitations):

Pursuant to 326 IAC 5-1-2 (Opacity Limitations) except as provided in 326 IAC 5-1-3 (Temporary Exemptions), the opacity shall meet the following:

(a) Opacity shall not exceed an average of 40% any one (1) six (6) minute averaging period.

(b) Opacity shall not exceed 60% for more than a cumulative total of 15 minutes (60 readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute non-overlapping integrated averages for a continuous opacity monitor) in a 6-hour period.

C.3 Operation of Equipment [326 IAC 2-1-3]

All air pollution control equipment listed in this permit shall be in placed or operated at all times that the emission units vented to the control equipment are in operation, as described in Section D of this permit.

Testing Requirements

C.4 Performance Testing [326 IAC 3-6]

(a) All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit, utilizing methods approved by IDEM, OAM.

A test protocol, except as provided elsewhere in this permit, shall be submitted to:

Indiana Department of Environmental Management

Compliance Data Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

no later than thirty-five (35) days prior to the intended test date. The Permittee shall submit a notice of the actual test date to the above address so that it is received at least two weeks prior to the test date.

(b) All test reports must be received by IDEM, OAM within forty-five (45) days after the completion of the testing. An extension may be granted by the Commissioner, if the source submits to IDEM, OAM, a reasonable written explanation within five (5) days prior to the end of the initial forty-five (45) day period.

Compliance Monitoring Requirements

C.5 Compliance Monitoring [326 IAC 2-1-3]

Compliance with applicable requirements shall be documented as required by this permit. The Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment, no more than ninety (90) days after receipt of this permit. If due to circumstances beyond its control, this schedule cannot be met, the Permittee shall notify:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

in writing, no more than ninety (90) days after receipt of this permit, with full justification of the reasons for the inability to meet this date and a schedule which it expects to meet. If a denial of the request is not received before the monitoring is fully implemented, the schedule shall be deemed approved.

C.6 Monitoring Methods [326 IAC 3]

Any monitoring or testing performed to meet the requirements of this permit shall be performed, according to the provisions of 326 IAC 3, 40 CFR 60, Appendix A, or other approved methods as specified in this permit.

Corrective Actions and Response Steps

C.7 Emergency Reduction Plans [326 IAC 1-5-2] [326 IAC 1-5-3]

Pursuant to 326 IAC 1-5-2 (Emergency Reduction Plans; Submission):

(a) The Permittee shall prepare written emergency reduction plans (ERPs) consistent with safe operating procedures.

(b) These ERPs shall be submitted for approval to:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Management
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015

within 180 days from the date on which this source commences operation.

(c) If the ERP is disapproved by IDEM, OAM, the Permittee shall have an additional thirty (30) days to resolve the differences and submit an approvable ERP. If after this time,

the Permittee does not submit an approvable ERP, then IDEM, OAM, shall supply such a plan.

(d) These ERPs shall state those actions that will be taken, when each episode level is declared, to reduce or eliminate emissions of the appropriate air pollutants.

(e) Said ERPs shall also identify the sources of air pollutants, the approximate amount of reduction of the pollutants, and a brief description of the manner in which the reduction will be achieved.

(f) Upon direct notification by IDEM, OAM, that a specific air pollution episode level is in effect, the Permittee shall immediately put into effect the actions stipulated in the approved ERP for the appropriate episode level. [326 IAC 1-5-3]

Record Keeping and Reporting Requirements

C.8 Annual Emission Reporting [326 IAC 2-6]

Pursuant to 326 IAC 2-6 (Emission Reporting), the Permittee must annually submit an emission statement for the source. This statement must be received by July 1 of each year and must comply with the minimum requirements specified in 326 IAC 2-6-4. The annual statement must be submitted to:

Indiana Department of Environmental Management
Technical Support and Modeling Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

The annual emission statement covers the twelve (12) consecutive month time period starting January 1 and ending December 31.

C.9 Monitoring Data Availability [326 IAC 2-1-3]

(a) With the exception of performance tests conducted in accordance with Section C-Performance Testing. All observations, sampling, maintenance procedures, and record keeping, required as a condition of this permit shall be performed at all times the equipment is operating at normal representative conditions.

(b) As an alternative to the observations, sampling, maintenance procedures, and record keeping of subsection (a) above, when the equipment listed in Section D of this permit is not operating, the Permittee shall either record the fact that the equipment is shut down or perform the observations, sampling, maintenance procedures, and record keeping that would otherwise be required by this permit.

(c) If the equipment is operating but abnormal conditions prevail, additional observations and sampling should be taken with a record made of the nature of the abnormality.

(d) If for reasons beyond its control, the operator fails to make required observations, sampling, maintenance procedures, or record keeping, reasons for this must be recorded.

(e) At its discretion, IDEM may excuse such failure providing adequate justification is documented and such failures do not exceed five percent (5%) of the operating time in any quarter.

(f) Temporary, unscheduled unavailability of staff qualified to perform the required observations, sampling, maintenance procedures, or record keeping shall be considered a valid reason for failure to perform the requirements stated in (a) above.

C.10 General Record Keeping Requirements [326 IAC 2-1-3]

(a) Records of all required monitoring data and support information shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be kept at the source location and available within one (1) hour upon verbal request of an IDEM, OAM, representative, for a minimum of three (3) years. They may be stored elsewhere for the remaining two (2) years providing they are made available within thirty (30) days after written request.

(b) Records of required monitoring information shall include, where applicable:

(1) The date, place, and time of sampling or measurements;

(2) The dates analyses were performed;

(3) The company or entity performing the analyses;

(4) The analytic techniques or methods used;

(5) The results of such analyses; and

(6) The operating conditions existing at the time of sampling or measurement.

(c) Support information shall include, where applicable:

(1) Copies of all reports required by this permit;

(2) All original strip chart recordings for continuous monitoring instrumentation;

(3) All calibration and maintenance records;

(4) Records of preventive maintenance shall be sufficient to demonstrate that improper maintenance did not cause or contribute to a violation of any limitation on emissions or potential to emit. To be relied upon subsequent to any such violation, these records may include, but are not limited to: work orders, parts inventories, and operator's standard operating procedures.

(d) All record keeping requirements not already legally required shall be implemented within ninety (90) days of permit issuance.

C.11 General Reporting Requirements [326 IAC 2-1-3]

(a) Reports required by conditions in Section D of this permit shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

(b) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAM, on or before the date it is due.

(c) Unless otherwise specified in this permit, any report shall be submitted within thirty (30) days of the end of the reporting period.

(d) All instances of deviations must be clearly identified in such reports. A reportable deviation is an exceedance of a permit limitation or a failure to comply with a requirement of the permit or a rule. It does not include:

(1) an excursion from compliance monitoring parameters as identified in Section D of this permit unless tied to an applicable rule or limit; or

(2) an emergency as defined in 326 IAC 2-7-1(12); or

(3) failure to implement elements of the Preventive Maintenance Plan unless lack of maintenance has caused or contributed to a deviation.

(4) failure to make or record information required by the compliance monitoring provisions of Section D unless such failure exceeds 5% of the required data in any calendar quarter.

A Permittee's failure to take the appropriate response step when an excursion of a compliance monitoring parameter has occurred or failure to monitor or record the required compliance monitoring is a deviation.

(e) Any corrective actions or response steps taken as a result of each deviation must be clearly identified in such reports.

