



State of Ohio Environmental Protection Agency

**RE: FINAL PERMIT TO INSTALL MODIFICATION
LAWRENCE COUNTY**

CERTIFIED MAIL

Street Address:

122 S. Front Street

Lazarus Gov. Center TELE: (614) 644-3020 FAX: (614) 644-2329

Mailing Address:

Lazarus Gov. Center
P.O. Box 1049

Application No: 07-00503

Fac ID: 0744000150

DATE: 12/28/2004

Duke Energy - Hanging Rock, LLC
Scott Jacobucci
1395 County Road 1A
Ironton, OH 45638-8699

Enclosed Please find a modification to the Ohio EPA Permit To Install referenced above which will modify the terms and conditions.

You are hereby notified that this action by the Director is final and may be appealed to the Ohio Environmental Review Appeals Commission pursuant to Chapter 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed within thirty (30) days after the notice of the Directors action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency within three (3) days of filing with the Commission. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission
309 South Fourth Street, Room 222
Columbus, Ohio 43215

Sincerely,

Michael W. Ahern, Manager
Permit Issuance and Data Management Section
Division of Air Pollution Control

cc: USEPA

PCHD



**Permit To Install
Terms and Conditions**

**Issue Date: 12/28/2004
Effective Date: 12/28/2004**

FINAL ADMINISTRATIVE MODIFICATION OF PERMIT TO INSTALL 07-00503

Application Number: 07-00503
Facility ID: 0744000150
Permit Fee: **\$500**
Name of Facility: Duke Energy - Hanging Rock, LLC
Person to Contact: Scott Jacobucci
Address: 1395 County Road 1A
Ironton, OH 45638-8699

Location of proposed air contaminant source(s) [emissions unit(s)]:
**U.S. Route 52
Hanging Rock, Ohio**

Description of proposed emissions unit(s):
Modification to include Two Multiple Cell Cooling Towers.

The above named entity is hereby granted a modification to the permit to install described above pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this modification does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the above described source(s) of environmental pollutants will operate in compliance with applicable State and Federal laws and regulations, and does not constitute expressed or implied assurance that if constructed or modified in accordance with those plans included in the application, the above described source(s) of pollutants will be granted the necessary operating permits.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency


Director

Part I - GENERAL TERMS AND CONDITIONS

A. State and Federally Enforceable Permit To Install General Terms and Conditions

1. Monitoring and Related Recordkeeping and Reporting Requirements

- a. Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall maintain records that include the following, where applicable, for any required monitoring under this permit:
 - i. The date, place (as defined in the permit), and time of sampling or measurements.
 - ii. The date(s) analyses were performed.
 - iii. The company or entity that performed the analyses.
 - iv. The analytical techniques or methods used.
 - v. The results of such analyses.
 - vi. The operating conditions existing at the time of sampling or measurement.
- b. Each record of any monitoring data, testing data, and support information required pursuant to this permit shall be retained for a period of five years from the date the record was created. Support information shall include, but not be limited to, all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Such records may be maintained in computerized form.
- c. Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall submit required reports in the following manner:
 - i. Reports of any required monitoring and/or recordkeeping of federally enforceable information shall be submitted to the appropriate Ohio EPA District Office or local air agency.
 - ii. Quarterly written reports of (i) any deviations from federally enforceable emission limitations, operational restrictions, and control device operating parameter limitations, excluding deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06, that have been detected by the testing, monitoring and recordkeeping requirements specified in this permit, (ii) the probable cause of such deviations, and (iii) any corrective actions or preventive measures taken, shall be made to the appropriate Ohio EPA District Office or local air agency. The written reports shall be submitted quarterly, i.e., by January 31, April 30, July 31, and October 31 of each year and shall cover the previous

calendar quarters. See B.9 below if no deviations occurred during the quarter.

- iii. Written reports, which identify any deviations from the federally enforceable monitoring, recordkeeping, and reporting requirements contained in this permit shall be submitted to the appropriate Ohio EPA District Office or local air agency every six months, i.e., by January 31 and July 31 of each year for the previous six calendar months. If no deviations occurred during a six-month period, the permittee shall submit a semi-annual report, which states that no deviations occurred during that period.
- iv. Each written report shall be signed by a responsible official certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.

2. Scheduled Maintenance/Malfunction Reporting

Any scheduled maintenance of air pollution control equipment shall be performed in accordance with paragraph (A) of OAC rule 3745-15-06. The malfunction, i.e., upset, of any emissions units or any associated air pollution control system(s) shall be reported to the appropriate Ohio EPA District Office or local air agency in accordance with paragraph (B) of OAC rule 3745-15-06. (The definition of an upset condition shall be the same as that used in OAC rule 3745-15-06(B)(1) for a malfunction.) The verbal and written reports shall be submitted pursuant to OAC rule 3745-15-06.

Except as provided in that rule, any scheduled maintenance or malfunction necessitating the shutdown or bypassing of any air pollution control system(s) shall be accompanied by the shutdown of the emission unit(s) that is (are) served by such control system(s).

3. Risk Management Plans

If the permittee is required to develop and register a risk management plan pursuant to section 112(r) of the Clean Air Act, as amended, 42 U.S.C. 7401 et seq. ("Act"), the permittee shall comply with the requirement to register such a plan.

4. Title IV Provisions

If the permittee is subject to the requirements of 40 CFR Part 72 concerning acid rain, the permittee shall ensure that any affected emissions unit complies with those requirements. Emissions exceeding any allowances that are lawfully held under Title IV of the Act, or any regulations adopted thereunder, are prohibited.

5. Severability Clause

A determination that any term or condition of this permit is invalid shall not invalidate the force or effect of any other term or condition thereof, except to the extent that any other term or condition depends in whole or in part for its operation or implementation upon the term or condition

declared invalid.

6. General Requirements

- a. The permittee must comply with all terms and conditions of this permit. Any noncompliance with the federally enforceable terms and conditions of this permit constitutes a violation of the Act, and is grounds for enforcement action or for permit revocation, revocation and reissuance, or modification, or for denial of a permit renewal application.
- b. It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the federally enforceable terms and conditions of this permit.
- c. This permit may be modified, reopened, revoked, or revoked and reissued, for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or revocation, or of a notification of planned changes or anticipated noncompliance does not stay any term and condition of this permit.
- d. This permit does not convey any property rights of any sort, or any exclusive privilege.
- e. The permittee shall furnish to the Director of the Ohio EPA, or an authorized representative of the Director, upon receipt of a written request and within a reasonable time, any information that may be requested to determine whether cause exists for modifying, reopening or revoking this permit or to determine compliance with this permit. Upon request, the permittee shall also furnish to the Director or an authorized representative of the Director, copies of records required to be kept by this permit. For information claimed to be confidential in the submittal to the Director, if the Administrator of the U.S. EPA requests such information, the permittee may furnish such records directly to the Administrator along with a claim of confidentiality.

7. Fees

The permittee shall pay fees to the Director of the Ohio EPA in accordance with ORC section 3745.11 and OAC Chapter 3745-78. The permittee shall pay all applicable Permit To Install fees within 30 days after the issuance of this Permit To Install.

8. Federal and State Enforceability

Only those terms and conditions designated in this permit as federally enforceable, that are

required under the Act, or any of its applicable requirements, including relevant provisions designed to limit the potential to emit of a source, are enforceable by the Administrator of the U.S. EPA, the State, and citizens under the Act. All other terms and conditions of this permit shall not be federally enforceable and shall be enforceable under State law only.

9. Compliance Requirements

- a. Any document (including reports) required to be submitted and required by a federally applicable requirement in this permit shall include a certification by a responsible official that, based on information and belief formed after reasonable inquiry, the statements in the document are true, accurate, and complete.
- b. Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Director of the Ohio EPA or an authorized representative of the Director to:
 - i. At reasonable times, enter upon the permittee's premises where a source is located or the emissions-related activity is conducted, or where records must be kept under the conditions of this permit.
 - ii. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit, subject to the protection from disclosure to the public of confidential information consistent with ORC section 3704.08.
 - iii. Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.
 - iv. As authorized by the Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit and applicable requirements.
- c. The permittee shall submit progress reports to the appropriate Ohio EPA District Office or local air agency concerning any schedule of compliance for meeting an applicable requirement. Progress reports shall be submitted semiannually, or more frequently if specified in the applicable requirement or by the Director of the Ohio EPA. Progress reports shall contain the following:
 - i. Dates for achieving the activities, milestones, or compliance required in any schedule of compliance, and dates when such activities, milestones, or compliance were achieved.
 - ii. An explanation of why any dates in any schedule of compliance were not or will not be met, and any preventive or corrective measures adopted.

Duke Energy - Hanging Rock, LLC
PTI Application: 07-00503
Modification Issued: 12/28/2004

Facility ID: 0744000150

10. Permit To Operate Application

- a. If the permittee is required to apply for a Title V permit pursuant to OAC Chapter 3745-77, the permittee shall submit a complete Title V permit application or a complete Title V permit modification application within twelve (12) months after commencing operation of the emissions units covered by this permit. However, if the proposed new or modified source(s) would be prohibited by the terms and conditions of an existing Title V permit, a Title V permit modification must be obtained before the operation of such new or modified source(s) pursuant to OAC rule 3745-77-04(D) and OAC rule 3745-77-08(C)(3)(d).
- b. If the permittee is required to apply for permit(s) pursuant to OAC Chapter 3745-35, the source(s) identified in this Permit To Install is (are) permitted to operate for a period of up to one year from the date the source(s) commenced operation. Permission to operate is granted only if the facility complies with all requirements contained in this permit and all applicable air pollution laws, regulations, and policies. Pursuant to OAC Chapter 3745-35, the permittee shall submit a complete operating permit application within ninety (90) days after commencing operation of the source(s) covered by this permit.

11. Best Available Technology

As specified in OAC Rule 3745-31-05, all new sources must employ Best Available Technology (BAT). Compliance with the terms and conditions of this permit will fulfill this requirement.

12. Air Pollution Nuisance

The air contaminants emitted by the emissions units covered by this permit shall not cause a public nuisance, in violation of OAC rule 3745-15-07.

Duke Energy - Hanging Rock, LLC
PTI Application: 07-00503
Modification Issued: 12/28/2004

Facility ID: 0744000150

B. State Only Enforceable Permit To Install General Terms and Conditions

1. Compliance Requirements

The emissions unit(s) identified in this Permit to Install shall remain in full compliance with all applicable State laws and regulations and the terms and conditions of this permit.

2. Reporting Requirements

The permittee shall submit required reports in the following manner:

- a. Reports of any required monitoring and/or recordkeeping of state-only enforceable information shall be submitted to the appropriate Ohio EPA District Office or local air agency.
- b. Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from state-only required emission limitations, operational restrictions, and control device operating parameter limitations that have been detected by the testing, monitoring, and recordkeeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the appropriate Ohio EPA District Office or local air agency. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly, i.e., by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

3. Permit Transfers

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The appropriate Ohio EPA District Office or local air agency must be notified in writing of any transfer of this permit.

4. Termination of Permit To Install

This permit to install shall terminate within eighteen months of the effective date of the permit to install if the owner or operator has not undertaken a continuing program of installation or modification or has not entered into a binding contractual obligation to undertake and complete

Duke Energy - Hanging Rock, LLC
PTI Application: 07-00503
Modification Issued: 12/28/2004

Facility ID: 0744000150

within a reasonable time a continuing program of installation or modification. This deadline may be extended by up to 12 months if application is made to the Director within a reasonable time before the termination date and the party shows good cause for any such extension.

5. Construction of New Sources(s)

The proposed emissions unit(s) shall be constructed in strict accordance with the plans and application submitted for this permit to the Director of the Ohio Environmental Protection Agency. There may be no deviation from the approved plans without the express, written approval of the Agency. Any deviations from the approved plans or the above conditions may lead to such sanctions and penalties as provided under Ohio law. Approval of these plans does not constitute an assurance that the proposed facilities will operate in compliance with all Ohio laws and regulations. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed sources cannot meet the requirements of this permit or cannot meet applicable standards.

If the construction of the proposed emissions unit(s) has already begun or has been completed prior to the date the Director of the Environmental Protection Agency approves the permit application and plans, the approval does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the approved plans. The action of beginning and/or completing construction prior to obtaining the Director's approval constitutes a violation of OAC rule 3745-31-02. Furthermore, issuance of the Permit to Install does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Approval of the plans in any case is not to be construed as an approval of the facility as constructed and/or completed. Moreover, issuance of the Permit to Install is not to be construed as a waiver of any rights that the Ohio Environmental Protection Agency (or other persons) may have against the applicant for starting construction prior to the effective date of the permit. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed facilities cannot meet the requirements of this permit or cannot meet applicable standards.

6. Public Disclosure

The facility is hereby notified that this permit, and all agency records concerning the operation of this permitted source, are subject to public disclosure in accordance with OAC rule 3745-49-03.

7. Applicability

Duke Energy - Hanging Rock, LLC
 PTI Application: 07-00503
 Modification Issued: 12/28/2004

Facility ID: 0744000150

This Permit to Install is applicable only to the emissions unit(s) identified in the Permit To Install. Separate application must be made to the Director for the installation or modification of any other emissions unit(s).

8. Construction Compliance Certification

If applicable, the applicant shall provide Ohio EPA with a written certification (see enclosed form if applicable) that the facility has been constructed in accordance with the Permit To Install application and the terms and conditions of the Permit to Install. The certification shall be provided to Ohio EPA upon completion of construction but prior to startup of the source.

9. Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations (See Section A of This Permit)

If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly, i.e., by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters.

C. Permit To Install Summary of Allowable Emissions

The following information summarizes the total allowable emissions, by pollutant, based on the individual allowable emissions of each air contaminant source identified in this permit.

SUMMARY (for informational purposes only) TOTAL PERMIT TO INSTALL ALLOWABLE EMISSIONS

<u>Pollutant</u>	<u>Tons Per Year</u>
Nox	492.6
CO	1118.96
SO ₂	211.46
PM/PM ₁₀	379.89
VOC	263.41
Ammonia	560.04
Formaldehyde	8.36
Sulfuric Acid	32.28

Duke Energy - Hanging Rock, LLC
 PTI Application: 07-00503
 Modification Issued: 12/28/2004

Facility ID: 0744000150

Part II - FACILITY SPECIFIC TERMS AND CONDITIONS

A. State and Federally Enforceable Permit To Install Facility Specific Terms and Conditions

I. PSD REQUIREMENTS

The source described in this Permit to Install is subject to the applicable provisions of the Prevention of Significant Deterioration (PSD) regulations as promulgated by the United States Environmental Protection Agency 40 CFR 52.21. The authority to apply and enforce the PSD regulations has been delegated to the Ohio Environmental Protection Agency. The terms and conditions of this permit and the requirements of the PSD regulations are also enforceable by the United States Environmental Protection Agency.

In accordance with 40 CFR 124.15, 124.19 and 124.20, the following shall apply: (1) the effective date of this permit shall be 30 days after the service of notice to any public commentors of the final decision to issue, modify, or revoke and re-issue the permit, unless the service notice is by mail, in which case the effective date of the permit shall be 30 days after the service of notice; and (2) if an appeal is made to the Environmental Protection Agency, the effective date of the permit is suspended until such time as the appeal is resolved or denied.

Appeals will be addressed to:

United States Environmental Protection Agency
 Environmental Appeals Board
 401 M. Street, SW (MC-113do)
 Washington, DC 20460

II. The following emissions units (EU) are also being installed as part of this project:

<u>EU</u>	<u>BACT</u>	<u>Emissions</u>
(2) 500 kW diesel fired backup generators*	use of low sulfur fuel	2.55 TPY NOx 3.14 TPY CO 0.369 TPY OC 0.067 TPY SO2 0.148 TPY PM/PM10
(1) 265 Hp diesel fired fire water pump*	use of low sulfur	2.05 TPY NOx 0.443 TPY CO

Duke Energy - Hanging Rock, LLC
 PTI Application: 07-00503
 Modification Issued: 12/28/2004

Facility ID: 0744000150

fuel	0.164 TPY VOC
	0.024 TPY SO ₂
	0.164 TPY PM/PM ₁₀

(5) fuel/chemical storage tanks	storage of diesel fuel or low vapor pressure material	less than 1 TPY VOC
---------------------------------	---	---------------------

* subject to OAC rule 3745-31-03(A)(4), restricted to no more than 500 hours per 12 month rolling period.

III. The emissions of Hazardous Air Pollutants (HAPs), as defined in Section 112(b) of the Clean Air Act, from all emissions units located at this facility combined, shall not exceed 10 tons per year for an individual HAP and 25 tons per year for any combination of HAPs, per rolling 12 month period.

IV. Nitrogen Oxides (NO_x) Budget Trading Program OAC Chapter 3745-14

1. Facility Code - 0744000150
2. The following regulated emissions units are subject to the applicable requirements specified in OAC Chapter 3745-14.

Emissions Units

P001 - Turbine No. 1
 P002 - Turbine No. 2
 P003 - Turbine No. 3
 P004 - Turbine No. 4

3. The emissions units identified in Part II.A.IV.2 above are NO_x budget units under OAC rule 3745-14-01(C)(1)(a).
 [OAC rule 3745-14-01(C)(1)]
4. NO_x allowances for units commencing operation on the dates specified in OAC rule 3745-14-05(C)(4) shall be allocated from the new source set-aside in accordance with the provisions of OAC rule 3745-14-05(C)(4)(d).
 [OAC rule 3745-14-05(C)(4)]
5. The NO_x authorized account representative shall submit a complete NO_x budget permit application in accordance with the deadlines specified in paragraphs (B)(2) and (B)(3) of OAC rule 3745-14-03. The NO_x authorized account representative shall also submit, in a timely

Duke Energy - Hanging Rock, LLC
PTI Application: 07-00503
Modification Issued: 12/28/2004

Facility ID: 0744000150

manner, any supplemental information that the Director determines is necessary in order to review a NOx budget permit application and issue or deny a NOx budget permit.

[OAC rules 3745-14-01(E)(1)(a)(i), 3745-14-01(E)(1)(a)(ii), and 3745-14-03(B)(1)]

6. Beginning May 31, 2004, the owners and operators of each NOx budget source and each NOx budget unit at the source shall hold NOx allowances available for compliance deductions under paragraph (E) of OAC rule 3745-14-06, as of the NOx allowance transfer deadline, in the unit's compliance account and the source's overdraft account in an amount not less than the total NOx emissions for the control period from the unit, as determined in accordance with OAC rule 3745-14-08, plus any amount necessary to account for actual utilization under paragraph (C)(5) of OAC rule 3745-14-05 for the control period.
[OAC rules 3745-14-01(E)(3)(a) and 3745-14-01(E)(3)(c)]
7. NOx allowances shall be held in, deducted from, or transferred among NOx allowance tracking system accounts in accordance with OAC rules 3745-14-05, 3745-14-06, 3745-14-07, and 3745-14-09.
[OAC rule 3745-14-01(E)(3)(d)]
8. A NOx allowance shall not be deducted, in order to comply with the requirement under paragraph (E)(3)(a) of OAC rule 3745-14-01, for a control period in a year prior to the year for which the NOx allowance was allocated.
[OAC rule 3745-14-01(E)(3)(e)]
9. Each ton of NOx emitted in excess of the NOx budget emission limitation, as defined in OAC rule 3745-14-01(B)(2)(yy), shall constitute a separate violation of OAC Chapter 3745-14, the Clean Air Act, and applicable Ohio law. The owners and operators of a NOx budget unit that has excess emissions in any control period shall surrender the NOx allowances required for deduction under paragraph (E)(4)(a) of OAC rule 3745-14-06 and pay any fine, penalty, or assessment or comply with any other remedy imposed under paragraph (E)(4)(c) of OAC rule 3745-14-06.
[OAC rules 3745-14-01(E)(3)(b), 3745-14-01(E)(4)(a) and 3745-14-01(E)(4)(b)]
10. When recorded by the Administrator pursuant to OAC rules 3745-14-06 and 3745-14-07, every allocation, transfer, or deduction of a NOx allowance to or from a NOx budget unit's compliance account or the overdraft account of the source where the unit is located is deemed to amend automatically, and become a part of, any NOx budget permit of the NOx budget unit by operation of law without any further review.
[OAC rule 3745-14-01(E)(3)(h)]
11. Except as provided below, the Director shall revise the NOx budget permit, as necessary, in accordance with OAC rule 3745-77-08. Each NOx budget permit is deemed to incorporate

automatically the definitions of terms under paragraph (B) of OAC rule 3745-14-01 and, when recorded by the Administrator, in accordance with OAC rules 3745-14-06 and 3745-14-07, every allocation, transfer, or deduction of a NOx allowance to or from the compliance accounts of the NOx budget units covered by the permit or the overdraft account of the NOx budget source covered by the permit.

[OAC rules 3745-14-03(D)(2) and 3745-14-03(E)(1)]

12. The owner or operator of a NOx budget unit shall comply with the prohibitions under OAC rule 3745-14-08(A)(5).
[OAC rule 3745-14-08(A)(5)]
13. The owners and operators of the NOx budget unit shall keep on site at the source each of the following documents for a period of five years from the date the document is created: (This period may be extended for cause, at any time prior to the end of five years, in writing by the Director or Administrator.)
 - a. the account certificate of representation for the NOx authorized account representative for the NOx budget unit and all documents that demonstrate the truth of the statements in the account certificate of representation, in accordance with paragraph (D) of OAC rule 3745-14-02, provided that the certificate and documents shall be retained on site at the source beyond such five-year period until such documents are superseded because of the submission of a new account certificate or representation changing the NOx authorized account representative;
 - b. all emission monitoring information, in accordance with OAC rule 3745-14-08;
 - c. copies of all reports, compliance certifications, and other submissions and all records made or required under the NOx budget trading program; and
 - d. copies of all documents used to complete a NOx budget permit application and any other submission under the NOx budget trading program or to demonstrate compliance with the requirements of the NOx budget trading program.

