



State of Ohio Environmental Protection Agency

Street Address:

Lazarus Gov. Center  
122 S. Front Street  
Columbus, OH 43215

TELE: (614) 644-3020 FAX: (614) 644-2329

Mailing Address:

Lazarus Gov. Center  
P.O. Box 1049  
Columbus, OH 43216-1049

08/14/03

**CERTIFIED MAIL**

**RE: Draft Title V Chapter 3745-77 permit**

14-09-00-0896  
PSI Energy Madison Station  
John F. Funke  
Cinergy Corp  
P.O. Box 960, Room 552 Annex  
Cincinnati, OH 45201

Dear John F. Funke:

You are hereby notified that the Ohio Environmental Protection Agency has prepared the enclosed draft of the Title V permit for the facility referenced above. The purpose of this draft is to solicit public comments. A public notice concerning the draft will appear in the Ohio EPA Weekly Review and the major newspaper in the county where the facility is located. Comments and/or a request for a public hearing from the public and any affected parties will be accepted by Hamilton County Dept. of Environmental Services within 30 days of the date of publication in the newspaper. You will be notified in writing if a public hearing is scheduled. **In order to facilitate our review of all the comments or concerns you may have with the enclosed draft permit, please provide a hand marked-up copy of the draft permit showing the changes you think are necessary, along with any additional summary comments, by the end of the draft public comment period. The hard marked-up copy and any additional summary comments should be submitted to the Ohio EPA District Office or local air agency identified below and to this office at the following address:**

**Ohio EPA, Division of Air Pollution Control  
Permit Issuance and Data Management Section  
Draft Title V Permit Correspondence  
122 South Front Street  
Columbus, Ohio 43215**

A decision on processing the Title V permit will be made after consideration of written public comments and oral testimony (if a public hearing is conducted). After the comment period, you will be provided with a Preliminary Proposed Title V permit and an opportunity to comment prior to the Proposed Title V permit submittal to USEPA.

If you have any questions concerning this draft Title V permit, please contact Hamilton County Dept. of Environmental Services.

Sincerely,

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

cc: USEPA (electronically submitted)  
File, DAPC PMU  
Hamilton County Dept. of Environmental Services  
Indiana  
Kentucky



State of Ohio Environmental Protection Agency

DRAFT TITLE V PERMIT

Issue Date: 08/14/03	Effective Date: To be entered upon final issuance	Expiration Date: To be entered upon final issuance
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This document constitutes issuance of a Title V permit for Facility ID: 14-09-00-0896 to:  
**PSI Energy Madison Station**  
 5657 Kennel Rd  
 Trenton, OH 45067

**Emissions Unit ID (Company ID)/Emissions Unit Activity Description**

P001 (#1 Turbine) 80 Megawatt (Nominal) Simple-Cycle Combustion Turbine #1	Turbine #4	P008 (#8 Turbine) 80 Megawatt (Nominal) Simple-Cycle Combustion Turbine #8
P002 (#2 Turbine) 80 Megawatt (Nominal) Simple-Cycle Combustion Turbine #2	P005 (#5 Turbine) 80 Megawatt (Nominal) Simple-Cycle Combustion Turbine #5	P009 (#1 EDG) 1.5 Megawatt Emergency Diesel Generator #1
P003 (#3 Turbine) 80 Megawatt (Nominal) Simple-Cycle Combustion Turbine #3	P006 (#6 Turbine) 80 Megawatt (Nominal) Simple-Cycle Combustion Turbine #6	P010 (#2 EDG) 1.5 Megawatt Emergency Diesel Generator #2
P004 (#4 Turbine) 80 Megawatt (Nominal) Simple-Cycle Combustion	P007 (#7 Turbine) 80 Megawatt (Nominal) Simple-Cycle Combustion Turbine #7	P011 (Fire Pump) 140 Kilowatt Emergency Diesel Fire Pump

You will be contacted approximately eighteen (18) months prior to the expiration date regarding the renewal of this permit. If you are not contacted, please contact the appropriate Ohio EPA District Office or local air agency listed below. This permit and the authorization to operate the air contaminant sources (emissions units) at this facility shall expire at midnight on the expiration date shown above. If a renewal permit is not issued prior to the expiration date, the permittee may continue to operate pursuant to OAC rule 3745-77-08(E) and in accordance with the terms of this permit beyond the expiration date, provided that a complete renewal application is submitted no earlier than eighteen (18) months and no later than one-hundred eighty (180) days prior to the expiration date.

Described below is the current Ohio EPA District Office or local air agency that is responsible for processing and administering your Title V permit:

Hamilton County Dept. of Environmental Services  
 250 William Howard Taft Rd  
 Cincinnati, OH 45219-2660  
 (513) 946-7777

**OHIO ENVIRONMENTAL PROTECTION AGENCY**

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Christopher Jones  
 Director

## PART I - GENERAL TERMS AND CONDITIONS

### A. *State and Federally Enforceable Section*

#### 1. **Monitoring and Related Record Keeping 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.

*(Authority for term: OAC rule 3745-77-07(A)(3)(b)(i))*

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 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.

*(Authority for term: OAC rule 3745-77-07(A)(3)(b)(ii))*

c. The permittee shall submit required reports in the following manner:

- i. Reports of any required monitoring and/or record keeping information shall be submitted to the appropriate Ohio EPA District Office or local air agency.

*(Authority for term: OAC rule 3745-77-07(A)(3)(c))*

ii. **All reporting required in accordance with the OAC rule 3745-77-07(A)(3)(c) with respect to emission limitations, operational restrictions, and control device operating parameter limitations shall be submitted in the following manner:**

- (a) Written reports of (i) any deviations from federally enforceable emission limitations, operational restrictions, and control device operating parameter limitations ; (ii) the probable cause of such deviations; and (iii) any corrective actions or preventive measures taken, shall be promptly made to the appropriate Ohio EPA District Office or local air agency. Except as may otherwise be provided in the terms and conditions for a specific emissions unit, i.e., in Part III of this Title V permit, 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. In identifying each deviation, the permittee shall specify the applicable requirement for which the deviation occurred, describe each deviation, and provide the magnitude and duration of each deviation. These written reports shall satisfy the requirements (in part) of OAC rule 3745-77-07(A)(3)(c)(i) and (ii) pertaining to the submission of monitoring reports every six months and the requirements (in part) of OAC rule 3745-77-07(A)(3)(c)(iii)

pertaining to the prompt reporting of all deviations. See B.6 below if no deviations occurred during the quarter.

*(Authority for term: OAC rules 3745-77-07(A)(3)(c)(i), (ii) and (iii))*

- (b) Any malfunction, as defined in OAC rule 3745-15-06(B)(1), shall be promptly reported to the Ohio EPA in accordance with OAC rule 3745-15-06. In addition, to fulfill the deviation reporting requirements for this Title V permit, written reports that identify each malfunction that occurred during each calendar quarter shall be submitted, at a minimum, quarterly, i.e., by January 31, April 30, July 31, and October 31 of each year, and shall cover the previous calendar quarters.

In identifying each deviation caused by a malfunction, the permittee shall specify the applicable requirement for which the deviation occurred, describe each deviation, and provide the magnitude and duration of each deviation. For a specific malfunction, if this information has been provided in a written report that was submitted in accordance with OAC rule 3745-15-06, the permittee may simply reference that written report to identify the deviation. Also, if a deviation caused by a malfunction is identified in a written report submitted pursuant to paragraph (a) above, a separate report is not required for that malfunction pursuant to this paragraph. Nevertheless, all malfunctions, including those reported only verbally in accordance with OAC rule 3745-15-06, must be reported in writing, at a minimum, on a quarterly basis.

Any scheduled maintenance, as defined in OAC rule 3745-15-06(A)(1), that results in a deviation from a federally enforceable emission limitation, operational restriction, and control device operating parameter limitation shall be reported in the same manner as described above for malfunctions. These written reports for malfunctions (and scheduled maintenance projects, if appropriate) shall satisfy the requirements (in part) of OAC rule 3745-77-07(A)(3)(c)(iii) pertaining to the prompt reporting of all deviations.

*(Authority for term: OAC rules 3745-77-07(A)(3)(c)(iii))*

iii. **For monitoring, record keeping, and reporting requirements:**

Written reports that identify any deviations from the federally enforceable monitoring, record keeping, 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. In identifying each deviation, the permittee shall specify the applicable requirement for which the deviation occurred, describe each deviation, and provide the magnitude and duration of each deviation. These semi-annual written reports shall satisfy the requirements of OAC rule 3745-77-07(A)(3)(c)(i) and (ii) pertaining to the reporting of any deviations related to the monitoring, record keeping, and reporting requirements. 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.

*(Authority for term: OAC rules 3745-77-07(A)(3)(c)(i) and (ii))*

- 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 (including any written malfunction reports required by OAC rule 3745-15-06 that are referenced in the deviation reports) are true, accurate, and complete."  
(Authority for term: OAC rule 3745-77-07(A)(3)(c)(iv))

**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 of any emissions unit(s) 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. Except as provided in OAC rule 3745-15-06, 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 emissions unit(s) that is (are) served by such control system(s).

(Authority for term: OAC rule 3745-77-07(A)(3)(c)(iii))

**3. Risk Management Plans**

If applicable, the permittee shall 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"); and, pursuant to 40 C.F.R. 68.215(a), the permittee shall submit either of the following:

- a. a compliance plan for meeting the requirements of 40 C.F.R. Part 68 by the date specified in 40 C.F.R. 68.10(a) and OAC 3745-104-05(A); or
- b. as part of the compliance certification submitted under 40 C.F.R. 70.6(c)(5), a certification statement that the source is in compliance with all requirements of 40 C.F.R. Part 68 and OAC Chapter 3745-104, including the registration and submission of the risk management plan.

(Authority for term: OAC rule 3745-77-07(A)(4))

**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.

(Authority for term: OAC rule 3745-77-07(A)(5))

**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.

(Authority for term: OAC rule 3745-77-07(A)(6))

**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, in accordance with A.10 below. 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.

*(Authority for term: OAC rule 3745-77-07(A)(7))*

**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.

*(Authority for term: OAC rule 3745-77-07(A)(8))*

**8. Marketable Permit Programs**

No revision of this permit is required under any approved economic incentive, marketable permits, emissions trading, and other similar programs or processes for changes that are provided for in this permit.

*(Authority for term: OAC rule 3745-77-07(A)(9))*

**9. Reasonably Anticipated Operating Scenarios**

The permittee is hereby authorized to make changes among operating scenarios authorized in this permit without notice to the Ohio EPA, but, contemporaneous with making a change from one operating scenario to another, the permittee must record in a log at the permitted facility the scenario under which the permittee is operating. The permit shield provided in these general terms and conditions shall apply to all operating scenarios authorized in this permit.

*(Authority for term: OAC rule 3745-77-07(A)(10))*

**10. Reopening for Cause**

This Title V permit will be reopened prior to its expiration date under the following conditions:

- a. Additional applicable requirements under the Act become applicable to one or more emissions units covered by this permit, and this permit has a remaining term of three or more years. Such a reopening shall be completed not later than eighteen (18) months after promulgation of the applicable requirement. No such reopening is required if the effective date of the requirement is

later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions has been extended pursuant to paragraph (E)(1) of OAC rule 3745-77-08.

- b. This permit is issued to an affected source under the acid rain program and additional requirements (including excess emissions requirements) become applicable. Upon approval by the Administrator, excess emissions offset plans shall be deemed to be incorporated into the permit, and shall not require a reopening of this permit.
- c. The Director of the Ohio EPA or the Administrator of the U.S. EPA determines that the federally applicable requirements in this permit are based on a material mistake, or that inaccurate statements were made in establishing the emissions standards or other terms and conditions of this permit related to such federally applicable requirements.
- d. The Administrator of the U.S. EPA or the Director of the Ohio EPA determines that this permit must be revised or revoked to assure compliance with the applicable requirements.

*(Authority for term: OAC rules 3745-77-07(A)(12) and 3745-77-08(D))*

## **11. 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.

*(Authority for term: OAC rule 3745-77-07(B))*

## **12. Compliance Requirements**

- a. Any document (including reports) required to be submitted and required by a federally applicable requirement in this Title V 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 paragraph (E) of OAC rule 3745-77-03.
  - 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.
- d. Compliance certifications concerning the terms and conditions contained in this permit that are federally enforceable emission limitations, standards, or work practices, shall be submitted to the Director (the appropriate Ohio EPA District Office or local air agency) and the Administrator of the U.S. EPA in the following manner and with the following content:
  - i. Compliance certifications shall be submitted annually on a calendar year basis. The annual certification shall be submitted on or before April 30th of each year during the permit term.
  - ii. Compliance certifications shall include the following:
    - (a) An identification of each term or condition of this permit that is the basis of the certification.
    - (b) The permittee's current compliance status.
    - (c) Whether compliance was continuous or intermittent.
    - (d) The method(s) used for determining the compliance status of the source currently and over the required reporting period.
    - (e) Such other facts as the Director of the Ohio EPA may require in the permit to determine the compliance status of the source.
  - iii. Compliance certifications shall contain such additional requirements as may be specified pursuant to sections 114(a)(3) and 504(b) of the Act.

