



State of Ohio Environmental Protection Agency

**RE: FINAL PERMIT TO INSTALL CERTIFIED MAIL
LAWRENCE COUNTY**

Street Address:

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

Mailing Address:
Lazarus Gov.
Center

Application No: 07-00505

DATE: 12/12/2002

Lawrence Energy Center
Mark Chrisos
Calpine Lewis Wharf
Boston, MA 02110

Enclosed please find an Ohio EPA Permit to Install which will allow you to install the described source(s) in a manner indicated in the permit. Because this permit contains several conditions and restrictions, I urge you to read it carefully.

The Ohio EPA is urging companies to investigate pollution prevention and energy conservation. Not only will this reduce pollution and energy consumption, but it can also save you money. If you would like to learn ways you can save money while protecting the environment, please contact our Office of Pollution Prevention at (614) 644-3469.

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
236 East Town Street, Room 300
Columbus, Ohio 43215

Very truly yours,
Michael W. Ahern
Michael W. Ahern, Supervisor
Field Operations and Permit Section
Division of Air Pollution Control

CC: USEPA
Alan Lloyd OEPA/Central Office/DAPC

PCHD



STATE OF OHIO ENVIRONMENTAL PROTECTION AGENCY

**Permit To Install
Terms and Conditions**

**Issue Date: 12/12/2002
Effective Date: 12/12/2002**

FINAL PERMIT TO INSTALL 07-00505

Application Number: 07-00505
APS Premise Number: 0744000151
Permit Fee: **\$1200**
Name of Facility: Lawrence Energy Center
Person to Contact: Mark Chrisos
Address: Calpine Lewis Wharf
Boston, MA 02110

Location of proposed air contaminant source(s) [emissions unit(s)]:

US Rte 52

Hanging Rock, Ohio

Description of proposed emissions unit(s):

1100 MW combined cycle power plant consisting of three 180 MW Westinghouse 501F natural gas fired combustion turbines, three heat recovery steam generators (HRSGs) with duct burners.

The above named entity is hereby granted a Permit to Install for the above described emissions unit(s) pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit 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 emissions unit(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 and specifications, the above described emissions unit(s) of pollutants will be granted the necessary permits to operate (air) or NPDES permits as applicable.

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.

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.

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 Related to Monitoring and Recordkeeping 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 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

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

The applicant shall provide Ohio EPA with a written certification (see enclosed form) 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	577.9
CO	1618.1
SO2	213.4
PE/PM ₁₀	342.4
VOC	448.5
Ammonia	495.3
Formaldehyde	13.41
Sulfuric acid	48.6

Part II - FACILITY SPECIFIC TERMS AND CONDITIONS

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

1. 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

2. The following emissions units (EU) are also being installed as part of this project and their potential to emit (PTE) and other De Minimis or non-permitted sources located at the facility shall be included in emission calculations to demonstrate compliance with federal limits and regulations.

<u>EU</u>	<u>BACT</u>	<u>Emissions</u>
1000 kW diesel fired emergency generator*	use of low sulfur fuel	8.1 TPY NOx 6.4 TPY CO 0.62 TPY VOC 0.13 TPY SO2 0.25 TPY PE/PM ₁₀
(1) diesel fired fire water pump*	use of low sulfur fuel	3.1 TPY NOx 2.0 TPY CO 0.75 TPY VOC 0.04 TPY SO2 0.21 TPY PE/PM ₁₀

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(2) natural gas fired gas preheaters	use of natural gas	1.3 TPY NOx 2.2 TPY CO 0.15 TPY VOC 0.16 TPY SO2 0.20 TPY PE/PM ₁₀
(20) natural gas fired space heaters	use of natural gas	8.28 TPY NOx 3.50 TPY CO 0.48 TPY VOC 0.53 TPY SO2 0.66 TPY PE/PM ₁₀

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

- 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.
Potential HAP emissions are below 10 TPY for any single HAP (not including duct burners) and 25 TPY for combination of HAPs, therefore 112(g) does not apply to this facility. USEPA has determined that case-by-case MACT determinations under 40 CFR Part 63, subpart B do not apply to duct burners which are part of combined cycle systems because of the duct burners being considered an electric utility steam generating unit. [Federal Register. 40 CFR Part 63, May 25, 2000]

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

- The permit to install was evaluated based on the actual 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 (converted from STEL)
 Maximum Hourly Emission Rate (lb/hr): 3.07*

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Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 6.25
MAGLC (ug/m3): 6.48

Pollutant: Sulfuric Acid
TLV (ug/m3): 1000
Maximum Hourly Emission Rate (lb/hr): 11.35*
Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 23.1
MAGLC (ug/m3): 23.8

Pollutant: Ammonia
TLV (ug/m3): 17,413
Maximum Hourly Emission Rate (lb/hr): 112.7*
Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 219
MAGLC (ug/m3): 414.6

Pollutant: Toluene
TLV (ug/m3): 188,405
Maximum Hourly Emission Rate (lb/hr): 1.11*
Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 2.26
MAGLC (ug/m3): 4,486

Pollutant: Xylene
TLV (ug/m3): 434,192
Maximum Hourly Emission Rate (lb/hr): 0.55*
Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 1.11
MAGLC (ug/m3): 10,338

Pollutant: Acetaldehyde
TLV (ug/m3): 33,195
Maximum Hourly Emission Rate (lb/hr): 0.341*
Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 0.690
MAGLC (ug/m3): 790

Pollutant: Ethyl Benzene
TLV (ug/m3): 434,192
Maximum Hourly Emission Rate (lb/hr): 0.27*
Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 0.530
MAGLC (ug/m3): 10,338

Pollutant: Propylene Oxide
TLV (ug/m3): 4,751
Maximum Hourly Emission Rate (lb/hr): 0.25*
Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 0.500
MAGLC (ug/m3): 113

* This was modeled for emissions units B001, P001, P002, and P003 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;
 - 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

4. In order to reduce the maximum predicted 24-hour average PM₁₀ modeled impacts to less than 25 ug/m³, the maximum daily operating hours of the equipment listed below shall not exceed the following, when all three combustion turbines are in operation:

emergency generator:	4 hours
fire water pump	1 hour
auxiliary boiler	1 hour

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>
B001 - 99 MMBtu/hr natural gas fired auxiliary boiler	40 CFR 52.21 and OAC rule 3745-31-(10) thru (20)
	OAC rule 3745-31-05(A)(3)
	OAC rule 3745-17-07(A)

	<u>Applicable Emissions Limitations/Control Measures</u>	
OAC rule 3745-17-10(B)(1)	Nitrogen oxide (NOx) emissions shall not exceed:	CO emissions shall not exceed 14.6 tons, per rolling 12 months.
OAC rule 3745-18-06(A)	0.05 lb/MMBtu actual heat input and 4.95 lbs/hr.	VOC emissions shall not exceed 1.0 tons, per rolling 12 months.
40 CFR 60 Subpart Dc		See Section A.I.2.b below.
OAC rule 3745-31-05(D)	Sulfur dioxide (SO2) emissions shall not exceed: 0.0057 lb/MMBtu actual heat input and 0.56 lb/hr.	The requirements of this rule also includes compliance with the requirements of 40 CFR 60 Subpart Dc, OAC rule 3745-18-06(A), OAC rule 3745-17-10(B)(1), OAC rule 3745-17-07(A), 40 CFR 52.21, and OAC rule 3745-31-(10) thru (20).
	Carbon monoxide (CO) emission shall not exceed: 0.084 lb/MMBtu actual heat input and 8.32 lbs/hr.	Visible particulate emissions shall not exceed 20 percent opacity, as a six-minute average.
	Volatile organic compounds (VOC) emissions shall not exceed: 0.0055 lb/MMBtu actual heat input and 0.545 lb/hr.	see Section A.I.2.a below. see Section A.I.2.a below. see Section A.III.6 below.
	Particulate(PE/PM ₁₀) emissions shall not exceed: 0.0076 lb/MMBtu actual heat input and 0.76 lb/hr.	see Sections A.I.2.c and A.II.2. below.
	NOx emissions shall not exceed 8.7 tons, per rolling 12 months.	
	SO2 emissions shall not exceed 1.0 tons, per rolling 12 months.	
	PE/PM ₁₀ emissions shall not exceed 1.3 tons, per rolling 12 months.	

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) and/or 3745-31-05(A)(3).
- 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 PE/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 standard cubic feet.
- 2.** The maximum daily operating hours for this emissions unit shall not exceed 1, when all three combustion turbines are operating.
- 3.** The maximum annual hours of operation of this emissions unit shall not exceed 3500, based upon a rolling, 12-month summation.

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

<u>Month</u>	<u>Maximum Annual Cumulative Hours of Operation</u>
1	292
1-2	583
1-3	875
1-4	1167
1-5	1458
1-6	1750
1-7	2042
1-8	2333
1-9	2625
1-10	2917
1-11	3208
1-12	3500

After the first 12 calendar months of operation of this emission unit, compliance with the annual operating hours limitation shall be based upon a rolling, 12-month summation of the operating hours.

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 daily records of the operating hours for this emissions unit.
4. The permittee shall maintain monthly records of the following information for this emission unit:
 - a. the monthly operating hours for the boiler;
 - b. during the first 12 calendar months of operation following issuance of this permit, the permittee shall record the cumulative operating hours for each calendar month; and
 - b. beginning after the first 12 calendar months of operation following issuance of this permit, the rolling, 12-month summation of the operating hours.
5. The facility shall install, maintain, and operate, in accordance with the manufacturer's specifications, instrumentation sufficient to track all natural gas usage during periods of operation.
6. The permittee shall maintain records of the amounts of fuel combusted during each day, per 40 CFR 60.48c(g).

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 quarterly 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.

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These reports are due by the dates described in Part I - General Terms and Conditions of this permit under Section (A)(2).

3. The permittee shall submit annual reports which identify any exceedances of the daily operating hours limitation, as well as the corrective actions that were taken to achieve compliance. These reports shall be submitted by January 31 of each year.
4. The permittee shall submit quarterly deviation (excursion) reports which identify all exceedances of the rolling, 12-month operating hours limitation, and for the first 12 calendar months of operation, all exceedances of the maximum allowable cumulative operating hours levels. These reports are due by the dates described in Part 1 - General Terms and Conditions of this permit under Section (A)(2).
5. 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. Emission Limitation:

0.05 lb/MMBtu NO_x
4.95 lbs/hr NO_x

Applicable Compliance Method:

Compliance with the lb/MMBtu emission limitation shall be demonstrated by multiplying the controlled AP-42 emission factor, Table 1.4-1, July 1998, (50 lbs NO_x / MMscf) by the heat content of the natural gas (1 scf / 1000 Btu).