(f) The first report shall cover the period commencing on the date of issuance of this permit and ending on the last day of the reporting period.

(a) Eight (8) simple cycle, natural gas-fired combustion turbines, designated as units #1-#8, with a maximum heat input capacity of 1,272 mmBtu/hr each, a nominal output of 80 MW each, utilizing diesel fuel as a back-up fuel source, controlled by low-NOx combustors in conjunction with natural gas usage, controlled by wet-injection in conjunction with diesel fuel usage and exhausts to stacks designated as #1-#8.
(b) Two (2) Emergency diesel generators, designated as units #9 and #10, with a maximum heat input capacity of 17.21 mmBtu/hr each and exhausts to stacks designated as #9 and #10.
(c) One (1) emergency diesel fire pump, designated as unit #11, with a maximum heat input capacity of 1.6 mmBtu/hr and exhausts to a stack designated as #11.
(d) Four (4) diesel fuel storage tanks, designated as tanks #1-#4, with a maximum capacity of 519, 000 gallons per tank, a maximum volume of 69,400 ft3 per tank and exhausts to vents designated as #12-#15.

The information describing the source contained in this Section D.1 is descriptive information, and does not constitute federally enforceable conditions.

Emissions Limitation and Standards

D.1.1 Prevention of Significant Deterioration [326 IAC 2-2]

Pursuant to 326 IAC 2-2 (PSD), this new source is subject to the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration) for emissions of PM, PM_{10}, SO_2, CO, and NOx, Be and H_2SO_4, because the potential to emit for these pollutants exceed the PSD major "significant" thresholds. Therefore, the PSD provisions require that this new source be reviewed to ensure compliance with the National Ambient Air Quality Standard (NAAQS), the applicable PSD air quality increments, and the requirements to apply the Best Available Control Technology (BACT) for the affected pollutants.

D.1.2 Nitrogen Oxides (NOx) - Best Available Control Technology [326 IAC 2-2-3] for the eight (8) combustion turbines

Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review Requirements), the source shall comply to the following BACT:

(1) Use Dry Low-NO_X combustors in conjunction with natural gas;

(2) Use Wet-Injection in conjunction with diesel fuel;

(3) When burning natural gas, the NOx emission rate shall not exceed a one (1) hour average concentration of 15 ppmvd of NOx at 15 percent O_2 in conjunction with dry low-NOX combustors;

(4) When burning natural gas, the NOx emission rate shall not exceed 12 ppmvd of NOx per year based over twelve (12) consecutive months of operation at 15 percent O_2 in conjunction with dry low-NOX combustors;

(5) When burning diesel fuel, the NOx emission rate shall not exceed a one (1) hour average concentration of 42 ppmvd of NOx at 15 percent O_2 in conjunction with wet-injection;

(6) The total input of the natural gas fuel to the eight (8) combustion turbines shall be limited to 20,336 MMCF per twelve consecutive month period, rolled on a monthly basis. This usage limitation is equivalent to 426.0 tons of NOx per year. If diesel fuel oil is combusted during any portion of a twelve (12) consecutive month period, natural

gas usage shall be reduced such that NOx emissions for the eight (8) turbines do not exceed 732.8 tons per year for gas and oil firing combined, as determined by CEMS.

D.1.3 Sulfur Dioxide (SO_2) - Best Available Control Technology [326 IAC 2-2-3] for the eight (8) combustion turbines

Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review Requirements), the source shall comply to the following BACT:

(1) Use natural gas as the primary fuel for the combustion turbines;

(2) The sulfur content of the diesel fuel used by the combustion turbines shall not exceed 0.05 percent by weight; and

(3) Use only diesel fuel oil as a back-up fuel source. The total input of the diesel fuel to the eight (8) combustion turbines shall be limited to 34,000 kilo-gallons per twelve consecutive month period, rolled on a monthly basis. This usage limitation is equivalent to 116.0 tons of SO_2 per year and 392.0 tons of NOx per year.

D.1.4 Carbon Monoxide (CO) - Best Available Control Technology [326 IAC 2-2-3] for the eight (8) combustion turbines

Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review Requirements), the source shall comply to the following BACT:

(1) Combustion control maintaining the following emission limits:

(a) The CO emission rate shall not exceed a one (1) hour average concentration of 25 ppmvd of CO at 15 percent O_2 in conjunction with firing natural gas at operating loads above 50 percent; and
(b) The CO emission rate shall not exceed a one (1) hour average concentration of 20 ppmvd of CO at 15 percent O_2 in conjunction with firing diesel fuel at operating loads above 50 percent.

(2) Perform good combustion practices.

D.1.5 Volatile Organic Compounds (VOC) - Best Available Control Technology [326 IAC 8-1-6] for the eight (8) combustion turbines

Pursuant to 326 IAC 8-1-6 (General Reduction Requirements; new facilities), the source shall perform good combustion practices.

D.1.6 Particulate Matter (PM/PM_{10}) - Best Available Control Technology [326 IAC 2-2-3] for the eight (8) combustion turbines

Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review Requirements), the source shall comply to the following BACT:

(1) Natural gas as primary fuel;

(2) Limit diesel fuel as established under the SO_2 BACT analysis; and

(3) Perform good combustion practices.

D1.7 Startup/Shutdown Limits [40 CFR 52.21] [326 IAC 2-2]

(a) Startup is defined as the period of time from the initiation of combustion firing from a "cold start" operating condition to the attainment of steady-state operating condition.

(b) Shutdown is defined as that period of time from the initial lowering of the turbine output to the complete cessation of fuel combustion in the unit with the intent to shutdown to a "cold stop" condition.

(c) A startup/shutdown cycle is a pair of subsequent shutdown and startup events (i.e., one startup followed by one shutdown represents one startup/shutdown cycle).

(d) Pursuant to 326 IAC 2-2 (PSD Requirements), the Permittee shall meet the following startup and shutdown limits:

(1) The maximum number of startup/shutdown cycles shall not exceed 240 per 12 consecutive months period rolled on monthly basis as determined at the end of each calendar month. The duration of each startup/shutdown cycle shall not exceed one (1) hour.

(2) When firing natural gas
(A) The NO_X emissions per turbine shall not exceed:
(i) 20.7 lbs per each startup
(ii) 11.0 lbs per each shutdown

(B) The CO emissions per turbine shall not exceed:
(i) 65.5 lbs per each startup
(ii) 58.9 lbs per each shutdown

(3) When firing distillate oil:

(A) The NO_X emissions per turbine shall not exceed:
(i) 31.6 lbs per each startup
(ii) 17.5 lbs per each shutdown

(B) The CO emissions per turbine shall not exceed:
(i) 76.4 lbs per each startup
(ii) 65.5 lbs per each shutdown

D.1.8 Non-Criteria PSD Pollutants (Beryllium and H_2SO_4) - Best Available Control Technology [326 IAC 2-2-3] for the eight (8) combustion turbines
Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review Requirements), the source shall comply to the following BACT:

(1) Use natural gas as the primary fuel for the combustion turbines;

(2) The sulfur content of the diesel fuel used by the combustion turbines shall not exceed 0.05 percent by weight; and

(3) Perform good combustion practices.

D.1.9 Nitrogen Oxides (NOx) - Best Available Control Technology [326 IAC 2-2-3] for the two (2) emergency diesel generators
Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review Requirements), the source shall perform good combustion practices as BACT.