*(Authority for term: OAC rules 3745-77-07(C)(1),(2),(4) and (5) and ORC section 3704.03(L))*

### **13. Permit Shield**

- a. Compliance with the terms and conditions of this permit (including terms and conditions established for alternate operating scenarios, emissions trading, and emissions averaging, but excluding terms and conditions for which the permit shield is expressly prohibited under OAC rule 3745-77-07) shall be deemed compliance with the applicable requirements identified and addressed in this permit as of the date of permit issuance.
- b. This permit shield provision shall apply to any requirement identified in this permit pursuant to OAC rule 3745-77-07(F)(2), as a requirement that does not apply to the source or to one or more emissions units within the source.

*(Authority for term: OAC rule 3745-77-07(F))*

### **14. Operational Flexibility**

The permittee is authorized to make the changes identified in OAC rule 3745-77-07(H)(1)(a) to (H)(1)(c) within the permitted stationary source without obtaining a permit revision, if such change is

not a modification under any provision of Title I of the Act [as defined in OAC rule 3745-77-01(JJ)], and does not result in an exceedance of the emissions allowed under this permit (whether expressed therein as a rate of emissions or in terms of total emissions), and the permittee provides the Administrator of the U.S. EPA and the appropriate Ohio EPA District Office or local air agency with written notification within a minimum of seven days in advance of the proposed changes, unless the change is associated with, or in response to, emergency conditions. If less than seven days notice is provided because of a need to respond more quickly to such emergency conditions, the permittee shall provide notice to the Administrator of the U.S. EPA and the appropriate District Office of the Ohio EPA or local air agency as soon as possible after learning of the need to make the change. The notification shall contain the items required under OAC rule 3745-77-07(H)(2)(d).

*(Authority for term: OAC rules 3745-77-07(H)(1) and (2))*

**15. Emergencies**

The permittee shall have an affirmative defense of emergency to an action brought for noncompliance with technology-based emission limitations if the conditions of OAC rule 3745-77-07(G)(3) are met. This emergency defense provision is in addition to any emergency or upset provision contained in any applicable requirement.

*(Authority for term: OAC rule 3745-77-07(G))*

**16. Off-Permit Changes**

The owner or operator of a Title V source may make any change in its operations or emissions at the source that is not specifically addressed or prohibited in the Title V permit, without obtaining an amendment or modification of the permit, provided that the following conditions are met:

- a. The change does not result in conditions that violate any applicable requirements or that violate any existing federally enforceable permit term or condition.
- b. The permittee provides contemporaneous written notice of the change to the Director and the Administrator of the U.S. EPA, except that no such notice shall be required for changes that qualify as insignificant emission levels or activities as defined in OAC rule 3745-77-01(U). Such written notice shall describe each such change, the date of such change, any change in emissions or pollutants emitted, and any federally applicable requirement that would apply as a result of the change.
- c. The change shall not qualify for the permit shield under OAC rule 3745-77-07(F).
- d. The permittee shall keep a record describing all changes made at the source that result in emissions of a regulated air pollutant subject to an applicable requirement, but not otherwise regulated under the permit, and the emissions resulting from those changes.
- e. The change is not subject to any applicable requirement under Title IV of the Act or is not a modification under any provision of Title I of the Act.

Paragraph (I) of rule 3745-77-07 of the Administrative Code applies only to modification or amendment of the permittee's Title V permit. The change made may require a permit to install under Chapter 3745-31 of the Administrative Code if the change constitutes a modification as defined in that

Chapter. Nothing in paragraph (I) of rule 3745-77-07 of the Administrative Code shall affect any applicable obligation under Chapter 3745-31 of the Administrative Code.

(For purposes of clarification, the permittee can refer to Engineering Guide #63 that is available in the STARSHIP software package.)

*(Authority for term: OAC rule 3745-77-07(I))*

**17. Compliance Method Requirements**

Nothing in this permit shall alter or affect the ability of any person to establish compliance with, or a violation of, any applicable requirement through the use of credible evidence to the extent authorized by law. Nothing in this permit shall be construed to waive any defenses otherwise available to the permittee, including but not limited to, any challenge to the Credible Evidence Rule (see 62 Fed. Reg. 8314, Feb. 24, 1997), in the context of any future proceeding.

*(This term is provided for informational purposes only.)*

**18. Insignificant Activities**

Each insignificant activity that has one or more applicable requirements shall comply with those applicable requirements.

*(Authority for term: OAC rule 3745-77-07(A)(1))*

**19. Permit to Install Requirement**

Prior to the “installation” or “modification” of any “air contaminant source,” as those terms are defined in OAC rule 3745-31-01, a permit to install must be obtained from the Ohio EPA pursuant to OAC Chapter 3745-31.

*(Authority for term: OAC rule 3745-77-07(A)(1))*

**20. 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.

*(Authority for term: OAC rule 3745-77-07(A)(1))*

**B. *State Only Enforceable Section***

**1. Reporting Requirements Related to Monitoring and Record Keeping Requirements**

The permittee shall submit required reports in the following manner:

- a. Reports of any required monitoring and/or record keeping 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 (i) any deviations (excursions) from emission limitations, operational restrictions, and control device operating parameter limitations that have been detected by the testing, monitoring, and record keeping requirements specified in this permit, (ii) the probable cause of such deviations, and (iii) 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. In identifying each deviation, the permittee shall specify the applicable requirement for which the deviation occurred, describe each deviation, and provide the magnitude and duration of each deviation. 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.)

**2. Records Retention Requirements**

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.

**3. Inspections and Information Requests**

The Director of the Ohio EPA, or an authorized representative of the Director, may, subject to the safety requirements of the permittee and without undue delay, enter upon the premises of this source at any reasonable time for purposes of making inspections, conducting tests, examining records or reports pertaining to any emission of air contaminants, and determining compliance with any applicable State air pollution laws and regulations and the terms and conditions of this permit. 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 verbal or written request, the permittee shall also furnish to the Director of the Ohio EPA, or an authorized representative of the Director, copies of records required to be kept by this permit.

**4. 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 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. 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 emissions unit(s) that is (are) served by such control system(s).

**5. 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.

**6. 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.

## **Part II - Specific Facility Terms and Conditions**

### **A. State and Federally Enforcable Section**

**None**

### **B. State Only Enforceable Section**

1. The following insignificant emissions units are located at this facility:

F001- Roadways and Parking Areas

L001- Non-halogenated solvent parts washer

Each insignificant emissions unit at this facility must comply with all applicable State and federal regulations, as well as any emission limitations and/or control requirements contained within a permit to install for the emissions unit.

### Part III - Terms and Conditions for Emissions Units

**Emissions Unit ID:** #1 Turbine (P001)

**Activity Description:** 80 Megawatt (Nominal) Simple-Cycle Combustion Turbine #1

#### A. State and Federally Enforceable Section

##### I. Applicable Emissions Limitations and/or Control Requirements

- The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
80 megawatt (nominal) natural gas/diesel fuel fired simple-cycle combustion turbine	OAC rule 3745-31-05(D) (PTI 14-4682)	<p>This emissions unit shall not exceed the following emission limitations at all load conditions, including startup and shutdown:</p> <p>54.0 lbs of carbon monoxide (CO) emissions/hour</p> <p>58.0 lbs of sulfur dioxide (SO2) emissions/hour*</p> <p>6.0 lbs of hydrogen sulfate (H2SO4) mist emissions/hour*</p> <p>10.0 lbs of volatile organic compound (VOC) emissions/hour*</p> <p>0.008 lb of particulate emissions (PE)/particulate matter with a diameter of 10 microns or less (PM10 emissions)/mmBtu*</p>

\* The hourly emission limitations and the lb of PE/PM10 emissions/mmBtu limitation specified above represent this emissions unit's potential to emit for all operating conditions, including startup and shutdown. Therefore, no additional monitoring, record keeping or reporting requirements are required to demonstrate compliance with these emission limitations.

Facility Name: **Duke Energy Madison, LLC**  
Facility ID: **14-09-00-0896**  
Emissions Unit: **#1 Turbine (P001)**

**Operations, Property,  
and/or Equipment**

**Applicable Rules/  
Requirements**

**Applicable Emissions  
Limitations/Control  
Measures**

The total emissions from emissions units P001 through P008 combined shall not exceed the emission limitations specified below. The annual emission limitations include emissions from operating at "startup and shutdown", "normal", and "full load" conditions combined and for all fuel types (i.e., natural gas and diesel fuel).

60.5 tons of PE/PM10 emissions per rolling, 12-month period

120.8 tons of SO2 emissions per rolling, 12-month period

733.3 tons of NOx emissions per rolling, 12-month period

541.0 tons of CO emissions per rolling, 12-month period

12.2 tons of H2SO4 mist emissions per rolling, 12-month period

36.4 tons of VOC emissions per rolling, 12-month period

7.7 tons of benzene emissions per rolling, 12-month period

0.00084 ton of beryllium emissions per rolling, 12-month period

0.012 ton of arsenic emissions per rolling, 12-month period

Emissions from startup and shutdown operations shall not exceed the following emission limitations:

Natural Gas

NOx: 83 lbs/cycle  
CO: 308 lbs/cycle

Diesel Fuel

NOx: 130 lbs/cycle  
CO: 354 lbs/cycle

Facility Name: **Duke Energy Madison, LLC**  
Facility ID: **14-09-00-0896**  
Emissions Unit: **#1 Turbine (P001)**

**Operations, Property,  
and/or Equipment**

**Applicable Rules/  
Requirements**

**Applicable Emissions  
Limitations/Control  
Measures**

		196.0 lbs of nitrogen oxides (NOx) emissions/hour
		15 ppm of NOx by volume at 15% oxygen on a dry basis when burning natural gas (as a 1-hour average, excluding startup and shutdown conditions)
		42 ppm of NOx by volume at 15% oxygen on a dry basis when burning diesel fuel (as a 1-hour average, excluding startup and shutdown conditions)
		12 ppm of NOx by volume at 15% oxygen on a dry basis, when burning natural gas, based on a rolling, 12-month summation of the monthly NOx emissions in ppm (excluding startup and shutdown conditions)
		0.05% sulfur content, by weight, for diesel fuel and natural gas
		0.0456 lbs of SO2 emissions/mmBtu, for diesel fuel
40 CFR Part 60, Subpart GG		The emission limitations established in 40 CFR Part 60, Subpart GG for SO2 and NOx are less stringent than those established pursuant to OAC rule 3745-31-05(D).
Best Available Control Technology is equivalent to Section 112g of the Clean Air Act		For the purposes of this permit and for the hazardous air pollutants (HAPs) emitted from this emissions unit, the best available control technology determination to satisfy the requirements of 40 CFR Part 52.21 is equivalent to the maximum achievable control technology determination used to satisfy the requirements of 40 CFR Sections 63.41 thru 63.44.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
	OAC rule 3745-31-05(A)(3) (PTI 14-04682)	Emissions from this emissions unit shall not exceed the following emission limitations:  0.15 TPY of lead emissions 0.0023 TPY of mercury emissions  See Section A.I.2.b below.  Compliance with this rule also include compliance with the requirements of OAC rules 3745-31-05(D) and 3745-17-07(A) when burning diesel fuel.
	OAC rule 3745-17-11(B)(4)	The PE limitation specified by this rule is less stringent the PE limitation established pursuant to OAC rule 3745-31-05(D).
	OAC rule 3745-17-07(A)(1)	See Section A.I.2.a below.
	OAC rule 3745-18-06(F)	The SO <sub>2</sub> emission limitation specified by this rule (0.5 lb of SO <sub>2</sub> emissions/mmBtu) is less stringent than the SO <sub>2</sub> emission limitation established pursuant to OAC rule 3745-31-05(D).

**2. Additional Terms and Conditions**

- 2.a** Visible PE from any stack shall not exceed 20% opacity, as a 6-minute average, except as specified by rule when combusting diesel fuel.
- 2.b** Visible PE from any stack shall not exceed 10% opacity, as a 6-minute average when combusting natural gas.
- 2.c** The permittee shall install and maintain dry low NO<sub>x</sub> burners when burning natural gas and install and maintain a water injection system when burning diesel fuel.
- 2.d** The permittee is subject to the requirements of 40 CFR Parts 72 and 75 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.
- 2.e** "Full load" shall be defined as the nameplate electrical output of 84.65 megawatts. Any load that is greater than or equal to 90% of the nameplate electrical output shall be considered full load.
- 2.f** "Normal operation" shall be defined as the period when the combustion turbine achieves dry low NO<sub>x</sub> mode (GE Mode 6). GE Mode 6 is defined by the manufacturer as the low emissions mode during which all burner nozzles are in use, burning a lean pre-mixed gas for steady-state operation. The continuous emissions monitoring system will indicate and record the GE Mode 6 status of the combustion turbine, including when the emissions unit is shutdown and when operating in startup and shutdown modes.