Compliance with the lbs/hr emission limitation shall be demonstrated by multiplying the lb/MMBtu emission limitation by the maximum heat input rate of 99 MMBtu/hr.

2. Emission Limitation:

0.0057 lb/MMBtu SO₂
0.56 lb/hr SO₂

Applicable Compliance Method:

The lb/MMBtu emission limitation was calculated from the allowable sulfur content in natural gas, 2 grains per 100 standard cubic feet. The supplier of the natural gas shall document the sulfur content of the fuel.

Compliance with the lb/hr emission limitation shall be demonstrated by multiplying the lb/MMBtu emission limitation by the maximum heat input rate of 99 MMBtu/hr.

3. Emission Limitation:

0.084 lb/MMBtu CO
8.32 lbs/hr CO

Applicable Compliance Method:

Compliance with the lb/MMBtu emission limitation shall be demonstrated by multiplying the AP-42 emission factor, Table 1.4-1, July 1998, (84 lbs CO / MMscf) by the heat content of the natural gas (1 scf / 1000 Btu).

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

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emission limitation by the maximum heat input rate of 99 MMBtu/hr.

4. Emission Limitation:

0.0055 lb/MMBtu VOC
0.545 lb/hr VOC

Applicable Compliance Method:

Compliance with the lb/MMBtu emission limitation shall be demonstrated multiplying the AP-42 emission factor, Table 1.4-2, July 1998, (5.5 lbs VOC / MMscf) by the heat content of the natural gas (1 scf/ 1000 Btu).

Compliance with the lb/hr emission limitation shall be demonstrated by multiplying the lb/MMBtu emission limitation by the maximum heat input rate of 99 MMBtu/hr.

5. Emission Limitation:

0.0076 lb/MMBtu PE/PM₁₀
0.75 lb/hr PE/PM₁₀

Applicable Compliance Method:

Compliance with the lb/MMBtu emission limitation shall be demonstrated by multiplying the AP-42 emission factor, Table 1.4-2, July 1998, (7.6 lbs PE / MMscf) by the heat content of the natural gas (1 scf/ 1000 Btu).

Compliance with the lb/hr emission limitation shall be demonstrated by multiplying the lb/MMBtu emission limitation by the maximum heat input rate of 99 MMBtu/hr.

6. Emission Limitations:

8.7 tons of NO_x per rolling 12 months
1.0 tons of SO₂ per rolling 12 months
1.3 tons of PE/PM₁₀ per rolling 12 months
14.6 tons of CO per rolling 12 months
1.0 tons of VOC per rolling 12 months

Applicable Compliance Method:

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Compliance with the rolling 12-month limits shall be determined by the record keeping required in Section A.III.4. The rolling 12-month summation of operating hours shall be multiplied by the hourly emissions limit for each pollutant and divided by 2000 lbs/ton in order to demonstrate compliance.

7. Emission Limitation:

Visible particulate emissions 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 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

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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 - 99 MMBtu/hr natural gas fired auxiliary 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

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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 - 180 MW Westinghouse 501F natural gas fired combustion turbine No 1 with duct firing operating in combined cycle mode with selective catalytic reduction (SCR) and oxidation catalyst	40 CFR 52.21 and OAC rule 3745-31-(10) through (20)

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

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 63, Subpart YYYY

40 CFR Parts 72, 73, 74, 75 and 76

OAC rule 3745-103

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Applicable Emissions
Limitations/Control
Measures

**EMISSION LIMITS
WITHOUT DUCT
BURNER FIRING:**

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 24.1 lbs/hr.

Particulate emissions (PE/PM₁₀*) shall not exceed 0.0096 lbs/MMBtu and 12.7 lbs/hr.

Sulfur dioxide (SO₂) emissions shall not exceed 0.0057 lbs/MMBtu and 11.9 lbs/hr.

Carbon monoxide (CO) emissions shall not exceed the following, based on a 24-hour block averaging period:

2.0 ppmvd at 15% oxygen (when turbine load is at or above 75% without power augmentation)
10 ppmv at 15% oxygen (with power augmentation or when turbine load is below 75%)

CO emissions shall not exceed 9.8 lbs/hr when turbine load is at or above 75 % without power augmentation or 32.4 lbs/hr with power augmentation** or when turbine load is below 75%

Volatile organic compounds (VOC) emissions shall not exceed 0.003 lbs/MMBtu and 4.2 lbs/hr.

Sulfuric acid (H₂SO₄) emissions shall not exceed 0.0013 lb/MMBtu and 2.72 lbs/hr.

**EMISSION LIMITS WITH DUCT
BURNER FIRING:**

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 30.5 lbs/hr.

Particulate emissions (PE/PM₁₀) shall not exceed 0.0101 lb/MMBtu and 25.3 lbs/hr.

SO₂ emissions shall not exceed 0.0057 lb/MMBtu and 16.1 lbs/hr.

CO emissions shall not exceed 10 ppmvd at 15% Oxygen, based on a 24-hour block averaging period.

CO emissions shall not exceed 61.9 lbs/hr.

VOC emissions shall not exceed 0.0118 lb/MMBtu and 30.7 lbs/hr.

H₂SO₄ emissions shall not exceed 0.0013 lb/MMBtu and 3.71 lbs/hr.

**STARTUP AND SHUTDOWN
EMISSIONS (see Item A.II.3.):**

NO_x emissions shall not exceed 67.5 tons, based on a 12 month rolling average.

CO emissions shall not exceed 295.8 tons, based on a 12 month rolling average.

VOC emissions shall not exceed 32.4 tons, based on a 12 month rolling average.

TOTAL TONS per rolling 12 months including startups and shutdowns:

NO_x emissions shall not exceed 182.8 tons, based on a 12 month rolling average.

SO₂ emissions shall not exceed 70.5 tons, based on a 12 month rolling average.

PE/PM₁₀ emissions shall not exceed 110.8 tons, based on a 12 month rolling average.

CO emissions shall not exceed 529.8 tons, based on a 12 month rolling average.

VOC emissions shall not exceed 148.5 tons, based on a 12 month rolling average.

H₂SO₄ emissions shall not exceed 16.2 tons, based on a 12 month rolling average.

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see Section A.I.2.f below.

The requirements of this rule also include compliance with the requirements of 40 CFR 60 Subpart Da and GG, OAC rule 3745-18-06(F), 3745-17-11(B)(4), OAC rule 3745-17-07(A), 40 CFR 52.21, and OAC 3745-31-(10) thru (20).

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

Ammonia (NH₃) emissions shall not exceed 165.1 tpy.

Formaldehyde shall not exceed 4.47 tpy.

EMISSION LIMITS WITHOUT DUCT BURNER FIRING:

NH₃ emissions shall not exceed 27.3 lbs/hr.

Formaldehyde emissions shall not exceed 0.75 lb/hr.

EMISSION LIMITS WITH DUCT BURNER FIRING:

NH₃ emissions shall not exceed 37.7 lbs/hr.

Formaldehyde emissions shall not exceed 1.02 lbs/hr.

see Sections A.I.2.b and A.III.6 below.

see Section A.I.2.c below.

see Section A.I.2.a below.

see Section A.I.2.a below.

see Section A.I.2.a below.

see Section A.I.2.e below.

see Section A.I.2.d below.

see Section A.I.2.d below.

* all particulate emission are assumed to be PM₁₀

** power augmentation is when steam from the heat recovery steam generator is injected into the combustion turbine generator

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) through (20).
- 2.b** The emissions limits based on this standard are less stringent than the limits established pursuant to 40 CFR 52.21 and OAC rule 3745-31-(10) thru (20). The limit contained in this permit is more stringent than the limit calculated per CFR 60.332 for nitrogen oxides, using the manufacturer's heat rate at the manufacturer's rated load for "Y". The SO₂ limit contained in this permit, 2 grains SO₂/100scf, is more restrictive than required per CFR 60.333. Except as provided for in the terms and conditions in this permit, the permittee is not exempt from meeting any additional requirements of 40 CFR Part 60, Subpart GG.
- 2.c** The particulate and visible emissions limits contained in this permit are more stringent than the limits established pursuant to 40 CFR Part 60, Subpart Da, in 60.42(a) and 60.42(b) respectively. And the 30-day rolling average limits, established per CFR 60.43(b) for sulfur dioxide emissions and per CFR 60.44(a) for nitrogen oxide emissions, are less stringent than the emissions limits contained in this permit, which are also established as hourly limits.
- 2.d** The permittee is subject to the applicable requirements of 40 CFR Parts 72, 73, 74, 75, and 76, concerning the acid rain program. Per 40 CFR 72.30(b)(2)(ii) and OAC 3745-103-07(A)(2)(b) and (c), an application for a Part 72 permit shall be submitted at least 24 months prior to commencing operations. Emissions exceeding any allowances that are lawfully held under Title IV of the Act, or any regulations adopted thereunder, are prohibited.
- 2.e** Upon promulgation, the permittee shall comply with the requirements of 40 CFR Part 63, Subpart YYYYY, National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Combustion Turbines.
- 2.f** The permittee is required to perform 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:

PE/PM₁₀-Burning natural gas in an efficient combustion turbine. For this permit, it is assumed that all PE emissions are PM₁₀.

NO_x- Use of DLN burners and employment of SCR with a controlled emissions rate of 3.0 ppmvd at 15% oxygen, based on a 3-hour block averaging period.

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- CO- Use of oxidation catalyst with an emissions rate of 2.0 ppmvd at 15% oxygen without duct firing or use of power augmentation at greater than 75% load and 10 ppmvd at 15% oxygen with duct firing and use of power augmentation including operational periods of 60 - 75% load, based on a 24-hour block averaging period.
- VOC- Combustion controls and use of an oxidation catalyst.
- SO₂- Burning natural gas in an efficient combustion turbine and burning low sulfur fuel.
- H₂SO₄-Burning natural gas in an efficient combustion turbine.