D.1.10 Sulfur Dioxide (SO_2) - Best Available Control Technology [326 IAC 2-2-3] for the two (2) emergency diesel generators
Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review Requirements), the source shall comply to the following BACT:

(1) Perform good combustion practices;

(2) The sulfur content of the diesel fuel used by the generators shall not exceed 0.05 percent by weight; and

(3) The total input of the diesel fuel to the generators shall be limited to 6,028 gallons per day and shall not exceed a total of 125,583 gallons per twelve consecutive month period, rolled on a monthly basis. This usage limitation is equivalent to 0.40 tons of SO_2 per year and 27.5 tons of NOx per year.

D.1.11 Carbon Monoxide (CO) - Best Available Control Technology [326 IAC 2-2-3] for the two (2) emergency diesel generators

Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review Requirements), the source shall perform good combustion practices as BACT.

D.1.12 Particulate Matter (PM/PM_{10}) - Best Available Control Technology [326 IAC 2-2-3] for the two (2) emergency diesel generators

Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review Requirements), the source shall comply to the following BACT:

(1) The limit of diesel fuel established under the SO_2 BACT analysis; and

(2) Perform good combustion practices.

D.1.13 Best Available Control Technology [326 IAC 2-2-3] for the emergency diesel fire pump

Pursuant to 326 IAC 2-2-3 (PSD - Control Technology Review Requirements), the source shall comply to the following BACT:

(1) Perform good combustion practices;

(2) The sulfur content of the diesel fuel used by the fire pump shall not exceed 0.05 percent by weight; and

(3) The total input of the diesel fuel to the fire pump shall be limited to 5,860 gallons per twelve consecutive month period, rolled on a monthly basis.

D.1.14 40 CFR Part 60, Subpart GG Applicability (Stationary Gas Turbines)

(a) The eight (8) combustion turbines are subject to 40 CFR Part 60, Subpart GG because the heat input at peak load is equal to or greater than 10.7 gigajoules per hour, based on the lower heating value of the fuel fired.

(a) Pursuant to 326 IAC 12-1 and 40 CFR 60, Subpart GG (Stationary Gas Turbines), the Permittee shall:

(1) limit nitrogen oxides emissions, as required by 40 CFR 60.332, to:

$$STD = 0.0075 \frac{(14.4)}{Y} + F,$$

where STD = allowable NO_x emissions (percent by volume at 15 percent oxygen on a dry basis).
Y = manufacturer's rated heat rate at manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peck load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt hour.
F = NO_x emission allowance for fuel-bound nitrogen as defined in paragraph (a)(3) of 40 CFR 60.332.

(2) limit sulfur dioxide emissions, as required by 40 CFR 60.333, to 0.015 percent by volume at 15 percent oxygen on a dry basis, or use natural gas fuel with a sulfur content less than or equal to 0.8 percent by weight.

D.1.15 40 CFR Part 60, Subpart Kb Applicability (Volatile Organic Storage Vessels)

Pursuant to 40 CFR Part 60, Subpart Kb, the Permittee shall notify the Administrator and the Office of Air Management within 30 days when the maximum true vapor pressure of the liquid exceeds the respective maximum true vapor pressure values for each volume range. (Available data on the storage temperature may be used to determine the maximum vapor pressure as determined in 40 CFR Part 60.117b(e)(1)-(3)).

D.1.16 New Source Toxics Control (326 IAC 2-1-3.4)

326 IAC 2-1-3.4 (New Source Toxics Rule) is not applicable because single HAP emissions are not greater than or equal to 10 tons per year per turbine and the combination HAPs' emissions are not greater than or equal to 25 tons per year per turbine.

D.1.17 326 IAC 7-1 (Sulfur Dioxide Emission Limitations)

Pursuant to 326 IAC 7-1.1-2, the sulfur dioxide emissions from the eight (8) turbines and the two (2) diesel generators, shall not exceed 0.5 pounds per million Btu for distillate oil combustion.

D.1.18 Carbon Monoxide Emission Limitations [326 IAC 9-1]

This source is subject to 326 IAC 9-1 because it is a stationary source of CO emissions commencing operation after March 21, 1972. There are no applicable CO emission limits, under this state rule, established for this type of operation.

D.1.19 Preventive Maintenance Plan [326 IAC 1-6-3]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for this facility and its control device.

Compliance Determination Requirements

D.1.20 Testing Requirements

(a) Pursuant to 326 IAC 3-5, the Permittee shall conduct a performance test on the combustion turbines' exhaust stacks (designated as #1-#8) in order to certify the continuous emission monitoring system for NOx and CO.

(b) IDEM may require compliance testing at any specific time when necessary to determine if the source is in compliance. If testing is required by IDEM, compliance with the SO2, NOx and CO limits specified in Condition D.1.2, D.1.3 and Condition D.1.4, shall be determined by a performance test conducted in accordance with Section C - Performance Testing.

D.1.21 326 IAC 7-1 [Sulfur Content Compliance]

(a) Pursuant to 326 IAC 7-2-1, the Permittee shall demonstrate that the fuel oil sulfur content does not exceed 0.5 pounds per million Btus by:

(1) Fuel sampling and analysis data shall be collected pursuant to procedures specified in 326 IAC 3-7-4 for oil combustion and shall be determined by using a calendar month average sulfur dioxide emission rate in pounds per million Btus unless a shorter averaging time or alternate methodology is specified under 326 IAC 7-2. Analyzing the oil sample to determine the sulfur content of the oil via the procedures in 40 CFR 60, Appendix A, Method 19.

(A) Oil samples may be collected from the fuel tank immediately after the fuel tank is filled and before any oil is combusted; and

(B) If a partially empty fuel tank is refilled, a new sample and analysis would be required upon filling; or

(2) Compliance may also be determined by conducting a stack test for sulfur dioxide emissions from the eight (8) combustion turbines, using 40 CFR 60, Appendix A, Method 6 in accordance with the procedures in 326 IAC 3-6, or

(3) Upon written notification of a facility owner or operator to the department, continuous emission monitoring data collected and reported pursuant to 326 IAC 3-5 may be used as the means for determining compliance.

(b) A determination of noncompliance pursuant to either of the methods specified in (1), (2) or (3) above shall not be refuted by evidence of compliance pursuant to the other method.

Compliance Monitoring Requirements

D.1.22 40 CFR Part 60, Subpart GG Compliance Requirements (Stationary Gas Turbines)

Pursuant to 40 CFR Part 60, Subpart GG (Stationary Gas Turbines), the Permittee shall monitor the nitrogen and sulfur content of the natural gas on a daily basis as follows:

(a) Monitor the sulfur content of the natural gas being fired in the turbine by ASTM methods D 1072-80, D 3031-81, D 4084-82, or D 3246-81. The applicable ranges of some ASTM methods mentioned are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of the dilution ratio) may be used, subject to the approval of the Administrator.

(b) Monitor the nitrogen content of the natural gas being fired in the turbine by using analytical methods and procedures that are accurate to within 5 percent and are approved by the Administrator.

The analyses required above may be performed by the owner or operator, a service contractor retained by the owner or operator, the fuel vendor or any other qualified agency.