[OAC rule 3745-14-01(E)(5)(a)(i) through (iv)]
14. The permittee, and to the extent applicable, the NOx authorized account representative of the NOx budget unit, shall comply with the monitoring and reporting requirements as provided in OAC rule 3745-14-08 and in 40 CFR Part 75, Subpart H. For purposes of complying with such requirements the definitions in OAC rule 3745-14-01(B) and in 40 CFR 72.2 shall apply, and the terms "affected unit," "designated representative," and "continuous emission monitoring system" (or "CEMS") in 40 CFR Part 75 shall be replaced by the terms "NOx budget unit," "NOx authorized account representative," and "continuous emission monitoring system" (or "CEMS"), respectively, as defined in OAC rule 3745-14-01(B).
[OAC rule 3745-14-08(A)]

Duke Energy - Hanging Rock, LLC

Facility ID: 0744000150

PTI Application: 07-00503

Modification Issued: 12/28/2004

15. The permittee shall comply with the monitoring plan requirements of 40 CFR Part 75.62, except that the monitoring plan shall also include all information required by 40 CFR Part 75, Subpart H. [OAC rule 3745-14-08(E)(2)(a)]

16. The NO_x authorized account representative of the NO_x budget unit shall submit the reports and compliance certifications required under the NO_x budget trading program, including those under OAC rules 3745-14-04 and 3745-14-08, to the Director and Administrator. [OAC rule 3745-14-01(E)(5)(b)]

Duke Energy - Hanging Rock, LLC

PTI Application: 07-00503

Modification Issued: 12/28/2004

Facility ID: 0744000150

17. Each submission under the NOx budget trading program shall be submitted, signed, and certified by the NOx authorized account representative for each NOx budget source on behalf of which the submission is made. Each such submission shall include the following certification statement by the NOx authorized account representative:

"I am authorized to make this submission on behalf of the owners and operators of the NOx budget sources or NOx budget units for which the submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment."

If the NOx authorized account representative for a NOx budget unit subject to an acid rain emission limitation who signed and certified any submission that is made under Subpart F or G of 40 CFR Part 75 and which includes data and information required under OAC rule 3745-14-08 or Subpart H of 40 CFR Part 75 is not the same person as the designated representative or the alternate designated representative for the unit under 40 CFR Part 72, then the submission shall also be signed by the designated representative or the alternate designated representative.

[OAC rules 3745-14-02(A)(5) and 3745-14-08(E)(1)(b)]

18. The NOx authorized account representative shall submit quarterly reports shall include all of the data and information required in Subpart H of 40 CFR Part 75 for each NOx budget unit (or group of units using a common stack) and the data and information in Subpart G of 40 CFR Part 75. The NOx authorized account representative shall submit each quarterly report to the Administrator within thirty days following the end of the calendar quarter covered by the report. Quarterly reports shall be submitted in the manner specified in 40 CFR Part 75, Subpart H.

[OAC rules 3745-14-08(E)(4)(b) and 3745-14-08(E)(4)(c)(i)]

19. The NOx authorized account representative shall submit to the Administrator a compliance certification in support of each quarterly report based on a reasonable inquiry of those persons with primary responsibility for ensuring that all of the unit's emissions are correctly and fully monitored. The compliance certification shall state that:

- a. the monitoring data submitted were recorded in accordance with the applicable requirements of OAC rule 3745-14-08 and 40 CFR Part 75, including the quality assurance procedures and specifications; and

Duke Energy - Hanging Rock, LLC
PTI Application: 07-00503
Modification Issued: 12/28/2004

Facility ID: 0744000150

- b. for a unit with add-on NO_x emission controls and for all hours where data are substituted in accordance with 40 CFR Part 75.34(a)(1), the add-on emission control were operating within the range of parameters listed in the quality assurance program under Appendix B of 40 CFR Part 75 and the substitute values do not systematically underestimate the NO_x emissions.

[OAC rule 3745-14-08(E)(4)(d)(i) and (ii)]

20. The NO_x authorized account representative for a NO_x budget unit shall submit written notice of monitoring system certification and re-certification test dates to the Director and the Administrator in accordance with 40 CFR Part 75.61. The NO_x authorized account representative shall submit a certification application to the Administrator, U.S. EPA, Region V Office, and the Director within forty-five days after completing all initial or re-certification tests required under paragraph (B) of OAC rule 3745-14-08, including the information required under Subpart H of 40 CFR Part 75.

[OAC rules 3745-14-08(D) and 3745-14-08(E)(3)]

21. For each control period in which one or more NO_x budget units at a source are subject to the NO_x budget emission limitation, the NO_x authorized account representative of the source shall submit to the Director and the Administrator, by November 30 of that year, a compliance certification report for each source covering all such units. The NO_x authorized account representative shall include the following elements in the compliance certification report, in a format prescribed by the Administrator, concerning each unit at the source and subject to the NO_x budget emission limitation for the control period covered by the report:

- a. identification of each NO_x budget unit;
- b. at the NO_x authorized account representative's option, the serial numbers of the NO_x allowances that are to be deducted from each unit's compliance account under paragraph (E) of OAC rule 3745-14-06 for the control period;
- c. at the NO_x authorized account representative's option, for units sharing a common stack and having NO_x emissions that are not monitored separately or apportioned in accordance with OAC rule 3745-14-08, the percentage of allowances that is to be deducted from each unit's compliance account under paragraph (E)(5) of OAC rule 3745-14-06; and
- d. the compliance certification under paragraph (A)(3) of OAC rule 3745-14-04.

[OAC rules 3745-14-04(A)(1) and 3745-14-04(A)(2)]

22. In the compliance certification report under Section A.II.21.d above, the NOx authorized account representative shall certify, based upon reasonable inquiry of those persons with the primary responsibility for operating the source and the NOx budget units at the source in compliance with the NOx budget trading program, whether each NOx budget unit for which the compliance certification is submitted was operated during the calendar year covered by the report in compliance with the requirements of the NOx budget trading program applicable to the unit, including all the following:
- a. whether the unit was operated in compliance with the NOx budget emission limitation;
 - b. whether the monitoring plan that governs the unit has been maintained to reflect the actual operation and monitoring of the unit, and contains all information necessary to attribute NOx emissions to the unit, in accordance with OAC rule 3745-14-08;
 - c. whether all the NOx emissions from the unit, or group of units (including the unit) using a common stack, were monitored or accounted for through the missing data procedures and reported in the quarterly monitoring reports, including whether conditional data were reported in the quarterly reports in accordance with OAC rule 3745-14-08, and if conditional data were reported, the permittee shall indicate whether the status of all conditional data has been resolved and all necessary quarterly report submissions have been made; and
 - d. whether the facts that form the basis for certification under OAC rule 3745-14-08 of each monitor at the unit or group of units (including the unit) using a common stack, or for using an excepted monitoring method or alternative monitoring method approved under OAC rule 3745-14-08, if any, have changed.

If a change is required to be reported under Section A.II.22.d above, specify the nature of the change, the reason for the change, when the change occurred, and how the unit's compliance status was determined subsequent to the change, including what method was used to determine emissions when a change mandated the need for monitor re-certification.

[OAC rule 3745-14-04(A)(3)]

23. The NOx authorized account representative shall submit a complete NOx budget permit renewal application for the NOx budget source covering the NOx budget units at the source in accordance with paragraph (E) of OAC rule 3745-77-08.
[OAC rule 3745-14-03(B)(3)(a)]
24. The emission measurements recorded and reported in accordance with OAC rule 3745-14-08 shall be used to determine compliance by the unit with the NOx budget emission limitation under paragraph (E)(3) of OAC rule 3745-14-01.
[OAC rule 3745-14-01(E)(2)(b)]
25. The permittee shall develop and maintain a written quality assurance/quality control plan for each continuous NOx monitoring system designed to ensure continuous valid and representative

Duke Energy - Hanging Rock, LLC

PTI Application: 07-00503

Modification Issued: 12/28/2004

Facility ID: 0744000150

readings of NO_x emissions in units of the applicable standard. The plan shall follow the requirements of 40 CFR Part 75, Appendix B. The quality assurance/quality control plan and a

Duke Energy - Hanging Rock, LLC
PTI Application: 07-00503
Modification Issued: 12/28/2004

Facility ID: 0744000150

logbook dedicated to the continuous NO_x monitoring system must be kept on-site and available for inspection during regular office hours.

[OAC rules 3745-14-08(A)(2)(c) and 3745-14-08(A)(2)(d)]

B. State Only Enforceable Permit To Install Facility Specific Terms and Conditions

1. The permit to install was evaluated based on the actual materials (typically coatings and cleanup materials) and the design parameters of the emission unit's exhaust system, as specified by the permittee in the permit to install application. The OEPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by the emission unit using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the maximum Acceptable Ground-Level Concentration (MAGLC). The following summarizes the results of the modeling:

Pollutant: Formaldehyde

TLV (ug/m³): 272

Maximum Hourly Emission Rate (lb/hr): 1.98*

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m³): 2.93

MAGLC (ug/m³): 6.48

Pollutant: Sulfuric Acid

TLV (ug/m³): 1000

Maximum Hourly Emission Rate (lb/hr): 8.8*

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m³): 8.875

MAGLC (ug/m³): 24

Pollutant: Ammonia

TLV (ug/m³): 17000

Maximum Hourly Emission Rate (lb/hr): 151.2*

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m³): 153.83

MAGLC (ug/m³): 405

Pollutant: Toluene

TLV (ug/m³): 188,000

Maximum Hourly Emission Rate (lb/hr): 1.02*

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m³): 6.023

MAGLC (ug/m³): 4476

Pollutant: Xylene

Duke Energy - Hanging Rock, LLC
PTI Application: 07-00503
Modification Issued: 12/28/2004

Facility ID: 0744000150

TLV (ug/m3): 434,000
Maximum Hourly Emission Rate (lb/hr): 0.5*
Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 2.94
MAGLC (ug/m3): 10333

Pollutant: Acetaldehyde
TLV (ug/m3): 180,000
Maximum Hourly Emission Rate (lb/hr): 0.311*
Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 1.842
MAGLC (ug/m3): 4286

Pollutant: Hexane
TLV (ug/m3): 176,000
Maximum Hourly Emission Rate (lb/hr): 0.44*
Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 2.585
MAGLC (ug/m3): 4190

Pollutant: Zinc
TLV (ug/m3): 5000
Maximum Hourly Emission Rate (lb/hr): 0.29*
Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 1.69
MAGLC (ug/m3): 119

* This was modeled for emissions units B001, B002, P001, P002, P003 and P004 combined.

2. Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:
 - a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value specified in the above table;

Duke Energy - Hanging Rock, LLC
PTI Application: 07-00503
Modification Issued: 12/28/2004

Facility ID: 0744000150

- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and
 - c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).
3. If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is (are) defined as a modification under other provisions of the modification definition (other than (VV)(1)(a)(ii)), then the permittee shall obtain a final permit to install prior to the change.

The permittee shall collect, record and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

- a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

Duke**PTI A****Modification Issued: 12/28/2004**

Emissions Unit ID: B001

Applicable Emissions
Limitations/Control
Measures

nitrogen oxide (NO_x)
emissions shall
not exceed:
0.035 lb/MMBTU actual
heat input
1.07 lb/hr.

sulfur dioxide (SO₂)
emissions shall
not exceed:
0.001 lb/MMBTU actual
heat input
0.031 lb/hr.

carbon monoxide (CO)
emission shall
not exceed:
0.037 lb/MMBTU actual
heat input
1.13 lb/hr.

volatile organic compounds
(VOC) emissions shall not
exceed:
0.016 lb/MMBTU actual
heat input
0.49 lb/hr.

particulate(PM/PM10)
emissions shall not exceed:
0.01 lb/MMBTU actual heat
input
0.31 lb/hr.

The tons per rolling
12-month period

shall not exceed:

NO_x - 1.6
SO₂ - 0.046
PM/PM10 - 0.46

CO - 1.69
VOC - 0.74

See A.I.2.b below.

The requirements of this rule also
include compliance with the
requirements of 40 CFR 60 Subpart
Dc, OAC rule 3745-18-06(A), OAC
3745-17-10(B)(1), OAC rule
3745-17-07(A), 40 CFR 52.21, and
OAC rule 3745-31- (10) thru (20).

See section A.I.2.a. below.

See section A.I.2.a. below.

See section A.I.2.a. below.

20% opacity as a six minute average,
except as provided by rule.

See section A.I.2.c. below.

See Section A.II.2. below.

Duke

PTI A

Modification Issued: 12/28/2004

Emissions Unit ID: B001

2. Additional Terms and Conditions

- 2.a** The requirements of this rule are less stringent than the requirements of 40 CFR 52.21 and OAC rule 3745-31-(10) thru (20).
- 2.b** Based on the "Prevention of Significant Deterioration" (PSD) analysis conducted to ensure the application of "Best Available Control Technology" (BACT), it has been determined that the use of natural gas, low sulfur fuel and low NOx burners constitutes BACT for this emission unit. The emissions limits based on the BACT requirements are listed under 40 CFR 52.21 and OAC rule 3745-31-(10) thru (20) above.
- 2.c** The requirements of this rule are equivalent to the NOx, SO2, and PM/PM10 emissions per 40 CFR Part 52.21 and OAC rule 3745-31 (10) through (20).

II. Operational Restrictions

1. The permittee shall burn only natural gas in this emission unit. The maximum sulfur content of the natural gas shall not exceed 2 grains per 100 cubic feet.
2. The maximum annual fuel heat input for this emissions unit shall not exceed 91,500 MMBTU, based upon a rolling, 12-month summation of heat input values.

To ensure enforceability during the first 12 calendar months following the startup of this emissions unit the permittee shall not exceed the monthly cumulative fuel heat input restrictions specified in the following table:

<u>Month</u>	<u>Cumulative Fuel Heat Input (MMBTU)</u>
1	45,750
1-2	91,500
1-3	91,500
1-4	91,500
1-5	91,500
1-6	91,500
1-7	91,500
1-8	91,500
1-9	91,500
1-10	91,500
1-11	91,500
1-12	91,500

After the first 12 calendar months of operation of this emission unit, compliance with the annual fuel heat input restriction shall be based upon a rolling, 12-month summation of the heat input values.

III. Monitoring and/or Recordkeeping Requirements

1. For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emission unit.
2. The permittee shall monitor the sulfur content and gross calorific value of the fuel being fired in the emission unit. Fuel sampling and analysis shall be conducted according to the procedures and at the frequency specified by 40 CFR Part 75, Appendix D.
3. The permittee shall maintain monthly records of the following information for each this emission unit:
 - a. Monthly Fuel Heat input (MMBTU)
 - b. Beginning after the first 12 calendar months of operation following issuance of this permit, the rolling, 12-month summation of fuel heat input (MMBTU).
Also, during the first 12 calendar months of operation following issuance of this permit, the permittee shall record the cumulative fuel heat input (MMBTU) for each calendar month.

IV. Reporting Requirements

1. The permittee shall submit deviation(excursion) reports that identify each day when a fuel other than natural gas was burned in this emission unit. Each report shall be submitted within 30 days after the deviation occurs.
2. The permittee shall submit deviation (excursion) reports that identify any record which shows that the sulfur content of the natural gas exceeded 2 grains per 100 standard cubic feet. These reports are due by the date described in Part I - General Terms and Conditions of this permit under section (A)(2).
3. The permittee shall submit deviation (excursion) reports which identify all exceedances of the rolling, 12-month fuel heat input limitation and, for the first 12 calendar months of operation, all exceedances of the maximum allowable monthly cumulative fuel heat input limitation. These

Duke**PTI A****Modification Issued: 12/28/2004**

Emissions Unit ID: B001

reports are due by the date described in Part 1 - General Terms and Conditions of this permit under section (A)(2).

4. This emissions unit is subject to the applicable provisions of Subpart Dc of the New Source Performance Standards (NSPS) as promulgated by the United States Environmental Protection Agency, 40 CFR Part 60. The application and enforcement of these standards are delegated to the Ohio EPA. The requirements of 40 CFR Part 60 are also federally enforceable.

Pursuant to 40 CFR Part 60.7, the permittee is hereby advised of the requirement to report the following at the appropriate times:

- a. 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 (if required, at least 30 days prior to testing).

Reports are to be sent to:

Ohio Environmental Protection Agency
DAPC - Permit Management Unit
P.O. Box 163669
Columbus, Ohio 43216-3669

and

Portsmouth Local Air Agency
605 Washington Street, Third Floor
Portsmouth, Ohio 45662

V. Testing Requirements

1. Compliance with the emission limitations in section A.I.1. of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

0.035 lb/MMBTU NO_x,
1.07 lb/hr NO_x

Applicable Compliance Method:

Compliance with the lb/MMBTU emission limitation shall be demonstrated using the manufacturer supplied emission factor of 0.035 lb/MMBTU.

Compliance with the lb/hr emission limitation shall be demonstrated by multiplying the manufacturer supplied NO_x emission factor (0.035 lb/MMBTU) by the actual heat input rate (MMBTU/hr).

If required, the permittee shall demonstrate compliance with the lb/MMBTU and lb/hr emission limitations through emission testing performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 4 and 7.

b. Emission Limitation:

0.001lb/MMBTU SO₂,
0.031 lb/hr SO

Applicable Compliance Method:

Compliance with the lb/MMBTU emission limitation shall be demonstrated using the manufacturer supplied emission factor of 0.001 lb/MMBTU.

Compliance with the lb/hr emission limitation shall be demonstrated by multiplying the

Emissions Unit ID: B001

manufacturer supplied SO₂ emission factor (0.001 lb/MMBTU) by the actual heat input rate (MMBTU/hr)..

If required, the permittee shall demonstrate compliance with the lb/MMBTU and lb/hr emission limitations through emission testing performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 4 and 6.

c. Emission Limitation:

0.037 lb/MMBTU CO

1.13 lb/hr CO

Applicable Compliance Method:

Compliance with the lb/MMBTU emission limitation shall be demonstrated using the manufacturer supplied emission factor of 0.037 lb/MMBTU.

Compliance with the lb/hr emission limitation shall be demonstrated by multiplying the manufacturer supplied CO emission factor (0.037 lb/MMBTU) by the actual heat input rate (MMBTU/hr).

If required, the permittee shall demonstrate compliance with the lb/MMBTU and lb/hr emission limitations through emission testing performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 4 and 10.

d. Emission Limitation:

0.016 lb/MMBTU VOC

0.49 lb/hr VOC

Applicable Compliance Method:

Compliance with the lb/MMBTU emission limitation shall be demonstrated using the manufacturer supplied emission factor of 0.016 lb/MMBTU.

Compliance with the lb/hr emission limitation shall be demonstrated by multiplying the manufacturer supplied VOC emission factor (lb/MMBTU) by the actual heat input rate (MMBTU/hr)..

If required, the permittee shall demonstrate compliance with the lb/MMBTU and lb/hr emission limitations through emission testing performed in accordance with 40 CFR Part

60, Appendix A, Methods 1 through 4 and 25.

e. Emission Limitation:

0.01 lb/MMBTU PM/PM₁₀

0.31 lb/hr PM/PM₁₀

Applicable Compliance Method:

Compliance with the lb/MMBTU emission limitation shall be demonstrated using the manufacturer supplied emission factor of 0.01 lb/MMBTU.

Compliance with the lb/hr emission limitation shall be demonstrated by multiplying the manufacturer supplied PM/PM₁₀ emission factor (lb/MMBTU) by the actual heat input rate (MMBTU/hr)

If required, the permittee shall demonstrate compliance with the lb/MMBTU and lb/hr emission limitations through emission testing performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 5.

f. Emission Limitation:

The tons per rolling 12-month period shall not exceed:

NO_x - 1.6

SO₂ - 0.046

PM/PM₁₀ - 0.46

CO - 1.69

VOC - 0.74

Applicable Compliance Method:

Compliance with the annual emission limitation shall be demonstrated by the record keeping required in section A.III. 3. and the associated emission factors specified in section A.V.

g. Emission Limitation:

Visible particulate emission shall not exceed 20% opacity as a six-minute average, except as provided by rule.

31

Duke

PTI A

Modification Issued: 12/28/2004

Emissions Unit ID: B001

Applicable Compliance Method:

If required, compliance shall be demonstrated in accordance with the requirements specified in OAC rule 3745-17-03(B)(1) determined according to Method 9 of 40 CFR Part 60, Appendix A.

VI. Miscellaneous Requirements

None

Duke

PTI A

Modification Issued: 12/28/2004

Emissions Unit ID: B001

B. State Only Enforceable Section**I. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
B001 - 30.6 MMBtu/hr natural gas fired boiler	None	None

2. Additional Terms and Conditions

- 2.a None

II. Operational Restrictions

None

III. Monitoring and/or Recordkeeping Requirements

None

IV. Reporting Requirements

None

V. Testing Requirements

None

VI. Miscellaneous Requirements

None

Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

- 1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>
B002 - 30.6 MMBtu/hr natural gas fired boiler	40 CFR 52.21 and OAC rule 3745-31-(10) thru (20)
modification to correct the boiler size and hourly emission limits	OAC rule 3745-31-05(A)(3)
	40 CFR 60 Subpart Dc
	OAC rule 3745-18-06(A)
	OAC rule 3745-17-10(B)(1)
	OAC rule 3745-17-07(A)
	OAC rule 3745-31-05(C)

Duke**PTI A****Modification Issued: 12/28/2004**

Emissions Unit ID: B002

Applicable Emissions
Limitations/Control
Measures

nitrogen oxide (NO_x)
emissions shall
not exceed:
0.035 lb/MMBTU actual
heat input
1.07 lb/hr.

sulfur dioxide (SO₂)
emissions shall
not exceed:
0.001 lb/MMBTU actual
heat input
0.031 lb/hr.

carbon monoxide (CO)
emission shall
not exceed:
0.037 lb/MMBTU actual
heat input
1.13 lb/hr.

volatile organic compounds
(VOC) emissions shall not
exceed:
0.016 lb/MMBTU actual
heat input
0.49 lb/hr.

particulate(PM/PM10)
emissions shall not exceed:
0.01 lb/MMBTU actual heat
input
0.31 lb/hr.

The tons per rolling
12-month period shall not

exceed:
NO_x - 1.6
SO₂ - 0.046
PM/PM10 - 0.46

CO - 1.69
VOC - 0.74

See A.I.2.b. below.