II. Operational Restrictions

1. The permittee shall burn only natural gas in this emissions unit. The maximum sulfur content of the natural gas shall not exceed 2 grains per 100 standard cubic feet.
2. The permittee shall be limited to 1199 hours of operation per year for startups and shutdowns for this emissions unit.
3. As specified in the permittee's PTI application, the maximum heat input rating of this emissions unit is 2830 MM Btu/hr. This value corresponds to a maximum natural gas fuel flow of 2.830 million scf/hr, with a lower heat value of 1000 MMBtu/million scf. The permittee shall operate this emissions unit within the parameters specified above, except for startup* and shutdown. Start-up and shut-down periods shall be defined as any time the unit is operating at less than 60 % load. A cold startup is one that occurs more than 12 hours after shutdown. A hot startup is one that occurs 12 hours or less after shutdown. Typically, cold startup periods will be 4.0 hours in duration and hot startup periods 2.0 hours in duration, and shut-down periods 1.0 hour in duration. Each startup and shutdown shall be limited to the following:

Pollutant	lbs/cold startup	lbs/hot startup	lbs/shutdown
NOx	497	256	79
CO	1777	935	565
VOC	163	87	80

*Startup for testing purposes shall be defined as the date when emission unit P001 is set in operation for any purpose.

4. The SCR system shall be in operation at all times, except for periods of startup and shutdown, defined as any time unit is operating at less than 60% load.

III. Monitoring and/or Recordkeeping Requirements

1. The permittee shall maintain monthly records of the following information for this emissions unit:
 - a. number and duration of each cold and hot start-up;
 - b. number and duration of each shut-down; and

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c. the start-up and shut-down emissions* for NO_x, CO, and VOC in tons per month.

* The start-up and shut-down emissions shall be based on CEM data, if available. If CEM data is not available, the emissions for each start-up and shut-down shall be based on the pound per event values specified in Section A.II.3, prorated by the actual duration of the event, as recorded per Section A.III.3 below.

2. The permittee shall maintain monthly records of the following information for this emissions unit:
 - a. the natural gas usage rate for each month (in standard cubic feet);
 - b. the hours of operation for the combustion turbine;
 - c. the hours of operation for the duct burner;
 - d. the monthly emissions for PE/PM₁₀, NO_x, SO₂, CO, VOC, formaldehyde, ammonia, and H₂SO₄, in tons; and
 - e. the rolling, 12-month summation of the emissions for PE/PM₁₀, NO_x, SO₂, CO, VOC, and H₂SO₄ (including start-up and shut-down emissions), in tons.

At the end of each year the permittee shall calculate the annual emissions from each of the pollutants above, in order to fulfill annual reporting requirements.

3. The permittee shall maintain records of the duration of each start-up and shut-down if continuous emissions monitoring system (CEMS) data is not available to document the duration of each event as required in Section A.III.1.
4. The permittee shall install, operate, maintain and certify continuous emissions monitoring system (CEMS) and continuous emissions rate monitoring system (CERMS) equipment to continuously monitor and record NO_x*, CO, and O₂ from this emissions unit in the units of the standards 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 in writing by the Ohio EPA, Central Office for this emissions unit.

The permittee shall maintain records of all data obtained by the continuous NO_x, CO, and O₂ monitoring systems including, but not limited to: results of daily zero/span calibration checks; magnitude of manual calibration adjustments; parts per million NO_x, CO, and per cent O₂ on an instantaneous (one-minute) basis; and emissions of NO_x and CO in pounds per million Btu and pounds per hour, in one-hour averages.

In conjunction with the operation of the NO_x and CO CEMS and CERMS, 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 and

CERMS.

* 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).

5. The permittee shall install, operate, maintain and certify equipment to continuously monitor and record the actual fuel flow to the turbine and duct burner when the turbine 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, Subparts D and E. The permittee shall maintain an information management system for this emissions unit capable of monitoring and recording the fuel flow (million cubic feet) to the turbine and to the duct burner, hours of operation with duct burner firing, and hours of operation without duct burner firing.
6. The permittee shall maintain documentation on the sulfur contents and heating values of the fuel received. ASTM D 1072-80, D 3031-81, D 4084-82, or D 3246-81 shall be used for the sulfur content of gaseous fuels. The permittee shall determine the heat value of the fuel using ASTM method D240. The applicable ranges of some ASTM methods mentioned above are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of the dilution ratio) may be used, subject to the approval of the Ohio EPA. The newest or most recent revisions to the applicable test method shall be used for these analyses. Fuel sampling and analysis shall be conducted according to the procedures and at the frequency specified by 40 CFR Part 75, Appendix D.
7. 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 Section A.III.5, and gross calorific value as determined in term A.III.6. The heat input rate shall be calculated in accordance with the procedures in 40 CFR Part 75, Appendix F, Section 5.
8. Initial compliance with the permit limits shall be demonstrated through the testing requirements found in Section A.V.1. On-going compliance with permit limits for NO_x and CO will be demonstrated with CEMS/CERMS, and associated recordkeeping.

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. Pursuant to OAC rules 3745-15-04, 3745-35-02, 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 (or regulating agency)

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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).

The permittee shall submit reports within 30 days following the end of each calendar quarter to the Portsmouth Local Air Agency (or regulating 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. 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.

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, 3745-35-02, 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 (or regulating agency) within 30 days following the end of each calendar quarter in a manner prescribed by the Director

3. The permittee shall submit quarterly 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).
4. The permittee shall submit annual deviation (excursion) reports, by February 1 of each year, that identify any exceedance of the restriction on the hours of startup and shutdowns for this emissions unit (1199 hours).
5. The permittee shall submit quarterly deviation (excursion) reports that identify each time when this emissions unit was not in compliance with the start-up/shut-down restrictions specified under Section II.3, or when records were not maintained as required in Sections A.III.1 and A.III.3. These reports are due by the date described in Part I - General Terms and Conditions of this

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permit.

- 6. 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. These reports are due by the date described in Part I - General Terms and Conditions of this permit.
- 7. 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 in 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:

Emissions Unit ID: P001

- 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 concentrations; the mass emission limitations for NO_x*, CO, Formaldehyde, VOC, PE/PM₁₀, and ammonia; and the pound per million Btu for PE/PM₁₀ and VOC.
- 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 PE/PM₁₀, Methods 201 and 202 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 and with power augmentation, unless otherwise specified or approved by Ohio EPA Central Office or Portsmouth 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 (or regulating 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 tests may result in the Ohio EPA Central Office or Portsmouth Local Air Agency's refusal to accept the results of the emission test(s).
- f. Personnel from Portsmouth Local Air Agency (or regulating agency) shall be permitted to witness the tests, 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 (or regulating 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 (or regulating 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.

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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, 6* and 40 CFR Part 75, unless an extension is granted by the Ohio EPA. Personnel from the Portsmouth Local Air Agency and Ohio EPA Central Office 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 (or regulating agency) and the Ohio EPA, Central Office. Certification of the continuous NO_x, CO and O₂ CEMS/CERMS 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 40 CFR Part 75.

* The permittee may use certified NO_x CEMS in conjunction with a fuel flow monitor as described in 40 CFR Part 75, and a certified CO CEMS in conjunction with a fuel flow monitor (in a manner similar to that used for NO_x) to meet these requirements. The relative accuracy requirements of Performance Specification 6 shall apply in either case.

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 a 3-hour block averaging period

24.1 lbs/hr without duct burner firing

30.5 lbs/hr with duct burner firing

182.8 tons based on a 12 month rolling summation, which includes 67.5 tons for startups and shutdowns.

Applicable Compliance Method:

Initial compliance with the allowable outlet concentrations and the pound per hour emission limitations shall be demonstrated by the performance testing as described in Section A.V.1, and continual compliance with those limitations shall be demonstrated by the use of the CEMS and CERMS, as required in Section A.III.4. Monthly emissions shall be determined by the adding the hourly CERMS data at the end of each month. If at

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any time during the month the CERMS data is not available, the hours of start-up/shutdown emissions shall be determined as required in Section A.III.3 and the daily average CERMS data for the mode of operations (power augmentation, with or without duct burners etc.) will be added in place of the CERMS actual hourly average. At the end of each month the monthly emissions (required in Sections A.III.1 and A.III.2) shall be added to the previous 11 months to determine the total rolling 12-month emissions.

b. Emission Limitation:

Particulate emissions shall not exceed:
 12.7 lbs/hr without duct burner firing
 0.0096 lb/MMBtu without duct burner firing
 25.3 lbs/hr with duct burner firing
 0.0101 lb/MMBtu with duct burner firing
 110.8 tons, based on a 12 month rolling summation

Applicable Compliance Method:

Compliance with the pound per hour and pound per MMBtu emission limitations shall be demonstrated by the performance testing in Section A.V.1. Monthly emissions shall be calculated by multiplying the hourly emissions rate, determined from the most recent stack test conducted to demonstrate compliance, by the actual annual hours of operation, as recorded in Section A.III.2. At the end of each month the monthly emissions (required in Section A.III.2) shall be added to the previous 11 months to determine the total rolling 12-month emissions.

c. Emission Limitation:

SO₂ emissions shall not exceed:
 11.9 lbs/hr without duct burner firing
 16.1 lbs/hr with duct burner firing
 0.0057 lb/MMBtu with and without duct burner firing
 70.5 tons, based on a 12 month rolling summation.

Applicable Compliance Methods:

Compliance with the pound per hour and pound per MMBtu emission limitations shall be demonstrated by the recordkeeping required in Sections A.III.2, A.III.5, and A.III.6. Monthly emissions shall be calculated by multiplying the hourly emissions rate, by the actual annual hours of operation, as recorded in Section A.III.2. If required, compliance shall be demonstrated in accordance with the Method 6 of 40 CFR Part 60, Appendix A. At the end of each month the monthly emissions (required in Section A.III.2) shall be added to the previous 11 months to determine the total rolling 12-month emissions.

d. Emission Limitation:

VOC emissions shall not exceed
4.2 lbs/hr without duct burner firing
0.003 lbs/MMBtu without duct burner firing
30.7 lbs/hr with duct burner firing
0.0118 lbs/MMBtu with duct burner firing
148.5 tons, based on a 12 month rolling summation, which includes 32.9 tons for startups and shutdowns.