## **2. Additional Terms and Conditions (continued)**

- 2.g** "Startup" shall be defined as the period between when the combustion turbine is initially started (initial fuel light-off) until the combustion turbine completes transition to GE Mode 6. "Shutdown" shall be defined as the period beginning when the combustion turbine leaves the GE Mode 6 and ending when combustion has ceased.
- 2.h** Compliance with the startup and shutdown NO<sub>x</sub> and CO lbs/cycle values and NO<sub>x</sub> and CO emission limitations during steady-state operations shall be demonstrated by the use of dual range NO<sub>x</sub> and CO Continuous Emission Monitors (CEMs). For CEM systems with dual ranges, certification testing shall be performed on the range normally used for measuring emissions.
- 2.i** For the purpose of this permit, the term "diesel fuel" shall be considered to be any distillate fuel oil that is employed as a fuel in this emissions unit as defined in 40 CFR Part 72.2.

## **II. Operational Restrictions**

- 1.** The maximum annual natural gas usage rate for emissions units P001-P008 shall not exceed 20.3 billion (2.03 x 10<sup>10</sup>) cubic feet per rolling, 12-month period.
- 2.** The maximum annual diesel fuel usage rate for emissions units P001-P008 shall not exceed 34 million (3.40 x 10<sup>7</sup>) gallons per rolling, 12-month period.
- 3.** The permittee shall burn only natural gas, of pipeline quality, or diesel fuel in this emissions unit.
- 4.** The quality of diesel fuel burned in this emissions unit shall have a combination of heat and sulfur content which is sufficient to comply with the allowable SO<sub>2</sub> emission limitation of 0.0456 lb of SO<sub>2</sub>/MMBtu of actual heat input. The diesel fuel shall have a sulfur content of 0.05% or less.
- 5.** When the emissions unit is operating in startup or shutdown conditions, as defined in Section A.I.2.g above, each startup or shutdown cycle shall not exceed 1.0 hours in duration.
- 6.** With the exception of startup and shutdown, this emissions unit shall be operated in GE Mode 6, defined as normal operation (ref. Section A.I.2.f above).

## **III. Monitoring and/or Record Keeping Requirements**

- 1.** For each day during which the permittee burns a fuel other than natural gas and/or diesel fuel, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
- 2.** The permittee shall install, operate, and maintain equipment to continuously monitor and record the actual fuel flow to this emissions unit when it 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.
- 3.** The permittee shall maintain records that document the following:
  - a.** the emissions unit's actual electrical output for each operating hour;
  - b.** all periods of time when the emissions unit was operating in startup and shutdown conditions.

### III. Monitoring and/or Record Keeping Requirements (continued)

4. The permittee shall maintain monthly records of the following information in order to monitor compliance with the applicable fuel usage restrictions:
  - a. the total amount of natural gas burned, in cubic feet, for this emissions unit;
  - b. the total amount of diesel fuel burned, in gallons, for this emissions unit;
  - c. the total amount of natural gas burned, in cubic feet, for emission units P001-P008, combined;
  - d. the total amount of diesel fuel burned, in gallons, for emissions units P001-P008, combined;
  - e. the rolling, 12-month summation for the total amount of natural gas burned, in cubic feet, for emissions units P001-P008, combined (the amount of natural gas burned for the current month plus the total amount of natural gas burned for the previous eleven calendar months); and
  - f. the rolling, 12-month summation for the total amount of diesel fuel burned in emissions units P001-P008, combined (the amount of diesel fuel burned for the current month plus the total amount of diesel fuel burned for the previous eleven calendar months).
5. The permittee shall maintain monthly records of the following information for emissions units P001-P008 in order to monitor compliance with the startup and shutdown emission limitations and operational restrictions:
  - a. the date and duration, in minutes, of each startup/shutdown cycle
  - b. the emissions, in pounds, for NO<sub>x</sub> and CO when burning natural gas at startup and shutdown operation modes; and
  - c. the emissions, in pounds, for NO<sub>x</sub> and CO when burning diesel fuel at startup and shutdown operation modes.

The permittee shall use the continuous NO<sub>x</sub> and CO emissions monitoring data to determine the NO<sub>x</sub> and CO emissions for these emissions units. During any period when the NO<sub>x</sub> and/or the CO emissions monitoring systems are not operational, the permittee shall use the appropriate missing data procedures specified in 40 CFR Part 75 to determine NO<sub>x</sub> and CO emissions or an approved data substitution protocol.

### III. Monitoring and/or Record Keeping Requirements (continued)

6. The permittee shall maintain monthly records of the following information for emission units P001- P008 in order to monitor compliance with the rolling, 12- month summation, emissions limitations:
- the total emissions, in tons, for NO<sub>x</sub>\*, CO\*, PE/PM<sub>10</sub>, SO<sub>2</sub>, VOC, H<sub>2</sub>SO<sub>4</sub>, and benzene when burning natural gas for all operational loads;
  - the total emissions, in tons, for NO<sub>x</sub>\*, CO\*, PE/PM<sub>10</sub>, SO<sub>2</sub>, VOC, H<sub>2</sub>SO<sub>4</sub>, and benzene when burning diesel fuel for all operational modes;
  - the rolling, 12-month summation emissions total, in tons, for NO<sub>x</sub>, CO, PE/PM<sub>10</sub>, SO<sub>2</sub>, VOC, H<sub>2</sub>SO<sub>4</sub>, and benzene for emission units P001-P008, combined when burning natural gas and diesel fuel (the total amount of emissions calculated in a + b) for the current month plus the total amount of emissions for the previous eleven calendar months).
  - the updated rolling, 12-month average of NO<sub>x</sub> emissions, in ppm, when burning natural gas at normal operations for this emissions unit (the NO<sub>x</sub> ppm average for the current month (from the CEMs data) plus the total NO<sub>x</sub> ppm average for the previous eleven calendar months).

\* The permittee shall use the continuous NO<sub>x</sub> and CO emissions monitoring data to determine the NO<sub>x</sub> and CO emissions for these emissions units. During any period when the NO<sub>x</sub> and/or the CO emissions monitoring systems are not operational, the permittee shall use the appropriate missing data procedures specified in 40 CFR Part 75 to determine NO<sub>x</sub> and CO emissions or an approved data substitution protocol.

7. The permittee shall monitor the sulfur content of the fuel being fired in the turbine. The frequency of the monitoring shall be determined as follows:
- If the turbine is supplied its fuel from a bulk storage tank, the values shall be determined on each occasion that fuel is transferred to the storage tank from any other source.
  - If the turbine is supplied its fuel without intermediate bulk storage, the values shall be determined and recorded daily. Owners, operators or fuel vendors may develop custom fuel schedules for the determination of the values based on the design and operation of the affected facility and the characteristics of the fuel supply. These custom schedules shall be substantiated with data and must be approved by the Ohio EPA, Central Office before they can be used.
  - For each shipment of diesel fuel oil received for burning in this emissions unit, the permittee shall maintain records of the total quantity of diesel fuel oil received and the permittee's or diesel fuel oil supplier's analyses for sulfur content and heat content.(See Section A.III.8 below)

Analyses for the purpose of determining the sulfur content of the natural gas may be performed by the permittee, the fuel vendor, or any other qualified agency in accordance with the analytical methods specified in 40 CFR Part 60, Subpart GG, Section 60.335(d), 40 CFR Part 75, or the appropriate ASTM methods, or equivalent methods as approved by the Director.

8. For each shipment of diesel fuel received for burning in this emissions unit, the permittee shall maintain records of the total quantity of diesel fuel oil received, the permittee's or diesel fuel oil supplier's analyses for sulfur content and heat content, and the calculated sulfur dioxide emission rate (in lbs/MMBtu). [The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F)]. A shipment may be comprised of multiple tank truck loads from the same supplier's batch, or may be represented by single or multiple pipeline deliveries from the same supplier's batch, and the quality of the diesel fuel oil for those loads or pipeline deliveries may be represented by a single batch analysis from the supplier.

The permittee shall perform or require the supplier to perform the analyses for sulfur content and heat content in accordance with 40 CFR Part 60, Appendix A, Method 19, or the appropriate ASTM methods (such as, ASTM methods D240, D4294,),or equivalent methods as approved by the Director.

### III. Monitoring and/or Record Keeping Requirements (continued)

The permittee shall maintain records of the oil burned in this emissions unit in accordance with either Alternative 1 or Alternative 2 described below:

a. Alternative 1:

For each shipment of oil received for burning in this emissions unit, the permittee shall collect or require the oil supplier to collect a representative grab sample of oil and maintain records of the total quantity of oil received, the permittee's or oil supplier's analyses for sulfur content and heat content, and the calculated sulfur dioxide emission rate (in lbs/MMBtu). (The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F).) A shipment may be comprised of multiple tank truck loads from the same supplier's batch, and the quality of the oil for those loads may be represented by a single batch analysis from the supplier.

b. Alternative 2:

The permittee shall collect a representative grab sample of oil that is burned in this emissions unit for each day when the emission unit is in operation. If additional fuel oil is added to the tank serving this emissions unit on a day when the emissions unit is in operation, the permittee shall collect a sufficient number of grab samples to develop a composite sample representative of the fuel oil burned in this emissions unit. A representative grab sample of oil does not need to be collected on days when this emissions unit is only operated for the purpose of "test-firing". The permittee shall maintain records of the total quantity of oil burned each day; except for the purpose of test-firing, the permittee's analyses for sulfur content and heat content, and the calculated sulfur dioxide emission rate (in lbs/MMBtu). [The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F)]

#### 9. Continuous NOx Monitoring

a. In lieu of complying with the monitoring and testing provisions of 40 CFR 60.334 and 60.345 to demonstrate compliance with the NOx emission limitations, the permittee shall operate and maintain systems to continuously monitor and record emissions of NOx from this emissions unit in accordance with this permit.

b. The permittee shall install, operate and maintain equipment to continuously monitor and record NOx from this emissions unit in units of the applicable standard. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13 and/or 40 CFR Part 75.

c. The permittee shall maintain records of the following data obtained by the continuous NOx monitoring system: parts per million (ppm) NOx at 15% oxygen (hourly average), lbs of NOx/hour, results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

d. A statement of certification of the existing continuous NOx monitoring system shall be maintained on site and shall consist of a letter from Ohio EPA detailing the results of an Agency review of the certification tests and a statement by the Agency that the system is considered certified in accordance with the requirements of 40 CFR Part 60, Appendix B, Performance Specification 2 and/or 40 CFR Part 75, Appendix D and Appendix F. Proof of certification shall be made available to the Hamilton County Department of Environmental Services - Air Quality Control Division upon request.

e. Prior to the installation of the continuous NOx monitoring system, 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 and 40 CFR Part 75, Appendix A, for approval by the Ohio EPA, Central Office.

### **III. Monitoring and/or Record Keeping Requirements (continued)**

f. Certification in pounds NOx per hour: Within 60 days of the startup of this emissions unit, but not later than 180 days after the initial startup of this emissions unit, the permittee shall conduct certification tests of such equipment pursuant to ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 2, and/or 40 CFR Part 75. When NOx mass emissions are being determined as allowed in 40 CFR Part 75, Appendix D and Appendix F, certification testing to show compliance with 40 CFR Part 60, Appendix B, Performance Specification 6 shall not be necessary. However, a stack test shall be conducted to demonstrate 40 CFR Part 75, Appendix F, NOx mass determinations.

Personnel from the Hamilton County Department of Environmental Services - Air Quality Control Division 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, all copies of the test results shall be submitted to the Hamilton County Department of Environmental Services - Air Quality Control Division within 30 days after the test is completed. Certification of the continuous NOx monitoring system shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 2 and/or 40 CFR Part 75.

g. Within 180 days of the effective date of this permit, the permittee shall develop and maintain a written quality assurance/quality control plan for the continuous NOx monitoring system designed to ensure continuous valid and representative readings of NOx emissions in units of the applicable standard. The plan shall follow the requirements of 40 CFR Part 60, Appendix F and/or 40 CFR Part 75, Appendix B. The quality assurance/quality control plan and a logbook dedicated to the CEM systems must be kept on site and available for inspection during regular office hours. These documents may be kept in electronic and/or hardcopy format.

#### **10. Continuous CO Monitoring**

a. The permittee shall install, operate and maintain equipment to continuously monitor and record CO from this emissions unit in lbs CO/hour and in the units of any other applicable standard. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13.

b. The permittee shall maintain records of all data obtained by the continuous CO monitoring system including, but not limited to, ppm CO at a minimum of 4 data points per hour sufficient to generate an hourly average, emissions of CO in units of the applicable standard in the appropriate averaging period (hourly), results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

c. A statement of certification of the existing continuous CO monitoring system shall be maintained on site and shall consist of a letter from Ohio EPA detailing the results of an Agency review of the certification tests and a statement by the Agency that the system is considered certified in accordance with the requirements of 40 CFR Part 60, Appendix B, Performance Specification 4. Proof of certification shall be made available to the Hamilton County Department of Environmental Services - Air Quality Control Division upon request.

d. Prior to installation of the continuous CO monitoring system, 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 4 for approval by the Ohio EPA, Central Office.