The requirements of this rule also
include compliance with the
requirements of 40 CFR 60 Subpart
Dc, OAC rule 3745-18-06(A), OAC
3745-17-10(B)(1), OAC rule
3745-17-07(A), 40 CFR 52.21, and
OAC rule 3745-31- (10) thru (20).

See section A.I.2.a. below.

See section A.I.2.a. below.

See section A.I.2.a. below.

20% opacity as a six minute average,
except as provided by rule.

See section A.I.2.c. below.

See section A.II.2. below.

Duke

PTI A

Modification Issued: 12/28/2004

Emissions Unit ID: B002

2. Additional Terms and Conditions

- 2.a** The requirements of this rule are less stringent than the requirements of 40 CFR 52.21 and OAC rule 3745-31-(10) thru (20).
- 2.b** Based on the "Prevention of Significant Deterioration" (PSD) analysis conducted to ensure the application of "Best Available Control Technology" (BACT), it has been determined that the use of natural gas, low sulfur fuel and low NOx burners constitutes BACT for this emission unit. The emissions limits based on the BACT requirements are listed under OAC rule 40 CFR 52.21 and OAC rule 3745-31-(10) thru (20) above.
- 2.c** The requirements of this rule are equivalent to the NOx, SO2, and PM/PM10 emissions per 40 CFR Part 52.21 and OAC rule 3745-31 (10) through (20).

II. Operational Restrictions

1. The permittee shall burn only natural gas in this emission unit. The maximum sulfur content of the natural gas shall not exceed 2 grains per 100 cubic feet.
2. The maximum annual fuel heat input for this emissions unit shall not exceed 91,500 MMBTU, based upon a rolling, 12-month summation of heat input values.

To ensure enforceability during the first 12 calendar months following the startup of this emissions unit the permittee shall not exceed the monthly cumulative fuel heat input restrictions specified in the following table:

<u>Month</u>	<u>Cumulative Fuel Heat Input (MMBTU)</u>
1	45,750
1-2	91,500
1-3	91,500
1-4	91,500
1-5	91,500
1-6	91,500
1-7	91,500
1-8	91,500
1-9	91,500
1-10	91,500
1-11	91,500
1-12	91,500

After the first 12 calendar months of operation of this emission unit, compliance with the annual fuel heat input restriction shall be based upon a rolling, 12-month summation of the heat input values.

III. Monitoring and/or Recordkeeping Requirements

1. For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emission unit.
2. The permittee shall monitor the sulfur content and gross calorific value of the fuel being fired in the emission unit. Fuel sampling and analysis shall be conducted according to the procedures and at the frequency specified by 40 CFR Part 75, Appendix D.
3. The permittee shall maintain monthly records of the following information for each emission unit:
 - a. Monthly Fuel Heat input (MMBTU)
 - b. Beginning after the first 12 calendar months of operation following issuance of this permit, the rolling, 12-month summation of fuel heat input (MMBTU).
Also, during the first 12 calendar months of operation following issuance of this permit, the permittee shall record the cumulative fuel heat input (MMBTU) for each calendar month.

IV. Reporting Requirements

1. The permittee shall submit deviation(excursion) reports that identify each day when a fuel other than natural gas was burned in this emission unit. Each report shall be submitted within 30 days after the deviation occurs.
2. The permittee shall submit deviation (excursion) reports that identify any record which shows that the sulfur content of the natural gas exceeded 2 grains per 100 standard cubic feet. These reports are due by the date described in Part I - General Terms and Conditions of this permit under section (A)(2).
3. The permittee shall submit deviation (excursion) reports which identify all exceedances of the rolling, 12-month fuel heat input limitation and, for the first 12 calendar months of operation, all exceedances of the maximum allowable monthly cumulative fuel heat input limitation. These reports are due by the date described in Part 1 - General Terms and Conditions of this permit under section (A)(2).

Duke Energy - Hanging Rock, LLC

PTI Application: 07-00503

Modif

Facility ID: 0744000150

Emissions Unit ID: B002

4. This emissions unit is subject to the applicable provisions of Subpart Dc of the New Source Performance Standards (NSPS) as promulgated by the United States Environmental Protection Agency, 40 CFR Part 60. The application and enforcement of these standards are delegated to the Ohio EPA. The requirements of 40 CFR Part 60 are also federally enforceable.

Pursuant to 40 CFR Part 60.7, the permittee is hereby advised of the requirement to report the following at the appropriate times:

- a. 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 (if required, at least 30 days prior to testing).

Reports are to be sent to:

Ohio Environmental Protection Agency
DAPC - Permit Management Unit
P.O. Box 163669
Columbus, Ohio 43216-3669

and

Portsmouth Local Air Agency
605 Washington Street, Third Floor
Portsmouth, Ohio 45662

V. Testing Requirements

1. Compliance with the emission limitations in section A.I.1. of these terms and conditions shall be determined in accordance with the following methods:

- a. Emission Limitation:

0.035 lb/MMBTU NO_x,
1.07 lb/hr NO_x

Applicable Compliance Method:

Compliance with the lb/MMBTU emission limitation shall be demonstrated using the manufacturer supplied emission factor of 0.035 lb/MMBTU.

Compliance with the lb/hr emission limitation shall be demonstrated by multiplying the manufacturer supplied NO_x emission factor (0.035 lb/MMBTU) by the actual heat input rate (MMBTU/hr).

If required, the permittee shall demonstrate compliance with the lb/MMBTU and lb/hr emission limitations through emission testing performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 4 and 7.

- b. Emission Limitation:

0.001lb/MMBTU SO₂,
0.031 lb/hr SO₂

Applicable Compliance Method:

Compliance with the lb/MMBTU emission limitation shall be demonstrated using the manufacturer supplied emission factor of 0.001 lb/MMBTU.

Compliance with the lb/hr emission limitation shall be demonstrated by multiplying the manufacturer supplied SO₂ emission factor (0.001 lb/MMBTU) by the actual heat input rate (MMBTU/hr)..

If required, the permittee shall demonstrate compliance with the lb/MMBTU and lb/hr emission limitations through emission testing performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 4 and 6.

c. Emission Limitation:

0.037 lb/MMBTU CO

1.13 lb/hr CO

Applicable Compliance Method:

Compliance with the lb/MMBTU emission limitation shall be demonstrated using the manufacturer supplied emission factor of 0.037 lb/MMBTU.

Compliance with the lb/hr emission limitation shall be demonstrated by multiplying the manufacturer supplied CO emission factor (0.037 lb/MMBTU) by the actual heat input rate (MMBTU/hr).

If required, the permittee shall demonstrate compliance with the lb/MMBTU and lb/hr emission limitations through emission testing performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 4 and 10.

d. Emission Limitation:

0.016 lb/MMBTU VOC

0.49 lb/hr VOC

Applicable Compliance Method:

Compliance with the lb/MMBTU emission limitation shall be demonstrated using the manufacturer supplied emission factor of 0.016 lb/MMBTU.

Compliance with the lb/hr emission limitation shall be demonstrated by multiplying the manufacturer supplied VOC emission factor (lb/MMBTU) by the actual heat input rate (MMBTU/hr).

If required, the permittee shall demonstrate compliance with the lb/MMBTU and lb/hr emission limitations through emission testing performed in accordance with 40 CFR Part

60, Appendix A, Methods 1 through 4 and 25.

e. Emission Limitation:

0.01 lb/MMBTU PM/PM₁₀

0.31 lb/hr PM/PM₁₀

Applicable Compliance Method:

Compliance with the lb/MMBTU emission limitation shall be demonstrated using the manufacturer supplied emission factor of 0.01 lb/MMBTU.

Compliance with the lb/hr emission limitation shall be demonstrated by multiplying the manufacturer supplied PM/PM₁₀ emission factor (lb/MMBTU) by the actual heat input rate (MMBTU/hr)

If required, the permittee shall demonstrate compliance with the lb/MMBTU and lb/hr emission limitations through emission testing performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 5.

f. Emission Limitation:

The tons per rolling 12-month period shall not exceed:

NO_x - 1.6

SO₂ - 0.046

PM/PM₁₀ - 0.46

CO - 1.69

VOC - 0.74

Applicable Compliance Method:

Compliance with the annual emission limitation shall be demonstrated by the record keeping required in section A.III. 3. and the associated emission factors specified in section A.V.

g. Emission Limitation:

Visible particulate emission shall not exceed 20% opacity as a six-minute average, except as provided by rule.

Applicable Compliance Method:

If required, compliance shall be demonstrated in accordance with the requirements

41

Duke

PTI A

Modification Issued: 12/28/2004

Emissions Unit ID: B002

specified in OAC rule 3745-17-03(B)(1) determined according to Method 9 of 40 CFR Part 60, Appendix A.

VI. Miscellaneous Requirements

None

Modification Issued: 12/28/2004

B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

- 1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
B002 - 30.6 MMBTU/hr natural gas fired boiler	None	None

2. Additional Terms and Conditions

2.a None

II. Operational Restrictions

None

III. Monitoring and/or Recordkeeping Requirements

None

IV. Reporting Requirements

None

V. Testing Requirements

None

VI. Miscellaneous Requirements

None

Duke

PTI A

Modification Issued: 12/28/2004

Emissions Unit ID: P001

Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

- 1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>
P001 - 172 MW GE 7FA natural gas fired dry low NOx (DLN) combustion turbine No. 1 with duct firing operating in combined cycle mode controlled by Selective Catalytic Reduction (SCR)	40 CFR 52.21 and OAC rule 3745-31-(10) through (20)
modification to remove non applicable rule	

OAC rule 3745-14

OAC rule 3745-31-05(A)(3)

OAC rule 3745-31-05(C)
40 CFR part 60, Subpart GG

40 CFR part 60, Subpart Da

OAC rule 3745-18-06(F)

OAC rule 3745-17-11(B)(4)

OAC rule 3745-17-07(A)

40 CFR Part 75

OAC rule 3745-103

Duke

PTI A

Emissions Unit ID: P001

Modification Issued: 12/28/2004

<p>Applicable Emissions <u>Limitations/Control</u> <u>Measures</u></p>	<p>1.68 lb/hr.</p>	<p>month rolling average.</p>
<p>EMISSION LIMITS WITHOUT DUCT BURNER FIRING</p>	<p>EMISSION LIMITS WITH DUCT BURNER FIRING (limited to 5,500 hours per year)</p>	<p>52.82 tpy of SO₂, based on a 12 month rolling average</p>
<p>nitrogen oxides (NO_x) emissions shall not exceed 3.0 ppmvd at 15 % oxygen (based on a 3 hour block averaging period).</p>	<p>NO_x emissions shall not exceed 3.0 ppmvd at 15 % oxygen (based on a 3 hour block averaging period).</p>	<p>88.53 tpy of PM/PM₁₀, based on a 12 month rolling average</p>
<p>NO_x emissions shall not exceed 21.1 lb/hr.</p>	<p>NO_x emissions shall not exceed 27.8 lb/hr.</p>	<p>278.0 tpy of CO based on a 12 month rolling average.</p>
<p>particulate (PM/PM₁₀) emissions shall not exceed 15 lb/hr.</p>	<p>PM/PM₁₀ emissions shall not exceed 23.3 lb/hr.</p>	<p>65.1 tpy of VOC based on a 12 month rolling average.</p>
<p>sulfur dioxide (SO₂) emission shall not exceed 11 lb/hr.</p>	<p>SO₂ emissions shall not exceed 14.4 lb/hr.</p>	<p>8.07 tpy of H₂SO₄, based on a 12 month rolling average</p>
<p>carbon monoxide (CO) emissions shall not exceed 6 ppmvd at 15 % oxygen (based on a 24 hour block averaging period).</p>	<p>CO emissions shall not exceed 9 ppmvd at 15 % oxygen (based on a 24 hour block averaging period).</p>	<p>see . A.I.2.d. below. The requirements of this rule also include compliance with the requirements of 40 CFR 60 Subpart GG, OAC rule 3745-18-06(F), OAC rule 3745-17-11 (B)(4), OAC rule 3745-17-07(A), 40 CFR 52.21, and OAC rule 3745-31-(10) through (20).</p>
<p>CO emissions shall not exceed 25.7 lb/hr.</p>	<p>CO emissions shall not exceed 50.3 lb/hr.</p>	<p>EMISSION LIMITS WITHOUT DUCT BURNER FIRING</p>
<p>volatile organic compounds (VOC) emissions shall not exceed 3.2 lb/hr .</p>	<p>VOC emissions shall not exceed 20.4 lb/hr.</p>	<p>ammonia (NH₃) emissions shall not exceed 28 lb/hr.</p>
<p>sulfuric acid (H₂SO₄) emissions shall not exceed</p>	<p>TOTAL TONS PER YEAR (including 3,260 hours per year without duct burners, 5,500 hours per year with duct burners, startups and shutdowns)</p>	<p>formaldehyde emissions shall not exceed 0.45 lb/hr. EMISSION LIMITS WITH DUCT BURNER FIRING (limited to 5,500 hours per year)</p>
	<p>121.2 tpy of NO_x based on a 12</p>	

Duke

PTI A

Modification Issued: 12/28/2004

Emissions Unit ID: P001

NH₃ emissions shall not exceed 37.8 lb/hr.

See Part II Section A.IV.

formaldehyde emissions shall not exceed 0.494 lb/hr.

TOTAL TONS PER YEAR (including 3,260 hours per year without duct burners, 5,500 hours per year with duct burners, startups and shutdowns)

140.01 tpy of NH₃

2.09 tpy of formaldehyde

Visible particulate emissions shall not exceed 10 % opacity as a six minute average.

see . A.I.2.e. below.
see A.II.4. below.

see A.I.2.b. below.

see A.I.2.a. below.

see A.I.2.a. below.

see A.I.2.a. below.

see A.I.2.a. below.

See A.I.2.c. below.

See A.I.2.c. below.

2. Additional Terms and Conditions

- 2.a** The emissions limit based on this applicable rule is equivalent to or less stringent than the limit established pursuant to 40 CFR 52.21 and OAC rule 3745-31-(10) thru (20).
- 2.b** The emission limits based on this applicable rule are equivalent to or less stringent than the limits established pursuant to 40 CFR 52.21 and OAC rule 3745-31-(10) thru (20). Except as provided for in the terms and condition of this permit, the permittee is not exempt from meeting any additional requirements of 40 CFR Part 60, Subpart GG.
- 2.c** The permittee shall ensure that any effected emissions unit complies with the requirements of 40 CFR Part 75. Emissions exceeding any allowances that are lawfully held under Title IV of the Act, or any regulations adopted thereunder, are prohibited.
- 2.d** The permittee is required to perform a Best Available Control Technology (BACT) review for NO_x, SO₂, CO, PM₁₀, H₂SO₄, and VOC. The emissions limits based on the BACT requirements are listed under 40 CFR 52.21 and OAC rule 3745-31-(10) through(20) above. The following determinations have been made for each pollutant:
- PM- Burning natural gas in an efficient combustion turbine. For this permit, it is assumed that all PM emissions are PM₁₀.
 - NO_x- Use of DLN burners and employment of SCR with a controlled rate of 3.0 ppmvd at 15% oxygen (based on a 3 hour block averaging period).
 - CO- Use of good combustion practices with a rate of 6 ppmvd at 15 % oxygen (based on a 24 hour block averaging period) without duct firing and 9 ppmvd at 15 % oxygen (based on a 24 hour block averaging period) with duct firing.
 - VOC- Use of efficient combustion technology in the operation of the turbine.
 - SO₂- Burning natural gas in an efficient combustion turbine and burning low sulfur fuel.
 - H₂SO₄- Burning natural gas in an efficient combustion turbine.
- 2.e** The requirements of this rule are equivalent to the NO_x, SO₂ and PM/PM₁₀ emissions per 40 CFR 52.21 and OAC rule 3745-31-(10) through (20).

II. Operational Restrictions

1. The permittee shall burn only natural gas in this emission unit. The maximum sulfur content of

Emissions Unit ID: P001

the natural gas shall not exceed 2 grains per 100 standard cubic feet.

2. Startup shall be defined as the period between when the combustion turbines is initially started until the combustion turbine achieves combustion operational Mode 6. Shutdown shall be defined as the period beginning when the combustion turbine leaves operational Mode 6 and ending when combustion has ceased. Mode 6 is defined by the manufacturer as the low emissions mode during which all 6 of the burner nozzles are in use, burning a lean premixed gas for steady-state operation (i.e., in compliance with the NO_x and CO lbs/hr emission limitations listed in term A.I.1). The continuous emission monitoring system will indicate and record the combustion turbine operational mode, including when the emissions unit is shutdown and when operating in start-up and shutdown modes. This system will also be used to demonstrate compliance with the NO_x and CO emissions limitations during steady-state operation (Mode 6) and startups/shutdowns.

Startups shall not exceed 250 minutes in duration and shutdowns shall not exceed 120 minutes in duration. The total of all start-ups and shutdowns shall be limited to 260 cycles (each cycle consists of one start-up and one shutdown) per year.

Each startup and shutdown shall be limited to the following:

<u>Pollutant</u>	<u>Maximum Emission Rate (lbs/hr per turbine)</u>
NO _x	400
CO	1,658
VOC	94

Duke**PTI A****Modification Issued: 12/28/2004**

Emissions Unit ID: P001

Compliance with the above CO and NO_x lbs/hour startup and shutdown emission limitations will be demonstrated using the continuous emissions monitoring system based on a 1 hour block average. Compliance with the VOC lbs/hour startup and shutdown emission limitations will be demonstrated through the record keeping required in section A.III. of this permit.

3. Except during periods of startup, the SCR shall be in operation at all times including periods of shutdown mode of the unit.
4. The maximum annual hours of operation of the duct burners for this emission unit shall not exceed 5,500 hours, based upon a rolling 12 month summation.

To ensure enforceability during the first 12 calendar months following the startup of this emissions unit, the permittee shall not exceed the monthly hours of operation restrictions specified in the following table:

Month	Hours of Operation
1	800
1-2	1600
1-3	2400
1-4	3200
1-5	4000
1-6	4800
1-7	5500
1-8	5500
1-9	5500
1-10	5500
1-11	5500
1-12	5500

After the first 12 calendar months following the startup of emission unit P001, compliance with the annual hours of operation restriction shall be based on a rolling, 12-month summation.

III. Monitoring and/or Recordkeeping Requirements

1. The permittee shall maintain monthly records of the following information for this emission unit:
 - a. the natural gas usage rate (in standard cubic feet).
 - b. the hours of operation of the combustion turbine.

- c. the hours of operation of the duct burner.
 - d. During the first 12 calendar months of operation, records of the cumulative operating hours of the duct burner.
 - e. Beginning after the first 12 calendar months of operation, the rolling, 12-month summation of the operating hours of the duct burner.
 - f. Number of start-ups, and the duration, in minutes, of each start-up.
 - g. Number of shutdowns, and the duration, in minutes, of each shutdown.
 - h. The total number of start-up/shutdown cycles.
 - i. The VOC emissions for each start-up/shutdown event, in tons, by using the emissions factor of 94 pounds per hour during startup and shutdown;
 - j. The total VOC emissions, in tons, not including start-up/shutdown emissions.
 - k. The total NO_x emissions, in tons, including start-up/shutdown emissions.
 - l. The total CO emissions, in tons, including start-up/shutdown emissions.
 - m. The total VOC emissions, in tons, including start-up/shutdown emissions (i.e., i+j).
 - n. The total SO₂, PM/PM₁₀, NH₃, formaldehyde, and sulfuric acid emissions, in pounds.
 - o. Beginning after the first 12 calendar months of operation, the rolling, 12-month summation of the NO_x emissions, in tons, including start-up/shutdown emissions.
 - p. Beginning after the first 12 calendar months of operation, the rolling, 12-month summation of the total CO emissions, in tons, including start-up/shutdown emissions.
 - q. Beginning after the first 12 calendar months of operation, the rolling, 12-month summation of the VOC emissions, in tons, including start-up/shutdown emissions.
 - r. Beginning after the first 12 calendar months of operation, the rolling, 12-month summations of the SO₂, H₂SO₄ and PM/PM₁₀ emissions, in tons.
2. The permittee shall install, certify, operate and maintain equipment to continuously monitor* and record NO_x, CO and O₂ from this emissions unit in the units established in this permit. Such

Modification Issued: 12/28/2004

continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13 and/or 40 CFR Part 75, or as approved by the Ohio EPA, Central Office.

The permittee shall maintain records of all data obtained by the continuous NO_x, CO and O₂ monitoring system including, but not limited to, parts per million NO_x, CO and O₂ on an

instantaneous (one-minute) basis and emissions of NO_x, CO and O₂ in units established in this permit in the appropriate averaging period during Mode 6, and including start-up and shutdown, results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

In conjunction with the operation of the NO_x and CO CEMs, the permittee shall install, operate and maintain a system to monitor when the duct burners are being fired. The data measured by this system shall be compiled with the data recorded by the NO_x and CO CEMs.

* The installation and operation of systems to continuously monitor and record emissions of NO_x may be performed in lieu of monitoring the nitrogen content of the fuels being fired in the turbine, as required by 40 CFR 60.334(b).

3. The permittee shall install, operate and maintain equipment to continuously monitor and record the actual fuel flow to this emissions unit when the emissions unit is in operation. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 75. If the fuel flow monitoring and/or recording equipment is (are) not in service when the emissions unit is in operation, the permittee shall comply with the appropriate missing data procedures specified in 40 CFR Part 75 and/or section A.VI.4. of this permit.
4. The permittee shall monitor the sulfur content and gross calorific value of the fuel being fired in the combustion turbine and duct burner. In accordance with 40 CFR 60, Subpart GG, section 60.334 (h)(3), the permittee has demonstrated that the gaseous fuel meets the definition of natural gas in 40 CFR 60 Subpart GG, section 60.331(u). Therefore, fuel sampling and analysis shall be conducted according to the procedures and at the frequency specified by 40 CFR Part 75, Appendix D. Per 40 CFR Part 75, Appendix D section 2.3.1.4, the permittee has demonstrated that the gaseous fuel is pipeline natural gas. Therefore, ongoing sampling of the of the fuel's sulfur content is required annually and whenever the fuel supply sources change.
5. The permittee shall determine the hourly heat input rate to the combustion turbine and duct burner from the fuel flow rate as determined in term A. III.3. and gross calorific value as determined in term A.III.4. The heat input rate shall be calculated in accordance with the procedures in section 5 of 40 CFR Part 75, Appendix F.