Applicable Compliance Method:

Initial compliance with the pound per hour and pounds per MMBtu emission limitations shall be demonstrated by the performance testing as described in Section A.V.1. Monthly emissions shall be determined by multiplying the hourly emissions rate, as determined from the most recent stack test conducted to demonstrate compliance, by the actual hours of operation, as recorded in Section A.III.2, and adding the start-up/shutdown emissions, calculated from and maintained as required in Sections A.III.1 and A.III.3. At the end of each month the monthly emissions (required in Sections A.III.1 and A.III.2) shall be added to the previous 11 months to determine the total rolling 12-month emissions.

e. Emission Limitation:

CO emissions shall not exceed
2 ppmvd at 15 % oxygen when the turbine load is at or above 75% without duct burner firing or the use of power augmentation, based on a 24-hour block averaging period
10 ppmvd at 15 % oxygen without duct burner firing but with the use of power augmentation or when the turbine load is below 75%, based on a 24-hour block averaging period
10 ppmvd at 15% oxygen with duct burner firing, based on a 24-hour block averaging period
9.8 lbs/hr when the turbine load is at or above 75% without duct burner firing or the use of power augmentation
32.4 lbs/hr without duct burner firing but with the use of power augmentation or when the turbine load is below 75%
61.9 lbs/hr with duct burner firing and/or use of power augmentation
529.8 tons based on a 12 month rolling summation, which includes 298.8 tons for startups and shutdowns.
295.8 tons for startups and shutdowns, based on a 12 month rolling summation

Applicable Compliance Method:

Initial compliance with the allowable outlet concentrations and the pound per hour emission limitations shall be demonstrated by the performance testing as described in Section A.V.1, and continual compliance with those limitations shall be demonstrated by the use of the CEMS and CERMS, as required in Section A.III.4. Monthly emissions shall be determined by the adding the hourly CERMS data at the end of each month. If at any time during the month the CERMS data is not available, the hours of start-up/shutdown emissions shall be determined as required in Section A.III.3 and the daily average CERMS data for the mode of operations (power augmentation, with or without duct burners etc.) will be added in place of the CERMS actual hourly average. At the end of each month the monthly emissions (required in Sections A.III.1 and A.III.2) shall be added to the previous 11 months to determine the total rolling 12-month emissions.

f. Emission Limitation:

ammonia (NH₃) emissions shall not exceed
27.3 lbs/hr without duct burner firing
37.7 lbs/hr with duct burner firing
165.1 tons per year

Applicable Compliance Method:

Compliance with the pound per hour emission limitations shall be demonstrated by the performance testing in Section A.V.1. Monthly emissions shall be calculated by multiplying the hourly emissions rate, determined from the most recent stack test conducted to demonstrate compliance, by the actual annual hours of operation, as recorded in Section A.III.2. Compliance with the annual emission limitation shall be demonstrated at the end of each year by adding the monthly records maintained in Section A.III.2.

g. Emission Limitation:

Formaldehyde emission shall not exceed
0.75 lb/hr without duct burner firing
1.02 lbs/hr with duct burner firing
4.47 TPY

Applicable Compliance Method:

Compliance with the pound per hour emission limitations shall be demonstrated by the performance testing in Section A.V.1. Monthly emissions shall be calculated by multiplying the hourly emissions rate, determined from the most recent stack test conducted to demonstrate compliance, by the actual annual hours of operation, as recorded in Section A.III.2. Compliance with the annual emission limitation shall be demonstrated at the end of each year by adding the monthly records maintained in Section A.III.2.

h. Emission Limitation:

Sulfuric acid (H₂SO₄) emissions shall not exceed
2.72 lbs/hr without duct burner firing
3.71 lbs/hr with duct burner firing
16.2 tons based on a 12 month rolling summation
0.0013 lbs/MMBtu with and without duct burner firing

Applicable Compliance Method:

Compliance with the pound per hour and pounds per MMBtu emission limitations shall be demonstrated by the recordkeeping required in Sections A.III.2, A.III.5, and A.III.6 for the pollutant SO₂. It is estimated (by the permittee) that approximately 15% of the SO₂ emissions are converted to sulfuric acid. Monthly emissions shall be calculated by the multiplying the hourly emissions rate determined for SO₂ by 15%, and this hourly rate by the actual annual hours of operation, as recorded in Section A.III.2. At the end of each month the monthly emissions (required in Section A.III.2) shall be added to the previous 11 months to determine the total rolling 12-month emissions.

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 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 and CO 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, 4 and 6* (or as described in condition A.V.1.) for approval by the Ohio EPA, Central Office.

* for Performance Specification 6 see Section V.2.

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 and 40 CFR Part 75, Appendix B, or as approved by the Ohio EPA, Central Office. 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.

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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 - 180 MW Westinghouse 501F natural gas fired combustion turbine No 1 with duct firing operating in combined cycle mode with selective catalytic reduction (SCR) and oxidation catalyst	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

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None

VI. Miscellaneous Requirements

None

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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 - 180 MW Westinghouse 501F natural gas fired combustion turbine No 2 with duct firing operating in combined cycle mode controlled by selective catalytic reduction (SCR) and oxidation catalyst	40 CFR 52.21 and OAC rule 3745-31-(10) thru (20)

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

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 63, Subpart YYYY

40 CFR Parts 72, 73, 74, 75 and 76

OAC rule 3745-103

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Applicable Emissions Limitations/Control Measures	above 75 % without power augmentation or 32.4 lbs/hr with power augmentation** or when turbine load is below 75%	STARTUP AND SHUTDOWN EMISSIONS (see Item A.II.3.):
EMISSION LIMITS WITHOUT DUCT BURNER FIRING:	Volatile organic compounds (VOC) emissions shall not exceed 0.003 lb/MMBtu and 4.2 lbs/hr.	NO _x emissions shall not exceed 67.5 tons, 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.	Sulfuric acid (H ₂ SO ₄) emissions shall not exceed 0.0013 lb/MMBtu and 2.72 lbs/hr.	CO emissions shall not exceed 295.8 tons, based on a 12 month rolling average.
NO _x emissions shall not exceed 24.1 lbs/hr.	EMISSION LIMITS WITH DUCT BURNER FIRING:	VOC emissions shall not exceed 32.4 tons, based on a 12 month rolling average.
Particulate emissions (PE/PM ₁₀ *) shall not exceed 0.0096 lb/MMBtu and 12.7 lbs/hr.	NO _x emissions shall not exceed 3.0 ppmvd at 15% Oxygen, based on a 3-hour block averaging period.	TOTAL TONS per rolling 12 months including startups and shutdowns:
Sulfur dioxide (SO ₂) emissions shall not exceed 0.0057 lb/MMBtu and 11.9 lbs/hr.	NO _x emissions shall not exceed 30.5 lbs/hr.	NO _x emissions shall not exceed 182.8 tons, based on a 12 month rolling average.
Carbon monoxide (CO) emissions shall not exceed the following, based on a 24-hour block averaging period:	Particulate emissions (PE/PM ₁₀) shall not exceed 0.0101 lb/MMBtu and 25.3 lbs/hr.	SO ₂ emissions shall not exceed 70.5 tons, based on a 12 month rolling average.
2.0 ppmvd at 15% oxygen (when turbine load is at or above 75% without power augmentation) 10 ppmv at 15% oxygen (with power augmentation or when turbine load is below 75%)	SO ₂ emissions shall not exceed 0.0057 lb/MMBtu and 16.1 lbs/hr.	PE/PM ₁₀ emissions shall not exceed 110.8 tons, based on a 12 month rolling average.
CO emissions shall not exceed 9.8 lbs/hr when turbine load is at or	CO emissions shall not exceed 10 ppmvd at 15% Oxygen, based on a 24-hour block averaging period.	CO emissions shall not exceed 529.8 tons, based on a 12 month rolling average.
	CO emissions shall not exceed 61.9 lbs/hr.	VOC emissions shall not exceed 148.5 tons, based on a 12 month rolling average.
	VOC emissions shall not exceed 0.0118 lb/MMBtu and 30.7 lbs/hr.	H ₂ SO ₄ emissions shall not exceed 16.2 tons, based on a 12 month rolling average.
	H ₂ SO ₄ emissions shall not exceed 0.0013 lb/MMBtu and 3.71 lbs/hr.	see Section A.I.2.f below.
		The requirements of this rule also include compliance with the requirements of 40 CFR 60 Subpart Da and GG, OAC rule 3745-18-06(F), 3745-17-11(B)(4), OAC rule 3745-17-07(A), 40 CFR 52.21, and OAC 3745-31-(10) thru (20).
		Visible particulate emissions shall not exceed 10 % opacity as a six minute

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average.

Ammonia (NH₃) emissions shall not exceed 165.1 tpy.

Formaldehyde shall not exceed 4.47 tpy.

EMISSION LIMITS WITHOUT DUCT BURNER FIRING:

NH₃ emissions shall not exceed 27.3 lbs/hr.

Formaldehyde emissions shall not exceed 0.75 lb/hr.

EMISSION LIMITS WITH DUCT BURNER FIRING:

NH₃ emissions shall not exceed 37.7 lbs/hr.

Formaldehyde emissions shall not exceed 1.02 lbs/hr.

see Sections A.I.2.b and A.III.6 below.

see Section A.I.2.c below.

see Section A.I.2.a below.

see Section A.I.2.a below.

see Section A.I.2.a below.

see Section A.I.2.e below.

see Section A.I.2.d below.

see Section A.I.2.d below.

* all particulate emission are assumed to be PM₁₀

** power augmentation is when steam from the heat recovery steam generator is injected into the combustion turbine generator

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) through (20).
- 2.b** The emissions limits based on this standard are less stringent than the limits established pursuant to 40 CFR 52.21 and OAC rule 3745-31-(10) thru (20). The limit contained in this permit is more stringent than the limit calculated per CFR 60.332 for nitrogen oxides, using the manufacturer's heat rate at the manufacturer's rated load for "Y". The SO₂ limit contained in this permit, 2 grains SO₂/100scf, is more restrictive than required per CFR 60.333. Except as provided for in the terms and conditions in this permit, the permittee is not exempt from meeting any additional requirements of 40 CFR Part 60, Subpart GG.
- 2.c** The particulate and visible emissions limits contained in this permit are more stringent than the limits established pursuant to 40 CFR Part 60, Subpart Da, in 60.42(a) and 60.42(b) respectively. And the 30-day rolling average limits, established per CFR 60.43(b) for sulfur dioxide emissions and per CFR 60.44(a) for nitrogen oxide emissions, are less stringent than the emissions limits contained in this permit, which are also established as hourly limits.
- 2.d** The permittee is subject to the applicable requirements of 40 CFR Parts 72, 73, 74, 75, and 76, concerning the acid rain program. Per 40 CFR 72.30(b)(2)(ii) and OAC 3745-103-07(A)(2)(b) and (c), an application for a Part 72 permit shall be submitted at least 24 months prior to commencing operations. Emissions exceeding any allowances that are lawfully held under Title IV of the Act, or any regulations adopted thereunder, are prohibited.
- 2.e** Upon promulgation, the permittee shall comply with the requirements of 40 CFR Part 63, Subpart YYYYY, National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Combustion Turbines.
- 2.f** The permittee is required to perform 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:

PE/PM₁₀-Burning natural gas in an efficient combustion turbine. For this permit, it is assumed that all PE emissions are PM₁₀.