Owners, operators or fuel vendors may develop custom schedules for determination of the nitrogen and sulfur content based on the design and operation of the affected facility and the characteristics of the fuel supply. These custom schedules shall be substantiated with data and must be approved by the Administrator before they can be used to comply with the above requirements.

D.1.23 Continuous Emission Monitoring System (CEMS) [326 IAC 3-5]

(a) Pursuant to 326 IAC 3-5-1(d)(1), the owner or operator of a new source with an emission limitation or permit requirement established under 326 IAC 2-1-3(i)(8) shall be required to install a continuous emissions monitoring system or alternative monitoring plan as allowed under the Clean Air Act and 326 IAC 3-5.

(b) For monitoring NOx and CO, the Permittee shall install, calibrate, certify, operate and maintain a continuous monitoring system for stacks designated as #1-#8 in accordance with 326 IAC 3-5-2 and 3-5-3.

(1) The continuous emission monitoring system (CEMS) shall measure NO_x and CO emissions rates in pounds per hour and parts per million (ppmvd). The use of CEMS to measure and record the NOx and CO hourly limits, is sufficient to demonstrate compliance with the 15 ppm NOx limit and 25 ppm CO limit on natural gas as well as with 44 ppm NOx limit and 20 ppm CO limit on diesel fuel. To demonstrate compliance with the 12 parts per million NOx annual limit, the source shall average the parts per million over a twelve (12) consecutive month period.

(2) The CEMS shall be in operation at all times when the eight (8) turbines are in operation.

(3) The Permittee shall submit to IDEM, OAM, within ninety (90) days after monitor installation, a complete written continuous monitoring standard operating procedure (SOP), in accordance with the requirements of 326 IAC 3-5-4.

(4) The Permittee shall record the output of the system and shall perform the required record keeping, pursuant to 326 IAC 3-5-6, and reporting, pursuant to 326 IAC 3-5-7.

(c) The Permittee shall follow parametric monitoring requirements for determining SO2 emissions contained in the "*Optional SO_2 Emissions Data Protocol for Gas-Fired and Oil-Fired Units"* in lieu of continue monitoring emissions monitors (CEMS).

(1) Pursuant to the procedures contained in 40 CFR 75.20, the Permittee shall complete all testing requirements to certify the use of the *"Optional SO_2 Emissions Data Protocol for Gas-Fired and Oil-Fired Units"* protocol.

(2) The Permittee shall apply to IDEM for initial certification to use the *"Optional SO_2 Emissions Data Protocol for Gas-Fired and Oil-Fired Units"* protocol, no later than 45 days after the compliance of all certification tests.

(3) All certification and compliance methods shall be conducted in accordance with the procedures outlined in 40 CFR Part 75, Appendix D.

Record Keeping and Reporting Requirements [326 IAC 2-1-3]

D.1.24 Record Keeping Requirements

(a) To document compliance with Condition D.1.2, D.1.3, D.1.4, the Permittee shall maintain records of the following:

(1) amount of diesel fuel combusted (in gallons) per turbine during each month;

(2) amount of natural gas combusted (in MMCF) per turbine during each month;

(3) the percent sulfur content of the diesel fuel; and

(4) the heat input capacity of each turbine.

(b) To document compliance with Condition D.1.2 and D.1.4, the Permittee shall record the emission rates of NOx and CO in pounds per hour and parts per million (ppmvd) based on a hourly and monthly average. The source shall perform the required record keeping, pursuant to 326 IAC 3-5-6, and reporting, pursuant to 326 IAC 3-5-7.

(c) To document compliance with Condition D.1.7, the Permittee shall maintain records of the following:

(1) The type of operation (startup or shutdown) with supporting operational data

(2) The total number of minutes for startup and shutdown per 24-hour period per turbine

(3) The fuel flow meter data and Method 19 calculations corresponding to each startup and shutdown period.

(d) To document compliance with Condition D.1.10 and D.1.13, the Permittee shall maintain records of the following:

(1) amount of diesel fuel combusted per unit (in gallons) during each month; and

(2) the percent sulfur content of diesel fuel.

(e) To document compliance with Condition D.1.15, the Permittee shall:

(1) maintain the records of the volatile organic liquid (VOL) stored;

(2) the period of storage;

(3) the maximum true vapor pressure of the volatile organic liquid (VOL) during the respective storage period; and

(4) shall keep readily accessible records showing the dimension of the storage vessel and an analysis showing the capacity of the storage vessel.

(f) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.1.25 Reporting Requirements

(a) The Permittee shall submit a quarterly excess emissions report, if applicable, based on the continuous emissions monitor (CEM) data for NO_x and CO, pursuant to 326 IAC 3-5-7. These reports shall be submitted within thirty (30) calendar days following the end of each calendar quarter and in accordance with condition C.11 - General Reporting Requirements of this permit.

(b) Pursuant to 326 IAC 7-2-1, owners or operators of sources or facilities subject to 326 IAC 7-1.2 or 326 IAC 7-4, shall submit to the Commissioner the following reports based on fuel sampling and analysis data in accordance with procedures specified under 326 IAC 3-3:

(1) Shall submit reports of calendar month average sulfur content, heat content, fuel consumption, and sulfur dioxide emission rate in pounds per million Btus upon request.

(c) A quarterly summary of the information to document compliance with Condition D.1.2, D.1.3, D.1.10 and D.1.13 shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported.

(d) A quarterly summary of the total number of startup and shutdown hours of operation and emissions corresponding to startup and shutdown to document compliance with Condition D.1.7, shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported.

MALFUNCTION REPORT

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR MANAGEMENT
FAX NUMBER - 317 233-5967

This form should only be used to report malfunctions applicable to Rule 326 IAC 1-6 and to qualify for the exemption under 326 IAC 1-6-4.

THIS FACILITY MEETS THE APPLICABILITY REQUIREMENTS BECAUSE: IT HAS POTENTIAL TO EMIT 25 LBS/HR PARTICULATES ?_____, 100 LBS/HR VOC ?_____, 100 LBS/HR SULFUR DIOXIDE ?_____ OR 2000 LBS/HR OF ANY OTHER POLLUTANT ?_____ EMISSIONS FROM MALFUNCTIONING CONTROL EQUIPMENT OR PROCESS EQUIPMENT CAUSED EMISSIONS IN EXCESS OF APPLICABLE LIMITATION _____.