Duke Energy - Hanging Rock, LLC

PTI Application: 07-00503

Modif

Facility ID: 0744000150

Emissions Unit ID: P001

6. For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.

IV. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emission unit. Each report shall be submitted within 30 days after the deviation occurred.

2. The permittee shall submit quarterly deviation (excursion) reports that identify the following:
 - a. During the first 12 calendar months of operation, all exceedances of the cumulative duct burner operating hours limitations.
 - b. Beginning after the first 12 calendar months of operation, all exceedances of the rolling, 12-month duct burner operating hours limitation.
 - c. Any record which shows that the sulfur content of the natural gas exceeded 2 grains per 100 standard cubic feet.
 - d. Any record which shows that the start-up duration exceeded 250 minutes.
 - e. Any record which shows that the shutdown duration exceeded 120 minutes.
 - f. Any record which shows that the total number of start-up/shutdown cycles exceeded 260.
 - g. All exceedances of the NO_x, CO, and/or VOC start-up limitations.
 - h. Beginning after the first 12 calendar months of operation, all exceedances of the rolling, 12-month NO_x, CO, VOC, SO₂, and/or PM/PM₁₀ emission limitations.

The quarterly deviation reports are due by the dates described in Part 1 - General Terms and Conditions of this permit under section (A)(2).

3. Pursuant to OAC rules 3745-15-04, and ORC sections 3704.03(I) and 3704.03(l) and 40 CFR Part 60.7 and 60.13 (h), the permittee shall submit reports within 30 days following the end of each calendar quarter to the Portsmouth Local Air Agency documenting the date, commencement and completion times, duration, magnitude, reason (if known), and corrective actions taken (if any), of all instances of NO_x or CO values, as recorded by the CEMs in excess of the applicable limits specified in the terms and conditions of this permit. These reports shall also contain the total NO_x and CO emissions for the calendar quarter (in tons), including all data collected during start-up and shutdown periods and all data generated pursuant to the missing data procedures specified in 40 CFR Part 75 and/or the approved data substitution protocol required by section A.VI.4 of this permit.

The permittee shall submit reports within 30 days following the end of each calendar quarter to the Portsmouth Local Air Agency documenting any continuous NO_x, CO, or O₂ monitoring system down time while the emission unit was on line (date, time, duration and reason) along with any corrective action(s) taken. The permittee shall provide the emission unit operating time

Modification Issued: 12/28/2004

during the reporting period and the date, time, reason and corrective action(s) taken for each time period of emission unit and control equipment malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emission unit was on line shall also be included in the quarterly report.

If there are no excess emissions during the calendar quarter, the permittee shall submit a statement to that effect along with the emissions unit operating time during the reporting period and the date, time, reason, and corrective action(s) taken for each time period of emission unit, control equipment, and/or monitoring system malfunctions. The total operating time of the emission unit and the total operating time of the analyzer while the emission unit was on line also shall be included in the quarterly report. These quarterly excess emission reports shall be submitted by January 30, April 30, July 30, and October 30 of each year and shall address the data obtained during the previous calendar quarter.

Pursuant to OAC rules 3745-15-04, and ORC sections 3704.03(I) and 3704.031, the permittee shall submit a summary of the excess emission report pursuant to 40 CFR Part 60.7. The summary shall be submitted to the Portsmouth Local Air Agency within 30 days following the end of each calendar quarter in a manner prescribed by the Director.

4. In lieu of the excess emissions reports required under 40 CFR Part 60.334, the permittee shall submit excess emissions reports for this emissions unit in accordance with this permit.
5. The permittee shall submit annual reports that specify the total NO_x, CO, PM/PM₁₀, SO₂, VOC, NH₃, formaldehyde, and sulfuric acid emissions from this emissions unit for the previous calendar year. The reports shall be submitted by January 31 of each year.
6. This emission unit is subject to the applicable provisions of Subpart Da and GG of the New Source Performance Standards (NSPS) as promulgated by the United States Environmental Protection Agency, 40 CFR Part 60. The application and enforcement of these standards are delegated to the Ohio EPA. The requirements of 40 CFR Part 60 are also federally enforceable.

Pursuant to 40 CFR Part 60.7, the permittee is hereby advised of the requirement to report the following at the appropriate times:

- a. 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,

Duke Energy - Hanging Rock, LLC

PTI Application: 07-00502

Modif

Facility ID: 0744000150

Emissions Unit ID: P001

- d. date of performance testing (if required, at least 30 days prior to testing).

Reports are to be sent to :

Ohio Environmental Protection Agency
DAPC - Permit Management Unit
P.O. Box 163669
Columbus, Ohio 43216-3669

and

Portsmouth Local Air Agency
605 Washington Street, Third Floor
Portsmouth, Ohio 45662

V. Testing Requirements

1. The permittee shall conduct, or have conducted, emission testing for this emission unit in accordance with the following requirements:
 - a. The emission testing shall be conducted within 60 days after achieving the maximum production rate at which the emission unit will be operated, but not later than 180 days after initial startup of such emission unit.
 - b. The emission testing shall be conducted to demonstrate compliance with the NO_x and CO outlet concentration, and the mass emission limitations for NO_x*, CO, Formaldehyde, VOC, PM/PM₁₀ and ammonia.
 - c. The following test method(s) shall be employed to demonstrate compliance with the above emission limitations: for NO_x, Method 20 of 40 CFR Part 60, Appendix A; for PM/PM₁₀, Method 5 of 40 CFR Part 60, Appendix A; for Formaldehyde, SW-846 Method 0011 or EPA Method 316; for VOC, Method 25 of 40 CFR Part 60, Appendix A; for CO Method 10 of 40 CFR Part 60, Appendix A and for ammonia, CTM-027. Alternative USEPA approved test methods may be used with prior approval from the Ohio EPA.
 - d. The testing shall be conducted while the emission unit is operating at or near its maximum capacity with and without duct burner firing, unless otherwise specified or approved by Ohio EPA or local air agency.
 - e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Portsmouth Local Air Agency. The "Intent to Test"

Modification Issued: 12/28/2004

notification shall describe in detail the proposed test methods and procedures, the emission unit operating parameters, the times(s) and date(s) of the test(s), and the person(s) who will be conducting these test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Portsmouth Local Air Agency's refusal to accept the results of the emission test(s).

- f. Personnel from Portsmouth Local Air Agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.
- g. A comprehensive written report on the results of the emission test(s) shall be signed by the person or persons responsible for the tests and submitted to the Portsmouth Local Air Agency within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Portsmouth Local Air Agency.
- * In lieu of the test methods and procedures required under 40 CFR Part 60.335, the permittee shall follow the testing requirements in accordance with this permit.

- 2. Within 60 days after achieving the maximum production rate at which the emission unit will be operated, but not later than 180 days after initial startup of such emissions unit, the permittee shall conduct certification tests of the continuous NO_x, CO and O₂ monitoring systems pursuant to ORC section 3704.03(I), 40 CFR Part 60, Appendix B, Performance Specification 2,3, 4 and 6* and/or 40 CFR Part 75, unless an extension is granted by the Ohio EPA.. Personnel from the Portsmouth Local Air Agency shall be notified 30 days prior to initiation of the applicable tests and shall be permitted to examine equipment and witness the certification tests. In accordance with OAC rule 3745-15-04, copies of all test results shall be submitted within 30 days after the test is completed. Copies of the test results shall be sent to the Portsmouth Local Air Agency and the Ohio EPA, Central Office. Certification of the continuous NO_x, CO and O₂ monitoring systems shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of the appropriate sections of ORC section 3704.03(I), 40 CFR Part 60, Appendix B, Performance Specification 2, 3, 4 and 6* and/or 40 CFR Part 75.

* In lieu of monitoring the stack gas flow rate as required by 40 CFR Part 60, Appendix B - Performance Specification 6, the permittee shall use certified NO_x CEMs in conjunction with a fuel flow monitor as described in 40 CFR Part 75, and certified CO CEMs in conjunction with a fuel flow monitor (in a manner similar to the used for NO_x) to meet these requirements. The

relative accuracy requirements of Performance Specification 6 shall apply.

3. Compliance with the emission limitations in section A.I.1. of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

NOx emissions shall not exceed 3.0 ppmvd at 15% Oxygen (based on 3 hr block avg.)
21.1 lb/hr without duct firing
27.8 lb/hr with duct firing
121.2 TPY, based on a 12 month rolling summation, including startup and shutdown emissions.

Applicable Compliance Method:

Initial compliance with the allowable outlet concentration, and the lb/hr emission limitations shall be demonstrated by the performance testing as described in section A.V.1. Ongoing compliance with those limitations, as well as annual, including startup

and shutdown, emission limitations during Mode 6 as well as, start up and shutdown operations shall be demonstrated by the use of the CEM and the records required pursuant to this permit.

TPY allowables were calculated using projected lb/hr emission rates at 56 deg F.

b. Emission Limitation:

PM/PM10 emissions shall not exceed
15 lb/hr without duct burner firing
23.3 lb/hr with duct burner firing
88.53 TPY, based on a 12 month rolling summation

Applicable Compliance Method:

Compliance with the lb/hr emission limitation shall be demonstrated by the performance testing in A.V.1. Compliance with the annual emission limitation shall be determined by the multiplying the hourly emissions rate by the actual annual hours of operation and dividing by 2000lb/ton. The monthly emissions shall be added to the previous 11 months to determine the rolling 12 month total emissions.

TPY allowables were calculated using projected lb/hr emission rates at 56 deg F.

c. Emission Limitation:

SO₂ emissions shall not exceed
11 lb/hr without duct burner firing
14.4 lb/hr with duct burner firing
52.82 TPY, based on a 12 month rolling summation.

Applicable Compliance Methods:

Compliance with the lb/hr emission limitation shall be demonstrated by the recordkeeping required in section A.III.. Compliance with the annual emission limitation shall be determined by the multiplying the hourly emissions rate by the actual annual hours of operation and dividing by 2000lb/ton. The monthly emissions shall be added to the previous 11 months to determine the rolling 12 month total emissions.

TPY allowables were calculated using projected lb/hr emission rates at 56 deg F.

If required, the permittee shall demonstrate compliance with the lb/hr emission limitation by emission testing in accordance with approved USEPA test methods.

- d. Emission Limitation:
VOC emissions shall not exceed
3.2 lb/hr without duct burner firing
20.4 lb/hr with duct burner firing
65.1 TPY, based on a 12 month rolling summation,
including startup and shutdown emissions.

Applicable Compliance Method:

Compliance with the lb/hr emission limitation shall be demonstrated by the performance testing as described in A.V.1. Compliance with the annual emission limitation shall be determined by the multiplying the hourly emissions rate by the actual annual hours of operation and dividing by 2000lb/ton. The monthly emissions shall be added to the previous 11 months to determine the rolling 12 month total emissions. The annual emissions associated with start-up and shutdown shall be determined by record keeping required in section A.III.

TPY allowables were calculated using projected lb/hr emission rates at 56 deg F.

e. Emission Limitation:

CO emissions shall not exceed

6 ppmvd at 15 % Oxygen without duct burner firing (based on 24 hr block avg.)

9 ppmvd at 15 % Oxygen with duct burner firing (based on 24 hr block avg.)

25.7 lb/hr without duct burner firing

50.3 lb/hr with duct burner firing

278.0 TPY, based on a 12 month rolling summation, including startup and shutdown emissions.

Applicable Compliance Method:

Initial compliance with the allowable outlet concentration, and the lb/hr emission limitations shall be demonstrated by the performance testing as described in section A.V.1. Ongoing compliance with those as well as annual, including startup and shutdown, emission limitations during Mode 6 as well as startup and shutdown operations shall be demonstrated by the use of the CEM. and the records required pursuant to this permit.

TPY allowables were calculated using projected lb/hr emission rates at 56 deg F.

f. Emission Limitation:

ammonia (NH₃) emissions shall not exceed

28 lb/hr without duct burner firing

37.8 lb/hr with duct burner firing

140.01 TPY

Applicable Compliance Method:

Compliance with the lb/hr emission limitation shall be demonstrated by the performance testing as described in section A.V.1. Compliance with the annual emission limitation shall be determined by the multiplying the hourly emissions rate, as determined by the most recent performance test that demonstrated compliance, by the actual annual hours of operation and dividing by 2000 lb/ton.

TPY allowables were calculated using projected lb/hr emission rates at 56 deg F.

g. Emission Limitation:

Formaldehyde emission shall not exceed

0.45 lb/hr without duct burner firing

0.494 lb/hr with duct burner firing

Duke**PTI A****Modification Issued: 12/28/2004**

Emissions Unit ID: P001

2.09 TPY

Applicable Compliance Method:

Compliance with the lb/hr emission limitations shall be demonstrated by the performance testing as described in section A.V.1. Compliance with the annual emission limitation shall be determined by multiplying the hourly emission rate, as determined by the most recent performance test that demonstrated compliance, by the actual annual hours of operation and dividing by 2000 lb/ton.

h. Emission Limitation:

Sulfuric acid (H₂SO₄) emissions shall not exceed
1.68 lb/hr without duct burner firing
2.2 lb/hr with duct burner firing
8.07 TPY based on a 12 month rolling summation

Applicable Compliance Method:

Compliance with the lb/hr emission limitation shall be demonstrated by multiplying the emission factor of 0.0009 lb/MMBTU (supplied by permittee) by the maximum heat input. If required, the permittee shall demonstrate compliance by emission testing in accordance with approved USEPA test methods. Compliance with the annual emission

limitation shall be determined by the multiplying the hourly emissions rate by the actual annual hours of operation and dividing by 2000lb/ton. The monthly emissions shall be added to the previous 11 months to determine the rolling 12 month total emissions.

TPY allowables were calculated using projected lb/hr emission rates at 56 deg F.

i. Emission Limitation:

Visible particulate emissions from any stack shall not exceed 10 percent opacity as a six minute average.

Applicable Compliance Method:

Duke Energy - Hanging Rock, LLC

PTI Application: 07-00503

Modif

Facility ID: 0744000150

Emissions Unit ID: P001

If required, compliance shall be demonstrated in accordance with the requirements specified in OAC rule 3745-17-03(B)(1) determined according to Method 9 of 40 CFR Part 60, Appendix A.

VI. Miscellaneous Requirements

1. In accordance with good engineering practices, the SCR unit on emissions unit P001 shall be installed, operated and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee. The permittee shall maintain on site a copy of the operation & maintenance manual, as provided by the manufacturer.
2. Prior to the installation of the continuous NO_x, CO and O₂ monitoring systems, the permittee shall submit information detailing the proposed location of the sampling site in accordance with the siting requirements in 40 CFR Part 60, Appendix B, Performance Specification 2,3,4 and 6 for approval by the Ohio EPA, Central Office.
3. Within 180 days of the effective date of this permit, the permittee shall develop a written quality assurance/quality control plan for the continuous NO_x, CO, and O₂ monitoring system designed to ensure continuous valid and representative readings of NO_x, CO, and O₂ emissions in units of the applicable standard. The plan shall follow the requirements of the appropriate sections of 40 CFR Part 60, Appendix F or as approved by the Ohio EPA, Central Office and 40 CFR Part 75, Appendix B. The quality assurance/ quality control plan and logbook dedicated to the continuous NO_x, CO, and O₂ monitoring system must be kept on site and available for inspection during regular office hours.
4. Within 60 days of the effective date of this permit, the permittee shall submit a data substitution protocol for the continuous emissions monitoring system to the Ohio EPA, Central Office. Upon approval of the protocol, the permittee will commence configuring the Data Acquisition

Duke**PTI A****Modification Issued: 12/28/2004**

Emissions Unit ID: P001

Handling System (DAHS) in accordance with the approved protocol. The DAHS modifications will be implemented and active within 120 days of protocol approval. The permittee may request an extension to the implementation requirement subject to approval by the Ohio EPA, Central Office.

B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P001 - 172 MW GE 7FA natural gas fired dry low NOx (DLN) combustion turbine No. 1 with duct firing operating in combined cycle mode controlled by Selective Calalytic Reduction (SCR)	None	None

2. Additional Terms and Conditions

2.a None

II. Operational Restrictions

None

III. Monitoring and/or Recordkeeping Requirements

None

IV. Reporting Requirements

None

V. Testing Requirements

Duke

PTI A

Modification Issued: 12/28/2004

Emissions Unit ID: P002

None

VI. Miscellaneous Requirements

None

Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

- 1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>
P002 - 172 MW GE 7FA natural gas fired dry low NOx (DLN) combustion turbine No. 2 with duct firing operating in combined cycle mode controlled by Selective Catalytic Reduction (SCR)	40 CFR 52.21 and OAC rule 3745-31-(10) through (20)
modification to remove non applicable rule	

Emissions Unit ID: P002

OAC rule 3745-17-11(B)(4)

OAC rule 3745-17-07(A)

OAC rule 3745-31-05(A)(3)

40 CFR Part 75

OAC rule 3745-103

OAC rule 3745-14

OAC rule 3745-31-05(C)

40 CFR part 60, Subpart GG

40 CFR part 60, Subpart Da

OAC rule 3745-18-06(F)

Duke

PTI A

Emissions Unit ID: P002

Modification Issued: 12/28/2004

Applicable Emissions <u>Limitations/Control</u> <u>Measures</u>	1.68 lb/hr.	month rolling average.
EMISSION LIMITS WITHOUT DUCT BURNER FIRING	EMISSION LIMITS WITH DUCT BURNER FIRING (limited to 5,500 hours per year)	52.82 tpy of SO ₂ , based on a 12 month rolling average
nitrogen oxides (NO _x) emissions shall not exceed 3.0 ppmvd at 15 % oxygen (based on a 3 hour block averaging period).	NO _x emissions shall not exceed 3.0 ppmvd at 15 % oxygen (based on a 3 hour block averaging period).	88.53 tpy of PM/PM ₁₀ , based on a 12 month rolling average
NO _x emissions shall not exceed 21.1 lb/hr.	NO _x emissions shall not exceed 27.8 lb/hr.	278.0 tpy of CO, based on a 12 month rolling average.
particulate (PM/PM ₁₀) emissions shall not exceed 15 lb/hr.	PM/PM ₁₀ emissions shall not exceed 23.3 lb/hr.	65.1 tpy of VOC, based on a 12 month rolling average.
sulfur dioxide (SO ₂) emission shall not exceed 11 lb/hr.	SO ₂ emissions shall not exceed 14.4 lb/hr.	8.07 tpy of H ₂ SO ₄ , based on a 12 month rolling average
carbon monoxide (CO) emissions shall not exceed 6 ppmvd at 15 % oxygen (based on a 24 hour block averaging period).	CO emissions shall not exceed 9 ppmvd at 15 % oxygen (based on a 24 hour block averaging period).	see . A.I.2.d below.
CO emissions shall not exceed 25.7 lb/hr.	CO emissions shall not exceed 50.3 lb/hr.	The requirements of this rule also include compliance with the requirements of 40 CFR 60 Subpart GG, OAC rule 3745-18-06(F), OAC rule 3745-17-11 (B)(4), OAC rule 3745-17-07(A), 40 CFR 52.21, and OAC rule 3745-31-(13) through (20).
volatile organic compounds (VOC) emissions shall not exceed 3.2 lb/hr .	VOC emissions shall not exceed 20.4 lb/hr.	EMISSION LIMITS WITHOUT DUCT BURNER FIRING
sulfuric acid (H ₂ SO ₄) emissions shall not exceed	H ₂ SO ₄ emissions shall not exceed 2.2 lb/hr.	ammonia (NH ₃) emissions shall not exceed 28 lb/hr.
	TOTAL TONS PER YEAR (including 3,260 hours per year without duct burners, 5,500 hours per year with duct burners, startups and shutdowns)	formaldehyde emissions shall not exceed 0.45 lb/hr.
	121.2 tpy of NO _x , based on a 12	EMISSION LIMITS WITH DUCT BURNER FIRING (limited to 5,500 hours per year)

Duke

PTI A

Modification Issued: 12/28/2004

Emissions Unit ID: P002

NH₃ emissions shall not exceed 37.8 lb/hr.

See Part II Section A.IV.

formaldehyde emissions shall not exceed 0.494 lb/hr.

TOTAL TONS PER YEAR (including 3,260 hours per year without duct burners, 5,500 hours per year with duct burners, startups and shutdowns)

140.01 tpy of NH₃

2.09 tpy of formaldehyde

Visible particulate emissions shall not exceed 10 % opacity as a six minute average.

see A.I.2.e. below.
see A.II.4. below.

see A.I.2.b. below.

see A.I.2.a. below.

see A.I.2.a. below.

see A.I.2.a. below.

see A.I.2.a. below.

See A.I.2.c. below.

See A.I.2.c. below

2. Additional Terms and Conditions

- 2.a** The emissions limit based on this applicable rule is equivalent to or less stringent than the limit established pursuant to 40 CFR 52.21 and OAC rule 3745-31-(10) thru (20).
- 2.b** The emission limits based on this applicable rule are equivalent to or less stringent than the limits established pursuant to 40 CFR 52.21 and OAC rule 3745-31-(10) thru (20). Except as provided for in the terms and condition of this permit, the permittee is not exempt from meeting any additional requirements of 40 CFR Part 60, Subpart GG.
- 2.c** The permittee shall ensure that any effected emissions unit complies with the requirements of 40 CFR Part 75. Emissions exceeding any allowances that are lawfully held under Title IV of the Act, or any regulations adopted thereunder, are prohibited.
- 2.d** The permittee is required to perform a Best Available Control Technology (BACT) review for NO_x, SO₂, CO, PM₁₀, H₂SO₄, and VOC. The emissions limits based on the BACT requirements are listed under 40 CFR 52.21 and OAC rule 3745-31-(13) through(20) above. The following determinations have been made for each pollutant:
- PM- Burning natural gas in an efficient combustion turbine. For this permit, it is assumed that all PM emissions are PM₁₀.
- NO_x- Use of DLN burners and employment of SCR with a controlled rate of 3.0 ppmvd at 15% oxygen (based on a 3 hour block averaging period).
- CO- Use of good combustion practices with a rate of 6 ppmvd at 15 % oxygen (based on a 24 hour block averaging period) without duct firing and 9 ppmvd at 15 % oxygen (based on a 24 hour block averaging period) with duct firing.
- VOC- Use of efficient combustion technology in the operation of the turbine.
- SO₂- Burning natural gas in an efficient combustion turbine and burning low sulfur fuel.
- H₂SO₄- Burning natural gas in an efficient combustion turbine.
- 2.e** The requirements of this rule are equivalent to the NO_x, SO₂ and PM/PM₁₀ emissions per 40 CFR 52.21 and OAC rule 3745-31-(10) through (20).