### III. Monitoring and/or Record Keeping Requirements (continued)

e. Certification in pounds CO per hour: Within 60 days of the effective date of this permit, but not later than 180 days after the initial startup of this emissions unit, the permittee shall conduct certification tests of the continuous CO monitoring system pursuant to ORC section 3704.03(I), 40 CFR Part 60, Appendix B, Performance Specification 4. CO mass emissions may be determined in the same manner as NO<sub>x</sub> emissions in term A.III.10. of this permit using the appropriate CO values in place of the cited NO<sub>x</sub> values. When CO mass emissions are being determined in this manner, certification testing to show compliance with 40 CFR 60, Appendix B, Performance Specification 6 will not be necessary. However, a stack test shall be conducted for CO mass determinations with an accuracy that is equivalent to that required in 40 CFR Part 75, Appendix D.

Personnel from the Hamilton County Department of Environmental Services - Air Quality Control Division 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, all copies of the test results shall be submitted to the Hamilton County Department of Environmental Services - Air Quality Control Division within 30 days after the test is completed. Certification of the continuous CO monitoring system shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 4.

f. Within 180 days of the effective date of this permit, the permittee shall develop and maintain a written quality assurance/quality control plan for the continuous CO monitoring system designed to ensure continuous valid and representative readings of CO. The plan shall follow the requirements of 40 CFR Part 60, Appendix F. The quality assurance/quality control plan and a logbook dedicated to the CEM systems must be kept on site and available for inspection during regular office hours. These documents may be kept in electronic and/or hardcopy format.

#### 11. Continuous O<sub>2</sub> Monitoring

a. The permittee shall operate and maintain equipment to continuously monitor and record O<sub>2</sub> from this emissions unit, in percent O<sub>2</sub>. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13 and/or 40 CFR Part 75.

b. The permittee shall maintain records of all data obtained by the continuous O<sub>2</sub> monitoring system including, but not limited to, percent O<sub>2</sub> at a minimum of 4 data points per hour sufficient to generate an hourly average, results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

c. Prior to the installation of the continuous O<sub>2</sub> monitoring system, 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 3 and 40 CFR Part 75 for approval by the Ohio EPA, Central Office.

d. Within 60 days of the startup of this emissions unit, but not later than 180 days after the initial startup of this emissions unit, the permittee shall conduct certification tests of the continuous O<sub>2</sub> monitoring system pursuant to ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 3, and/or 40 CFR Part 75. Personnel from the Hamilton County Department of Environmental Services - Air Quality Control Division 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, all copies of the test results shall be submitted to the Hamilton County Department of Environmental Services - Air Quality Control Division within 30 days after the test is completed. Certification of the continuous O<sub>2</sub> monitoring system shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 3 and/or 40 CFR Part 75.

e. Within 180 days of the effective date of this permit, the permittee shall develop and maintain a written quality assurance/quality control plan for the continuous O<sub>2</sub> monitoring system designed to ensure continuous valid and representative readings of O<sub>2</sub> emissions in units of the applicable standard. The plan shall follow the requirements of 40 CFR Part 60, Appendix F and/or 40 CFR Part 75, Appendix B. The quality assurance/quality control plan and a logbook dedicated to the CEM systems must be kept on site and available for inspection during regular office hours. These documents may be kept in electronic and/or hardcopy format.

#### IV. Reporting Requirements

1. The permittee shall submit quarterly reports that identify each period during which an exemption for ice-fog provided in 40 CFR 60.332(f) is in effect. The report shall include the ambient conditions existing during the period, the date and time the air pollution control system was deactivated, and the date and time when the air pollution control system was reactivated.
2. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:
  - a. An identification of all exceedances of the rolling, 12-month natural gas usage rate for emissions units P001-P008;
  - b. An identification of all exceedances of the rolling, 12-month emission limitations for PE/PM10, SO<sub>2</sub>, NO<sub>x</sub>, CO, H<sub>2</sub>SO<sub>4</sub> mist, VOC and benzene;
  - c. An identification of all exceedances of the sulfur content (i.e. 0.05%, by weight) of the fuels (natural gas and diesel fuel) received for burning in this emissions unit;
  - d. An identification of all exceedances of the SO<sub>2</sub> lbs/mmBtu limitation of the diesel fuel received for burning in this emissions unit;
  - e. An identification of all exceedances of the 1.0 hour startup/shutdown cycle operational restriction;
  - f. An identification of all exceedances of the rolling, 12-month diesel fuel usage rate for emissions units P001-P008;
  - g. An identification of all exceedances of the startup and shut down emission limitations in term A. I.1 when burning natural gas; and
  - h. An identification of all exceedances of the startup and shut down emission limitations in term A. I.1 when burning diesel fuel.
  - i. An identification of each day when a fuel other than natural gas or diesel fuel was burned in this emissions unit.
3. All quarterly deviation reports shall be submitted in accordance with the reporting requirements specified in Part I - General Terms and Conditions A.1.c.ii unless otherwise specified.
4. Pursuant to OAC rules 3745-15-04, 3745-35-02, and ORC sections 3704.03(l) and 3704.031 and 40 CFR Parts 60.7 and 60.13(h), the permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting the date, commencement and completion times, duration, magnitude, reason (if known), and corrective actions taken (if any), of all instances of NO<sub>x</sub> values in excess of the applicable limits specified in 40 CFR Part 76 or any limitations specified in the terms and conditions of this permit. These reports shall also contain the total NO<sub>x</sub> emissions for the calendar quarter (in tons), including all data collected during startup and shutdown periods or generated pursuant to the missing data procedures specified in 40 CFR Part 75.

The permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting any continuous NO<sub>x</sub> monitoring system downtime while the emissions unit was on line (date, time, duration and reason) along with any corrective action(s) taken. The permittee shall provide the emissions unit operating time during the reporting period and the date, time, reason and corrective action(s) taken for each time period of emissions unit and control equipment malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report.

#### **IV. Reporting Requirements (continued)**

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 emissions unit, control equipment, and/or monitoring system malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line also shall be included in the quarterly report. These quarterly excess emission reports shall be submitted by January 31, April 30, July 31, and October 31 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 appropriate Ohio EPA District Office or local air agency within 30 days following the end of each calendar quarter in a manner prescribed by the Director.

5. Pursuant to OAC rules 3745-15-04, 3745-35-02, and ORC sections 3704.03(I) and 3704.031 and 40 CFR Parts 60.7 and 60.13(h), the permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting the date, commencement and completion times, duration, magnitude, reason (if known), and corrective actions taken (if any) of all instances of CO values in excess of any applicable limitation(s) specified in OAC Chapter 3745-21, 40 CFR Part 60, or any limitation(s) specified in the terms and conditions of this permit, in units of the standard. These reports shall also contain the total CO emissions for the calendar quarter (in tons), including all data collected during startup and shutdown periods or generated pursuant to the missing data procedures for fuel flow measurement as specified in 40 CFR Part 75.

The permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting any continuous CO monitoring system downtime while the emissions unit was on line (date, time, duration and reason) along with any corrective action(s) taken. The permittee shall provide the emissions unit operating time during the reporting period and the date, time, reason and corrective action(s) taken for each time period of emissions unit and control equipment malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report.

If there are no excess emissions during the calendar quarter, the permittee shall submit a statement to that effect along with the emissions unit operating time during the reporting period and the date, time, reason, and corrective action(s) taken for each time period of emissions unit, control equipment, and/or monitoring system malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report. These quarterly excess emission reports shall be submitted by January 31, April 30, July 31, and October 31 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 appropriate local air agency within 30 days following the end of each calendar quarter in a manner prescribed by the Director.

6. The permittee shall submit annual reports that specify the total NO<sub>x</sub>, CO, PE/PM<sub>10</sub>, VOC, SO<sub>2</sub>, benzene and H<sub>2</sub>SO<sub>4</sub> emissions from this emissions unit for the calendar year. These reports shall be submitted by January 31 of each year and cover the previous calendar year.

#### **V. Testing Requirements**

1. Compliance with the emission limitations, fuel usage restrictions and sulfur content limitations specified in Sections A.I and A.II shall be determined by the following methods:

## V. Testing Requirements (continued)

- 1.a** Emission Limitations: The emissions from startup and shutdown operations shall not exceed the following emission limitations for this emissions unit:

Natural Gas

NOx: 83 lbs/cycle

CO: 308 lbs/cycle

Diesel Fuel

NOx: 130 lbs/cycle

CO: 354 lbs/cycle

Applicable Compliance Method: The lbs/cycle emissions limitations were established based on emissions data contained in the PTI modification application (PTI 14-04682) submitted March, 2001 and the emission factors from the background document, Reference 16, for Stationary Gas Turbines in AP-42, Fifth Edition, Section 3.1, dated April 2000.

Compliance with the NOx emission limitations shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Sections A.III.5 and A.III.9.

- 1.b** Emission Limitations: The hourly emissions from this emissions unit shall not exceed the following amounts:

- i. 58.0 lbs of SO<sub>2</sub> emissions/hour;
- ii. 54.0 lbs of CO emissions/hour;
- iii. 196.0 lbs of NO<sub>x</sub> emissions/hour;
- iv. 6.0 lbs of H<sub>2</sub>SO<sub>4</sub> mist emissions/hour; and
- v. 10.0 lbs of VOC emissions/hour.

Applicable Compliance Method: The hourly emission limitations are based upon the emission unit's potential to emit and the emission factors from the background document for Stationary Gas Turbines in AP-42, Fifth Edition, Section 3.1, dated April 2000.

Compliance with the NOx emission limitation shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Section A.III.9.

Compliance with the CO emission limitation shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Section A.III.10.

If required, the permittee shall demonstrate compliance with the hourly NO<sub>x</sub> emission limitation through emission test performed in accordance with Methods 1-4 and 7 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Section 60.334(c)(1).

If required, the permittee shall demonstrate compliance with the hourly SO<sub>2</sub> emission limitation through emission tests performed in accordance with Methods 1-4 and 6 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

If required, the permittee shall demonstrate compliance with the hourly CO emission limitation through emission tests performed in accordance with Methods 1-4 and 10 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

## V. Testing Requirements (continued)

If required, the permittee shall demonstrate compliance with the hourly H<sub>2</sub>SO<sub>4</sub> mist emission limitation through emission tests performed in accordance with Methods 1-4 and 8 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

If required, the permittee shall demonstrate compliance with the hourly VOC emission limitation through emission tests performed in accordance with Methods 1-4 and 25 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

**1.c** Emission Limitations: The total emissions from emission units P001-P008 combined shall not exceed the following emission limitations:

- i. 60.5 tons of PE/PM<sub>10</sub> emissions per rolling, 12-month period;
- ii. 120.8 tons of SO<sub>2</sub> emissions per rolling, 12-month period;
- iii. 733.3 tons of NO<sub>x</sub> emissions per rolling, 12-month period;
- iv. 541.0 tons of CO emissions per rolling, 12-month period;
- v. 36.4 tons of VOC emissions per rolling, 12-month period;
- vi. 12.2 tons of H<sub>2</sub>SO<sub>4</sub> mist emissions per rolling, 12-month period;
- vii. 7.7 tons of benzene emissions per rolling, 12-month period;
- viii. 0.00084 ton of beryllium emissions per rolling, 12-month period; and
- ix. 0.012 ton of arsenic emissions per rolling, 12-month period.

Applicable Compliance Method: Compliance with the annual PE/PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC, H<sub>2</sub>SO<sub>4</sub> and benzene emission limitations specified above shall be determined by the record keeping requirements specified in Section A.III.6 .

Compliance with the annual beryllium and arsenic emission limitations specified above may be determined by multiplying the pollutant specific emission factor found in AP-42, Fifth Edition, Section 3.1 "Stationary Gas Turbines," updated 4/00, by the amount of fuel collected and recorded in Sections A.III.4 (for natural gas) and A.III.4 (for diesel fuel) by the specific heat content of the each fuel employed.

The specific heat content for diesel fuel oil shall be taken from the information collected and recorded in A.III.8.

**1.d** Emission Limitations:

- i. 0.15 TPY of lead emissions; and
- ii. 0.0023 TPY of mercury emissions.

Applicable Compliance Method: Compliance with the TPY lead and mercury emission limitations specified above may be determined by multiplying the pollutant specific emission factor found in AP-42, Fifth Edition, Section 3.1 "Stationary Gas Turbines," updated 4/00, by the amount of fuel collected and recorded in Sections A.III.4 (for natural gas) and A.III.4 (for diesel fuel) by the specific heat content of the each fuel employed. The heat content for the diesel fuel shall also be taken from the information collected and recorded in Section A.III.8.