NO_x- Use of DLN burners and employment of SCR with a controlled emissions rate of 3.0 ppmvd at 15% oxygen, based on a 3-hour block averaging period.

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- CO- Use of oxidation catalyst with an emissions rate of 2.0 ppmvd at 15% oxygen without duct firing or use of power augmentation at greater than 75% load and 10 ppmvd at 15% oxygen with duct firing and use of power augmentation including operational periods of 60 - 75% load, based on a 24-hour block averaging period
- VOC- Combustion controls and use of an oxidation catalyst.
- SO₂- Burning natural gas in an efficient combustion turbine and burning low sulfur fuel.
- H₂SO₄-Burning natural gas in an efficient combustion turbine.

II. Operational Restrictions

1. The permittee shall burn only natural gas in this emissions unit. The maximum sulfur content of the natural gas shall not exceed 2 grains per 100 standard cubic feet.
2. The permittee shall be limited to 1199 hours of operation per year for startups and shutdowns for this emissions unit.
3. As specified in the permittee's PTI application, the maximum heat input rating of this emissions unit is 2830 MM Btu/hr. This value corresponds to a maximum natural gas fuel flow of 2.830 million scf/hr, with a lower heat value of 1000 MMBtu/million scf. The permittee shall operate this emissions unit within the parameters specified above, except for startup* and shutdown. Start-up and shut-down periods shall be defined as any time the unit is operating at less than 60 % load. A cold startup is one that occurs more than 12 hours after shutdown. A hot startup is one that occurs 12 hours or less after shutdown. Typically, cold startup periods will be 4.0 hours in duration and hot startup periods 2.0 hours in duration, and shut-down periods 1.0 hour in duration. Each startup and shutdown shall be limited to the following:

Pollutant	lbs/cold startup	lbs/hot startup	lbs/shutdown
NOx	497	256	79
CO	1777	935	565
VOC	163	87	80

*Startup for testing purposes shall be defined as the date when emission unit P001 is set in operation for any purpose.

4. The SCR system shall be in operation at all times, except for periods of startup and shutdown, defined as any time unit is operating at less than 60% load.

III. Monitoring and/or Recordkeeping Requirements

1. The permittee shall maintain monthly records of the following information for this emissions unit:
 - a. number and duration of each cold and hot start-up;
 - b. number and duration of each shut-down; and

- c. the start-up and shut-down emissions* for NO_x, CO, and VOC in tons per month.

* The start-up and shut-down emissions shall be based on CEM data, if available. If CEM data is not available, the emissions for each start-up and shut-down shall be based on the pound per event values specified in Section A.II.3, prorated by the actual duration of the event, as recorded per Section A.III.3 below.

2. The permittee shall maintain monthly records of the following information for this emissions unit:
 - a. the natural gas usage rate for each month (in standard cubic feet);
 - b. the hours of operation for the combustion turbine;
 - c. the hours of operation for the duct burner;
 - d. the monthly emissions for PE/PM₁₀, NO_x, SO₂, CO, VOC, formaldehyde, ammonia, and H₂SO₄, in tons; and
 - e. the rolling, 12-month summation of the emissions for PE/PM₁₀, NO_x, SO₂, CO, VOC, and H₂SO₄ (including start-up and shut-down emissions), in tons.

At the end of each year the permittee shall calculate the annual emissions from each of the pollutants above, in order to fulfill annual reporting requirements.

3. The permittee shall maintain records of the duration of each start-up and shut-down if continuous emissions monitoring system (CEMS) data is not available to document the duration of each event as required in Section A.III.1.
4. The permittee shall install, operate, maintain and certify continuous emissions monitoring system (CEMS) and continuous emissions rate monitoring system (CERMS) equipment to continuously monitor and record NO_x^{*}, CO, and O₂ from this emissions unit in the units of the standards 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 in writing by the Ohio EPA, Central Office for this emissions unit.

The permittee shall maintain records of all data obtained by the continuous NO_x, CO, and O₂ monitoring systems including, but not limited to: results of daily zero/span calibration checks; magnitude of manual calibration adjustments; parts per million NO_x, CO, and per cent O₂ on an instantaneous (one-minute) basis; and emissions of NO_x and CO in pounds per million Btu and pounds per hour, in one-hour averages.

In conjunction with the operation of the NO_x and CO CEMS and CERMS, the permittee shall install, operate and maintain a system to monitor when the duct burners are being

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fired. The data measured by this system shall be compiled with the data recorded by the NOx and CO CEMS and CERMS.

* The installation and operation of systems to continuously monitor and record emissions of NOx 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).

5. The permittee shall install, operate, maintain and certify equipment to continuously monitor and record the actual fuel flow to the turbine and duct burner when the turbine 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, Subparts D and E. The permittee shall maintain an information management system for this emissions unit capable of monitoring and recording the fuel flow (million cubic feet) to the turbine and to the duct burner, hours of operation with duct burner firing, and hours of operation without duct burner firing.
6. The permittee shall maintain documentation on the sulfur contents and heating values of the fuel received. ASTM D 1072-80, D 3031-81, D 4084-82, or D 3246-81 shall be used for the sulfur content of gaseous fuels. The permittee shall determine the heat value of the fuel using ASTM method D240. The applicable ranges of some ASTM methods mentioned above are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of the dilution ratio) may be used, subject to the approval of the Ohio EPA. The newest or most recent revisions to the applicable test method shall be used for these analyses. Fuel sampling and analysis shall be conducted according to the procedures and at the frequency specified by 40 CFR Part 75, Appendix D.
7. 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 Section A.III.5, and gross calorific value as determined in term A.III.6. The heat input rate shall be calculated in accordance with the procedures in 40 CFR Part 75, Appendix F, Section 5.
8. Initial compliance with the permit limits shall be demonstrated through the testing requirements found in Section A.V.1. On-going compliance with permit limits for NOx and CO will be demonstrated with CEMS/CERMS, and associated recordkeeping.

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.

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2. Pursuant to OAC rules 3745-15-04, 3745-35-02, and ORC Sections 3704.03(I) and 3704.03(I) 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 (or regulating 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).

The permittee shall submit reports within 30 days following the end of each calendar quarter to the Portsmouth Local Air Agency (or regulating 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. 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.

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, 3745-35-02, 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 (or regulating agency) within 30 days following the end of each calendar quarter in a manner prescribed by the Director

3. The permittee shall submit quarterly 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).
4. The permittee shall submit annual deviation (excursion) reports, by February 1 of each year, that identify any exceedance of the restriction on the hours of startup and shutdowns for this emissions unit (1199 hours).

5. The permittee shall submit quarterly deviation (excursion) reports that identify each time when this emissions unit was not in compliance with the start-up/shut-down restrictions specified under Section II.3, or when records were not maintained as required in Sections A.III.1 and A.III.3. These reports are due by the date described in Part I - General Terms and Conditions of this permit.
6. 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. These reports are due by the date described in Part I - General Terms and Conditions of this permit.
7. 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 in 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 concentrations; the mass emission limitations for NO_x*, CO, Formaldehyde, VOC, PE/PM₁₀, and ammonia; and the pound per million Btu for PE/PM₁₀ and VOC.
 - 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 PE/PM₁₀, Methods 201 and 202 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 and with power augmentation, unless otherwise specified or approved by Ohio EPA Central Office or Portsmouth 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 (or regulating 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 tests may result in the Ohio EPA Central Office or Portsmouth Local Air Agency's refusal to accept the results of the emission test(s).
 - f. Personnel from Portsmouth Local Air Agency (or regulating agency) shall be permitted to witness the tests, 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 (or regulating 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 (or regulating 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, 6* and 40 CFR Part 75, unless an extension is granted by the Ohio EPA. Personnel from the Portsmouth Local Air Agency and Ohio EPA Central Office 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 (or regulating agency) and the Ohio EPA, Central Office. Certification of the continuous NO_x, CO and O₂ CEMS/CERMS 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 40 CFR Part 75.

* The permittee may use certified NO_x CEMS in conjunction with a fuel flow monitor as described in 40 CFR Part 75, and a certified CO CEMS in conjunction with a fuel flow monitor (in a manner similar to that used for NO_x) to meet these requirements. The relative accuracy requirements of Performance Specification 6 shall apply in either case.

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 a 3-hour block averaging period
24.1 lbs/hr without duct burner firing

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30.5 lbs/hr with duct burner firing
 182.8 tons based on a 12 month rolling summation, which includes 67.5 tons for startups and shutdowns.

Applicable Compliance Method:

Initial compliance with the allowable outlet concentrations and the pound per hour emission limitations shall be demonstrated by the performance testing as described in Section A.V.1, and continual compliance with those limitations shall be demonstrated by the use of the CEMS and CERMS, as required in Section A.III.4. Monthly emissions shall be determined by the adding the hourly CERMS data at the end of each month. If at any time during the month the CERMS data is not available, the hours of start-up/shutdown emissions shall be determined as required in Section A.III.3 and the daily average CERMS data for the mode of operations (power augmentation, with or without duct burners etc.) will be added in place of the CERMS actual hourly average. At the end of each month the monthly emissions (required in Sections A.III.1 and A.III.2) shall be added to the previous 11 months to determine the total rolling 12-month emissions.

b. **Emission Limitation:**

Particulate emissions shall not exceed:
 12.7 lbs/hr without duct burner firing
 0.0096 lb/MMBtu without duct burner firing
 25.3 lbs/hr with duct burner firing
 0.0101 lb/MMBtu with duct burner firing
 110.8 tons, based on a 12 month rolling summation

Applicable Compliance Method:

Compliance with the pound per hour and pound per MMBtu emission limitations shall be demonstrated by the performance testing in Section A.V.1. Monthly emissions shall be calculated by multiplying the hourly emissions rate, determined from the most recent stack test conducted to demonstrate compliance, by the actual annual hours of operation, as recorded in Section A.III.2. At the end of each month the monthly emissions (required in Section A.III.2) shall be added to the previous 11 months to determine the total rolling 12-month emissions.

c. **Emission Limitation:**

SO₂ emissions shall not exceed:
 11.9 lbs/hr without duct burner firing
 16.1 lbs/hr with duct burner firing
 0.0057 lb/MMBtu with and without duct burner firing

Emissions Unit ID: P002

70.5 tons, based on a 12 month rolling summation.