II. Operational Restrictions

1. The permittee shall burn only natural gas in this emission unit. The maximum sulfur content of

Emissions Unit ID: P002

the natural gas shall not exceed 2 grains per 100 standard cubic feet.

2. Startup shall be defined as the period between when the combustion turbine is initially started until the combustion turbine achieves combustion operational Mode 6. Shutdown shall be defined as the period beginning when the combustion turbine leaves operational Mode 6 and ending when combustion has ceased. Mode 6 is defined by the manufacturer as the low emissions mode during which all 6 of the burner nozzles are in use, burning a lean premixed gas for steady-state operation (i.e., in compliance with the NO_x and CO lbs/hr emission limitations listed in term A.I.1). The continuous emission monitoring system will indicate and record the combustion turbine operational mode, including when the emissions unit is shutdown and when operating in start-up and shutdown modes. This system will also be used to demonstrate compliance with the NO_x and CO emissions limitations during steady state operation (Mode 6) and startups/shutdowns.

Startups shall not exceed 250 minutes in duration and shutdowns shall not exceed 120 minutes in duration. The total of all start-ups and shutdowns per turbine shall be limited to 260 cycles (each cycle consists of one start-up and one shutdown) per year.

Each startup and shutdown shall be limited to the following:

<u>Pollutant</u>	<u>Maximum Emission Rate (lbs/hr per turbine)</u>
NO _x	400
CO	1,658
VOC	94

Compliance with the above CO and NO_x lbs/hour startup and shutdown emission limitations will be demonstrated using the continuous emissions monitoring system based on a 1 hour block average. Compliance with the VOC lbs/hour startup and shutdown emission limitations will be demonstrated through the record keeping required in section A.III. of this permit.

3. Except during periods of startup, the SCR shall be in operation at all times including periods of shutdown mode of the unit.
4. The maximum annual hours of operation of the duct burners for this emission unit shall not exceed 5,500 hours, based upon a rolling 12 month summation.

To ensure enforceability during the first 12 calendar months following the startup of this emissions unit, the permittee shall not exceed the monthly hours of operation restrictions specified in the following table:

Month	Hours of Operation
1	800
1-2	1600
1-3	2400

Duke**PTI A****Modification Issued: 12/28/2004**

Emissions Unit ID: P002

1-4	3200
1-5	4000
1-6	4800
1-7	5500
1-8	5500
1-9	5500
1-10	5500
1-11	5500
1-12	5500

After the first 12 calendar months following the startup of emission unit P001, compliance with the annual hours of operation restriction shall be based on a rolling, 12-month summation.

III. Monitoring and/or Recordkeeping Requirements

1. The permittee shall maintain monthly records of the following information for this emission unit:
 - a. the natural gas usage rate (in standard cubic feet).
 - b. the hours of operation of the combustion turbine.
 - c. the hours of operation of the duct burner.
 - d. During the first 12 calendar months of operation, records of the cumulative operating hours of the duct burner.
 - e. Beginning after the first 12 calendar months of operation, the rolling, 12-month summation of the operating hours of the duct burner.
 - f. Number of start-ups, and the duration, in minutes, of each start-up.
 - g. Number of shutdowns, and the duration, in minutes, of each shutdown.
 - h. The total number of start-up/shutdown cycles.
 - i. The VOC emissions for each start-up/shutdown event, in tons, by using the emissions factor of 94 pounds per hour during startup and shutdown;

Emissions Unit ID: P002

- j. The total VOC emissions, in tons, not including start-up/shutdown emissions.
 - k. The total NO_x emissions, in tons, including start-up/shutdown emissions.
 - l. The total CO emissions, in tons, including start-up/shutdown emissions.
 - m. The total VOC emissions, in tons, including start-up/shutdown emissions (i.e., i+j).
 - n. The total SO₂, PM/PM₁₀, NH₃, formaldehyde, and sulfuric acid emissions, in pounds.
 - o. Beginning after the first 12 calendar months of operation, the rolling, 12-month summation of the NO_x emissions, in tons, including start-up/shutdown emissions.
 - p. Beginning after the first 12 calendar months of operation, the rolling, 12-month summation of the total CO emissions, in tons, including start-up/shutdown emissions.
 - q. Beginning after the first 12 calendar months of operation, the rolling, 12-month summation of the VOC emissions, in tons, including start-up/shutdown emissions.
 - r. Beginning after the first 12 calendar months of operation, the rolling, 12-month summations of the SO₂, H₂SO₄ and PM/PM₁₀ emissions, in tons.
2. The permittee shall install, certify, operate and maintain equipment to continuously monitor* and record NO_x, CO and O₂ from this emissions unit in the units established in this permit. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13 and 40 CFR Part 75, or as approved by the Ohio EPA, Central Office..
- The permittee shall maintain records of all data obtained by the continuous NO_x, CO and O₂ monitoring system including, but not limited to, parts per million NO_x, CO and O₂ on an instantaneous (one-minute) basis, emissions of NO_x, CO and O₂ in units established in this permit in the appropriate averaging period, during Mode 6, and including start-up and shutdown, results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.
- In conjunction with the operation of the NO_x and CO CEMs, the permittee shall install, operate and maintain a system to monitor when the duct burners are being fired. The data measured by this system shall be compiled with the data recorded by the NO_x and CO CEMs.
- * The installation and operation of systems to continuously monitor and record emissions of NO_x may be performed in lieu of monitoring the nitrogen content of the fuels being fired in the turbine, as required by 40 CFR 60.334(b).
3. The permittee shall install, operate and maintain equipment to continuously monitor and record the actual fuel flow to this emissions unit when the emissions unit is in operation. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 75. If the fuel flow monitoring and/or recording equipment is (are) not in service when the

emissions unit is in operation, the permittee shall comply with the appropriate missing data procedures specified in 40 CFR Part 75 and/ or section A.VI.4 of this permit.

4. The permittee shall monitor the sulfur content and gross calorific value of the fuel being fired in the combustion turbine and duct burner. In accordance with 40 CFR 60, Subpart GG, section 60.334 (h)(3), the permittee has demonstrated that the gaseous fuel meets the definition of natural gas in 40 CFR 60 Subpart GG, section 60.331(u). Therefore, fuel sampling and analysis shall be conducted according to the procedures and at the frequency specified by 40 CFR Part 75, Appendix D. Per 40 CFR Part 75, Appendix D section 2.3.1.4, the permittee has demonstrated that the gaseous fuel is pipeline natural gas. Therefore, ongoing sampling of the of the fuel's sulfur content is required annually and whenever the fuel supply sources change.
5. The permittee shall determine the hourly heat input rate to the combustion turbine and duct burner from the fuel flow rate as determined in term A. III.3. and gross calorific value as determined in term A.III.4. The heat input rate shall be calculated in accordance with the procedures in section 5 of 40 CFR Part 75, Appendix F.
6. For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.

IV. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emission unit. Each report shall be submitted within 30 days after the deviation occurred.
2. The permittee shall submit quarterly deviation (excursion) reports that identify the following:
 - a. During the first 12 calendar months of operation, all exceedances of the cumulative duct burner operating hours limitations.
 - b. Beginning after the first 12 calendar months of operation, all exceedances of the rolling, 12-month duct burner operating hours limitation.
 - c. Any record which shows that the sulfur content of the natural gas exceeded 2 grains per 100 standard cubic feet.
 - d. Any record which shows that the start-up duration exceeded 250 minutes.
 - e. Any record which shows that the shutdown duration exceeded 120 minutes.

Duke Energy - Hanging Rock, LLC**PTI Application: 07-00502****Modif****Facility ID: 0744000150**

Emissions Unit ID: P002

- f. Any record which shows that the total number of start-up/shutdown cycles exceeded 260.
- g. All exceedances of the NO_x, CO, and/or VOC start-up limitations.
- h. Beginning after the first 12 calendar months of operation, all exceedances of the rolling, 12-month NO_x, CO, VOC, SO₂, and/or PM/PM10 emission limitations.

The quarterly deviation reports are due by the dates described in Part 1 - General Terms and Conditions of this permit under section (A)(2).

- 3. Pursuant to OAC rules 3745-15-04, and ORC sections 3704.03(I) and 3704.03(l) and 40 CFR Part 60.7 and 60.13 (h), the permittee shall submit reports within 30 days following the end of each calendar quarter to the Portsmouth Local Air Agency documenting the date, commencement and completion times, duration, magnitude, reason (if known), and corrective actions taken (if any), of all instances of NO_x or CO values, as recorded by the CEMs in excess of the applicable limits specified in the terms and conditions of this permit. These reports shall also contain the total NO_x and CO emissions for the calendar quarter (in tons), including all data collected during start-up and shutdown periods and all data generated pursuant to the missing data procedures specified in 40 CFR Part 75 and/or the approved data substitution protocol required by section A.VI.4 of this permit.

The permittee shall submit reports within 30 days following the end of each calendar quarter to the Portsmouth Local Air Agency documenting any continuous NO_x, CO, or O₂ monitoring system down time while the emission unit was on line (date, time, duration and reason) along with any corrective action(s) taken. The permittee shall provide the emission unit operating time during the reporting period and the date, time, reason and corrective action(s) taken for each time period of emission unit and control equipment malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emission unit was on line shall also be included in the quarterly report.

If there are no excess emissions during the calendar quarter, the permittee shall submit a statement to that effect along with the emissions unit operating time during the reporting period and the date, time, reason, and corrective action(s) taken for each time period of emission unit, control equipment, and/or monitoring system malfunctions. The total operating time of the emission unit and the total operating time of the analyzer while the emission unit was on line also shall be included in the quarterly report. These quarterly excess emission reports shall be submitted by January 30, April 30, July 30, and October 30 of each year and shall address the data obtained during the previous calendar quarter.

Pursuant to OAC rules 3745-15-04, and ORC sections 3704.03(I) and 3704.031, the permittee shall submit a summary of the excess emission report pursuant to 40 CFR Part 60.7. The summary shall be submitted to the Portsmouth Local Air Agency within 30 days following the end of each calendar quarter in a manner prescribed by the Director.

Duke Energy - Hanging Rock, LLC

PTI Application: 07-00503

Modif

Facility ID: 0744000150

Emissions Unit ID: P002

4. In lieu of the excess emissions reports required under 40 CFR Part 60.334, the permittee shall submit excess emissions reports for this emissions unit in accordance with this permit.
5. The permittee shall submit annual reports that specify the total NO_x, CO, PM/PM10, SO₂, VOC, NH₃, formaldehyde, and sulfuric acid emissions from this emissions unit for the previous calendar year. The reports shall be submitted by January 31 of each year.
6. This emission unit is subject to the applicable provisions of Subpart Da and GG of the New Source Performance Standards (NSPS) as promulgated by the United States Environmental Protection Agency, 40 CFR Part 60. The application and enforcement of these standards are delegated to the Ohio EPA. The requirements of 40 CFR Part 60 are also federally enforceable.

Pursuant to 40 CFR Part 60.7, the permittee is hereby advised of the requirement to report the following at the appropriate times:

- a. 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 (if required, at least 30 days prior to testing).

Reports are to be sent to :

Ohio Environmental Protection Agency
 DAPC - Permit Management Unit
 P.O. Box 163669
 Columbus, Ohio 43216-3669

and

Portsmouth Local Air Agency
 605 Washington Street, Third Floor
 Portsmouth, Ohio 45662

V. Testing Requirements

1. The permittee shall conduct, or have conducted, emission testing for this emission unit in accordance with the following requirements:
 - a. The emission testing shall be conducted within 60 days after achieving the maximum production rate at which the emission unit will be operated, but not later than 180 days after initial startup of such emission unit.
 - b. The emission testing shall be conducted to demonstrate compliance with the NO_x and CO outlet concentration, and the mass emission limitations for NO_x*, CO, Formaldehyde, VOC, PM/PM₁₀ and ammonia.
 - c. The following test method(s) shall be employed to demonstrate compliance with the above emission limitations: for NO_x, Method 20 of 40 CFR Part 60, Appendix A; for PM/PM₁₀, Method 5 of 40 CFR Part 60, Appendix A; for Formaldehyde, SW-846 Method 0011 or EPA Method 316; for VOC, Method 25 of 40 CFR Part 60, Appendix A; for CO Method 10 of 40 CFR Part 60, Appendix A and for ammonia, CTM-027. Alternative USEPA approved test methods may be used with prior approval from the Ohio EPA.
 - d. The testing shall be conducted while the emission unit is operating at or near its maximum capacity with and without duct burner firing, unless otherwise specified or approved by Ohio EPA or local air agency.
 - e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Portsmouth Local Air Agency. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emission unit operating parameters, the times(s) and date(s) of the test(s), and the person(s) who will be conducting these test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Portsmouth Local Air Agency's refusal to accept the results of the emission test(s).
 - f. Personnel from Portsmouth Local Air Agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.
 - g. A comprehensive written report on the results of the emission test(s) shall be signed by the person or persons responsible for the tests and submitted to the Portsmouth Local Air

Agency within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Portsmouth Local Air Agency.

* In lieu of the test methods and procedures required under 40 CFR Part 60.335, the permittee shall follow the testing requirements in accordance with this permit.

2. Within 60 days after achieving the maximum production rate at which the emission unit will be operated, but not later than 180 days after initial startup of such emissions unit, the permittee shall conduct certification tests of the continuous NO_x, CO and O₂ monitoring systems pursuant to ORC section 3704.03(I), 40 CFR Part 60, Appendix B, Performance Specification 2, 3 and 6* and/or 40 CFR Part 75, unless an extension is granted by the Ohio EPA. . Personnel from the Portsmouth Local Air Agency shall be notified 30 days prior to initiation of the applicable tests and shall be permitted to examine equipment and witness the certification tests. In accordance with OAC rule 3745-15-04, copies of all test results shall be submitted within 30 days after the test is completed. Copies of the test results shall be sent to the Portsmouth Local Air Agency and the Ohio EPA, Central Office. Certification of the continuous NO_x, CO and O₂ monitoring systems shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of the appropriate sections of ORC section 3704.03(I), 40 CFR Part 60, Appendix B, Performance Specification 2, 3, 4 and 6* and/or 40 CFR Part 75.

* In lieu of monitoring the stack gas flow rate as required by 40 CFR Part 60, Appendix B - Performance Specification 6, the permittee shall use certified NO_x CEMs in conjunction with a fuel flow monitor as described in 40 CFR Part 75, and certified CO CEMs in conjunction with a fuel flow monitor (in a manner similar to the used for NO_x) to meet these requirements. The relative accuracy requirements of Performance Specification 6 shall apply.

3. Compliance with the emission limitations in section A.I.1. of these terms and conditions shall be determined in accordance with the following methods:

- a. Emission Limitation:

NO_x emissions shall not exceed 3.0 ppmvd at 15% Oxygen (based on 3 hr block avg.)
21.1 lb/hr without duct firing
27.8 lb/hr with duct firing
121.2 TPY, based on a 12 month rolling summation, including startup and shutdown emissions.

Applicable Compliance Method:

Emissions Unit ID: P002

Initial compliance with the allowable outlet concentration, and the lb/hr emission limitations shall be demonstrated by the performance testing as described in section A.V.1. Ongoing compliance with those limitations, as well as annual, including startup and shutdown, emission limitations during Mode 6 as well as, start up and shutdown operations shall be demonstrated by the use of the CEM and the records required pursuant to this permit.

TPY allowables were calculated using projected lb/hr emission rates at 56 deg F.

b. Emission Limitation:

PM/PM10 emissions shall not exceed
15 lb/hr without duct burner firing
23.3 lb/hr with duct burner firing
88.53 TPY based on a 12 month rolling summation

Applicable Compliance Method:

Compliance with the lb/hr emission limitation shall be demonstrated by the performance testing in A.V.1. Compliance with the annual emission limitation shall be determined by the multiplying the hourly emissions rate by the actual annual hours of operation and dividing by 2000lb/ton. The monthly emissions shall be added to the previous 11 months to determine the rolling 12 month total emissions.

TPY allowables were calculated using projected lb/hr emission rates at 56 deg F.

c. Emission Limitation:

SO2 emissions shall not exceed
11 lb/hr without duct burner firing
14.4 lb/hr with duct burner firing
52.82 TPY based on a 12 month rolling summation

Applicable Compliance Methods:

Compliance with the lb/hr emission limitation shall be demonstrated by the recordkeeping required in section A.III.. Compliance with the annual emission limitation shall be determined by the multiplying the hourly emissions rate by the actual annual hours of operation and dividing by 2000lb/ton. The monthly emissions shall be added to the previous 11 months to determine the rolling 12 month total emissions.

TPY allowables were calculated using projected lb/hr emission rates at 56 deg F.

Emissions Unit ID: P002

If required, the permittee shall demonstrate compliance with the lb/hr emission limitation by emission testing in accordance with approved USEPA test methods.

d. Emission Limitation:

VOC emissions shall not exceed
 3.2 lb/hr without duct burner firing
 20.4 lb/hr with duct burner firing
 65.1 TPY, based on a 12 month rolling summation,
 including startup and shutdown emissions.

Applicable Compliance Method:

Compliance with the lb/hr emission limitation shall be demonstrated by the performance testing as described in A.V.1. Compliance with the annual emission limitation shall be determined by the multiplying the hourly emissions rate by the actual annual hours of operation and dividing by 2000lb/ton. The monthly emissions shall be added to the previous 11 months to determine the rolling 12 month total emissions. The annual emissions associated with start-up and shutdown shall be determined by record keeping required in section A.III.

TPY allowables were calculated using projected lb/hr emission rates at 56 deg F.

e. Emission Limitation:

CO emissions shall not exceed
 6 ppmvd at 15 % Oxygen without duct burner firing (based on 24 hr block avg.)
 9 ppmvd at 15 % Oxygen with duct burner firing (based on 24 hr block avg.)
 25.7 lb/hr without duct burner firing
 50.3 lb/hr with duct burner firing
 278.0 TPY based on a 12 month rolling summation, including startup and shutdown emissions.

Applicable Compliance Method:

Initial compliance with the allowable outlet concentration, and the lb/hr emission limitations shall be demonstrated by the performance testing as described in section A.V.1. Ongoing compliance with those as well as annual, including startup and shutdown, emission limitations during Mode 6 as well as startup and shutdown operations shall be demonstrated by the use of the CEM. and the records required pursuant to this permit.

TPY allowables were calculated using projected lb/hr emission rates at 56 deg F.

f. Emission Limitation:

ammonia (NH₃) emissions shall not exceed
2 lb/hr without duct burner firing
37.8 lb/hr with duct burner firing
140.01 TPY

Applicable Compliance Method:

Compliance with the lb/hr emission limitation shall be demonstrated by the performance testing as described in section A.V.1. Compliance with the annual emission limitation shall be determined by the multiplying the hourly emissions rate, as determined by the

most recent performance test that demonstrated compliance, by the actual annual hours of operation and dividing by 2000 lb/ton.

TPY allowables were calculated using projected lb/hr emission rates at 56 deg F.

g. Emission Limitation:

Formaldehyde emission shall not exceed
0.45 lb/hr without duct burner firing
0.494 lb/hr with duct burner firing
2.09 TPY

Applicable Compliance Method:

Compliance with the lb/hr emission limitations shall be demonstrated by the performance testing as described in section A.V.1. Compliance with the annual emission limitation shall be determined by multiplying the hourly emission rate, as determined by the most recent performance test that demonstrated compliance, by the actual annual hours of operation and dividing by 2000 lb/ton.

h. Emission Limitation:

Sulfuric acid (H₂SO₄) emissions shall not exceed
1.68 lb/hr without duct burner firing
2.2 lb/hr with duct burner firing
8.07 TPY based on a 12 month rolling summation

Applicable Compliance Method:

Compliance with the lb/hr emission limitation shall be demonstrated by multiplying the emission factor of 0.0009 lb/MMBTU (supplied by permittee) by the maximum heat input. If required, the permittee shall demonstrate compliance by emission testing in accordance with approved USEPA test methods. Compliance with the annual emission limitation shall be determined by multiplying the hourly emissions rate by the actual annual hours of operation and dividing by 2000lb/ton. The monthly emissions shall be added to the previous 11 months to determine the rolling 12 month total emissions.

TPY allowables were calculated using projected lb/hr emission rates at 56 deg F.

i. Emission Limitation:

Visible particulate emissions from any stack shall not exceed 10 percent opacity as a six minute average.

Applicable Compliance Method:

If required, compliance shall be demonstrated in accordance with the requirements specified in OAC rule 3745-17-03(B)(1) determined according to Method 9 of 40 CFR Part 60, Appendix A.

VI. Miscellaneous Requirements

1. In accordance with good engineering practices, the SCR unit on emissions unit P002 shall be installed, operated and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee. The permittee shall maintain on site a copy of the operation & maintenance manual, as provided by the manufacturer.
2. Prior to the installation of the continuous NO_x, CO and O₂ monitoring systems, the permittee shall submit information detailing the proposed location of the sampling site in accordance with the siting requirements in 40 CFR Part 60, Appendix B, Performance Specification 2,3,4 and 6 for approval by the Ohio EPA, Central Office.
3. Within 180 days of the effective date of this permit, the permittee shall develop a written quality assurance/quality control plan for the continuous NO_x, CO, and O₂ monitoring system designed to ensure continuous valid and representative readings of NO_x, CO, and O₂ emissions in units of the applicable standard. The plan shall follow the requirements of the appropriate sections of 40

Duke Energy - Hanging Rock, LLC

PTI Application: 07-00503

Modif

Facility ID: 0744000150

Emissions Unit ID: P002

CFR Part 60, Appendix F or as approved by the Ohio EPA, Central Office and 40 CFR Part 75, Appendix B. The quality assurance/ quality control plan and logbook dedicated to the continuous NO_x, CO, and O₂ monitoring system must be kept on site and available for inspection during regular office hours.