## V. Testing Requirements (continued)

**1.e** Emission Limitations: The following NO<sub>x</sub> emission limitations shall not be exceeded:

- i. 15 ppm of NO<sub>x</sub> emissions, by volume, at 15% oxygen on a dry basis when firing natural gas, as a 1-hour average;
- ii. 42 ppm of NO<sub>x</sub> emissions, by volume, at 15% oxygen on a dry basis when firing diesel fuel, as a 1-hour average; and
- iii. When burning natural gas, the NO<sub>x</sub> emission rate shall not exceed 12 ppm, by volume, at 15% oxygen on a dry basis, based on a rolling, 12-month summation of the monthly NO<sub>x</sub> emissions in ppm.

Applicable Compliance Method: Compliance with the NO<sub>x</sub> emission limitations shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Section A.III.9.

If required, the permittee shall demonstrate compliance with the ppm NO<sub>x</sub> emission limitations through emission tests performed in accordance with Methods 1-4 and 7 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Section 60.334(c)(1).

**1.f** PE/PM<sub>10</sub> Emission Limitation: 0.008 lb of PE/PM<sub>10</sub> emissions/mmBtu

Applicable Compliance Method: Compliance with the PE/PM<sub>10</sub> emission limitation may be determined by the manufacturer's guaranteed emissions data found in PTI 14-4682 submitted April 26, 1999.

If required, the permittee shall demonstrate compliance with the PE/PM<sub>10</sub> emission limitation through emission tests performed in accordance with Methods 1-5 of 40 CFR Part 60, Appendix A.

**1.g** Visible PE Limitation: Visible PE from any stack shall not exceed 20% opacity, as a 6-minute average, except as specified by rule, when burning diesel fuel.

Applicable Compliance Method: If required, compliance with the visible PE limitation shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Test Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

**1.h** Visible PE Limitation: Visible PE from any stack shall not exceed 10% opacity, as a 6-minute average, when burning pipeline natural gas.

Applicable Compliance Method: If required, compliance with the visible PE limitation shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Test Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

**1.i** SO<sub>2</sub> Emission Limitation: 0.0456 lb of SO<sub>2</sub> emissions/mmBtu when burning diesel fuel;

Applicable Compliance Method: Compliance with the SO<sub>2</sub> emission limitation shall be determined by the sulfur analysis of the fuels combusted pursuant to the requirements specified in Sections A.III.7 and A.III.8, and by documenting that the sulfur content of each shipment of oil received during a calendar month meets the 0.05% sulfur content restriction..

If required, the permittee shall demonstrate compliance with the SO<sub>2</sub> emission limitation through emission tests performed in accordance with Methods 1-4 and 6 of 40 CFR Part 60, Appendix A.

**1.j** Sulfur Content Restriction: not to exceed 0.05% sulfur, by weight, when burning natural gas or diesel fuel

Applicable Compliance Method: Compliance with the sulfur content restriction shall be determined using standard methods as required in 40 CFR Section 60.335 and the information collected and recorded in Sections A.III.7 and A.III.8.

**V. Testing Requirements (continued)**

- 1.k** Natural Gas and Diesel Fuel Usage Restrictions: The total maximum annual natural gas usage rate for emissions units P001-P008 combined shall not exceed 20.3 billion cubic feet per year, based upon a rolling, 12-month summation of the natural gas usage rate. The total maximum annual diesel fuel usage rate for emissions units P001-P008 combined shall not exceed 34 million gallons per year, based upon a rolling, 12-month summation of the diesel fuel usage rate.

Applicable Compliance Method: Compliance with the natural gas and diesel fuel usage restrictions shall be determined by the record keeping requirements specified in Section A.III.4.

**VI. Miscellaneous Requirements**

**None**

**B. State Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
80 Megawatt (nominal) natural gas/No. 2 fuel oil fired simple-cycle combustion turbine	OAC rules 3745-31-11 thru OAC rule 3745-31-20	These rules are equivalent to 40 CFR Part 52.21. At the time of permit, issuance these regulations have been promulgated in the OAC. However, they have not yet been added to the Ohio SIP.
	OAC rule 3745-31-28	This rule is equivalent to 40 CFR 63.41-40 CFR Part 63.44. At the time of permit, issuance these regulations have been promulgated in the OAC. However, they have not yet been added to the Ohio SIP.

**2. Additional Terms and Conditions**

None

**II. Operational Restrictions**

None

**III. Monitoring and/or Record Keeping Requirements**

None

**IV. Reporting Requirements**

None

**V. Testing Requirements**

None

**VI. Miscellaneous Requirements**

None

### Part III - Terms and Conditions for Emissions Units

**Emissions Unit ID:** #2 Turbine (P002)

**Activity Description:** 80 Megawatt (Nominal) Simple-Cycle Combustion Turbine #2

#### A. State and Federally Enforceable Section

##### I. Applicable Emissions Limitations and/or Control Requirements

- The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
80 megawatt (nominal) natural gas/diesel fuel fired simple-cycle combustion turbine	OAC rule 3745-31-05(D) (PTI 14-4682)	<p>This emissions unit shall not exceed the following emission limitations at all load conditions, including startup and shutdown:</p> <p>54.0 lbs of carbon monoxide (CO) emissions/hour</p> <p>58.0 lbs of sulfur dioxide (SO<sub>2</sub>) emissions/hour*</p> <p>6.0 lbs of hydrogen sulfate (H<sub>2</sub>SO<sub>4</sub>) mist emissions/hour*</p> <p>10.0 lbs of volatile organic compound (VOC) emissions/hour*</p> <p>0.008 lb of particulate emissions (PE)/particulate matter with a diameter of 10 microns or less (PM<sub>10</sub> emissions)/mmBtu*</p>

\* The hourly emission limitations and the lb of PE/PM<sub>10</sub> emissions/mmBtu limitation specified above represent this emissions unit's potential to emit for all operating conditions, including startup and shutdown. Therefore, no additional monitoring, record keeping or reporting requirements are required to demonstrate compliance with these emission limitations.

Facility Name: **Duke Energy Madison, LLC**

Facility ID: **14-09-00-0896**

Emissions Unit: **#2 Turbine (P002)**

**Operations, Property,  
and/or Equipment**

**Applicable Rules/  
Requirements**

**Applicable Emissions  
Limitations/Control  
Measures**

The total emissions from emissions units P001 through P008 combined shall not exceed the emission limitations specified below. The annual emission limitations include emissions from operating at "startup and shutdown", "normal", and "full load" conditions combined and for all fuel types (i.e., natural gas and diesel fuel).

60.5 tons of PE/PM10 emissions per rolling, 12-month period

120.8 tons of SO2 emissions per rolling, 12-month period

733.3 tons of NOx emissions per rolling, 12-month period

541.0 tons of CO emissions per rolling, 12-month period

12.2 tons of H2SO4 mist emissions per rolling, 12-month period

36.4 tons of VOC emissions per rolling, 12-month period

7.7 tons of benzene emissions per rolling, 12-month period

0.00084 ton of beryllium emissions per rolling, 12-month period

0.012 ton of arsenic emissions per rolling, 12-month period

Emissions from startup and shutdown operations shall not exceed the following emission limitations:

Natural Gas

NOx: 83 lbs/cycle

CO: 308 lbs/cycle

Diesel Fuel

NOx: 130 lbs/cycle

CO: 354 lbs/cycle

**Operations, Property,  
and/or Equipment**

**Applicable Rules/  
Requirements**

**Applicable Emissions  
Limitations/Control  
Measures**

		196.0 lbs of nitrogen oxides (NOx) emissions/hour
		15 ppm of NOx by volume at 15% oxygen on a dry basis when burning natural gas (as a 1-hour average, excluding startup and shutdown conditions)
		42 ppm of NOx by volume at 15% oxygen on a dry basis when burning diesel fuel (as a 1-hour average, excluding startup and shutdown conditions)
		12 ppm of NOx by volume at 15% oxygen on a dry basis, when burning natural gas, based on a rolling, 12-month summation of the monthly NOx emissions in ppm (excluding startup and shutdown conditions)
		0.05% sulfur content, by weight, for diesel fuel and natural gas
		0.0456 lbs of SO2 emissions/mmBtu, for diesel fuel
40 CFR Part 60, Subpart GG		The emission limitations established in 40 CFR Part 60, Subpart GG for SO2 and NOx are less stringent than those established pursuant to OAC rule 3745-31-05(D).
Best Available Control Technology is equivalent to Section 112g of the Clean Air Act		For the purposes of this permit and for the hazardous air pollutants (HAPs) emitted from this emissions unit, the best available control technology determination to satisfy the requirements of 40 CFR Part 52.21 is equivalent to the maximum achievable control technology determination used to satisfy the requirements of 40 CFR Parts 63.41 thru 63.44.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
	OAC rule 3745-31-05(A)(3) (PTI 14-04682)	Emissions from this emissions unit shall not exceed the following emission limitations:  0.15 TPY of lead emissions 0.0023 TPY of mercury emissions  See Section A.I.2.b below.  Compliance with this rule also include compliance with the requirements of OAC rules 3745-31-05(D) and 3745-17-07(A) when burning diesel fuel.
	OAC rule 3745-17-11(B)(4)	The PE limitation specified by this rule is less stringent the PE limitation established pursuant to OAC rule 3745-31-05(D).
	OAC rule 3745-17-07(A)(1)	See Section A.I.2.a below.
	OAC rule 3745-18-06(F)	The SO <sub>2</sub> emission limitation specified by this rule (0.5 lb of SO <sub>2</sub> emissions/mmBtu) is less stringent than the SO <sub>2</sub> emission limitation established pursuant to OAC rule 3745-31-05(D).

**2. Additional Terms and Conditions**

- 2.a** Visible PE from any stack shall not exceed 20% opacity, as a 6-minute average, except as specified by rule when combusting diesel fuel.
- 2.b** Visible PE from any stack shall not exceed 10% opacity, as a 6-minute average when combusting natural gas.
- 2.c** The permittee shall install and maintain dry low NO<sub>x</sub> burners when burning natural gas and install and maintain a water injection system when burning diesel fuel.
- 2.d** The permittee is subject to the requirements of 40 CFR Parts 72 and 75 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.
- 2.e** "Full load" shall be defined as the nameplate electrical output of 84.65 megawatts. Any load that is greater than or equal to 90% of the nameplate electrical output shall be considered full load.
- 2.f** "Normal operation" shall be defined as the period when the combustion turbine achieves dry low NO<sub>x</sub> mode (GE Mode 6). GE Mode 6 is defined by the manufacturer as the low emissions mode during which all burner nozzles are in use, burning a lean pre-mixed gas for steady-state operation. The continuous emissions monitoring system will indicate and record the GE Mode 6 status of the combustion turbine, including when the emissions unit is shutdown and when operating in startup and shutdown modes.

## **2. Additional Terms and Conditions (continued)**

- 2.g** "Startup" shall be defined as the period between when the combustion turbine is initially started (initial fuel light-off) until the combustion turbine completes transition to GE Mode 6. "Shutdown" shall be defined as the period beginning when the combustion turbine leaves the GE Mode 6 and ending when combustion has ceased.
- 2.h** Compliance with the startup and shutdown NO<sub>x</sub> and CO lbs/cycle values and NO<sub>x</sub> and CO emission limitations during steady-state operations shall be demonstrated by the use of dual range NO<sub>x</sub> and CO Continuous Emission Monitors (CEMs). For CEM systems with dual ranges, certification testing shall be performed on the range normally used for measuring emissions.
- 2.i** For the purpose of this permit, the term "diesel fuel" shall be considered to be any distillate fuel oil that is employed as a fuel in this emissions unit as defined in 40 CFR Part 72.2.

## **II. Operational Restrictions**

- 1.** The maximum annual natural gas usage rate for emissions units P001-P008 shall not exceed 20.3 billion (2.03 x 10<sup>10</sup>) cubic feet per rolling, 12-month period.
- 2.** The maximum annual diesel fuel usage rate for emissions units P001-P008 shall not exceed 34 million (3.40 x 10<sup>7</sup>) gallons per rolling, 12-month period.
- 3.** The permittee shall burn only natural gas, of pipeline quality, or diesel fuel in this emissions unit.
- 4.** The quality of diesel fuel burned in this emissions unit shall have a combination of heat and sulfur content which is sufficient to comply with the allowable SO<sub>2</sub> emission limitation of 0.0456 lb of SO<sub>2</sub>/MMBtu of actual heat input. The diesel fuel shall have a sulfur content of 0.05% or less.
- 5.** When the emissions unit is operating in startup or shutdown conditions, as defined in Section A.I.2.g above, each startup or shutdown cycle shall not exceed 1.0 hours in duration.
- 6.** With the exception of startup and shutdown, this emissions unit shall be operated in GE Mode 6, defined as normal operation (ref. Section A.I.2.f above).