THIS MALFUNCTION RESULTED IN A VIOLATION OF: 326 IAC _____ OR, PERMIT CONDITION # _____ AND/OR PERMIT LIMIT OF _____

THIS INCIDENT MEETS THE DEFINITION OF 'MALFUNCTION' AS LISTED ON REVERSE SIDE ? Y N

THIS MALFUNCTION IS OR WILL BE LONGER THAN THE ONE (1) HOUR REPORTING REQUIREMENT ? Y N

COMPANY: Vermillion Generating Station PHONE NO. (704)-382-2520

LOCATION: Eugene Township/Vermillion
PERMIT NO. 165-10476 AFS PLANT ID: 165-00022 AFS POINT ID: _____ INSP: _____
CONTROL/PROCESS DEVICE WHICH MALFUNCTIONED AND REASON:
_____

DATE/TIME MALFUNCTION STARTED: _____/_____/ 20____ _____ AM / PM

ESTIMATED HOURS OF OPERATION WITH MALFUNCTION CONDITION:_____

DATE/TIME CONTROL EQUIPMENT BACK-IN SERVICE_____/_____/ 20____ _____ AM/PM

TYPE OF POLLUTANTS EMITTED: TSP, PM-10, SO2, VOC, OTHER:_____
ESTIMATED AMOUNT OF POLLUTANT MITTED DURING MALFUNCTION: _____
MEASURES TAKEN TO MINIMIZE EMISSIONS:_____
REASONS WHY FACILITY CANNOT BE SHUTDOWN DURING REPAIRS:

CONTINUED OPERATION REQUIRED TO PROVIDE ESSENTIAL* SERVICES: _____
CONTINUED OPERATION NECESSARY TO PREVENT INJURY TO PERSONS:_____
CONTINUED OPERATION NECESSARY TO PREVENT SEVERE DAMAGE TO EQUIPMENT:_____
INTERIM CONTROL MEASURES: (IF APPLICABLE)
_____
MALFUNCTION REPORTED BY:
_____TITLE:_____
(SIGNATURE IF FAXED)

MALFUNCTION RECORDED BY: _____DATE:_____TIME:_____

FAX NUMBER - 317 233-5967

Please note - This form should only be used to report malfunctions applicable to Rule 326 IAC 1-6 and to qualify for the exemption under 326 IAC 1-6-4.

326 IAC 1-6-1 Applicability of rule

Sec. 1. The requirements of this rule (326 IAC 1-6) shall apply to the owner or operator of any facility which has the potential to emit twenty-five (25) pounds per hour of particulates, one hundred (100) pounds per hour of volatile organic compounds or SO2, or two thousand (2,000) pounds per hour of any other pollutant; or to the owner or operator of any facility with emission control equipment which suffers a malfunction that causes emissions in excess of the applicable limitation.

326 IAC 1-2-39"Malfunction" definition

Sec. 39. Any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. (Air Pollution Control Board; 326 IAC 1-2-39; filed Mar 10, 1988, 1:20 p.m. : 11 IR 2373)

***Essential services** are interpreted to mean those operations, such as, the providing of electricity by power plants. Continued operation solely for the economic benefit of the owner or operator shall not be sufficient reason why a facility cannot be shutdown during a control equipment shutdown.

If this item is checked on the front, please explain rationale:

_____

_____

Indiana Department of Environmental Management
Office of Air Management
Compliance Data Section

Quarterly Report

Company Name: Duke Energy Vermillion, LLC
Location: CR 300 N and SR 63, Eugene Township, Indiana 47928
Permit No.: 165-10476-00022
Source: Eight (8) combustion turbines
Pollutant: NOx
Limit: 20,336 MMCF per twelve (12) consecutive month period (equivalent to 426.0 tons of NOx per twelve (12) consecutive month period)

Year: _____

Month	MMCF Usage (gallons/month)	MMCF Usage for previous month(s) (gallons)	MMCF Usage for twelve month period (gallons)

9 No deviation occurred in this quarter.

9 Deviation/s occurred in this quarter.
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

Indiana Department of Environmental Management
Office of Air Management
Compliance Data Section

Quarterly Report

Company Name: Duke Energy Vermillion, LLC
Location: CR 300 N and SR 63, Eugene Township, Indiana 47928
Permit No.: 165-10476-00022
Source: Eight (8) combustion turbines
Pollutant: SO_2
Limit: 34,000 kilo-gallons per twelve (12) consecutive month period (equivalent to 116.0 tons of SO_2 per twelve (12) consecutive month period)

Year: _____

Month	Diesel Fuel Oil Usage (gallons/month)	Diesel Fuel Oil Usage for previous month(s) (gallons)	Diesel Fuel Oil Usage for twelve month period (gallons)

9 No deviation occurred in this quarter.

9 Deviation/s occurred in this quarter.
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

Indiana Department of Environmental Management
Office of Air Management
Compliance Data Section

Quarterly Report

Company Name: Duke Energy Vermillion, LLC
Location: CR 300 N and SR 63, Eugene Township, Indiana 47928
Permit No.: 165-10476-00022
Source: Two (2) emergency diesel generators
Pollutant: SO_2
Limit: 6,028 gallons per day and 125,583 gallons per twelve (12) consecutive month period

Year: _____

Month	Diesel Fuel Oil Usage (gallons/day)	Diesel Fuel Oil Usage (gallons/month)	Diesel Fuel Oil Usage for previous month(s) (gallons)	Diesel Fuel Oil Usage for twelve month period (gallons)

9 No deviation occurred in this quarter.

9 Deviation/s occurred in this quarter.
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

Indiana Department of Environmental Management
Office of Air Management
Compliance Data Section

Quarterly Report

Company Name: Duke Energy Vermillion, LLC
Location: CR 300 N and SR 63, Eugene Township, Indiana 47928
Permit No.: 165-10476-00022
Source: One (1) emergency diesel fire pump
Pollutant: SO_2
Limit: 5,860 gallons per twelve (12) consecutive month period

Year: _____

Month	Diesel Fuel Oil Usage (gallons/month)	Diesel Fuel Oil Usage for previous month(s) (gallons)	Diesel Fuel Oil Usage for twelve month period (gallons)

9 No deviation occurred in this quarter.

9 Deviation/s occurred in this quarter.
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

Indiana Department of Environmental Management
Office of Air Quality Compliance Data Section
and Vermillion County Air Pollution Control

Quarterly Report

Company Name: Duke Energy Vermillion Generating Station
Location: CR 300N and SR 63 Eugene Township, IN 47928
Permit No.: CP-083-15845-00022

Source: Eight (8) natural gas combustion turbines operating in simple cycle
Limit: one (1) hour per startup/shutdown, and 240 startups/shutdowns per 12 consecutive month period.

Month:_____ Year _____
Total hours from previous month(s) Startup_____ Shutdown_____
Total hours per year for startup and shutdown for 12 month period_____

	Startup / Shutdown		**Startup / Shutdown**

Day/ Turbine	1	2	3	4	5	6	7	8	Day/ Turbine	1	2	3	4	5	6	7	8
1									17								
2									18								
3									19								
4									20								
5									21								
6									22								
7									23								
8									24								
9									25								
10									26								
11									27								
12									28								
13									29								
14									30								
15									31								
16									Total								

9 No deviation occurred in this month

9 Deviation/s occurred in this month.
9 Deviation has been reported on:

Submitted by: _____

Title/Position: _____

Signature: _____

Date: _____

Phone: _____

Indiana Department of Environmental Management
Office of Air Quality Compliance Data Section
and Vermillion County Air Pollution Control
Quarterly Report

Company Name: Duke Energy Vermillion Generating Station
Location: CR 300N and SR 63 Eugene Township, IN 47928
Permit No.: CP-083-15845-00022
Source: Eight (8) natural gas combustion turbines operating in simple cycle
Limits: Nat. Gas per turbine: NOx- 20.7 lb/startup &11.0 lb/shutdown; CO- 65.5 lb/startup & 58.9 lb/ shutdown
Diesel per turbine: NOx- 31.6 lb/ startup & 17.5 lb/ shutdown; CO- 76.4 lb/ startup &65.5 lb/ shutdown