Applicable Compliance Methods:

Compliance with the pound per hour and pound per MMBtu emission limitations shall be demonstrated by the recordkeeping required in Sections A.III.2, A.III.5, and A.III.6. Monthly emissions shall be calculated by multiplying the hourly emissions rate, by the actual annual hours of operation, as recorded in Section A.III.2. If required, compliance shall be demonstrated in accordance with the Method 6 of 40 CFR Part 60, Appendix A. At the end of each month the monthly emissions (required in Section A.III.2) shall be added to the previous 11 months to determine the total rolling 12-month emissions.

d. Emission Limitation:

VOC emissions shall not exceed
 4.2 lbs/hr without duct burner firing
 0.003 lb/MMBtu without duct burner firing
 30.7 lbs/hr with duct burner firing
 0.0118 lb/MMBtu with duct burner firing
 148.5 tons, based on a 12 month rolling summation, which includes 32.9 tons for startups and shutdowns.

Applicable Compliance Method:

Initial compliance with the pound per hour and pound per MMBtu emission limitations shall be demonstrated by the performance testing as described in Section A.V.1. Monthly emissions shall be determined by multiplying the hourly emissions rate, as determined from the most recent stack test conducted to demonstrate compliance, by the actual hours of operation, as recorded in Section A.III.2, and adding the start-up/shutdown emissions, calculated from and maintained as required in Sections A.III.1 and A.III.3. At the end of each month the monthly emissions (required in Sections A.III.1 and A.III.2) shall be added to the previous 11 months to determine the total rolling 12-month emissions.

e. Emission Limitation:

CO emissions shall not exceed:
 2 ppmvd at 15 % oxygen when the turbine load is at or above 75% without duct burner firing or the use of power augmentation, based on a 24-hour block averaging period
 10 ppmvd at 15 % oxygen without duct burner firing but with the use of power augmentation or when the turbine load is below 75%, based on a 24-hour block averaging period

10 ppmvd at 15% oxygen with duct burner firing, based on a 24-hour block averaging period

9.8 lbs/hr when the turbine load is at or above 75% without duct burner firing or the use of power augmentation

32.4 lbs/hr without duct burner firing but with the use of power augmentation or when the turbine load is below 75%

61.9 lbs/hr with duct burner firing and/or use of power augmentation

529.8 tons based on a 12 month rolling summation, which includes 298.8 tons for startups and shutdowns.

295.8 tons for startups and shutdowns, based on a 12 month rolling summation

Applicable Compliance Method:

Initial compliance with the allowable outlet concentrations and the pound per hour emission limitations shall be demonstrated by the performance testing as described in Section A.V.1, and continual compliance with those limitations shall be demonstrated by the use of the CEMS and CERMS, as required in Section A.III.4. Monthly emissions shall be determined by the adding the hourly CERMS data at the end of each month. If at any time during the month the CERMS data is not available, the hours of start-up/shutdown emissions shall be determined as required in Section A.III.3 and the daily average CERMS data for the mode of operations (power augmentation, with or without duct burners etc.) will be added in place of the CERMS actual hourly average. At the end of each month the monthly emissions (required in Sections A.III.1 and A.III.2) shall be added to the previous 11 months to determine the total rolling 12-month emissions.

f. Emission Limitation:

ammonia (NH₃) emissions shall not exceed

27.3 lbs/hr without duct burner firing

37.7 lbs/hr with duct burner firing

165.1 tons per year

Applicable Compliance Method:

Compliance with the pound per hour emission limitations shall be demonstrated by the performance testing in Section A.V.1. Monthly emissions shall be calculated by multiplying the hourly emissions rate, determined from the most recent stack test conducted to demonstrate compliance, by the actual annual hours of operation, as recorded in Section A.III.2. Compliance with the annual emission limitation shall

be demonstrated at the end of each year by adding the monthly records maintained in Section A.III.2.

g. Emission Limitation:

Formaldehyde emission shall not exceed
0.75 lb/hr without duct burner firing
1.02 lbs/hr with duct burner firing
4.47 TPY

Applicable Compliance Method:

Compliance with the pound per hour emission limitations shall be demonstrated by the performance testing in Section A.V.1. Monthly emissions shall be calculated by multiplying the hourly emissions rate, determined from the most recent stack test conducted to demonstrate compliance, by the actual annual hours of operation, as recorded in Section A.III.2. Compliance with the annual emission limitation shall be demonstrated at the end of each year by adding the monthly records maintained in Section A.III.2.

h. Emission Limitation:

Sulfuric acid (H₂SO₄) emissions shall not exceed
2.72 lbs/hr without duct burner firing
3.71 lbs/hr with duct burner firing
16.2 tons based on a 12 month rolling summation
0.0013 lb/MMBtu with and without duct burner firing

Applicable Compliance Method:

Compliance with the pound per hour and pound per MMBtu emission limitations shall be demonstrated by the recordkeeping required in Sections A.III.2, A.III.5, and A.III.6 for the pollutant SO₂. It is estimated (by the permittee) that approximately 15% of the SO₂ emissions are converted to sulfuric acid. Monthly emissions shall be calculated by the multiplying the hourly emissions rate determined for SO₂ by 15%, and this hourly rate by the actual annual hours of operation, as recorded in Section A.III.2. At the end of each month the monthly emissions (required in Section A.III.2) shall be added to the previous 11 months to determine the total rolling 12-month emissions.

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 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 and CO 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, 4 and 6* (or as described in condition A.V.1.) for approval by the Ohio EPA, Central Office.

* for Performance Specification 6 see Section V.2.

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 and 40 CFR Part 75, Appendix B, or as approved by the Ohio EPA, Central Office. 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.

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 - 180 MW Westinghouse 501F natural gas fired combustion turbine No 2 with duct firing operating in combined cycle mode controlled by selective catalytic reduction (SCR) and oxidation catalyst	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

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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 - 180 MW Westinghouse 501F natural gas fired combustion turbine No 3 with duct firing during combined cycle mode controlled by selective catalytic reduction (SCR) and oxidation catalyst	40 CFR 52.21 and OAC rule 3745-31-(10) thru (20)

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

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 63, Subpart YYYY

40 CFR Parts 72, 73, 74, 75 and 76

OAC rule 3745-103

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Applicable Emissions Limitations/Control Measures		
EMISSION LIMITS WITHOUT DUCT BURNER FIRING:	CO emissions shall not exceed 9.8 lbs/hr when turbine load is at or above 75 % without power augmentation or 32.4 lbs/hr with power augmentation** or when turbine load is below 75%	VOC emissions shall not exceed 0.0118 lb/MMBtu and 30.7 lbs/hr.
Nitrogen oxides (NO _x) emissions shall not exceed 3.0 ppmvd at 15% Oxygen, based on a 3-hour block averaging period.	Volatile organic compounds (VOC) emissions shall not exceed 0.003 lb/MMBtu and 4.2 lbs/hr.	H ₂ SO ₄ emissions shall not exceed 0.0013 lb/MMBtu and 3.71 lbs/hr.
NO _x emissions shall not exceed 24.1 lbs/hr.	Sulfuric acid (H ₂ SO ₄) emissions shall not exceed 0.0013 lb/MMBtu and 2.72 lbs/hr.	STARTUP AND SHUTDOWN EMISSIONS (see Item A.II.3.): NO _x emissions shall not exceed 67.5 tons, based on a 12 month rolling average.
Particulate emissions (PE/PM ₁₀ *) shall not exceed 0.0096 lb/MMBtu and 12.7 lbs/hr.	EMISSION LIMITS WITH DUCT BURNER FIRING:	CO emissions shall not exceed 295.8 tons, based on a 12 month rolling average.
Sulfur dioxide (SO ₂) emissions shall not exceed 0.0057 lb/MMBtu and 11.9 lbs/hr.	NO _x emissions shall not exceed 3.0 ppmvd at 15% Oxygen, based on a 3-hour block averaging period.	VOC emissions shall not exceed 32.4 tons, based on a 12 month rolling average.
Carbon monoxide (CO) emissions shall not exceed the following, based on a 24-hour block averaging period:	NO _x emissions shall not exceed 30.5 lbs/hr.	TOTAL TONS per rolling 12 months including startups and shutdowns:
2.0 ppmvd at 15% oxygen (when turbine load is at or above 75% without power augmentation) 10 ppmv at 15% oxygen (with power augmentation or when turbine load is below 75%)	Particulate emissions (PE/PM ₁₀) shall not exceed 0.0101 lb/MMBtu and 25.3 lbs/hr.	NO _x emissions shall not exceed 182.8 tons, based on a 12 month rolling average.
	SO ₂ emissions shall not exceed 0.0057 lb/MMBtu and 16.1 lbs/hr.	SO ₂ emissions shall not exceed 70.5 tons, based on a 12 month rolling average.
	CO emissions shall not exceed 10 ppmvd at 15% Oxygen, based on a 24-hour block averaging period.	PE/PM ₁₀ emissions shall not exceed 110.8 tons, based on a 12 month rolling average.
	CO emissions shall not exceed 61.9 lbs/hr.	CO emissions shall not exceed 529.8 tons, based on a 12 month rolling average.
		VOC emissions shall not exceed 148.5 tons, based on a 12 month rolling average.
		H ₂ SO ₄ emissions shall not exceed 16.2 tons, based on a 12 month rolling average.

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see Section A.I.2.f below.

The requirements of this rule also include compliance with the requirements of 40 CFR 60 Subpart Da and GG, OAC rule 3745-18-06(F), 3745-17-11(B)(4), OAC rule 3745-17-07(A), 40 CFR 52.21, and OAC 3745-31-(10) thru (20).

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

Ammonia (NH₃) emissions shall not exceed 165.1 tpy.