## **III. Monitoring and/or Record Keeping Requirements**

- 1.** For each day during which the permittee burns a fuel other than natural gas and/or diesel fuel, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
- 2.** The permittee shall install, operate, and maintain equipment to continuously monitor and record the actual fuel flow to this emissions unit when it 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.
- 3.** The permittee shall maintain records that document the following:
  - a.** the emissions unit's actual electrical output for each operating hour;
  - b.** all periods of time when the emissions unit was operating in startup and shutdown conditions.

### III. Monitoring and/or Record Keeping Requirements (continued)

4. The permittee shall maintain monthly records of the following information in order to monitor compliance with the applicable fuel usage restrictions:
  - a. the total amount of natural gas burned, in cubic feet, for this emissions unit;
  - b. the total amount of diesel fuel burned, in gallons, for this emissions unit;
  - c. the total amount of natural gas burned, in cubic feet, for emission units P001-P008, combined;
  - d. the total amount of diesel fuel burned, in gallons, for emissions units P001-P008, combined;
  - e. the rolling, 12-month summation for the total amount of natural gas burned, in cubic feet, for emissions units P001-P008, combined (the amount of natural gas burned for the current month plus the total amount of natural gas burned for the previous eleven calendar months); and
  - f. the rolling, 12-month summation for the total amount of diesel fuel burned in emissions units P001-P008, combined (the amount of diesel fuel burned for the current month plus the total amount of diesel fuel burned for the previous eleven calendar months).
5. The permittee shall maintain monthly records of the following information for emissions units P001-P008 in order to monitor compliance with the startup and shutdown emission limitations and operational restrictions:
  - a. the date and duration, in minutes, of each startup/shutdown cycle
  - b. the emissions, in pounds, for NO<sub>x</sub> and CO when burning natural gas at startup and shutdown operation modes; and
  - c. the emissions, in pounds, for NO<sub>x</sub> and CO when burning diesel fuel at startup and shutdown operation modes.

The permittee shall use the continuous NO<sub>x</sub> and CO emissions monitoring data to determine the NO<sub>x</sub> and CO emissions for these emissions units. During any period when the NO<sub>x</sub> and/or the CO emissions monitoring systems are not operational, the permittee shall use the appropriate missing data procedures specified in 40 CFR Part 75 to determine NO<sub>x</sub> and CO emissions or an approved data substitution protocol.

### III. Monitoring and/or Record Keeping Requirements (continued)

6. The permittee shall maintain monthly records of the following information for emission units P001- P008 in order to monitor compliance with the rolling, 12- month summation, emissions limitations:
- the total emissions, in tons, for NO<sub>x</sub>\*, CO\*, PE/PM<sub>10</sub>, SO<sub>2</sub>, VOC, H<sub>2</sub>SO<sub>4</sub>, and benzene when burning natural gas for all operational loads;
  - the total emissions, in tons, for NO<sub>x</sub>\*, CO\*, PE/PM<sub>10</sub>, SO<sub>2</sub>, VOC, H<sub>2</sub>SO<sub>4</sub>, and benzene when burning diesel fuel for all operational modes;
  - the rolling, 12-month summation emissions total, in tons, for NO<sub>x</sub>, CO, PE/PM<sub>10</sub>, SO<sub>2</sub>, VOC, H<sub>2</sub>SO<sub>4</sub>, and benzene for emission units P001-P008, combined when burning natural gas and diesel fuel (the total amount of emissions calculated in a + b) for the current month plus the total amount of emissions for the previous eleven calendar months).
  - the updated rolling, 12-month average of NO<sub>x</sub> emissions, in ppm, when burning natural gas at normal operations for this emissions unit (the NO<sub>x</sub> ppm average for the current month (from the CEMs data) plus the total NO<sub>x</sub> ppm average for the previous eleven calendar months).

\* The permittee shall use the continuous NO<sub>x</sub> and CO emissions monitoring data to determine the NO<sub>x</sub> and CO emissions for these emissions units. During any period when the NO<sub>x</sub> and/or the CO emissions monitoring systems are not operational, the permittee shall use the appropriate missing data procedures specified in 40 CFR Part 75 to determine NO<sub>x</sub> and CO emissions or an approved data substitution protocol.

7. The permittee shall monitor the sulfur content of the fuel being fired in the turbine. The frequency of the monitoring shall be determined as follows:
- If the turbine is supplied its fuel from a bulk storage tank, the values shall be determined on each occasion that fuel is transferred to the storage tank from any other source.
  - If the turbine is supplied its fuel without intermediate bulk storage, the values shall be determined and recorded daily. Owners, operators or fuel vendors may develop custom fuel schedules for the determination of the values based on the design and operation of the affected facility and the characteristics of the fuel supply. These custom schedules shall be substantiated with data and must be approved by the Ohio EPA, Central Office before they can be used.
  - For each shipment of diesel fuel oil received for burning in this emissions unit, the permittee shall maintain records of the total quantity of diesel fuel oil received and the permittee's or diesel fuel oil supplier's analyses for sulfur content and heat content.(See Section A.III.8 below)

Analyses for the purpose of determining the sulfur content of the natural gas may be performed by the permittee, the fuel vendor, or any other qualified agency in accordance with the analytical methods specified in 40 CFR Part 60, Subpart GG, Section 60.335(d), 40 CFR Part 75, or the appropriate ASTM methods, or equivalent methods as approved by the Director.

8. For each shipment of diesel fuel received for burning in this emissions unit, the permittee shall maintain records of the total quantity of diesel fuel oil received, the permittee's or diesel fuel oil supplier's analyses for sulfur content and heat content, and the calculated sulfur dioxide emission rate (in lbs/MMBtu). [The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F)]. A shipment may be comprised of multiple tank truck loads from the same supplier's batch, or may be represented by single or multiple pipeline deliveries from the same supplier's batch, and the quality of the diesel fuel oil for those loads or pipeline deliveries may be represented by a single batch analysis from the supplier.

The permittee shall perform or require the supplier to perform the analyses for sulfur content and heat content in accordance with 40 CFR Part 60, Appendix A, Method 19, or the appropriate ASTM methods (such as, ASTM methods D240, D4294,),or equivalent methods as approved by the Director.

### III. Monitoring and/or Record Keeping Requirements (continued)

The permittee shall maintain records of the oil burned in this emissions unit in accordance with either Alternative 1 or Alternative 2 described below:

a. Alternative 1:

For each shipment of oil received for burning in this emissions unit, the permittee shall collect or require the oil supplier to collect a representative grab sample of oil and maintain records of the total quantity of oil received, the permittee's or oil supplier's analyses for sulfur content and heat content, and the calculated sulfur dioxide emission rate (in lbs/MMBtu). (The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F).) A shipment may be comprised of multiple tank truck loads from the same supplier's batch, and the quality of the oil for those loads may be represented by a single batch analysis from the supplier.

b. Alternative 2:

The permittee shall collect a representative grab sample of oil that is burned in this emissions unit for each day when the emission unit is in operation. If additional fuel oil is added to the tank serving this emissions unit on a day when the emissions unit is in operation, the permittee shall collect a sufficient number of grab samples to develop a composite sample representative of the fuel oil burned in this emissions unit. A representative grab sample of oil does not need to be collected on days when this emissions unit is only operated for the purpose of "test-firing". The permittee shall maintain records of the total quantity of oil burned each day; except for the purpose of test-firing, the permittee's analyses for sulfur content and heat content, and the calculated sulfur dioxide emission rate (in lbs/MMBtu). [The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F)]

#### 9. Continuous NOx Monitoring

a. In lieu of complying with the monitoring and testing provisions of 40 CFR 60.334 and 60.345 to demonstrate compliance with the NOx emission limitations, the permittee shall operate and maintain systems to continuously monitor and record emissions of NOx from this emissions unit in accordance with this permit.

b. The permittee shall install, operate and maintain equipment to continuously monitor and record NOx from this emissions unit in units of the applicable standard. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13 and/or 40 CFR Part 75.

c. The permittee shall maintain records of the following data obtained by the continuous NOx monitoring system: parts per million (ppm) NOx at 15% oxygen (hourly average), lbs of NOx/hour, results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

d. A statement of certification of the existing continuous NOx monitoring system shall be maintained on site and shall consist of a letter from Ohio EPA detailing the results of an Agency review of the certification tests and a statement by the Agency that the system is considered certified in accordance with the requirements of 40 CFR Part 60, Appendix B, Performance Specification 2 and/or 40 CFR Part 75, Appendix D and Appendix F. Proof of certification shall be made available to the Hamilton County Department of Environmental Services - Air Quality Control Division upon request.

e. Prior to the installation of the continuous NOx monitoring system, 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 and 40 CFR Part 75, Appendix A, for approval by the Ohio EPA, Central Office.

### **III. Monitoring and/or Record Keeping Requirements (continued)**

f. Certification in pounds NO<sub>x</sub> per hour: Within 60 days of the startup of this emissions unit, but not later than 180 days after the initial startup of this emissions unit, the permittee shall conduct certification tests of such equipment pursuant to ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 2, and/or 40 CFR Part 75. When NO<sub>x</sub> mass emissions are being determined as allowed in 40 CFR Part 75, Appendix D and Appendix F, certification testing to show compliance with 40 CFR Part 60, Appendix B, Performance Specification 6 shall not be necessary. However, a stack test shall be conducted to demonstrate 40 CFR Part 75, Appendix F, NO<sub>x</sub> mass determinations.

Personnel from the Hamilton County Department of Environmental Services - Air Quality Control Division 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, all copies of the test results shall be submitted to the Hamilton County Department of Environmental Services - Air Quality Control Division within 30 days after the test is completed. Certification of the continuous NO<sub>x</sub> monitoring system shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 2 and/or 40 CFR Part 75.

g. Within 180 days of the effective date of this permit, the permittee shall develop and maintain a written quality assurance/quality control plan for the continuous NO<sub>x</sub> monitoring system designed to ensure continuous valid and representative readings of NO<sub>x</sub> emissions in units of the applicable standard. The plan shall follow the requirements of 40 CFR Part 60, Appendix F and/or 40 CFR Part 75, Appendix B. The quality assurance/quality control plan and a logbook dedicated to the CEM systems must be kept on site and available for inspection during regular office hours. These documents may be kept in electronic and/or hardcopy format.

#### **10. Continuous CO Monitoring**

a. The permittee shall install, operate and maintain equipment to continuously monitor and record CO from this emissions unit in lbs CO/hour and in the units of any other applicable standard. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13.

b. The permittee shall maintain records of all data obtained by the continuous CO monitoring system including, but not limited to, ppm CO at a minimum of 4 data points per hour sufficient to generate an hourly average, emissions of CO in units of the applicable standard in the appropriate averaging period (hourly), results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

c. A statement of certification of the existing continuous CO monitoring system shall be maintained on site and shall consist of a letter from Ohio EPA detailing the results of an Agency review of the certification tests and a statement by the Agency that the system is considered certified in accordance with the requirements of 40 CFR Part 60, Appendix B, Performance Specification 4. Proof of certification shall be made available to the Hamilton County Department of Environmental Services - Air Quality Control Division upon request.

d. Prior to installation of the continuous CO monitoring system, 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 4 for approval by the Ohio EPA, Central Office.

### III. Monitoring and/or Record Keeping Requirements (continued)

e. Certification in pounds CO per hour: Within 60 days of the effective date of this permit, but not later than 180 days after the initial startup of this emissions unit, the permittee shall conduct certification tests of the continuous CO monitoring system pursuant to ORC section 3704.03(I), 40 CFR Part 60, Appendix B, Performance Specification 4. CO mass emissions may be determined in the same manner as NO<sub>x</sub> emissions in term A.III.10. of this permit using the appropriate CO values in place of the cited NO<sub>x</sub> values. When CO mass emissions are being determined in this manner, certification testing to show compliance with 40 CFR 60, Appendix B, Performance Specification 6 will not be necessary. However, a stack test shall be conducted for CO mass determinations with an accuracy that is equivalent to that required in 40 CFR Part 75, Appendix D.

Personnel from the Hamilton County Department of Environmental Services - Air Quality Control Division 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, all copies of the test results shall be submitted to the Hamilton County Department of Environmental Services - Air Quality Control Division within 30 days after the test is completed. Certification of the continuous CO monitoring system shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 4.

f. Within 180 days of the effective date of this permit, the permittee shall develop and maintain a written quality assurance/quality control plan for the continuous CO monitoring system designed to ensure continuous valid and representative readings of CO. The plan shall follow the requirements of 40 CFR Part 60, Appendix F. The quality assurance/quality control plan and a logbook dedicated to the CEM systems must be kept on site and available for inspection during regular office hours. These documents may be kept in electronic and/or hardcopy format.