4. Within 60 days of the effective date of this permit, the permittee shall submit a data substitution protocol for the continuous emissions monitoring system to the Ohio EPA, Central Office. Upon approval of the protocol, the permittee will commence configuring the Data Acquisition Handling System (DAHS) in accordance with the approved protocol. The DAHS modifications will be implemented and active within 120 days of protocol approval. The permittee may request an extension to the implementation requirement subject to approval by the Ohio EPA, Central Office.

Duke

PTI A

Modification Issued: 12/28/2004

Emissions Unit ID: P002

B. State Only Enforceable Section**I. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P002 - 172 MW GE 7FA natural gas fired dry low NOx (DLN) combustion turbine No. 2 with duct firing operating in combined cycle mode controlled by Selective Catalytic Reduction (SCR)	None	None

2. Additional Terms and Conditions

2.a None

II. Operational Restrictions

None

III. Monitoring and/or Recordkeeping Requirements

None

IV. Reporting Requirements

None

V. Testing Requirements

Duke

PTI A

Modification Issued: 12/28/2004

Emissions Unit ID: P003

None

VI. Miscellaneous Requirements

None

Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>
P003 - 172 MW GE 7FA natural gas fired dry low NOx (DLN) combustion turbine No. 3 with duct firing operating in combined cycle mode controlled by Selective Catalytic Reduction (SCR)	40 CFR 52.21 and OAC rule 3745-31-(10) through (20)
modification to remove non applicable rule	

Emissions Unit ID: P003

OAC rule 3745-31-05(A)(3)
OAC rule 3745-31-05(C)
40 CFR part 60, Subpart GG
40 CFR part 60, Subpart Da
OAC rule 3745-18-06(F)

OAC rule 3745-17-11(B)(4)
OAC rule 3745-17-07(A)
40 CFR Part 75
OAC rule 3745-103
OAC rule 3745-14

Duke

PTI A

Emissions Unit ID: P003

Modification Issued: 12/28/2004

Applicable Emissions Limitations/Control Measures	1.68 lb/hr.	month rolling average.
EMISSION LIMITS WITHOUT DUCT BURNER FIRING	EMISSION LIMITS WITH DUCT BURNER FIRING (limited to 5,500 hours per year)	52.82 tpy of SO ₂ , based on a 12 month rolling average
nitrogen oxides (NO _x) emissions shall not exceed 3.0 ppmvd at 15 % oxygen (based on a 3 hour block averaging period).	NO _x emissions shall not exceed 3.0 ppmvd at 15 % oxygen (based on a 3 hour block averaging period).	88.53 tpy of PM/PM ₁₀ , based on a 12 month rolling average
NO _x emissions shall not exceed 21.1 lb/hr.	NO _x emissions shall not exceed 27.8 lb/hr.	278.0 tpy of CO, based on a 12 month rolling average.
particulate (PM/PM ₁₀) emissions shall not exceed 15 lb/hr.	PM/PM ₁₀ emissions shall not exceed 23.3 lb/hr.	65.1 tpy of VOC, based on a 12 month rolling average.
sulfur dioxide (SO ₂) emission shall not exceed 11 lb/hr.	SO ₂ emissions shall not exceed 14.4 lb/hr.	8.07 tpy of H ₂ SO ₄ , based on a 12 month rolling average
carbon monoxide (CO) emissions shall not exceed 6 ppmvd at 15 % oxygen (based on a 24 hour block averaging period).	CO emissions shall not exceed 9 ppmvd at 15 % oxygen (based on a 24 hour block averaging period).	see A.I.2.d below.
CO emissions shall not exceed 25.7 lb/hr.	CO emissions shall not exceed 50.3 lb/hr.	The requirements of this rule also include compliance with the requirements of 40 CFR 60 Subpart GG, OAC rule 3745-18-06(F), OAC rule 3745-17-11 (B)(4), OAC rule 3745-17-07(A), 40 CFR 52.21, and OAC rule 3745-31-(10) through (20).
volatile organic compounds (VOC) emissions shall not exceed 3.2 lb/hr .	VOC emissions shall not exceed 20.4 lb/hr.	EMISSION LIMITS WITHOUT DUCT BURNER FIRING
sulfuric acid (H ₂ SO ₄) emissions shall not exceed	H ₂ SO ₄ emissions shall not exceed 2.2 lb/hr.	ammonia (NH ₃) emissions shall not exceed 28 lb/hr.
	TOTAL TONS PER YEAR (including 3,260 hours per year without duct burners, 5,500 hours per year with duct burners, startups and shutdowns)	formaldehyde emissions shall not exceed 0.45 lb/hr.
	121.2 tpy of NO _x , based on a 12	EMISSION LIMITS WITH DUCT BURNER FIRING (limited to 5,500 hours per year)

Duke

PTI A

Modification Issued: 12/28/2004

Emissions Unit ID: P003

NH₃ emissions shall not exceed 37.8 lb/hr.

See Part II Section A.IV.

formaldehyde emissions shall not exceed 0.494 lb/hr.

TOTAL TONS PER YEAR (including 3,260 hours per year without duct burners, 5,500 hours per year with duct burners, startups and shutdowns)

140.01 tpy of NH₃

2.09 tpy of formaldehyde

Visible particulate emissions shall not exceed 10 % opacity as a six minute average.

see . A.I.2.e below.
see A.II.4. below.

see A.I.2.b. below.

see A.I.2.a. below.

see A.I.2.a. below.

see A.I.2.a. below.

see A.I.2.a. below.

See A.I.2.c. below.

See A.I.2.c. below.

2. Additional Terms and Conditions

- 2.a** The emissions limit based on this applicable rule is equivalent to or less stringent than the limit established pursuant to 40 CFR 52.21 and OAC rule 3745-31-(10) thru (20)
- 2.b** The emission limits based on this applicable rule are equivalent to or less stringent than the limits established pursuant to 40 CFR 52.21 and OAC rule 3745-31-(10) thru (20). Except as provided for in the terms and condition of this permit, the permittee is not exempt from meeting any additional requirements of 40 CFR Part 60, Subpart GG.
- 2.c** The permittee shall ensure that any effected emissions unit complies with the requirements of 40 CFR Part 75. Emissions exceeding any allowances that are lawfully held under Title IV of the Act, or any regulations adopted thereunder, are prohibited.
- 2.d** The permittee is required to perform a Best Available Control Technology (BACT) review for NO_x, SO₂, CO, PM₁₀, H₂SO₄, and VOC. The emissions limits based on the BACT requirements are listed under 40 CFR 52.21 and OAC rule 3745-31-(13) through(20) above. The following determinations have been made for each pollutant:
- PM- Burning natural gas in an efficient combustion turbine. For this permit, it is assumed that all PM emissions are PM₁₀.
- NO_x- Use of DLN burners and employment of SCR with a controlled rate of 3.0 ppmvd at 15% oxygen (based on a 3 hour block averaging period).
- CO- Use of good combustion practices with a rate of 6 ppmvd at 15 % oxygen (based on a 24 hour block averaging period) without duct firing and 9 ppmvd at 15 % oxygen (based on a 24 hour block averaging period) with duct firing.
- VOC- Use of efficient combustion technology in the operation of the turbine.
- SO₂- Burning natural gas in an efficient combustion turbine and burning low sulfur fuel.
- H₂SO₄- Burning natural gas in an efficient combustion turbine.
- 2.e** The requirements of this rule are equivalent to the NO_x, SO₂ and PM/PM₁₀ emissions per 40 CFR 52.21 and OAC rule 3745-31-(10) through (20).

II. Operational Restrictions

1. The permittee shall burn only natural gas in this emission unit. The maximum sulfur content of the natural gas shall not exceed 2 grains per 100 standard cubic feet.
2. Startup shall be defined as the period between when the combustion turbine is initially started until

Emissions Unit ID: P003

the combustion turbine achieves combustion operational Mode 6. Shutdown shall be defined as the period beginning when the combustion turbine leaves operational Mode 6 and ending when combustion has ceased. Mode 6 is defined by the manufacturer as the low emissions mode during which all 6 of the burner nozzles are in use, burning a lean premixed gas for steady-state operation (i.e., in compliance with the NO_x and CO lbs/hr emission limitations listed in term A.I.1). The continuous emission monitoring system will indicate and record the combustion turbine operational mode, including when the emissions unit is shutdown and when operating in start-up and shutdown modes. This system will also be used to demonstrate compliance with the NO_x and CO emissions limitations during steady state operation (Mode 6) and startups/shutdowns.

Startups shall not exceed 250 minutes in duration and shutdowns shall not exceed 120 minutes in duration. The total of all start-ups and shutdowns shall be limited to 260 cycles (each cycle consists of one start-up and one shutdown) per year.

Each startup and shutdown shall be limited to the following :

<u>Pollutant</u>	<u>Maximum Emission Rate (lbs/hr per turbine)</u>
NO _x	400
CO	1,658
VOC	94

Compliance with the above CO and NO_x lbs/hour startup and shutdown emission limitations will be demonstrated using the continuous emissions monitoring system based on a 1 hour block average. Compliance with the VOC lbs/hour startup and shutdown emission limitations will be demonstrated through the record keeping required in section A.III. of this permit.

3. Except during periods of startup, the SCR shall be in operation at all times including periods of shutdown mode of the unit.
4. The maximum annual hours of operation of the duct burners for this emission unit shall not exceed 5,500 hours, based upon a rolling 12 month summation.

To ensure enforceability during the first 12 calendar months following the startup of this emissions unit, the permittee shall not exceed the monthly hours of operation restrictions specified in the following table:

Month	Hours of Operation
1	800
1-2	1600
1-3	2400
1-4	3200
1-5	4000
1-6	4800

Duke

PTI A

Modification Issued: 12/28/2004

Emissions Unit ID: P003

1-7	5500
1-8	5500
1-9	5500
1-10	5500
1-11	5500
1-12	5500

After the first 12 calendar months following the startup of emission unit P001, compliance with the annual hours of operation restriction shall be based on a rolling, 12-month summation.

III. Monitoring and/or Recordkeeping Requirements

1. The permittee shall maintain monthly records of the following information for this emission unit:
 - a. the natural gas usage rate (in standard cubic feet).
 - b. the hours of operation of the combustion turbine.
 - c. the hours of operation of the duct burner.
 - d. During the first 12 calendar months of operation, records of the cumulative operating hours of the duct burner.
 - e. Beginning after the first 12 calendar months of operation, the rolling, 12-month summation of the operating hours of the duct burner.
 - f. Number of start-ups, and the duration, in minutes, of each start-up.
 - g. Number of shutdowns, and the duration, in minutes, of each shutdown.
 - h. The total number of start-up/shutdown cycles.
 - i. The VOC emissions for each start-up/shutdown event, in tons, by using the emissions factor of 94 pounds per hour during startup and shutdown;
 - j. The total VOC emissions, in tons, not including start-up/shutdown emissions.
 - k. The total NO_x emissions, in tons, including start-up/shutdown emissions.
 - l. The total CO emissions, in tons, including start-up/shutdown emissions.

- m. The total VOC emissions, in tons, including start-up/shutdown emissions (i.e., i+j).
 - n. The total SO₂, PM/PM₁₀, NH₃, formaldehyde, and sulfuric acid emissions, in pounds.
 - o. Beginning after the first 12 calendar months of operation, the rolling, 12-month summation of the NO_x emissions, in tons, including start-up/shutdown emissions.
 - p. Beginning after the first 12 calendar months of operation, the rolling, 12-month summation of the total CO emissions, in tons, including start-up/shutdown emissions.
 - q. Beginning after the first 12 calendar months of operation, the rolling, 12-month summation of the VOC emissions, in tons, including start-up/shutdown emissions.
 - r. Beginning after the first 12 calendar months of operation, the rolling, 12-month summations of the SO₂, H₂SO₄ and PM/PM₁₀ emissions, in tons.
2. The permittee shall install, certify, operate and maintain equipment to continuously monitor* and record NO_x, CO and O₂ from this emissions unit in the units established in this permit. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13 and 40 CFR Part 75, or as approved by the Ohio EPA, Central Office..

The permittee shall maintain records of all data obtained by the continuous NO_x, CO and O₂ monitoring system including, but not limited to, parts per million NO_x, CO and O₂ on an instantaneous (one-minute) basis, emissions of NO_x, CO and O₂ in units established in this permit in the appropriate averaging period, during Mode 6, and including start-up and shutdown, results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

In conjunction with the operation of the NO_x and CO CEMs, the permittee shall install, operate and maintain a system to monitor when the duct burners are being fired. The data measured by this system shall be compiled with the data recorded by the NO_x and CO CEMs.

Modification Issued: 12/28/2004

* The installation and operation of systems to continuously monitor and record emissions of NO_x may be performed in lieu of monitoring the nitrogen content of the fuels being fired in the turbine, as required by 40 CFR 60.334(b).

3. The permittee shall install, operate and maintain equipment to continuously monitor and record the actual fuel flow to this emissions unit when the emissions unit is in operation. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 75. If the fuel flow monitoring and/or recording equipment is (are) not in service when the emissions unit is in operation, the permittee shall comply with the appropriate missing data procedures specified in 40 CFR Part 75 and/or section A.VI.4. of this permit.
4. The permittee shall monitor the sulfur content and gross calorific value of the fuel being fired in the combustion turbine and duct burner. In accordance with 40 CFR 60, Subpart GG, section 60.334 (h)(3), the permittee has demonstrated that the gaseous fuel meets the definition of natural gas in 40 CFR 60 Subpart GG, section 60.331(u). Therefore, fuel sampling and analysis shall be conducted according to the procedures and at the frequency specified by 40 CFR Part 75, Appendix D. Per 40 CFR Part 75, Appendix D section 2.3.1.4, the permittee has demonstrated that the gaseous fuel is pipeline natural gas. Therefore, ongoing sampling of the of the fuel's sulfur content is required annually and whenever the fuel supply sources change.
5. The permittee shall determine the hourly heat input rate to the combustion turbine and duct burner from the fuel flow rate as determined in term A. III.3. and gross calorific value as determined in term A.III.4. The heat input rate shall be calculated in accordance with the procedures in section 5 of 40 CFR Part 75, Appendix F.
6. For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.

IV. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emission unit. Each report shall be submitted within 30 days after the deviation occurred.
2. The permittee shall submit quarterly deviation (excursion) reports that identify the following:
 - a. During the first 12 calendar months of operation, all exceedances of the cumulative duct burner operating hours limitations.
 - b. Beginning after the first 12 calendar months of operation, all exceedances of the rolling,

12-month duct burner operating hours limitation.

- c. Any record which shows that the sulfur content of the natural gas exceeded 2 grains per 100 standard cubic feet.
- d. Any record which shows that the start-up duration exceeded 250 minutes.
- e. Any record which shows that the shutdown duration exceeded 120 minutes.
- f. Any record which shows that the total number of start-up/shutdown cycles exceeded 260.
- g. All exceedances of the NO_x, CO, and/or VOC start-up limitations.
- h. Beginning after the first 12 calendar months of operation, all exceedances of the rolling, 12-month NO_x, CO, VOC, SO₂, and/or PM/PM10 emission limitations.

The quarterly deviation reports are due by the dates described in Part 1 - General Terms and Conditions of this permit under section (A)(2).

3. Pursuant to OAC rules 3745-15-04, and ORC sections 3704.03(I) and 3704.03(l) and 40 CFR Part 60.7 and 60.13 (h), the permittee shall submit reports within 30 days following the end of each calendar quarter to the Portsmouth Local Air Agency documenting the date, commencement and completion times, duration, magnitude, reason (if known), and corrective actions taken (if any), of all instances of NO_x or CO values, as recorded by the CEMs in excess of the applicable limits specified in the terms and conditions of this permit. These reports shall also contain the total NO_x and CO emissions for the calendar quarter (in tons), including all data collected during start-up and shutdown periods and all data generated pursuant to the missing data procedures specified in 40 CFR Part 75 and/or the approved data substitution protocol required by section A.VI.4 of this permit.

The permittee shall submit reports within 30 days following the end of each calendar quarter to the Portsmouth Local Air Agency documenting any continuous NO_x, CO, or O₂ monitoring system down time while the emission unit was on line (date, time, duration and reason) along with any corrective action(s) taken. The permittee shall provide the emission unit operating time during the reporting period and the date, time, reason and corrective action(s) taken for each time period of emission unit and control equipment malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emission unit was on line shall also be included in the quarterly report.

If there are no excess emissions during the calendar quarter, the permittee shall submit a statement to that effect along with the emissions unit operating time during the reporting period and the date, time, reason, and corrective action(s) taken for each time period of emission unit, control equipment, and/or monitoring system malfunctions. The total operating time of the emission unit and the total operating time of the analyzer while the emission unit was on line also shall be included in the quarterly report. These quarterly excess emission reports shall be submitted by

Duke**PTI A****Modification Issued: 12/28/2004**

Emissions Unit ID: P003

January 30, April 30, July 30, and October 30 of each year and shall address the data obtained during the previous calendar quarter.

Pursuant to OAC rules 3745-15-04, and ORC sections 3704.03(I) and 3704.031, the permittee shall submit a summary of the excess emission report pursuant to 40 CFR Part 60.7. The summary shall be submitted to the Portsmouth Local Air Agency within 30 days following the end of each calendar quarter in a manner prescribed by the Director.

4. In lieu of the excess emissions reports required under 40 CFR Part 60.334, the permittee shall submit excess emissions reports for this emissions unit in accordance with this permit.
5. The permittee shall submit annual reports that specify the total NO_x, CO, PM/PM10, SO₂, VOC, NH₃, formaldehyde, and sulfuric acid emissions from this emissions unit for the previous calendar year. The reports shall be submitted by January 31 of each year.
6. This emission unit is subject to the applicable provisions of Subpart Da and GG of the New Source Performance Standards (NSPS) as promulgated by the United States Environmental Protection Agency, 40 CFR Part 60. The application and enforcement of these standards are delegated to the Ohio EPA. The requirements of 40 CFR Part 60 are also federally enforceable.

Pursuant to 40 CFR Part 60.7, the permittee is hereby advised of the requirement to report the following at the appropriate times:

- a. 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 (if required, at least 30 days prior to testing).

Reports are to be sent to :

Ohio Environmental Protection Agency
DAPC - Permit Management Unit
P.O. Box 163669
Columbus, Ohio 43216-3669

and

Duke Energy - Hanging Rock, LLC

PTI Application: 07-00502

Modif

Facility ID: 0744000150

Emissions Unit ID: P003

Portsmouth Local Air Agency
605 Washington Street, Third Floor
Portsmouth, Ohio 45662

V. Testing Requirements

1. The permittee shall conduct, or have conducted, emission testing for this emission unit in accordance with the following requirements:
 - a. The emission testing shall be conducted within 60 days after achieving the maximum production rate at which the emission unit will be operated, but not later than 180 days after initial startup of such emission unit.
 - b. The emission testing shall be conducted to demonstrate compliance with the NO_x and CO outlet concentration, and the mass emission limitations for NO_x*, CO, Formaldehyde, VOC, PM/PM₁₀ and ammonia.
 - c. The following test method(s) shall be employed to demonstrate compliance with the above emission limitations: for NO_x, Method 20 of 40 CFR Part 60, Appendix A; for PM/PM₁₀, Method 5 of 40 CFR Part 60, Appendix A; for Formaldehyde, SW-846 Method 0011 or EPA Method 316; for VOC, Method 25 of 40 CFR Part 60, Appendix A; for CO Method 10 of 40 CFR Part 60, Appendix A and for ammonia, CTM-027. Alternative USEPA approved test methods may be used with prior approval from the Ohio EPA.
 - d. The testing shall be conducted while the emission unit is operating at or near its maximum capacity with and without duct burner firing, unless otherwise specified or approved by Ohio EPA or local air agency.
 - e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Portsmouth Local Air Agency. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emission unit operating parameters, the times(s) and date(s) of the test(s), and the person(s) who will be conducting these test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Portsmouth Local Air Agency's refusal to accept the results of the emission test(s).
 - f. Personnel from Portsmouth Local Air Agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.
 - g. A comprehensive written report on the results of the emission test(s) shall be signed by the person or persons responsible for the tests and submitted to the Portsmouth Local Air

Duke Energy - Hanging Rock, LLC

PTI Application: 07-00502

Modif

Facility ID: 0744000150

Emissions Unit ID: P003

Agency within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Portsmouth Local Air Agency.

* In lieu of the test methods and procedures required under 40 CFR Part 60.335, the permittee shall follow the testing requirements in accordance with this permit.

2. Within 60 days after achieving the maximum production rate at which the emission unit will be operated, but not later than 180 days after initial startup of such emissions unit, the permittee shall conduct certification tests of the continuous NO_x, CO and O₂ monitoring systems pursuant to ORC section 3704.03(I), 40 CFR Part 60, Appendix B, Performance Specification 2, 3 and 6* and/or 40 CFR Part 75, unless an extension is granted by Ohio EPA.. Personnel from the Portsmouth Local Air Agency shall be notified 30 days prior to initiation of the applicable tests and shall be permitted to examine equipment and witness the certification tests. In accordance with OAC rule 3745-15-04, copies of all test results shall be submitted within 30 days after the test is completed. Copies of the test results shall be sent to the Portsmouth Local Air Agency and the Ohio EPA, Central Office. Certification of the continuous NO_x, CO and O₂ monitoring systems shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of the appropriate sections of ORC section 3704.03(I), 40 CFR Part 60, Appendix B, Performance Specification 2, 3, 4 and 6* and/or 40 CFR Part 75.

* In lieu of monitoring the stack gas flow rate as required by 40 CFR Part 60, Appendix B - Performance Specification 6, the permittee shall use certified NO_x CEMs in conjunction with a fuel flow monitor as described in 40 CFR Part 75, and certified CO CEMs in conjunction with a fuel flow monitor (in a manner similar to the used for NO_x) to meet these requirements. The relative accuracy requirements of Performance Specification 6 shall apply.