Formaldehyde shall not exceed 4.47 tpy.

EMISSION LIMITS WITHOUT DUCT BURNER FIRING:

NH₃ emissions shall not exceed 27.3 lbs/hr.

Formaldehyde emissions shall not exceed 0.75 lb/hr.

EMISSION LIMITS WITH DUCT BURNER FIRING:

NH₃ emissions shall not exceed 37.7 lbs/hr.

Formaldehyde emissions shall not exceed 1.02 lbs/hr.

see Sections A.I.2.b and A.III.6 below.

see Section A.I.2.c below.

see Section A.I.2.a below.

see Section A.I.2.a below.

see Section A.I.2.a below.

see Section A.I.2.e below.

see Section A.I.2.d below.

see Section A.I.2.d below.

* all particulate emission are assumed to be PM₁₀

** power augmentation is when steam from the heat recovery steam generator is injected into the combustion turbine generator

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) through (20).
- 2.b** The emissions limits based on this standard are less stringent than the limits established pursuant to 40 CFR 52.21 and OAC rule 3745-31-(10) thru (20). The limit contained in this permit is more stringent than the limit calculated per CFR 60.332 for nitrogen oxides, using the manufacturer's heat rate at the manufacturer's rated load for "Y". The SO₂ limit contained in this permit, 2 grains SO₂/100scf, is more restrictive than required per CFR 60.333. Except as provided for in the terms and conditions in this permit, the permittee is not exempt from meeting any additional requirements of 40 CFR Part 60, Subpart GG.
- 2.c** The particulate and visible emissions limits contained in this permit are more stringent than the limits established pursuant to 40 CFR Part 60, Subpart Da, in 60.42(a) and 60.42(b) respectively. And the 30-day rolling average limits, established per CFR 60.43(b) for sulfur dioxide emissions and per CFR 60.44(a) for nitrogen oxide emissions, are less stringent than the emissions limits contained in this permit, which are also established as hourly limits.
- 2.d** The permittee is subject to the applicable requirements of 40 CFR Parts 72, 73, 74, 75, and 76, concerning the acid rain program. Per 40 CFR 72.30(b)(2)(ii) and OAC 3745-103-07(A)(2)(b) and (c), an application for a Part 72 permit shall be submitted at least 24 months prior to commencing operations. Emissions exceeding any allowances that are lawfully held under Title IV of the Act, or any regulations adopted thereunder, are prohibited.
- 2.e** Upon promulgation, the permittee shall comply with the requirements of 40 CFR Part 63, Subpart YYYYY, National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Combustion Turbines.
- 2.f** The permittee is required to perform 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:

PE/PM₁₀-Burning natural gas in an efficient combustion turbine. For this permit, it

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is assumed that all PE emissions are PM₁₀.

NO_x- Use of DLN burners and employment of SCR with a controlled emissions rate of 3.0 ppmvd at 15% oxygen, based on a 3-hour block averaging period

CO- Use of oxidation catalyst with an emissions rate of 2.0 ppmvd at 15% oxygen without duct firing or use of power augmentation at greater than 75% load and 10 ppmvd at 15% oxygen with duct firing and use of power augmentation including operational periods of 60 - 75% load, based on a 24-hour block averaging period

VOC- Combustion controls and use of an oxidation catalyst.

SO₂- Burning natural gas in an efficient combustion turbine and burning low sulfur fuel.

H₂SO₄-Burning natural gas in an efficient combustion turbine.

II. Operational Restrictions

1. The permittee shall burn only natural gas in this emissions unit. The maximum sulfur content of the natural gas shall not exceed 2 grains per 100 standard cubic feet.
2. The permittee shall be limited to 1199 hours of operation per year for startups and shutdowns for this emissions unit.
3. As specified in the permittee's PTI application, the maximum heat input rating of this emissions unit is 2830 MM Btu/hr. This value corresponds to a maximum natural gas fuel flow of 2.830 million scf/hr, with a lower heat value of 1000 MMBtu/million scf. The permittee shall operate this emissions unit within the parameters specified above, except for startup* and shutdown. Start-up and shut-down periods shall be defined as any time the unit is operating at less than 60 % load. A cold startup is one that occurs more than 12 hours after shutdown. A hot startup is one that occurs 12 hours or less after shutdown. Typically, cold startup periods will be 4.0 hours in duration and hot startup periods 2.0 hours in duration, and shut-down periods 1.0 hour in duration. Each startup and shutdown shall be limited to the following:

Pollutant	lbs/cold startup	lbs/hot startup	lbs/shutdown
NO _x	497	256	79
CO	1777	935	565
VOC	163	87	80

*Startup for testing purposes shall be defined as the date when emission unit P001 is set in operation for any purpose.

4. The SCR system shall be in operation at all times, except for periods of startup and shutdown, defined as any time unit is operating at less than 60% load.

III. Monitoring and/or Recordkeeping Requirements

1. The permittee shall maintain monthly records of the following information for this emissions unit:
 - a. number and duration of each cold and hot start-up;
 - b. number and duration of each shut-down; and
 - c. the start-up and shut-down emissions* for NO_x, CO, and VOC in tons per month.

* The start-up and shut-down emissions shall be based on CEM data, if available. If CEM data is not available, the emissions for each start-up and shut-down shall be based on the pound per event values specified in Section A.II.3, prorated by the actual duration of the event, as recorded per Section A.III.3 below.

2. The permittee shall maintain monthly records of the following information for this emissions unit:
 - a. the natural gas usage rate for each month (in standard cubic feet);
 - b. the hours of operation for the combustion turbine;
 - c. the hours of operation for the duct burner;
 - d. the monthly emissions for PE/PM₁₀, NO_x, SO₂, CO, VOC, formaldehyde, ammonia, and H₂SO₄, in tons; and
 - e. the rolling, 12-month summation of the emissions for PE/PM₁₀, NO_x, SO₂, CO, VOC, and H₂SO₄ (including start-up and shut-down emissions), in tons.

At the end of each year the permittee shall calculate the annual emissions from each of the pollutants above, in order to fulfill annual reporting requirements.

3. The permittee shall maintain records of the duration of each start-up and shut-down if continuous emissions monitoring system (CEMS) data is not available to document the duration of each event as required in Section A.III.1.
4. The permittee shall install, operate, maintain and certify continuous emissions monitoring system (CEMS) and continuous emissions rate monitoring system (CERMS) equipment to continuously monitor and record NO_x*, CO, and O₂ from this emissions unit in the units of the standards 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 in writing by the Ohio EPA, Central Office for this emissions unit.

The permittee shall maintain records of all data obtained by the continuous NO_x, CO, and

O₂ monitoring systems including, but not limited to: results of daily zero/span calibration checks; magnitude of manual calibration adjustments; parts per million NO_x, CO, and per cent O₂ on an instantaneous (one-minute) basis; and emissions of NO_x and CO in pounds per million Btu and pounds per hour, in one-hour averages.

In conjunction with the operation of the NO_x and CO CEMS and CERMS, 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 and CERMS.

* 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).

5. The permittee shall install, operate, maintain and certify equipment to continuously monitor and record the actual fuel flow to the turbine and duct burner when the turbine 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, Subparts D and E. The permittee shall maintain an information management system for this emissions unit capable of monitoring and recording the fuel flow (million cubic feet) to the turbine and to the duct burner, hours of operation with duct burner firing, and hours of operation without duct burner firing.
6. The permittee shall maintain documentation on the sulfur contents and heating values of the fuel received. ASTM D 1072-80, D 3031-81, D 4084-82, or D 3246-81 shall be used for the sulfur content of gaseous fuels. The permittee shall determine the heat value of the fuel using ASTM method D240. The applicable ranges of some ASTM methods mentioned above are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of the dilution ratio) may be used, subject to the approval of the Ohio EPA. The newest or most recent revisions to the applicable test method shall be used for these analyses. Fuel sampling and analysis shall be conducted according to the procedures and at the frequency specified by 40 CFR Part 75, Appendix D.
7. 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 Section A.III.5, and gross calorific value as determined in term A.III.6. The heat input rate shall be calculated in accordance with the procedures in 40 CFR Part 75, Appendix F, Section 5.

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8. Initial compliance with the permit limits shall be demonstrated through the testing requirements found in Section A.V.1. On-going compliance with permit limits for NOx and CO will be demonstrated with CEMS/CERMS, and associated recordkeeping.

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. Pursuant to OAC rules 3745-15-04, 3745-35-02, and ORC Sections 3704.03(I) and 3704.03(I) 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 (or regulating agency) documenting the date, commencement and completion times, duration, magnitude, reason (if known), and corrective actions taken (if any), of all instances of NOx 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 NOx and CO emissions for the calendar quarter (in tons).

The permittee shall submit reports within 30 days following the end of each calendar quarter to the Portsmouth Local Air Agency (or regulating 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. 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.

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, 3745-35-02, 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 (or regulating agency) within 30 days following the end of each calendar quarter in a manner prescribed by the Director

3. The permittee shall submit quarterly 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).
4. The permittee shall submit annual deviation (excursion) reports, by February 1 of each year, that identify any exceedance of the restriction on the hours of startup and shutdowns for this emissions unit (1199 hours).
5. The permittee shall submit quarterly deviation (excursion) reports that identify each time when this emissions unit was not in compliance with the start-up/shut-down restrictions specified under Section II.3, or when records were not maintained as required in Sections

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A.III.1 and A.III.3. These reports are due by the date described in Part I - General Terms and Conditions of this permit.

6. 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. These reports are due by the date described in Part I - General Terms and Conditions of this permit.
7. 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 in 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 concentrations; the mass emission limitations for NO_x*, CO, Formaldehyde, VOC, PE/PM₁₀, and ammonia; and the pound per million Btu for PE/PM₁₀ and VOC.
- 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 PE/PM₁₀, Methods 201 and 202 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 and with power augmentation, unless otherwise specified or approved by Ohio EPA Central Office or Portsmouth 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 (or regulating 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 tests may result in the Ohio EPA Central Office or Portsmouth Local Air Agency's refusal to accept the results of the emission test(s).
- f. Personnel from Portsmouth Local Air Agency (or regulating agency) shall be permitted to witness the tests, 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 (or regulating agency) within 30 days following completion of

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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 (or regulating 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, 6* and 40 CFR Part 75, unless an extension is granted by the Ohio EPA. Personnel from the Portsmouth Local Air Agency and Ohio EPA Central Office 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 (or regulating agency) and the Ohio EPA, Central Office. Certification of the continuous NO_x, CO and O₂ CEMS/CERMS 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 40 CFR Part 75.