#### 11. Continuous O<sub>2</sub> Monitoring

a. The permittee shall operate and maintain equipment to continuously monitor and record O<sub>2</sub> from this emissions unit, in percent O<sub>2</sub>. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13 and/or 40 CFR Part 75.

b. The permittee shall maintain records of all data obtained by the continuous O<sub>2</sub> monitoring system including, but not limited to, percent O<sub>2</sub> at a minimum of 4 data points per hour sufficient to generate an hourly average, results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

c. Prior to the installation of the continuous O<sub>2</sub> monitoring system, 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 3 and 40 CFR Part 75 for approval by the Ohio EPA, Central Office.

d. Within 60 days of the startup of this emissions unit, but not later than 180 days after the initial startup of this emissions unit, the permittee shall conduct certification tests of the continuous O<sub>2</sub> monitoring system pursuant to ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 3, and/or 40 CFR Part 75. Personnel from the Hamilton County Department of Environmental Services - Air Quality Control Division 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, all copies of the test results shall be submitted to the Hamilton County Department of Environmental Services - Air Quality Control Division within 30 days after the test is completed. Certification of the continuous O<sub>2</sub> monitoring system shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 3 and/or 40 CFR Part 75.

e. Within 180 days of the effective date of this permit, the permittee shall develop and maintain a written quality assurance/quality control plan for the continuous O<sub>2</sub> monitoring system designed to ensure continuous valid and representative readings of O<sub>2</sub> emissions in units of the applicable standard. The plan shall follow the requirements of 40 CFR Part 60, Appendix F and/or 40 CFR Part 75, Appendix B. The quality assurance/quality control plan and a logbook dedicated to the CEM systems must be kept on site and available for inspection during regular office hours. These documents may be kept in electronic and/or hardcopy format.

#### IV. Reporting Requirements

1. The permittee shall submit quarterly reports that identify each period during which an exemption for ice-fog provided in 40 CFR 60.332(f) is in effect. The report shall include the ambient conditions existing during the period, the date and time the air pollution control system was deactivated, and the date and time when the air pollution control system was reactivated.
2. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:
  - a. An identification of all exceedances of the rolling, 12-month natural gas usage rate for emissions units P001-P008;
  - b. An identification of all exceedances of the rolling, 12-month emission limitations for PE/PM10, SO<sub>2</sub>, NO<sub>x</sub>, CO, H<sub>2</sub>SO<sub>4</sub> mist, VOC and benzene;
  - c. An identification of all exceedances of the sulfur content (i.e. 0.05%, by weight) of the fuels (natural gas and diesel fuel) received for burning in this emissions unit;
  - d. An identification of all exceedances of the SO<sub>2</sub> lbs/mmBtu limitation of the diesel fuel received for burning in this emissions unit;
  - e. An identification of all exceedances of the 1.0 hour startup/shutdown cycle operational restriction;
  - f. An identification of all exceedances of the rolling, 12-month diesel fuel usage rate for emissions units P001-P008;
  - g. An identification of all exceedances of the startup and shut down emission limitations in term A. I.1 when burning natural gas; and
  - h. An identification of all exceedances of the startup and shut down emission limitations in term A. I.1 when burning diesel fuel.
  - i. An identification of each day when a fuel other than natural gas or diesel fuel was burned in this emissions unit.
3. All quarterly deviation reports shall be submitted in accordance with the reporting requirements specified in Part I - General Terms and Conditions A.1.c.ii unless otherwise specified.
4. Pursuant to OAC rules 3745-15-04, 3745-35-02, and ORC sections 3704.03(l) and 3704.031 and 40 CFR Parts 60.7 and 60.13(h), the permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting the date, commencement and completion times, duration, magnitude, reason (if known), and corrective actions taken (if any), of all instances of NO<sub>x</sub> values in excess of the applicable limits specified in 40 CFR Part 76 or any limitations specified in the terms and conditions of this permit. These reports shall also contain the total NO<sub>x</sub> emissions for the calendar quarter (in tons), including all data collected during startup and shutdown periods or generated pursuant to the missing data procedures specified in 40 CFR Part 75.

The permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting any continuous NO<sub>x</sub> monitoring system downtime while the emissions unit was on line (date, time, duration and reason) along with any corrective action(s) taken. The permittee shall provide the emissions unit operating time during the reporting period and the date, time, reason and corrective action(s) taken for each time period of emissions unit and control equipment malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report.

#### **IV. Reporting Requirements (continued)**

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 emissions unit, control equipment, and/or monitoring system malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line also shall be included in the quarterly report. These quarterly excess emission reports shall be submitted by January 31, April 30, July 31, and October 31 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 appropriate Ohio EPA District Office or local air agency within 30 days following the end of each calendar quarter in a manner prescribed by the Director.

5. Pursuant to OAC rules 3745-15-04, 3745-35-02, and ORC sections 3704.03(I) and 3704.031 and 40 CFR Parts 60.7 and 60.13(h), the permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting the date, commencement and completion times, duration, magnitude, reason (if known), and corrective actions taken (if any) of all instances of CO values in excess of any applicable limitation(s) specified in OAC Chapter 3745-21, 40 CFR Part 60, or any limitation(s) specified in the terms and conditions of this permit, in units of the standard. These reports shall also contain the total CO emissions for the calendar quarter (in tons), including all data collected during startup and shutdown periods or generated pursuant to the missing data procedures for fuel flow measurement as specified in 40 CFR Part 75.

The permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting any continuous CO monitoring system downtime while the emissions unit was on line (date, time, duration and reason) along with any corrective action(s) taken. The permittee shall provide the emissions unit operating time during the reporting period and the date, time, reason and corrective action(s) taken for each time period of emissions unit and control equipment malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report.

If there are no excess emissions during the calendar quarter, the permittee shall submit a statement to that effect along with the emissions unit operating time during the reporting period and the date, time, reason, and corrective action(s) taken for each time period of emissions unit, control equipment, and/or monitoring system malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report. These quarterly excess emission reports shall be submitted by January 31, April 30, July 31, and October 31 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 appropriate local air agency within 30 days following the end of each calendar quarter in a manner prescribed by the Director.

6. The permittee shall submit annual reports that specify the total NO<sub>x</sub>, CO, PE/PM<sub>10</sub>, VOC, SO<sub>2</sub>, benzene and H<sub>2</sub>SO<sub>4</sub> emissions from this emissions unit for the calendar year. These reports shall be submitted by January 31 of each year and cover the previous calendar year.

#### **V. Testing Requirements**

1. Compliance with the emission limitations, fuel usage restrictions and sulfur content limitations specified in Sections A.I and A.II shall be determined by the following methods:

## V. Testing Requirements (continued)

- 1.a** Emission Limitations: The emissions from startup and shutdown operations shall not exceed the following emission limitations for this emissions unit:

Natural Gas  
NOx: 83 lbs/cycle  
CO: 308 lbs/cycle

Diesel Fuel  
NOx: 130 lbs/cycle  
CO: 354 lbs/cycle

Applicable Compliance Method: The lbs/cycle emissions limitations were established based on emissions data contained in the PTI modification application (PTI 14-04682) submitted March, 2001 and the emission factors from the background document, Reference 16, for Stationary Gas Turbines in AP-42, Fifth Edition, Section 3.1, dated April 2000.

Compliance with the NOx emission limitations shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Sections A.III.5 and A.III.9.

- 1.b** Emission Limitations: The hourly emissions from this emissions unit shall not exceed the following amounts:

- i. 58.0 lbs of SO<sub>2</sub> emissions/hour;
- ii. 54.0 lbs of CO emissions/hour;
- iii. 196.0 lbs of NO<sub>x</sub> emissions/hour;
- iv. 6.0 lbs of H<sub>2</sub>SO<sub>4</sub> mist emissions/hour; and
- v. 10.0 lbs of VOC emissions/hour.

Applicable Compliance Method: The hourly emission limitations are based upon the emission unit's potential to emit and the emission factors from the background document for Stationary Gas Turbines in AP-42, Fifth Edition, Section 3.1, dated April 2000.

Compliance with the NOx emission limitation shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Section A.III.9.

Compliance with the CO emission limitation shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Section A.III.10.

If required, the permittee shall demonstrate compliance with the hourly NO<sub>x</sub> emission limitation through emission test performed in accordance with Methods 1-4 and 7 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Section 60.334(c)(1).

If required, the permittee shall demonstrate compliance with the hourly SO<sub>2</sub> emission limitation through emission tests performed in accordance with Methods 1-4 and 6 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

If required, the permittee shall demonstrate compliance with the hourly CO emission limitation through emission tests performed in accordance with Methods 1-4 and 10 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

## V. Testing Requirements (continued)

If required, the permittee shall demonstrate compliance with the hourly H<sub>2</sub>SO<sub>4</sub> mist emission limitation through emission tests performed in accordance with Methods 1-4 and 8 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

If required, the permittee shall demonstrate compliance with the hourly VOC emission limitation through emission tests performed in accordance with Methods 1-4 and 25 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

**1.c** Emission Limitations: The total emissions from emission units P001-P008 combined shall not exceed the following emission limitations:

- i. 60.5 tons of PE/PM<sub>10</sub> emissions per rolling, 12-month period;
- ii. 120.8 tons of SO<sub>2</sub> emissions per rolling, 12-month period;
- iii. 733.3 tons of NO<sub>x</sub> emissions per rolling, 12-month period;
- iv. 541.0 tons of CO emissions per rolling, 12-month period;
- v. 36.4 tons of VOC emissions per rolling, 12-month period;
- vi. 12.2 tons of H<sub>2</sub>SO<sub>4</sub> mist emissions per rolling, 12-month period;
- vii. 7.7 tons of benzene emissions per rolling, 12-month period;
- viii. 0.00084 ton of beryllium emissions per rolling, 12-month period; and
- ix. 0.012 ton of arsenic emissions per rolling, 12-month period.

Applicable Compliance Method: Compliance with the annual PE/PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC, H<sub>2</sub>SO<sub>4</sub> and benzene emission limitations specified above shall be determined by the record keeping requirements specified in Section A.III.6 .

Compliance with the annual beryllium and arsenic emission limitations specified above may be determined by multiplying the pollutant specific emission factor found in AP-42, Fifth Edition, Section 3.1 "Stationary Gas Turbines," updated 4/00, by the amount of fuel collected and recorded in Sections A.III.4 (for natural gas) and A.III.4 (for diesel fuel) by the specific heat content of the each fuel employed.

The specific heat content for diesel fuel oil shall be taken from the information collected and recorded in A.III.8.

**1.d** Emission Limitations:

- i. 0.15 TPY of lead emissions; and
- ii. 0.0023 TPY of mercury emissions.

Applicable Compliance Method: Compliance with the TPY lead and mercury emission limitations specified above may be determined by multiplying the pollutant specific emission factor found in AP-42, Fifth Edition, Section 3.1 "Stationary Gas Turbines," updated 4/00, by the amount of fuel collected and recorded in Sections A.III.4 (for natural gas) and A.III.4 (for diesel fuel) by the specific heat content of the each fuel employed. The heat content for the diesel fuel shall also be taken from the information collected and recorded in Section A.III.8.

## V. Testing Requirements (continued)

**1.e** Emission Limitations: The following NO<sub>x</sub> emission limitations shall not be exceeded:

- i. 15 ppm of NO<sub>x</sub> emissions, by volume, at 15% oxygen on a dry basis when firing natural gas, as a 1-hour average;
- ii. 42 ppm of NO<sub>x</sub> emissions, by volume, at 15% oxygen on a dry basis when firing diesel fuel, as a 1-hour average; and
- iii. When burning natural gas, the NO<sub>x</sub> emission rate shall not exceed 12 ppm, by volume, at 15% oxygen on a dry basis, based on a rolling, 12-month summation of the monthly NO<sub>x</sub> emissions in ppm.

Applicable Compliance Method: Compliance with the NO<sub>x</sub> emission limitations shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Section A.III.9.

If required, the permittee shall demonstrate compliance with the ppm NO<sub>x</sub> emission limitations through emission tests performed in accordance with Methods 1-4 and 7 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Section 60.334(c)(1).

**1.f** PE/PM<sub>10</sub> Emission Limitation: 0.008 lb of PE/PM<sub>10</sub> emissions/mmBtu

Applicable Compliance Method: Compliance with the PE/PM<sub>10</sub> emission limitation may be determined by the manufacturer's guaranteed emissions data found in PTI 14-4682 submitted April 26, 1999.

If required, the permittee shall demonstrate compliance with the PE/PM<sub>10</sub> emission limitation through emission tests performed in accordance with Methods 1-5 of 40 CFR Part 60, Appendix A.

**1.g** Visible PE Limitation: Visible PE from any stack shall not exceed 20% opacity, as a 6-minute average, except as specified by rule, when burning diesel fuel.

Applicable Compliance Method: If required, compliance with the visible PE limitation shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Test Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

**1.h** Visible PE Limitation: Visible PE from any stack shall not exceed 10% opacity, as a 6-minute average, when burning pipeline natural gas.

Applicable Compliance Method: If required, compliance with the visible PE limitation shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Test Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

**1.i** SO<sub>2</sub> Emission Limitation: 0.0456 lb of SO<sub>2</sub> emissions/mmBtu when burning diesel fuel;

Applicable Compliance Method: Compliance with the SO<sub>2</sub> emission limitation shall be determined by the sulfur analysis of the fuels combusted pursuant to the requirements specified in Sections A.III.7 and A.III.8, and by documenting that the sulfur content of each shipment of oil received during a calendar month meets the 0.05% sulfur content restriction.