Month:_____ Year _____

Total emissions from previous month(s) Startup_____ Shutdown_____

Total emissions per year for startup and shutdown for 12 month period_____

	Startup / Shutdown		**Startup / Shutdown**

Day/ Turbine	1	2	3	4	5	6	7	8	Day/ Turbine	1	2	3	4	5	6	7	8
1									17								
2									18								
3									19								
4									20								
5									21								
6									22								
7									23								
8									24								
9									25								
10									26								
11									27								
12									28								
13									29								
14									30								
15									31								
16									Total								

9 No deviation occurred in this month

9 Deviation/s occurred in this month.

9 Deviation has been reported on:

Submitted by: _____

Title/Position: _____

Signature: _____

Date: _____

Phone: _____

Indiana Department of Environmental Management
Office of Air Management

Technical Support Document (TSD) for a Significant Source Modification of Prevention of Significant Deterioration Permit

Source Background and Description

Source Name:	Duke Energy - Vermillion Generating Station
Source Location:	CR 300 n and SR 63, Eugene Township, IN 47928
County:	Vermillion
Construction Permit No.:	CP-165-15845-00022
SIC Code:	4911
Permit Reviewer:	Walter Habeeb

On April 4, 2002, Duke Energy Vermillion IN, LLC submitted an application to the Office of Air Quality (OAQ) requesting a modification to Construction Permit PSD-165-10476-00022, issued on July 7 1999. OAQ has reviewed this application which relates to the startup and shutdown emissions limits of their 640 MW merchant power plant permitted under Construction Permit PSD-165-10476-00022.

This review is for modification / inclusion of:

(a) The startup and shutdown requirements of the eight (8) simple cycle natural gas fired combustion turbines permitted under PSD 165-10476-00022.

(b) Defining the maximum number of startup and shutdown cycles: That the number of startup and shutdown cycles shall not exceed 240 per 12 month consecutive period, and that a startup or shutdown period shall not exceed one (1) hour.

Under the existing permit, the combustion turbine units are permitted to operate 2500 hours per 12 consecutive month period which included startup and shutdown time. However, it did not define startup/shutdown emission limits, the maximum number per year or the time period for a startup or shutdown. Therefore, these parameters are identified in this permit.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (^{0}F)
1-8	Eight (8) turbines	90	14.75	1,648,810	929

Recommendation

The staff recommends to the Commissioner that the startup and shutdown parameters in (a) and (b) above be approved. This recommendation is based on the following facts and conditions:

Information, unless otherwise stated, used in this review was derived from the application and

additional information submitted by the applicant.

An application for the purposes of this review was received on April 9, 2002, with additional information received on May 16, 2002 and on September 19, 2002.

Emissions Calculations

See Appendix A (Startup and Shutdown Emissions only) for detailed calculations (1 page).

Emissions for the turbines are based on the site area temperature when operating (for natural gas based on 57 ^{o}F and diesel fuel oil based on -23 ^{o}F) and worst case operating conditions (information supplied by the General Electric vendor). Compliance shall be demonstrated by use of a continuous monitoring system for CO and NOx.

Potential To Emit of Eight (8) Combustion Turbines During Startup and Shutdown

The PTE limits from the startup and shutdown of the permitted turbines are:

(a) NOx potential to emit - Worst case emissions are based on using diesel fuel oil (-23 F) for all startup and shutdowns. 49.1 lbs of NOx per startup/shutdown cycle per turbine x 8 turbines x 240 startup/shutdown cycles per year x 1 ton/2000 lbs = 47.14 TPY of NOx.

(b) CO potential to emit - Worst case emissions are based on using diesel fuel (-23 F) for all startup and shutdowns. 141.9 lbs of CO per startup/shutdown cycle per turbine x 8 turbines x 240 startup/shutdown cycles per year x 1 ton/2000 lbs = 136.22 TPY of CO.

(c) The PTE emissions identified here for startup and shutdown of the turbines have already been included in the limited PTE of existing permit and are not additional emissions.

Pollutant	Potential Emissions (tons/year)
Particulate Matter (PM)	N/A
Particulate Matter (PM10)	N/A
Sulfur Dioxide (SO_2)	N/A
Volatile Organic Compounds (VOC)	N/A
Carbon Monoxide (CO)	136.22
Nitrogen Oxides (NO_x)	47.14
Single Hazardous Air Pollutant (HAP)	N/A
Combination of HAPs	N/A

Justification for Modification

This modification is to revise an existing PSD permit. Therefore, this modification is being performed pursuant to 326 IAC 2-2-2 (PSD Requirements). This modification is therefore subject to public notice and will have a 30 day public comment period.

State Rule Applicability

326 IAC 2-2 (Prevention of Significant Deterioration):

This modification is only for CO and NOx emissions from the startup and shutdown of the existing simple cycle combustion turbines.

This source is subject to the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration) for emissions of CO and NO_X because the potential to emit for these pollutants exceed the PSD major significant thresholds, as specified in 326 IAC 2-2-1. Therefore, the PSD provisions require that this source be reviewed to ensure compliance with the National Ambient Air Quality Standard (NAAQS), the applicable PSD air quality increments, and the requirements to apply the Best Available Control Technology (BACT) for the affected pollutants.

A BACT Analysis search for startup and shutdown only was conducted for the major source PSD pollutants for both natural gas and diesel fuel firing on a case-by-case basis by reviewing similar process controls and new available technologies. The search revealed there is currently no known BACT specifically for startup and shutdown of combustion turbines. Therefore, the current BACT for CO and NOx of these units under permit 165-10476-00022 will be accepted as BACT for startup and shutdown.

The following emission limitations, derived from vendor supplied data, shall apply to the proposed source:

Pollutant	Control - Comb Turbines Firing Nat Gas	Control- Comb Turbines Firing Diesel Fuel	Startup/ Shutdown	Limit (lb per startup/ shutdown) per turbine
NOx	**Dry Low NOX Combustors & Limited Hours of Operation**	**Water Injection & Limited Hr of Operation**	**Limited to 1 hr per startup /shutdown cycle**	**NG** **20.7 lb/startup** **11.0 lb/shutdown** **Diesel** **31.6 lb/startup** **17.5 lb/shutdown**
CO	**Good Comb Design & Limited Hr of Operation**	**Good Comb Design & Limited Hr of Operation**	**Limited to 1 hr per startup /shutdown cycle**	**NG** **65.5 lb/startup** **58.9 lb / shutdown** **Diesel** **76.4 lb/ startup** **65.5 lb/shutdown**

Air Modeling Analysis

PTE levels in the original permit (165-10476-00022) were 549.9 TPY for CO and 847.5 TPY for NOx. An Air Quality Analysis for this permit was completed and based on these values the air quality was found to be acceptable. Subsequently, emissions levels were modified to reflect

new lower emission levels which also included 240 (1hour) startup/shutdowns per year. The new permitted emissions levels are 547.6 TPY for CO and 761.6 TPY for NOx. Because the new emission levels include startup/shutdown emissions and are lower than when the Air Quality Analysis was done, a new Air Quality Analysis will not be required for this proposal.

Proposed Permit Changes

The permittee has requested startup and shutdown limitations for the combustion turbines be added to the existing permit. The following conditions (shown in bold) have been added to the permit. Conditions shown with strikeout have been deleted. Subsequent permit conditions were renumbered.

D.1.7 Startup/Shutdown Limits [40 CFR 52.21] [326 IAC 2-2]

(a) Startup is defined as the period of time from the initiation of combustion firing from a "cold start" operating condition to the attainment of steady-state operating condition.