3. Compliance with the emission limitations in section A.I.1. of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

NO_x emissions shall not exceed 3.0 ppmvd at 15% Oxygen (based on 3 hr block avg.)
 21.1 lb/hr without duct firing
 27.8 lb/hr with duct firing
 121.2 TPY, based on a 12 month rolling summation, .
 including startup and shutdown emissions.

Applicable Compliance Method:

Initial compliance with the allowable outlet concentration, and the lb/hr emission limitations shall be demonstrated by the performance testing as described in section A.V.1. Ongoing compliance with those limitations, as well as annual, including startup and shutdown, emission limitations during Mode 6 as well as, start up and shutdown operations shall be demonstrated by the use of the CEM and the records required pursuant

to this permit.

TPY allowables were calculated using projected lb/hr emission rates at 56 deg F.

b. Emission Limitation:

PM/PM10 emissions shall not exceed
15 lb/hr without duct burner firing
23.3 lb/hr with duct burner firing
88.53 TPY based on a 12 month rolling summation

Applicable Compliance Method:

Compliance with the lb/hr emission limitation shall be demonstrated by the performance testing in A.V.1. Compliance with the annual emission limitation shall be determined by the multiplying the hourly emissions rate by the actual annual hours of operation and dividing by 2000lb/ton. The monthly emissions shall be added to the previous 11 months to determine the rolling 12 month total emissions.

TPY allowables were calculated using projected lb/hr emission rates at 56 deg F.

c. Emission Limitation:

SO2 emissions shall not exceed
11 lb/hr without duct burner firing
14.4 lb/hr with duct burner firing
52.82 TPY based on a 12 month rolling summation

Applicable Compliance Methods:

Compliance with the lb/hr emission limitation shall be demonstrated by the recordkeeping required in section A.III.. Compliance with the annual emission limitation shall be determined by the multiplying the hourly emissions rate by the actual annual hours of operation and dividing by 2000lb/ton. The monthly emissions shall be added to the previous 11 months to determine the rolling 12 month total emissions.

TPY allowables were calculated using projected lb/hr emission rates at 56 deg F.

If required, the permittee shall demonstrate compliance with the lb/hr emission limitation by emission testing in accordance with approved USEPA test methods.

d. Emission Limitation:

VOC emissions shall not exceed
3.2 lb/hr without duct burner firing
20.4 lb/hr with duct burner firing
65.1 TPY, based on a 12 month rolling summation,
including startup and shutdown emissions.

Applicable Compliance Method:

Compliance with the lb/hr emission limitation shall be demonstrated by the performance testing as described in A.V.1. Compliance with the annual emission limitation shall be determined by the multiplying the hourly emissions rate by the actual annual hours of operation and dividing by 2000lb/ton. The monthly emissions shall be added to the previous 11 months to determine the rolling 12 month total emissions. The annual emissions associated with start-up and shutdown shall be determined by record keeping required in section A.III.

TPY allowables were calculated using projected lb/hr emission rates at 56 deg F.

e. Emission Limitation:

CO emissions shall not exceed
6 ppmvd at 15 % Oxygen without duct burner firing (based on 24 hr block avg.)
9 ppmvd at 15 % Oxygen with duct burner firing (based on 24 hr block avg.)
25.7 lb/hr without duct burner firing
50.3 lb/hr with duct burner firing
278.0 TPY, based on a 12 month rolling summation, including startup and shutdown emissions.

Applicable Compliance Method:

Initial compliance with the allowable outlet concentration, and the lb/hr emission limitations shall be demonstrated by the performance testing as described in section A.V.1. Ongoing compliance with those as well as annual, including startup and shutdown, emission limitations during Mode 6 as well as startup and shutdown operations shall be demonstrated by the use of the CEM. and the records required pursuant to this permit.

TPY allowables were calculated using projected lb/hr emission rates at 56 deg F.

f. Emission Limitation:

ammonia (NH3) emissions shall not exceed
28 lb/hr without duct burner firing

37.8 lb/hr with duct burner firing
140.01 TPY

Applicable Compliance Method:

Compliance with the lb/hr emission limitation shall be demonstrated by the performance testing as described in section A.V.1. Compliance with the annual emission limitation shall be determined by multiplying the hourly emissions rate, as determined by the most recent performance test that demonstrated compliance, by the actual annual hours of operation and dividing by 2000 lb/ton.

TPY allowables were calculated using projected lb/hr emission rates at 56 deg F.

g. Emission Limitation:

Formaldehyde emission shall not exceed
0.45 lb/hr without duct burner firing
0.494 lb/hr with duct burner firing
2.09 TPY

Applicable Compliance Method:

Compliance with the lb/hr emission limitations shall be demonstrated by the performance testing as described in section A.V.1. Compliance with the annual emission limitation shall be determined by multiplying the hourly emission rate, as determined by the most recent performance test that demonstrated compliance, by the actual annual hours of operation and dividing by 2000 lb/ton.

h. Emission Limitation:

Sulfuric acid (H₂SO₄) emissions shall not exceed
1.68 lb/hr without duct burner firing
2.2 lb/hr with duct burner firing
8.07 TPY based on a 12 month rolling summation

Applicable Compliance Method:

Compliance with the lb/hr emission limitation shall be demonstrated by multiplying the emission factor of 0.0009 lb/MMBTU (supplied by permittee) by the maximum heat input. If required, the permittee shall demonstrate compliance by emission testing in accordance

with approved USEPA test methods. Compliance with the annual emission

limitation shall be determined by the multiplying the hourly emissions rate by the actual annual hours of operation and dividing by 2000lb/ton. The monthly emissions shall be added to the previous 11 months to determine the rolling 12 month total emissions.

TPY allowables were calculated using projected lb/hr emission rates at 56 deg F.

i. Emission Limitation:

Visible particulate emissions from any stack shall not exceed 10 percent opacity as a six minute average.

Applicable Compliance Method:

If required, compliance shall be demonstrated in accordance with the requirements specified in OAC rule 3745-17-03(B)(1) determined according to Method 9 of 40 CFR Part 60, Appendix A.

VI. Miscellaneous Requirements

1. In accordance with good engineering practices, the SCR unit on emissions unit P003 shall be installed, operated and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee. The permittee shall maintain on site a copy of the operation & maintenance manual, as provided by the manufacturer.
2. Prior to the installation of the continuous NO_x, CO and O₂ monitoring systems, the permittee shall submit information detailing the proposed location of the sampling site in accordance with the siting requirements in 40 CFR Part 60, Appendix B, Performance Specification 2,3,4 and 6 for approval by the Ohio EPA, Central Office.
3. Within 180 days of the effective date of this permit, the permittee shall develop a written quality assurance/quality control plan for the continuous NO_x, CO, and O₂ monitoring system designed to ensure continuous valid and representative readings of NO_x, CO, and O₂ emissions in units of the applicable standard. The plan shall follow the requirements of the appropriate sections of 40 CFR Part 60, Appendix F or as approved by the Ohio EPA, Central Office and 40 CFR Part 75, Appendix B. The quality assurance/ quality control plan and logbook dedicated to the continuous NO_x, CO, and O₂ monitoring system must be kept on site and available for inspection during regular office hours.

Duke Energy - Hanging Rock, LLC**PTI Application: 07-00503****Modif****Facility ID: 0744000150**

Emissions Unit ID: P003

4. Within 60 days of the effective date of this permit, the permittee shall submit a data substitution protocol for the continuous emissions monitoring system to the Ohio EPA, Central Office. Upon approval of the protocol, the permittee will commence configuring the Data Acquisition Handling System (DAHS) in accordance with the approved protocol. The DAHS modifications will be implemented and active within 120 days of protocol approval. The permittee may request an extension to the implementation requirement subject to approval by the Ohio EPA, Central Office.

B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P003 - 172 MW GE 7FA natural gas fired dry low NOx (DLN) combustion turbine No. 3 with duct firing operating in combined cycle mode controlled by Selective Catalytic Reduction (SCR)	None	None

2. Additional Terms and Conditions

2.a None

II. Operational Restrictions

None

III. Monitoring and/or Recordkeeping Requirements

None

IV. Reporting Requirements

None

V. Testing Requirements

Duke

PTI A

Modification Issued: 12/28/2004

Emissions Unit ID: P004

None

VI. Miscellaneous Requirements

None

Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

- 1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>
P004 - 172 MW GE 7FA natural gas fired dry low NOx (DLN) combustion turbine No. 4 with duct firing operating in combined cycle mode controlled by Selective Catalytic Reduction (SCR)	40 CFR 52.21 and OAC rule 3745-31-(10) through (20)
modification to remove non applicable rule	

OAC rule 3745-31-05(A)(3)

OAC rule 3745-18-06(F)

OAC rule 3745-17-11(B)(4)

OAC rule 3745-17-07(A)

40 CFR Part 75

OAC rule 3745-103

OAC rule 3745-14

OAC rule 3745-31-05(C)

40 CFR part 60, Subpart GG

40 CFR part 60, Subpart Da

Modification Issued: 12/28/2004

<u>Applicable Emissions Limitations/Control Measures</u>		
EMISSION LIMITS WITHOUT DUCT BURNER FIRING	EMISSION LIMITS WITH DUCT BURNER FIRING (limited to 5,500 hours per year)	month rolling average. 52.82 tpy of SO ₂ , based on a 12 month rolling average
nitrogen oxides (NO _x) emissions shall not exceed 3.0 ppmvd at 15 % oxygen (based on a 3 hour block averaging period).	NO _x emissions shall not exceed 3.0 ppmvd at 15 % oxygen (based on a 3 hour block averaging period).	88.53 tpy of PM/PM ₁₀ , based on a 12 month rolling average 278.0 tpy of CO, based on a 12 month rolling average.
NO _x emissions shall not exceed 21.1 lb/hr.	NO _x emissions shall not exceed 27.8 lb/hr.	65.1 tpy of VOC, based on a 12 month rolling average.
particulate (PM/PM ₁₀) emissions shall not exceed 15 lb/hr.	PM/PM ₁₀ emissions shall not exceed 23.3 lb/hr.	8.07 tpy of H ₂ SO ₄ , based on a 12 month rolling average
sulfur dioxide (SO ₂) emission shall not exceed 11 lb/hr.	SO ₂ emissions shall not exceed 14.4 lb/hr.	see . A.I.2.d below.
carbon monoxide (CO) emissions shall not exceed 6 ppmvd at 15 % oxygen (based on a 24 hour block averaging period).	CO emissions shall not exceed 9 ppmvd at 15 % oxygen (based on a 24 hour block averaging period).	The requirements of this rule also include compliance with the requirements of 40 CFR 60 Subpart GG, OAC rule 3745-18-06(F), OAC rule 3745-17-11 (B)(4), OAC rule 3745-17-07(A), 40 CFR 52.21, and OAC rule 3745-31-(10) through (20).
CO emissions shall not exceed 25.7 lb/hr.	CO emissions shall not exceed 50.3 lb/hr.	EMISSION LIMITS WITHOUT DUCT BURNER FIRING
volatile organic compounds (VOC) emissions shall not exceed 3.2 lb/hr .	VOC emissions shall not exceed 20.4 lb/hr.	ammonia (NH ₃) emissions shall not exceed 28 lb/hr.
sulfuric acid (H ₂ SO ₄) emissions shall not exceed 1.68 lb/hr.	H ₂ SO ₄ emissions shall not exceed 2.2 lb/hr.	formaldehyde emissions shall not exceed 0.45 lb/hr.
	TOTAL TONS PER YEAR (including 3,260 hours per year without duct burners, 5,500 hours per year with duct burners, startups and shutdowns)	EMISSION LIMITS WITH DUCT BURNER FIRING (limited to 5,500 hours per year)
	121.2 tpy of NO _x , based on a 12	

Duke

PTI A

Modification Issued: 12/28/2004

Emissions Unit ID: P004

NH₃ emissions shall not exceed 37.8 lb/hr.

See Part II Section A.IV.

formaldehyde emissions shall not exceed 0.494 lb/hr.

TOTAL TONS PER YEAR
(including 3,260 hours per year without duct burners, 5,500 hours per year with duct burners, startups and shutdowns)

140.01 tpy of NH₃

2.09 tpy of formaldehyde

Visible particulate emissions shall not exceed 10 % opacity as a six minute

average.

see A.I.2.e below.

see A.II.4. below.

see A.I.2.b. below.

see A.I.2.a. below.

see A.I.2.a. below.

see A.I.2.a. below.

see A.I.2.a. below.

See A.I.2.c. below.

See A.I.2.c. below

Modification Issued: 12/28/2004

2. Additional Terms and Conditions

- 2.a** The emissions limit based on this applicable rule is equivalent to or less stringent than the limit established pursuant to 40 CFR 52.21 and OAC rule 3745-31-(10) thru (20).
- 2.b** The emission limits based on this applicable rule are equivalent to or less stringent than the limits established pursuant to 40 CFR 52.21 and OAC rule 3745-31-(10) thru (20). Except as provided for in the terms and condition of this permit, the permittee is not exempt from meeting any additional requirements of 40 CFR Part 60, Subpart GG.
- 2.c** The permittee shall ensure that any effected emissions unit complies with the requirements of 40 CFR Part 75. Emissions exceeding any allowances that are lawfully held under Title IV of the Act, or any regulations adopted thereunder, are prohibited.
- 2.d** The permittee is required to perform a Best Available Control Technology (BACT) review for NO_x, SO₂, CO, PM₁₀, H₂SO₄, and VOC. The emissions limits based on the BACT requirements are listed under 40 CFR 52.21 and OAC rule 3745-31-(13) through(20) above. The following determinations have been made for each pollutant:
- PM- Burning natural gas in an efficient combustion turbine. For this permit, it is assumed that all PM emissions are PM₁₀.
 - NO_x- Use of DLN burners and employment of SCR with a controlled rate of 3.0 ppmvd at 15% oxygen (based on a 3 hour block averaging period).
 - CO- Use of good combustion practices with a rate of 6 ppmvd at 15 % oxygen (based on a 24 hour block averaging period) without duct firing and 9 ppmvd at 15 % oxygen (based on a 24 hour block averaging period) with duct firing.
 - VOC- Use of efficient combustion technology in the operation of the turbine.
 - SO₂- Burning natural gas in an efficient combustion turbine and burning low sulfur fuel.
 - H₂SO₄- Burning natural gas in an efficient combustion turbine.
- 2.e** The requirements of this rule are equivalent to the NO_x, SO₂ and PM/PM₁₀ emissions per 40 CFR 52.21 and OAC rule 3745-31-(10) through (20).

II. Operational Restrictions

1. The permittee shall burn only natural gas in this emission unit. The maximum sulfur content of

Emissions Unit ID: P004

the natural gas shall not exceed 2 grains per 100 standard cubic feet.

2. Startup shall be defined as the period between when the combustion turbine is initially started until the combustion turbine achieves combustion operational Mode 6. Shutdown shall be defined as the period beginning when the combustion turbine leaves operational Mode 6 and ending when combustion has ceased. Mode 6 is defined by the manufacturer as the low emissions mode during which all 6 of the burner nozzles are in use, burning a lean premixed gas for steady-state operation (i.e., in compliance with the NO_x and CO lbs/hr emission limitations listed in term A.I.1). The continuous emission monitoring system will indicate and record the combustion turbine operational mode, including when the emissions unit is shutdown and when operating in start-up and shutdown modes. This system will also be used to demonstrate compliance with the NO_x and CO emissions limitations during steady state operation (Mode 6) and startup/shutdowns.

Startups shall not exceed 250 minutes in duration and shutdowns shall not exceed 120 minutes in duration. The total of all start-ups and shutdowns per turbine shall be limited to 260 cycles (each cycle consists of one start-up and one shutdown) per year.

<u>Pollutant</u>	<u>Maximum Emission Rate (lbs/hr per turbine)</u>
NO _x	400
CO	1,658
VOC	94

Compliance with the above CO and NO_x lbs/hour startup and shutdown emission limitations will be demonstrated using the continuous emissions monitoring system based on a 1 hour block average. Compliance with the VOC lbs/hour startup and shutdown emission limitations will be demonstrated through the record keeping required in section A.III. of this permit.

Duke

PTI A

Emissions Unit ID: P004

Modification Issued: 12/28/2004

3. Except during periods of startup, the SCR shall be in operation at all times including periods of shutdown mode of the unit.
4. The maximum annual hours of operation of the duct burners for this emission unit shall not exceed 5,500 hours, based upon a rolling 12 month summation.

To ensure enforceability during the first 12 calendar months following the startup of this emissions unit, the permittee shall not exceed the monthly hours of operation restrictions specified in the following table:

Month	Hours of Operation
1	800
1-2	1600
1-3	2400
1-4	3200
1-5	4000
1-6	4800
1-7	5500
1-8	5500
1-9	5500
1-10	5500
1-11	5500
1-12	5500

After the first 12 calendar months following the startup of emission unit P001, compliance with the annual hours of operation restriction shall be based on a rolling, 12-month summation.

III. Monitoring and/or Recordkeeping Requirements

1. The permittee shall maintain monthly records of the following information for this emission unit:
 - a. the natural gas usage rate (in standard cubic feet).
 - b. the hours of operation of the combustion turbine.
 - c. the hours of operation of the duct burner.
 - d. During the first 12 calendar months of operation, records of the cumulative operating hours of the duct burner.

- e. Beginning after the first 12 calendar months of operation, the rolling, 12-month summation of the operating hours of the duct burner.
 - f. Number of start-ups, and the duration, in minutes, of each start-up.
 - g. Number of shutdowns, and the duration, in minutes, of each shutdown.
 - h. The total number of start-up/shutdown cycles.
 - i. The VOC emissions for each start-up/shutdown event, in tons, by using the emissions factor of 94 pounds per hour during startup and shutdown;
 - j. The total VOC emissions, in tons, not including start-up/shutdown emissions.
 - k. The total NO_x emissions, in tons, including start-up/shutdown emissions.
 - l. The total CO emissions, in tons, including start-up/shutdown emissions.
 - m. The total VOC emissions, in tons, including start-up/shutdown emissions (i.e., i+j).
 - n. The total SO₂, PM/PM₁₀, NH₃, formaldehyde, and sulfuric acid emissions, in pounds.
 - o. Beginning after the first 12 calendar months of operation, the rolling, 12-month summation of the NO_x emissions, in tons, including start-up/shutdown emissions.
 - p. Beginning after the first 12 calendar months of operation, the rolling, 12-month summation of the total CO emissions, in tons, including start-up/shutdown emissions.
 - q. Beginning after the first 12 calendar months of operation, the rolling, 12-month summation of the VOC emissions, in tons, including start-up/shutdown emissions.
 - r. Beginning after the first 12 calendar months of operation, the rolling, 12-month summations of the SO₂, H₂SO₄ and PM/PM₁₀ emissions, in tons.
2. The permittee shall install, certify, operate and maintain equipment to continuously monitor* and record NO_x, CO and O₂ from this emissions unit in the units established in this permit. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13 and 40 CFR Part 75, or as approved by the Ohio EPA, Central Office..

The permittee shall maintain records of all data obtained by the continuous NO_x, CO and O₂ monitoring system including, but not limited to, parts per million NO_x, CO and O₂ on an instantaneous (one-minute) basis, emissions of NO_x, CO and O₂ in units established in this

Modification Issued: 12/28/2004

permit in the appropriate averaging period, during Mode 6, and including start-up and shutdown, results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

In conjunction with the operation of the NO_x and CO CEMs, the permittee shall install, operate and maintain a system to monitor when the duct burners are being fired. The data measured by this system shall be compiled with the data recorded by the NO_x and CO CEMs.

* The installation and operation of systems to continuously monitor and record emissions of NO_x may be performed in lieu of monitoring the nitrogen content of the fuels being fired in the turbine, as required by 40 CFR 60.334(b).

3. The permittee shall install, operate and maintain equipment to continuously monitor and record the actual fuel flow to this emissions unit when the emissions unit is in operation. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 75. If the fuel flow monitoring and/or recording equipment is (are) not in service when the emissions unit is in operation, the permittee shall comply with the appropriate missing data procedures specified in 40 CFR Part 75 and/or section A.VI.4. of this permit.
4. The permittee shall monitor the sulfur content and gross calorific value of the fuel being fired in the combustion turbine and duct burner. In accordance with 40 CFR 60, Subpart GG, section 60.334 (h)(3), the permittee has demonstrated that the gaseous fuel meets the definition of natural gas in 40 CFR 60 Subpart GG, section 60.331(u). Therefore, fuel sampling and analysis shall be conducted according to the procedures and at the frequency specified by 40 CFR Part 75, Appendix D. Per 40 CFR Part 75, Appendix D section 2.3.1.4, the permittee has demonstrated that the gaseous fuel is pipeline natural gas. Therefore, ongoing sampling of the of the fuel's sulfur content is required annually and whenever the fuel supply sources change.
5. The permittee shall determine the hourly heat input rate to the combustion turbine and duct burner from the fuel flow rate as determined in term A. III.3. and gross calorific value as determined in term A.III.4. The heat input rate shall be calculated in accordance with the procedures in section 5 of 40 CFR Part 75, Appendix F.
6. For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.

IV. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emission unit. Each report shall be submitted within 30 days after the deviation occurred.

2. The permittee shall submit quarterly deviation (excursion) reports that identify the following:
 - a. During the first 12 calendar months of operation, all exceedances of the cumulative duct burner operating hours limitations.
 - b. Beginning after the first 12 calendar months of operation, all exceedances of the rolling, 12-month duct burner operating hours limitation.
 - c. Any record which shows that the sulfur content of the natural gas exceeded 2 grains per 100 standard cubic feet.
 - d. Any record which shows that the start-up duration exceeded 250 minutes.
 - e. Any record which shows that the shutdown duration exceeded 120 minutes.
 - f. Any record which shows that the total number of start-up/shutdown cycles exceeded 260.
 - g. All exceedances of the NO_x, CO, and/or VOC start-up limitations.
 - h. Beginning after the first 12 calendar months of operation, all exceedances of the rolling, 12-month NO_x, CO, VOC, SO₂, and/or PM/PM10 emission limitations.

The quarterly deviation reports are due by the dates described in Part 1 - General Terms and Conditions of this permit under section (A)(2).