* The permittee may use certified NO_x CEMS in conjunction with a fuel flow monitor as described in 40 CFR Part 75, and a certified CO CEMS in conjunction with a fuel flow monitor (in a manner similar to that used for NO_x) to meet these requirements. The relative accuracy requirements of Performance Specification 6 shall apply in either case.

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 a 3-hour block averaging period

24.1 lbs/hr without duct burner firing

30.5 lbs/hr with duct burner firing

182.8 tons based on a 12 month rolling summation, which includes 67.5 tons for startups and shutdowns.

Applicable Compliance Method:

Initial compliance with the allowable outlet concentrations and the pound per hour emission limitations shall be demonstrated by the performance testing as described

in Section A.V.1, and continual compliance with those limitations shall be demonstrated by the use of the CEMS and CERMS, as required in Section A.III.4. Monthly emissions shall be determined by the adding the hourly CERMS data at the end of each month. If at any time during the month the CERMS data is not available, the hours of start-up/shutdown emissions shall be determined as required in Section A.III.3 and the daily average CERMS data for the mode of operations (power augmentation, with or without duct burners etc.) will be added in place of the CERMS actual hourly average. At the end of each month the monthly emissions (required in Sections A.III.1 and A.III.2) shall be added to the previous 11 months to determine the total rolling 12-month emissions.

b. Emission Limitation:

Particulate emissions shall not exceed:
12.7 lbs/hr without duct burner firing
0.0096 lb/MMBtu without duct burner firing
25.3 lbs/hr with duct burner firing
0.0101 lb/MMBtu with duct burner firing
110.8 tons, based on a 12 month rolling summation

Applicable Compliance Method:

Compliance with the pound per hour and pound per MMBtu emission limitations shall be demonstrated by the performance testing in Section A.V.1. Monthly emissions shall be calculated by multiplying the hourly emissions rate, determined from the most recent stack test conducted to demonstrate compliance, by the actual annual hours of operation, as recorded in Section A.III.2. At the end of each month the monthly emissions (required in Section A.III.2) shall be added to the previous 11 months to determine the total rolling 12-month emissions.

c. Emission Limitation:

SO₂ emissions shall not exceed:
11.9 lbs/hr without duct burner firing
16.1 lbs/hr with duct burner firing
0.0057 lb/MMBtu with and without duct burner firing
70.5 tons, based on a 12 month rolling summation.

Applicable Compliance Methods:

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Compliance with the pound per hour and pound per MMBtu emission limitations shall be demonstrated by the recordkeeping required in Sections A.III.2, A.III.5, and A.III.6. Monthly emissions shall be calculated by multiplying the hourly emissions rate, by the actual annual hours of operation, as recorded in Section A.III.2. If required, compliance shall be demonstrated in accordance with the Method 6 of 40 CFR Part 60, Appendix A. At the end of each month the monthly emissions (required in Section A.III.2) shall be added to the previous 11 months to determine the total rolling 12-month emissions.

d. Emission Limitation:

VOC emissions shall not exceed
4.2 lbs/hr without duct burner firing
0.003 lb/MMBtu without duct burner firing
30.7 lbs/hr with duct burner firing
0.0118 lb/MMBtu with duct burner firing
148.5 tons, based on a 12 month rolling summation, which includes 32.9 tons for startups and shutdowns.

Applicable Compliance Method:

Initial compliance with the pound per hour and pound per MMBtu emission limitations shall be demonstrated by the performance testing as described in Section A.V.1. Monthly emissions shall be determined by multiplying the hourly emissions rate, as determined from the most recent stack test conducted to demonstrate compliance, by the actual hours of operation, as recorded in Section A.III.2, and adding the start-up/shutdown emissions, calculated from and maintained as required in Sections A.III.1 and A.III.3. At the end of each month the monthly emissions (required in Sections A.III.1 and A.III.2) shall be added to the previous 11 months to determine the total rolling 12-month emissions.

e. Emission Limitation:

CO emissions shall not exceed

2 ppmvd at 15 % oxygen when the turbine load is at or above 75% without duct burner firing or the use of power augmentation, based on a 24-hour block averaging period

10 ppmvd at 15 % oxygen without duct burner firing but with the use of power augmentation or when the turbine load is below 75%, based on a 24-hour block averaging period

10 ppmvd at 15% oxygen with duct burner firing, based on a 24-hour block averaging period

9.8 lbs/hr when the turbine load is at or above 75% without duct burner firing or the use of power augmentation

32.4 lbs/hr without duct burner firing but with the use of power augmentation or when the turbine load is below 75%

61.9 lbs/hr with duct burner firing and/or use of power augmentation

529.8 tons based on a 12 month rolling summation, which includes 298.8 tons for startups and shutdowns.

295.8 tons for startups and shutdowns, based on a 12 month rolling summation

Applicable Compliance Method:

Initial compliance with the allowable outlet concentrations and the pound per hour emission limitations shall be demonstrated by the performance testing as described in Section A.V.1, and continual compliance with those limitations shall be demonstrated by the use of the CEMS and CERMS, as required in Section A.III.4. Monthly emissions shall be determined by the adding the hourly CERMS data at the end of each month. If at any time during the month the CERMS data is not available, the hours of start-up/shutdown emissions shall be determined as required in Section A.III.3 and the daily average CERMS data for the mode of operations (power augmentation, with or without duct burners etc.) will be added in place of the CERMS actual hourly average. At the end of each month the monthly emissions (required in Sections A.III.1 and A.III.2) shall be added to the previous 11 months to determine the total rolling 12-month emissions.

f. Emission Limitation:

ammonia (NH₃) emissions shall not exceed

27.3 lbs/hr without duct burner firing

37.7 lbs/hr with duct burner firing
 165.1 tons per year

Applicable Compliance Method:

Compliance with the pound per hour emission limitations shall be demonstrated by the performance testing in Section A.V.1. Monthly emissions shall be calculated by multiplying the hourly emissions rate, determined from the most recent stack test conducted to demonstrate compliance, by the actual annual hours of operation, as recorded in Section A.III.2. Compliance with the annual emission limitation shall be demonstrated at the end of each year by adding the monthly records maintained in Section A.III.2.

g. Emission Limitation:

Formaldehyde emission shall not exceed
 0.75 lb/hr without duct burner firing
 1.02 lbs/hr with duct burner firing
 4.47 TPY

Applicable Compliance Method:

Compliance with the pound per hour emission limitations shall be demonstrated by the performance testing in Section A.V.1. Monthly emissions shall be calculated by multiplying the hourly emissions rate, determined from the most recent stack test conducted to demonstrate compliance, by the actual annual hours of operation, as recorded in Section A.III.2. Compliance with the annual emission limitation shall be demonstrated at the end of each year by adding the monthly records maintained in Section A.III.2.

h. Emission Limitation:

Sulfuric acid (H₂SO₄) emissions shall not exceed
 2.72 lbs/hr without duct burner firing
 3.71 lbs/hr with duct burner firing
 16.2 tons based on a 12 month rolling summation
 0.0013 lb/MMBtu with and without duct burner firing

Applicable Compliance Method:

Compliance with the pound per hour and pound per MMBtu emission limitations shall be demonstrated by the recordkeeping required in Sections A.III.2, A.III.5, and A.III.6 for the pollutant SO₂. It is estimated (by the permittee) that approximately 15% of the SO₂ emissions are converted to sulfuric acid. Monthly

emissions shall be calculated by the multiplying the hourly emissions rate determined for SO₂ by 15%, and this hourly rate by the actual annual hours of operation, as recorded in Section A.III.2. At the end of each month the monthly emissions (required in Section A.III.2) shall be added to the previous 11 months to determine the total rolling 12-month emissions.

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 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 and CO 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, 4 and 6* (or as described in condition A.V.1.) for approval by the Ohio EPA, Central Office.

* for Performance Specification 6 see Section V.2.

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 and 40 CFR Part 75, Appendix B, or as approved by the Ohio EPA, Central Office. 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.

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 - 180 MW Westinghouse 501F natural gas fired combustion turbine No 3 with duct firing during combined cycle mode controlled by selective catalytic reduction (SCR) and oxidation catalyst	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

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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>
P004 - 22 cell mechanical draft cooling tower	40 CFR 52.21 and OAC rule 3745-31-(10) through(20)	Particulate (PE/PM ₁₀) emissions shall not exceed 1.69 lb/hr and 7.40 tpy.
		See section A.I.2.a below.
	OAC rule 3745-31-05 (A)(3)	See A.I.2.b below.
	OAC rule 3745-17-11 (B)(4)	See A.I.2.c below.
	OAC rule 3745-17-07 (A)(1)	Visible particulate emissions shall not exceed 20 percent opacity as a six-minute average, except as provided by rule.
		See 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 high efficiency 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 2,500 ppm or less in this emissions unit.

III. Monitoring and/or Recordkeeping Requirements

1. The permittee shall perform the following monitoring requirements for this emissions unit on a monthly basis:
 - a. test and record the total dissolved solids content; and
 - b. determine the average dissolved solids content based on a rolling 12 month average.

IV. Reporting Requirements

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

V. Testing Requirements

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

- a. Emission Limitation:

particulate (PE/PM₁₀) emissions shall not exceed 1.69 lb/hr and 7.40 tpy.

Applicable Compliance Method:

Compliance with the lbs/hr emission limitation shall be demonstrated by applying the maximum drift loss factor 0.0005 percent to the maximum average total dissolved solids content of 2,500 ppm for the cooling water. If required, the permittee shall submit a testing proposal which will demonstrate that the maximum drift loss does not exceed 0.0005 percent. Compliance with the annual emission limitation shall be demonstrated by the multiplying the hourly emission rate by 8760 hours and dividing by 2000 lbs/ton.

- b. Emission Limitation:

Lawrence Energy Center
PTI Application: **07 00505**

Facility ID: **0744000151**

Issued:

Emissions Unit ID: P004

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

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Issued: 12/12/2002

Emissions Unit ID: P004

Applicable Compliance Method:

Compliance with the visible emissions limitations established by this permit shall be determined by OAC rule 3745-17-03(B)(10).

VI. Miscellaneous Requirements

None

Issued: 12/12/2002

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 - 22 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