(b) Shutdown is defined as that period of time from the initial lowering of the turbine output to the complete cessation of fuel combustion in the unit with the intent to shutdown to a "cold stop" condition.

(c) A startup/shutdown cycle is a pair of subsequent shutdown and startup events (i.e., one startup followed by one shutdown represents one startup/shutdown cycle).

(d) Pursuant to 326 IAC 2-2 (PSD Requirements), the Permittee shall meet the following startup and shutdown limits:

(1) The maximum number of startup/shutdown cycles shall not exceed 240 per 12 consecutive months period rolled on monthly basis as determined at the end of each calendar month. The duration of each startup/shutdown cycle shall not exceed one (1) hour.

(2) When firing natural gas:

(A) The NO_X emissions per turbine shall not exceed:
(i) 20.7 lbs per each startup
(ii) 11.0 lbs per each shutdown

(B) The CO emissions per turbine shall not exceed:
(i) 65.5 lbs per each startup
(ii) 58.9 lbs per each shutdown

(3) When firing distillate oil:

(A) The NO_x emissions per turbine shall not exceed:
(i) 31.6 lbs per each startup
(ii) 17.5 lbs per each shutdown

(B) The CO emissions per turbine shall not exceed:
(i) 76.4 lbs per each startup
(ii) 65.5 per each shutdown

D.1.23 Continuous Emissions Monitoring System (CEMS) [326 IAC 3-5]

(b) For monitoring NOx and CO, the Permittee shall use a calibrated, certified and maintained continuous emissions monitoring system for stacks designated as #1-#8 in accordance with 326 IAC 3-5-2 and 3-5-3.

D.1.24 Record Keeping Requirements

(c) To document compliance with Condition D.1.7, the Permittee shall maintain records of the following:

(1) The type of operation (startup or shutdown) with supporting operational data

(2) The total number of minutes for startup and shutdown per 24-hour period per turbine

(3) The fuel flow meter data and Method 19 calculations corresponding to each startup and shutdown period.

(~~c~~**d**)

(~~d~~**e**)

D.1.25 Reporting Requirements

(**d) A quarterly summary of the total number of startup and shutdown hours of operation and emissions corresponding to startup and shutdown to document compliance with Condition D.1.7, shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported.**

Conclusion

The startup and shutdown operation of this 640 MW simple cycle merchant electric generating plant shall be subject to the conditions of the attached proposed Prevention of Significant Deterioration Permit No.165-15845-00022.

Indiana Department of Environmental Management
Office of Air Quality Compliance Data Section
and Vermillion County Air Pollution Control
Quarterly Report

Company Name: Duke Energy Vermillion Generating Station
Location: CR 300N and SR 63 Eugene Township, IN 47928
Permit No.: CP-083-15845-00022
Source: Eight (8) natural gas combustion turbines operating in simple cycle
Limit: 240 hour startups/shutdowns per 12 consecutive month period.

Month:_____ Year _____

Total from previous month(s) Startup_____ Shutdown_____

Total hours per year for startup and shutdown for 12 month period_____

	Startup / Shutdown									Startup / Shutdown							
Day/ Turbine	1	2	3	4	5	6	7	8	Day/ Turbine	1	2	3	4	5	6	7	8
1									17								
2									18								
3									19								
4									20								
5									21								
6									22								
7									23								
8									24								
9									25								
10									26								
11									27								
12									28								
13									29								
14									30								
15									31								
16									Total								

9 No deviation occurred in this month

9 Deviation/s occurred in this month.

9 Deviation has been reported on:

Submitted by: _____

Title/Position: _____

Signature: _____

Date: _____

Phone: _____

Indiana Department of Environmental Management
Office of Air Quality Compliance Data Section
and Vermillion County Air Pollution Control
Quarterly Report

Company Name: Duke Energy Vermillion Generating Station
Location: CR 300N and SR 63 Eugene Township, IN 47928
Permit No.: CP-083-15845-00022
Source: Eight (8) natural gas combustion turbines operating in simple cycle
Limit: Nat. Gas per turbine: NOx- 20.7 lb/startup &11.0 lb/shutdown; CO- 65.5 lb/startup & 58.9 lb/ shutdown
Diesel per turbine: NOx- 31.6 lb/ startup & 17.5 lb/ shutdown; CO- 76.4 lb/ startup &65.5 lb/ shutdown

Month:_____ Year _____

Total from previous month(s) Startup_____ Shutdown_____

Total hours per year for startup and shutdown for 12 month period_____

	Startup / Shutdown									Startup / Shutdown							
Day/ Turbine	1	2	3	4	5	6	7	8	Day/ Turbine	1	2	3	4	5	6	7	8
1									17								
2									18								
3									19								
4									20								
5									21								
6									22								
7									23								
8									24								
9									25								
10									26								
11									27								
12									28								
13									29								
14									30								
15									31								
16									Total								

9 No deviation occurred in this month **9** Deviation/s occurred in this month.

9 Deviation has been reported on:

Submitted by: _____

Title/Position: _____

Signature: _____

Date: _____

Phone: _____

Company Name: Duke Energy Vermillion, LLC
Address CR300 N and SR 63, Eugne Township, Indiana 47928
Permit number: 165-15845-00022
Permit Reviewer: Walter Habeeb

Appendix A

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Startup/Shutdown Emissions

Simple Cycle Operation

Estimated max number of startups/shutdown for natural gas per year	192
Estimated max number of startups/shutdown for diesel fuel per year	48

Natural Gas

Emissions from Simple Cycle Operation				
Pollutant	Startup Emission (lb/startup)	Shutdown Emission (lb/shutdown)	Emission Rate/Turbine (tons/yr)	Total Emission Rate (TPY) 8 Turbines
NO_X	20.7	11	3.04	24.35
CO	65.5	17.5	7.97	63.74

Diesel Fuel

Emissions from Simple Cycle Operation				
Pollutant	Startup Emission (lb/startup)	Shutdown Emission (lb/shutdown)	Emission Rate/Turbine (tons/yr)	Total Emission Rate (TPY) 8 Turbines
NO_X	31.6	17.5	1.18	9.43
CO	76.4	65.5	3.41	27.24

Total Emissions Based on 192 st/sd on Nat. Gas and 48 st/sd on Diesel Fuel per year.

Pollutant	TPY 8 Turbines	
NOx	33.76	
CO	91.04	

Appendix B

BEST AVAILABLE CONTROL TECHNOLOGY (BACT) REVIEW

Source Name:	Duke Energy B Vermillion Generating Station, LLC
Source Location:	CR 300N and SR 63, Eugene Township, Indiana 479287
County:	Vermillion
Construction Permit No.:	165-15845-00022
SIC Code:	4911
Permit Reviewer:	Walter Habeeb

The Office of Air Quality (OAQ) has preformed the following federal BACT review for the proposed electrical power generation plant to be owned and operated by Duke Energy B Vermillion Generating Station LLC (Vermillion), located in Eugene Township, Indiana. This review was preformed for the eight natural gas / diesel fuel -fired combustion turbines.