3. Pursuant to OAC rules 3745-15-04, and ORC sections 3704.03(I) and 3704.03(l) and 40 CFR Part 60.7 and 60.13 (h), the permittee shall submit reports within 30 days following the end of each calendar quarter to the Portsmouth Local Air Agency documenting the date, commencement and completion times, duration, magnitude, reason (if known), and corrective actions taken (if any), of all instances of NO_x or CO values, as recorded by the CEMs in excess of the applicable limits specified in the terms and conditions of this permit. These reports shall also contain the total NO_x and CO emissions for the calendar quarter (in tons), including all data collected during start-up and shutdown periods and all data generated pursuant to the missing data procedures specified in 40 CFR Part 75 and/or the approved data substitution protocol required by section A.VI.4. of this permit.

The permittee shall submit reports within 30 days following the end of each calendar quarter to the Portsmouth Local Air Agency documenting any continuous NO_x, CO, or O₂ monitoring system down time while the emission unit was on line (date, time, duration and reason) along with any corrective action(s) taken. The permittee shall provide the emission unit operating time during the reporting period and the date, time, reason and corrective action(s) taken for each time period of emission unit and control equipment malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emission unit was on line shall

also be included in the quarterly report.

If there are no excess emissions during the calendar quarter, the permittee shall submit a statement to that effect along with the emissions unit operating time during the reporting period and the date, time, reason, and corrective action(s) taken for each time period of emission unit, control equipment, and/or monitoring system malfunctions. The total operating time of the emission unit and the total operating time of the analyzer while the emission unit was on line also shall be included in the quarterly report. These quarterly excess emission reports shall be submitted by January 30, April 30, July 30, and October 30 of each year and shall address the data obtained during the previous calendar quarter.

Pursuant to OAC rules 3745-15-04, and ORC sections 3704.03(I) and 3704.031, the permittee shall submit a summary of the excess emission report pursuant to 40 CFR Part 60.7. The summary shall be submitted to the Portsmouth Local Air Agency within 30 days following the end of each calendar quarter in a manner prescribed by the Director.

4. In lieu of the excess emissions reports required under 40 CFR Part 60.334, the permittee shall submit excess emissions reports for this emissions unit in accordance with this permit.
5. The permittee shall submit annual reports that specify the total NO_x, CO, PM/PM10, SO₂, VOC, NH₃, formaldehyde, and sulfuric acid emissions from this emissions unit for the previous calendar year. The reports shall be submitted by January 31 of each year.
6. This emission unit is subject to the applicable provisions of Subpart Da and GG of the New Source Performance Standards (NSPS) as promulgated by the United States Environmental Protection Agency, 40 CFR Part 60. The application and enforcement of these standards are delegated to the Ohio EPA. The requirements of 40 CFR Part 60 are also federally enforceable.

Pursuant to 40 CFR Part 60.7, the permittee is hereby advised of the requirement to report the following at the appropriate times:

- a. 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,

Duke Energy - Hanging Rock, LLC

PTI Application: 07-00502

Modif

Facility ID: 0744000150

Emissions Unit ID: P004

- d. date of performance testing (if required, at least 30 days prior to testing).

Reports are to be sent to :

Ohio Environmental Protection Agency
DAPC - Permit Management Unit
P.O. Box 163669
Columbus, Ohio 43216-3669

and

Portsmouth Local Air Agency
605 Washington Street, Third Floor
Portsmouth, Ohio 45662

V. Testing Requirements

1. The permittee shall conduct, or have conducted, emission testing for this emission unit in accordance with the following requirements:
 - a. The emission testing shall be conducted within 60 days after achieving the maximum production rate at which the emission unit will be operated, but not later than 180 days after initial startup of such emission unit.
 - b. The emission testing shall be conducted to demonstrate compliance with the NO_x and CO outlet concentration, and the mass emission limitations for NO_x*, CO, Formaldehyde, VOC, PM/PM₁₀ and ammonia.
 - c. The following test method(s) shall be employed to demonstrate compliance with the above emission limitations: for NO_x, Method 20 of 40 CFR Part 60, Appendix A; for PM/PM₁₀, Method 5 of 40 CFR Part 60, Appendix A; for Formaldehyde, SW-846 Method 0011 or EPA Method 316; for VOC, Method 25 of 40 CFR Part 60, Appendix A; for CO Method 10 of 40 CFR Part 60, Appendix A and for ammonia, CTM-027. Alternative USEPA approved test methods may be used with prior approval from the Ohio EPA.
 - d. The testing shall be conducted while the emission unit is operating at or near its maximum capacity with and without duct burner firing, unless otherwise specified or approved by Ohio EPA or local air agency.
 - e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an

"Intent to Test" notification to the Portsmouth Local Air Agency. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emission unit operating parameters, the times(s) and date(s) of the test(s), and the person(s) who will be conducting these test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Portsmouth Local Air Agency's refusal to accept the results of the emission test(s).

- f. Personnel from Portsmouth Local Air Agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.
- g. A comprehensive written report on the results of the emission test(s) shall be signed by the person or persons responsible for the tests and submitted to the Portsmouth Local Air Agency within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Portsmouth Local Air Agency.

* In lieu of the test methods and procedures required under 40 CFR Part 60.335, the permittee shall follow the testing requirements in accordance with this permit.

- 2. Within 60 days after achieving the maximum production rate at which the emission unit will be operated, but not later than 180 days after initial startup of such emissions unit, the permittee shall conduct certification tests of the continuous NO_x, CO and O₂ monitoring systems pursuant to ORC section 3704.03(I), 40 CFR Part 60, Appendix B, Performance Specification 2, 3 and 6* and/or 40 CFR Part 75, unless an extension is granted by the Ohio EPA. Personnel from the Portsmouth Local Air Agency shall be notified 30 days prior to initiation of the applicable tests and shall be permitted to examine equipment and witness the certification tests. In accordance with OAC rule 3745-15-04, copies of all test results shall be submitted within 30 days after the test is completed. Copies of the test results shall be sent to the Portsmouth Local Air Agency and the Ohio EPA, Central Office. Certification of the continuous NO_x, CO and O₂ monitoring systems shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of the appropriate sections of ORC section 3704.03(I), 40 CFR Part 60, Appendix B, Performance Specification 2, 3, 4 and 6* and/or 40 CFR Part 75.

* In lieu of monitoring the stack gas flow rate as required by 40 CFR Part 60, Appendix B - Performance Specification 6, the permittee shall use certified NO_x CEMs in conjunction with a fuel flow monitor as described in 40 CFR Part 75, and certified CO CEMs in conjunction with a

Emissions Unit ID: P004

fuel flow monitor (in a manner similar to the used for NO_x) to meet these requirements. The relative accuracy requirements of Performance Specification 6 shall apply.

3. Compliance with the emission limitations in section A.I.1. of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

NO_x emissions shall not exceed 3.0 ppmvd at 15% Oxygen (based on 3 hr block avg.)
21.1 lb/hr without duct firing
27.8 lb/hr with duct firing
121.2 TPY, based on a 12 month rolling summation,
including startup and shutdown emissions.

Applicable Compliance Method:

Initial compliance with the allowable outlet concentration, and the lb/hr emission limitations shall be demonstrated by the performance testing as described in section A.V.1. Ongoing compliance with those limitations, as well as annual, including startup and shutdown, emission limitations during Mode 6 as well as, start up and shutdown operations shall be demonstrated by the use of the CEM and the records required pursuant to this permit.

TPY allowables were calculated using projected lb/hr emission rates at 56 deg F.

b. Emission Limitation:

PM/PM₁₀ emissions shall not exceed
15 lb/hr without duct burner firing
23.3 lb/hr with duct burner firing
88.53 TPY based on a 12 month rolling summation

Applicable Compliance Method:

Compliance with the lb/hr emission limitation shall be demonstrated by the performance testing in A.V.1. Compliance with the annual emission limitation shall be determined by the multiplying the hourly emissions rate by the actual annual hours of operation and dividing by 2000lb/ton. The monthly emissions shall be added to the previous 11 months to determine the rolling 12 month total emissions.

TPY allowables were calculated using projected lb/hr emission rates at 56 deg F.

c. Emission Limitation:

SO₂ emissions shall not exceed
11 lb/hr without duct burner firing
14.4 lb/hr with duct burner firing
52.82 TPY based on a 12 month rolling summation

Applicable Compliance Methods:

Compliance with the lb/hr emission limitation shall be demonstrated by the recordkeeping required in section A.III.. Compliance with the annual emission limitation shall be determined by the multiplying the hourly emissions rate by the actual annual hours of operation and dividing by 2000lb/ton. The monthly emissions shall be added to the previous 11 months to determine the rolling 12 month total emissions.

TPY allowables were calculated using projected lb/hr emission rates at 56 deg F.

If required, the permittee shall demonstrate compliance with the lb/hr emission limitation by emission testing in accordance with approved USEPA test methods.

d. Emission Limitation:

VOC emissions shall not exceed
3.2 lb/hr without duct burner firing
20.4 lb/hr with duct burner firing
65.1 TPY, based on a 12 month rolling summation,
including startup and shutdown emissions.

Applicable Compliance Method:

Compliance with the lb/hr emission limitation shall be demonstrated by the performance testing as described in A.V.1. Compliance with the annual emission limitation shall be determined by the multiplying the hourly emissions rate by the actual annual hours of operation and dividing by 2000lb/ton. The monthly emissions shall be added to the previous 11 months to determine the rolling 12 month total emissions. The annual emissions associated with start-up and shutdown shall be determined by record keeping required in section A.III.

TPY allowables were calculated using projected lb/hr emission rates at 56 deg F.

e. Emission Limitation:

Duke Energy - Hanging Rock, LLC

PTI Application: 07-00503

Modif

Facility ID: 0744000150

Emissions Unit ID: P004

CO emissions shall not exceed
6 ppmvd at 15 % Oxygen without duct burner firing (based on 24 hr block avg.)
9 ppmvd at 15 % Oxygen with duct burner firing (based on 24 hr block avg.)
25.7 lb/hr without duct burner firing
50.3 lb/hr with duct burner firing
278.0 TPY, based on a 12 month rolling summation, including startup and shutdown emissions.

Applicable Compliance Method:

Initial compliance with the allowable outlet concentration, and the lb/hr emission limitations shall be demonstrated by the performance testing as described in section A.V.1. Ongoing compliance with those as well as annual, including startup and shutdown, emission limitations during Mode 6 as well as startup and shutdown operations shall be demonstrated by the use of the CEM. and the records required pursuant to this permit.

TPY allowables were calculated using projected lb/hr emission rates at 56 deg F.

f. Emission Limitation:

ammonia (NH₃) emissions shall not exceed
28 lb/hr without duct burner firing
37.8 lb/hr with duct burner firing
140.01 TPY

Applicable Compliance Method:

Compliance with the lb/hr emission limitation shall be demonstrated by the performance testing as described in section A.V.1. Compliance with the annual emission limitation shall be determined by the multiplying the hourly emissions rate, as determined by the

most recent performance test that demonstrated compliance, by the actual annual hours of operation and dividing by 2000 lb/ton.

TPY allowables were calculated using projected lb/hr emission rates at 56 deg F.

g. Emission Limitation:

Formaldehyde emission shall not exceed
0.45 lb/hr without duct burner firing
0.494 lb/hr with duct burner firing
2.09 TPY

Applicable Compliance Method:

Compliance with the lb/hr emission limitations shall be demonstrated by the performance testing as described in section A.V.1. Compliance with the annual emission limitation shall be determined by multiplying the hourly emission rate, as determined by the most recent performance test that demonstrated compliance, by the actual annual hours of operation and dividing by 2000 lb/ton.

h. Emission Limitation:

Sulfuric acid (H₂SO₄) emissions shall not exceed
1.68 lb/hr without duct burner firing
2.2 lb/hr with duct burner firing
8.07 TPY based on a 12 month rolling summation

Applicable Compliance Method:

Compliance with the lb/hr emission limitation shall be demonstrated by multiplying the emission factor of 0.0009 lb/MMBTU (supplied by permittee) by the maximum heat input. If required, the permittee shall demonstrate compliance by emission testing in accordance with approved USEPA test methods. Compliance with the annual emission limitation shall be determined by the multiplying the hourly emissions rate by the actual annual hours of operation and dividing by 2000lb/ton. The monthly emissions shall be added to the previous 11 months to determine the rolling 12 month total emissions.

TPY allowables were calculated using projected lb/hr emission rates at 56 deg F.

i. Emission Limitation:

Visible particulate emissions from any stack shall not exceed 10 percent opacity as a six minute average.

Applicable Compliance Method:

If required, compliance shall be demonstrated in accordance with the requirements specified in OAC rule 3745-17-03(B)(1) determined according to Method 9 of 40 CFR Part 60, Appendix A.

VI. Miscellaneous Requirements

Duke Energy - Hanging Rock, LLC**PTI Application: 07-00503****Modif****Facility ID: 0744000150**

Emissions Unit ID: P004

1. In accordance with good engineering practices, the SCR unit on emissions unit P004 shall be installed, operated and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee. The permittee shall maintain on site a copy of the operation & maintenance manual, as provided by the manufacturer.
2. Prior to the installation of the continuous NO_x, CO and O₂ monitoring systems, the permittee shall submit information detailing the proposed location of the sampling site in accordance with the siting requirements in 40 CFR Part 60, Appendix B, Performance Specification 2,3,4 and 6 for approval by the Ohio EPA, Central Office.
3. Within 180 days of the effective date of this permit, the permittee shall develop a written quality assurance/quality control plan for the continuous NO_x, CO, and O₂ monitoring system designed to ensure continuous valid and representative readings of NO_x, CO, and O₂ emissions in units of the applicable standard. The plan shall follow the requirements of the appropriate sections of 40 CFR Part 60, Appendix F or as approved by the Ohio EPA, Central Office and 40 CFR Part 75, Appendix B. The quality assurance/ quality control plan and logbook dedicated to the continuous NO_x, CO, and O₂ monitoring system must be kept on site and available for inspection during regular office hours.
4. Within 60 days of the effective date of this permit, the permittee shall submit a data substitution protocol for the continuous emissions monitoring system to the Ohio EPA, Central Office. Upon approval of the protocol, the permittee will commence configuring the Data Acquisition Handling System (DAHS) in accordance with the approved protocol. The DAHS modifications will be implemented and active within 120 days of protocol approval. The permittee may request an extension to the implementation requirement subject to approval by the Ohio EPA, Central Office.

B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P004 - 172 MW GE 7FA natural gas fired dry low NOx (DLN) combustion turbine No. 4 with duct firing operating in combined cycle mode controlled by Selective Catalytic Reduction (SCR)	None	None

2. Additional Terms and Conditions

- 2.a None

II. Operational Restrictions

None

III. Monitoring and/or Recordkeeping Requirements

None

IV. Reporting Requirements

None

V. Testing Requirements

None

VI. Miscellaneous Requirements

None

Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P005 - 10 Cell Mechanical Draft Cooling Tower	40 CFR 52.21 and OAC rule 3745-31-(10) thru(20)	Particulate (PM/PM ₁₀)emissions shall not exceed 2.60 lbs/hr.
	OAC rule 3745-31-05(A)(3)	PM/PM ₁₀ emissions shall not exceed 11.39 TPY based on a 12 month rolling average.
	OAC rule 3745-17-11(B)(4)	See section A.1.2 a below.
	OAC rule 3745-17-07(A)(1)	See section A.I.2 b below.
		See section A.I.2 c below.
		Visible particulate emissions shall not exceed 20 percent opacity as a six-minute average, except as provided by rule.
		See section A.I.2 d below.

2. Additional Terms and Conditions

Duke Energy - Hanging Rock, LLC

PTI Application: 07-00502

Modif**Facility ID: 0744000150**

Emissions Unit ID: P005

- 2.a** Per the requirements of 40 CFR 52.21, the permittee is required to perform a Best Available Control Technology (BACT) review for PM/PM₁₀. The implementation of drift eliminators constitute BACT for this emissions unit.
- 2.b** The requirements of this rule also include compliance with the requirements of OAC rule 3745-31-10 through 20, OAC rule 3745-17-07 (A)(1), and 40 CFR Part 52.21.
- 2.c** The emissions limit based on this applicable rule is less stringent than the limit established pursuant to OAC rule 3745-31-05(A)(3).
- 2.d** It shall not be deemed to be a violation of this limit, where the presence of uncombined water is the only reason for visible emissions exceeding 20% opacity from the stack.

II. Operational Restrictions

- 1. The permittee shall maintain an average total dissolved solids content of 3,000 ppm or less in the combined circulating cooling water discharge for P005 and P006.

III. Monitoring and/or Recordkeeping Requirements

- 1. The permittee shall perform the following monitoring requirements on a monthly basis:
 - a. test and record the total dissolved solids content of the combined circulating water discharge for P005 and P006, in ppm; and
 - b. determine the average total dissolved solids content based on a rolling 12 month average.

IV. Reporting Requirements

- 1. The permittee shall submit deviation reports that identify any exceedances of the average total dissolved solids content limitation. These reports shall be submitted in accordance with the section A.1.c of the general terms and conditions of this permit.

V. Testing Requirements

- 1. Compliance with the allowable emissions limitation in section A.I.1. of these terms and conditions shall be determined in accordance with the following methods:
 - a. Emission Limitation:

Particulate (PM/PM₁₀) emissions shall not exceed 2.60 lbs/hr and 11.39 TPY.

Applicable Compliance Method:

Compliance with the lbs/hr emission limitation shall be demonstrated by multiplying the maximum drift loss factor of 0.001 percent by the circulating water flow rate (gal/min) by the average total dissolved solid content (ppm) of the cooling water and the appropriate conversion factors (8.34 lbs/gal, 60 min/hr) and dividing by 1,000,000 (ppm).

If required, the permittee shall submit a testing proposal which will demonstrate that the maximum drift loss does not exceed 0.001 percent.

Compliance with the annual emission limitation shall be demonstrated by multiplying the hourly emission rate by the actual monthly operating hours and dividing by 2000 lb/ton.

The monthly emissions shall be added to the previous 11 months to determine the rolling 12 month total emissions.

b. Emission Limitation:

Visible particulate emissions shall not exceed 20 percent opacity as a six-minute average, except as provided by rule.

Applicable Compliance Method:

If required, compliance shall be demonstrated through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Method 9.

VI. Miscellaneous Requirements

None

B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P005 - 10 Cell Mechanical Draft Cooling Tower	None	None

2. Additional Terms and Conditions

- 2.a None

II. Operational Restrictions

None

III. Monitoring and/or Recordkeeping Requirements

None

IV. Reporting Requirements

None

V. Testing Requirements

None

VI. Miscellaneous Requirements

None

Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P006 - 10 Cell Mechanical Draft Cooling Tower	40 CFR 52.21 and OAC rule 3745-31-(10) thru(20)	Particulate (PM/PM ₁₀)emissions shall not exceed 2.60 lbs/hr.
		PM/PM ₁₀ emissions shall not exceed 11.39 TPY based on a 12 month rolling average.
	OAC rule 3745-31-05(A)(3)	See section A.1.2 a below.
	OAC rule 3745-17-11(B)(4)	See section A.I.2 b below.
	OAC rule 3745-17-07(A)(1)	See section A.I.2 c below.
		Visible particulate emissions shall not exceed 20 percent opacity as a six-minute average, except as provided by rule.
		See section A.I.2 d below.

2. Additional Terms and Conditions

- 2.a Per the requirements of 40 CFR 52.21, the permittee is required to perform a Best Available Control Technology (BACT) review for PM/PM₁₀. The implementation of drift eliminators constitute BACT for this emissions unit.
- 2.b The requirements of this rule also include compliance with the requirements of OAC rule 3745-31-10 through 20, OAC rule 3745-17-07 (A)(1), and 40 CFR Part 52.21.
- 2.c The emissions limit based on this applicable rule is less stringent than the limit established pursuant to OAC rule 3745-31-05(A)(3).

- 2.d It shall not be deemed to be a violation of this limit, where the presence of uncombined water is the only reason for visible emissions exceeding 20% opacity from the stack.

II. Operational Restrictions

1. The permittee shall maintain an average total dissolved solids content of 3,000 ppm or less in the combined circulating cooling water discharge for P005 and P006.

III. Monitoring and/or Recordkeeping Requirements

1. The permittee shall perform the following monitoring requirements on a monthly basis:
 - a. test and record the total dissolved solids content of the combined circulating water for P005 and P006, in ppm; and
 - b. determine the average total dissolved solids content based on a rolling 12 month average.

IV. Reporting Requirements

1. The permittee shall submit deviation reports that identify any exceedances of the average total dissolved solids content limitation. These reports shall be submitted in accordance with the section A.1.c of the general terms and conditions of this permit.

V. Testing Requirements

1. Compliance with the allowable emissions limitation in section A.I.1. of these terms and conditions shall be determined in accordance with the following methods:

- a. Emission Limitation:

Particulate (PM/PM₁₀) emissions shall not exceed 2.60 lbs/hr and 11.39 TPY.

Applicable Compliance Method:

Compliance with the lbs/hr emission limitation shall be demonstrated by multiplying the maximum drift loss factor of 0.001 percent by the circulating water flow rate (gal/min) by the average total dissolved solid content (ppm) of the cooling water and the appropriate conversion factors (8.34 lbs/gal, 60 min/hr) and dividing by 1,000,000 (ppm).

Duke**PTI A****Modification Issued: 12/28/2004**

Emissions Unit ID: P006

If required, the permittee shall submit a testing proposal which will demonstrate that the maximum drift loss does not exceed 0.001 percent.

Compliance with the annual emission limitation shall be demonstrated by multiplying the hourly emission rate by the actual monthly operating hours and dividing by 2000 lb/ton.

The monthly emissions shall be added to the previous 11 months to determine the rolling 12 month total emissions.

b. Emission Limitation:

Visible particulate emissions shall not exceed 20 percent opacity as a six-minute average, except as provided by rule.

Applicable Compliance Method:

If required, compliance shall be demonstrated through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Method 9.

VI. Miscellaneous Requirements

None

B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P006 - 10 Cell Mechanical Draft Cooling Tower	None	None

2. Additional Terms and Conditions

- 2.a None

II. Operational Restrictions

None

III. Monitoring and/or Recordkeeping Requirements

None

IV. Reporting Requirements

None

V. Testing Requirements

None

VI. Miscellaneous Requirements

None