The source is located in Vermillion County, which has been designated as attainment or unclassifiable for PM/PM_{10}, NO_X, CO, SO_2, and VOC. Therefore, these pollutants were reviewed pursuant to the PSD Program (326 IAC 2-2 and 40 CFR 52.21). NO_X and CO are subject to BACT review because the pollutant emissions are above PSD significant threshold levels stated in 326 IAC 2-2-1. BACT is an emission limitation based on the maximum degree of reduction of each pollutant subject to the PSD requirements. In accordance with the *ATop-Down@ Best Available Control Technology Guidance Document* outline in the 1990 draft USEPA *New Source Review Workshop Manual*, this BACT analysis takes into account the energy, environment, and economic impacts on the source. These reductions may be determined through the application of available control technologies, process design, and/or operational limitations. Such reductions are necessary to demonstrate that the emissions remaining after application of BACT will not cause or contribute to air pollution, thereby protecting public health and the environment.

Emission Units and Pollution Control Equipment

Eight (8) simple cycle, natural gas-fired combustion turbines, designated as units #1-#8, with a maximum heat input capacity of 1,272 MMBtu/hr each, a nominal output of 80 MW each, utilizing diesel fuel as a back-up fuel source, controlled by low-NOx combustors in conjunction with natural gas usage, controlled by wet-injection in conjunction with diesel fuel usage and exhausts to stacks designated as #1-#8.

(1) NO_X BACT Review

Nitrogen oxide formation during combustion consists of three types, thermal NO_X, prompt NO_X, and fuel NO_X. The principal mechanism of NO_X formation during combustion is thermal NO_X. The thermal NO_X mechanism occurs through the thermal dissociation and subsequent reaction of nitrogen and oxygen molecules in the combustion air. Most NO_X formed through the thermal NO_X is affected by three factors: oxygen concentration, peak temperature, and time of exposure at peak temperature. As these factors increase, NO_X emission levels increase. The emission trends due to changes in these factors are fairly consistent for all types of natural gas-fired turbines. Emission levels vary considerably with the type and size of combustor and with operating conditions (i.e. combustion air temperature, volumetric heat release rate, load, and excess oxygen level). The second mechanism of NO_X formation, prompt NO_X, occurs through early reactions of nitrogen molecules in the combustion air and hydrocarbon radicals from the fuel. Prompt NO_X, reactions occur within the flame and are typically negligible when compared to the amount on NO_X formed through the thermal NO_X mechanism. The final mechanism of NO_X formation, fuel NO_X, stems from the evolution and reaction of fuel-bonded nitrogen compounds

with oxygen. Characteristically natural gas contains low fuel nitrogen content, therefore, NO_X formation through the fuel NO_X mechanism is insignificant when firing natural gas.

Existing Controls
Water/steam injection and Low NOx combustors are existing technologies that are in use on the combustion turbines. The Dry Low-NOx combustors used by the source, when firing natural gas, achieve NO_X emissions levels of 9 ppmvd corrected to 15% O_2. However diesel fuel cannot be premixed with air as easily as natural gas. For this reason, the source employs the use of water injection with a NO_X emission level of 42 ppmvd corrected to 15% O_2, in conjunction with firing diesel fuel.

Existing BACT Emission Limitations **B** The EPA database system, RBLC provides emission limit data for industrial processes throughout the United States. The following table represents entries in the RBLC of an operation similar to Duke Energy - Vermillion.

Company	Facility	Throughput (per Turbine)	NOx Emission (LB) (Natural Gas)	NOx Emission (LB) (Diesel Fuel)	Control Description
Proposed Duke Knox II	Turbines (8)	1272.0 MMBtu/hr	Startup - 20.7 Shutdown - 11.0	Startup - 31.6 Shutdown-17.5	Dry Low NOx Combustor (Natural Gas) Water Injection (Diesel Fuel)

Discussion
BACT for NOx for the existing combustion turbines when operating on natural gas is dry low NOx combustors and the use of steam injection when operating on diesel fuel. There is currently no known BACT technology specifically for starup and stutdown of combustion turbines. Therefore, the current BACT technology in use will be accepted as NOx BACT for startup and stutdown.

Conclusion
Based on the information presented above, the NO_X BACT for the proposed facility will be the use of natural gas as a primary fuel in conjunction with dry low NO_X combustors and an operational limitation of 2000 hours per year firing natural gas.

The NO_X BACT for the combustion turbine when firing diesel fuel shall be the use of steam injection as NO_X control and an operational limitation of 500 hours per year firing distillate oil.

During periods of startup/shutdown the NO_X emission from the combustion turbine shall not exceed 20.7 pounds of NOx per startup and 11 pounds per shutdown when firing natural gas. Each combustion turbine shall not exceed 31.6 pounds per startup and 17.5 pounds per shutdown when firing diesel fuel. Also, the source will be limited to 240 startup/shutdown per year. The time for each startup/shutdown shall not exceed one (1) hour.

(2) BACT Review for CO

The carbon monoxide emissions from combustion turbines are a result of incomplete combustion of natural gas. Improperly tuned turbines operating at off design levels decrease combustion efficiency resulting in increased CO emissions. The control measures taken to decrease the formation of NO_X during combustion may inhibit complete combustion, which could result in an increase of CO emissions. Lowering combustion temperature through premixed fuel combustion can be counterproductive with regard to CO emissions. However, improved air/fuel mixing inherent to newer combustor design and control systems limits the impact of fuel staging on CO emissions.

Existing BACT Emission Limitations **B** The EPA database system, RBLC provides emission limit data for industrial processes throughout the United States. The following table represents entries in the RBLC of an operation similar to Duke Energy - Vermillion.

Company	Facility	Throughput (per Turbine)	CO Emission (LB) (Natural Gas)	CO Emission (LB) (Diesel Fuel)	Control Description
Proposed Duke Knox II	Turbines (8)	1272.0 MMBtu/hr	Startup - 65.5 Shutdown - 58.9	Startup **B** 76.4 Shutdown-65.5	Good Combustion Practice (Natural Gas & Diesel Fuel)

Discussion
BACT for CO for the existing combustion turbines when operating on natural gas/diesel fuel is:

(1) Combustion control maintaining the following emissions limits:
   (a) The CO emissions rate shall not exceed a one (1) hour average concentration of 25 ppmvd of CO at 15 percent O_2 in conjunction with firing natural gas at operating loads above 50 percent; and
   (b) The CO emission rate shall nor exceed a one (1) hour average concentration of 20 ppmvd of CO at 15 percent O_2 in conjunction with firing diesel fuel at operating loads above 50 percent.
(2) Good combustion practices.

There is currently no known BACT technology specifically for starup and stutdown of combustion turbines. Therefore, the current BACT technology in use will be accepted as CO BACT for startup and stutdown.

Conclusion
Based on the information presented above, the CO BACT for the proposed facility will be the use of natural gas as a primary fuel in conjunction with good combustion practices and an operational limitation of 2000 hours per year firing natural gas.

The CO BACT for the combustion turbine when firing diesel fuel shall be the use of good combustion practices as CO control and an operational limitation of 500 hours per year firing distillate oil.

During periods of startup/shutdown the CO emission from the combustion turbine shall not exceed 65.5 pounds of CO per startup and 58.9 pounds per shutdown when firing natural gas. Each combustion turbine shall not exceed 76.4 pounds per startup and 65.5 pounds per shutdown when firing diesel fuel. Also, the source will be limited to 240 startup/shutdown per year. The time for each startup/shutdown shall not exceed one (1) hour.