If required, the permittee shall demonstrate compliance with the SO<sub>2</sub> emission limitation through emission tests performed in accordance with Methods 1-4 and 6 of 40 CFR Part 60, Appendix A.

**1.j** Sulfur Content Restriction: not to exceed 0.05% sulfur, by weight, when burning natural gas or diesel fuel

Applicable Compliance Method: Compliance with the sulfur content restriction shall be determined using standard methods as required in 40 CFR Section 60.335 and the information collected and recorded in Sections A.III.7 and A.III.8.

**V. Testing Requirements (continued)**

- 1.k** Natural Gas and Diesel Fuel Usage Restrictions: The total maximum annual natural gas usage rate for emissions units P001-P008 combined shall not exceed 20.3 billion cubic feet per year, based upon a rolling, 12-month summation of the natural gas usage rate. The total maximum annual diesel fuel usage rate for emissions units P001-P008 combined shall not exceed 34 million gallons per year, based upon a rolling, 12-month summation of the diesel fuel usage rate.

Applicable Compliance Method: Compliance with the natural gas and diesel fuel usage restrictions shall be determined by the record keeping requirements specified in Section A.III.4.

**VI. Miscellaneous Requirements**

**None**

**B. State Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
80 Megawatt (nominal) natural gas/No. 2 fuel oil fired simple-cycle combustion turbine	OAC rules 3745-31-11 thru OAC rule 3745-31-20	These rules are equivalent to 40 CFR Part 52.21. At the time of permit, issuance these regulations have been promulgated in the OAC. However, they have not yet been added to the Ohio SIP.
	OAC rule 3745-31-28	This rule is equivalent to 40 CFR 63.41-40 CFR Part 63.44. At the time of permit, issuance these regulations have been promulgated in the OAC. However, they have not yet been added to the Ohio SIP.

**2. Additional Terms and Conditions**

None

**II. Operational Restrictions**

None

**III. Monitoring and/or Record Keeping Requirements**

None

**IV. Reporting Requirements**

None

**V. Testing Requirements**

None

**VI. Miscellaneous Requirements**

None

### Part III - Terms and Conditions for Emissions Units

**Emissions Unit ID:** #3 Turbine (P003)

**Activity Description:** 80 Megawatt (Nominal) Simple-Cycle Combustion Turbine #3

#### A. State and Federally Enforceable Section

##### I. Applicable Emissions Limitations and/or Control Requirements

- The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
80 megawatt (nominal) natural gas/diesel fuel fired simple-cycle combustion turbine	OAC rule 3745-31-05(D) (PTI 14-4682)	<p>This emissions unit shall not exceed the following emission limitations at all load conditions, including startup and shutdown:</p> <p>54.0 lbs of carbon monoxide (CO) emissions/hour</p> <p>58.0 lbs of sulfur dioxide (SO<sub>2</sub>) emissions/hour*</p> <p>6.0 lbs of hydrogen sulfate (H<sub>2</sub>SO<sub>4</sub>) mist emissions/hour*</p> <p>10.0 lbs of volatile organic compound (VOC) emissions/hour*</p> <p>0.008 lb of particulate emissions (PE)/particulate matter with a diameter of 10 microns or less (PM<sub>10</sub> emissions)/mmBtu*</p>

\* The hourly emission limitations and the lb of PE/PM<sub>10</sub> emissions/mmBtu limitation specified above represent this emissions unit's potential to emit for all operating conditions, including startup and shutdown. Therefore, no additional monitoring, record keeping or reporting requirements are required to demonstrate compliance with these emission limitations.

**Operations, Property,  
and/or Equipment**

**Applicable Rules/  
Requirements**

**Applicable Emissions  
Limitations/Control  
Measures**

The total emissions from emissions units P001 through P008 combined shall not exceed the emission limitations specified below. The annual emission limitations include emissions from operating at "startup and shutdown", "normal", and "full load" conditions combined and for all fuel types (i.e., natural gas and diesel fuel).

60.5 tons of PE/PM10 emissions per rolling, 12-month period

120.8 tons of SO2 emissions per rolling, 12-month period

733.3 tons of NOx emissions per rolling, 12-month period

541.0 tons of CO emissions per rolling, 12-month period

12.2 tons of H2SO4 mist emissions per rolling, 12-month period

36.4 tons of VOC emissions per rolling, 12-month period

7.7 tons of benzene emissions per rolling, 12-month period

0.00084 ton of beryllium emissions per rolling, 12-month period

0.012 ton of arsenic emissions per rolling, 12-month period

Emissions from startup and shutdown operations shall not exceed the following emission limitations:

Natural Gas

NOx: 83 lbs/cycle  
CO: 308 lbs/cycle

Diesel Fuel

NOx: 130 lbs/cycle  
CO: 354 lbs/cycle

Facility Name: **Duke Energy Madison, LLC**  
Facility ID: **14-09-00-0896**  
Emissions Unit: **#3 Turbine (P003)**

**Operations, Property,  
and/or Equipment**

**Applicable Rules/  
Requirements**

**Applicable Emissions  
Limitations/Control  
Measures**

		196.0 lbs of nitrogen oxides (NOx) emissions/hour
		15 ppm of NOx by volume at 15% oxygen on a dry basis when burning natural gas (as a 1-hour average, excluding startup and shutdown conditions)
		42 ppm of NOx by volume at 15% oxygen on a dry basis when burning diesel fuel (as a 1-hour average, excluding startup and shutdown conditions)
		12 ppm of NOx by volume at 15% oxygen on a dry basis, when burning natural gas, based on a rolling, 12-month summation of the monthly NOx emissions in ppm (excluding startup and shutdown conditions)
		0.05% sulfur content, by weight, for diesel fuel and natural gas
		0.0456 lbs of SO2 emissions/mmBtu, for diesel fuel
40 CFR Part 60, Subpart GG		The emission limitations established in 40 CFR Part 60, Subpart GG for SO2 and NOx are less stringent than those established pursuant to OAC rule 3745-31-05(D).
Best Available Control Technology is equivalent to Section 112g of the Clean Air Act		For the purposes of this permit and for the hazardous air pollutants (HAPs) emitted from this emissions unit, the best available control technology determination to satisfy the requirements of 40 CFR Part 52.21 is equivalent to the maximum achievable control technology determination used to satisfy the requirements of 40 CFR Parts 63.41 thru 63.44.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
	OAC rule 3745-31-05(A)(3) (PTI 14-04682)	Emissions from this emissions unit shall not exceed the following emission limitations:  0.15 TPY of lead emissions 0.0023 TPY of mercury emissions  See Section A.I.2.b below.  Compliance with this rule also include compliance with the requirements of OAC rules 3745-31-05(D) and 3745-17-07(A) when burning diesel fuel.
	OAC rule 3745-17-11(B)(4)	The PE limitation specified by this rule is less stringent the PE limitation established pursuant to OAC rule 3745-31-05(D).
	OAC rule 3745-17-07(A)(1)	See Section A.I.2.a below.
	OAC rule 3745-18-06(F)	The SO2 emission limitation specified by this rule (0.5 lb of SO2 emissions/mmBtu) is less stringent than the SO2 emission limitation established pursuant to OAC rule 3745-31-05(D).

**2. Additional Terms and Conditions**

- 2.a** Visible PE from any stack shall not exceed 20% opacity, as a 6-minute average, except as specified by rule when combusting diesel fuel.
- 2.b** Visible PE from any stack shall not exceed 10% opacity, as a 6-minute average when combusting natural gas.
- 2.c** The permittee shall install and maintain dry low NOx burners when burning natural gas and install and maintain a water injection system when burning diesel fuel.
- 2.d** The permittee is subject to the requirements of 40 CFR Parts 72 and 75 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.
- 2.e** "Full load" shall be defined as the nameplate electrical output of 84.65 megawatts. Any load that is greater than or equal to 90% of the nameplate electrical output shall be considered full load.
- 2.f** "Normal operation" shall be defined as the period when the combustion turbine achieves dry low NOx mode (GE Mode 6). GE Mode 6 is defined by the manufacturer as the low emissions mode during which all burner nozzles are in use, burning a lean pre-mixed gas for steady-state operation. The continuous emissions monitoring system will indicate and record the GE Mode 6 status of the combustion turbine, including when the emissions unit is shutdown and when operating in startup and shutdown modes.

## **2. Additional Terms and Conditions (continued)**

- 2.g** "Startup" shall be defined as the period between when the combustion turbine is initially started (initial fuel light-off) until the combustion turbine completes transition to GE Mode 6. "Shutdown" shall be defined as the period beginning when the combustion turbine leaves the GE Mode 6 and ending when combustion has ceased.
- 2.h** Compliance with the startup and shutdown NO<sub>x</sub> and CO lbs/cycle values and NO<sub>x</sub> and CO emission limitations during steady-state operations shall be demonstrated by the use of dual range NO<sub>x</sub> and CO Continuous Emission Monitors (CEMs). For CEM systems with dual ranges, certification testing shall be performed on the range normally used for measuring emissions.
- 2.i** For the purpose of this permit, the term "diesel fuel" shall be considered to be any distillate fuel oil that is employed as a fuel in this emissions unit as defined in 40 CFR Part 72.2.

## **II. Operational Restrictions**

- 1.** The maximum annual natural gas usage rate for emissions units P001-P008 shall not exceed 20.3 billion (2.03 x 10<sup>10</sup>) cubic feet per rolling, 12-month period.
- 2.** The maximum annual diesel fuel usage rate for emissions units P001-P008 shall not exceed 34 million (3.40 x 10<sup>7</sup>) gallons per rolling, 12-month period.
- 3.** The permittee shall burn only natural gas, of pipeline quality, or diesel fuel in this emissions unit.
- 4.** The quality of diesel fuel burned in this emissions unit shall have a combination of heat and sulfur content which is sufficient to comply with the allowable SO<sub>2</sub> emission limitation of 0.0456 lb of SO<sub>2</sub>/MMBtu of actual heat input. The diesel fuel shall have a sulfur content of 0.05% or less.
- 5.** When the emissions unit is operating in startup or shutdown conditions, as defined in Section A.I.2.g above, each startup or shutdown cycle shall not exceed 1.0 hours in duration.
- 6.** With the exception of startup and shutdown, this emissions unit shall be operated in GE Mode 6, defined as normal operation (ref. Section A.I.2.f above).

## **III. Monitoring and/or Record Keeping Requirements**

- 1.** For each day during which the permittee burns a fuel other than natural gas and/or diesel fuel, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
- 2.** The permittee shall install, operate, and maintain equipment to continuously monitor and record the actual fuel flow to this emissions unit when it 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.
- 3.** The permittee shall maintain records that document the following:
  - a.** the emissions unit's actual electrical output for each operating hour;
  - b.** all periods of time when the emissions unit was operating in startup and shutdown conditions.

### III. Monitoring and/or Record Keeping Requirements (continued)

4. The permittee shall maintain monthly records of the following information in order to monitor compliance with the applicable fuel usage restrictions:
  - a. the total amount of natural gas burned, in cubic feet, for this emissions unit;
  - b. the total amount of diesel fuel burned, in gallons, for this emissions unit;
  - c. the total amount of natural gas burned, in cubic feet, for emission units P001-P008, combined;
  - d. the total amount of diesel fuel burned, in gallons, for emissions units P001-P008, combined;
  - e. the rolling, 12-month summation for the total amount of natural gas burned, in cubic feet, for emissions units P001-P008, combined (the amount of natural gas burned for the current month plus the total amount of natural gas burned for the previous eleven calendar months); and
  - f. the rolling, 12-month summation for the total amount of diesel fuel burned in emissions units P001-P008, combined (the amount of diesel fuel burned for the current month plus the total amount of diesel fuel burned for the previous eleven calendar months).
5. The permittee shall maintain monthly records of the following information for emissions units P001-P008 in order to monitor compliance with the startup and shutdown emission limitations and operational restrictions:
  - a. the date and duration, in minutes, of each startup/shutdown cycle
  - b. the emissions, in pounds, for NO<sub>x</sub> and CO when burning natural gas at startup and shutdown operation modes; and
  - c. the emissions, in pounds, for NO<sub>x</sub> and CO when burning diesel fuel at startup and shutdown operation modes.

The permittee shall use the continuous NO<sub>x</sub> and CO emissions monitoring data to determine the NO<sub>x</sub> and CO emissions for these emissions units. During any period when the NO<sub>x</sub> and/or the CO emissions monitoring systems are not operational, the permittee shall use the appropriate missing data procedures specified in 40 CFR Part 75 to determine NO<sub>x</sub> and CO emissions or an approved data substitution protocol.

### III. Monitoring and/or Record Keeping Requirements (continued)

6. The permittee shall maintain monthly records of the following information for emission units P001- P008 in order to monitor compliance with the rolling, 12- month summation, emissions limitations:
- the total emissions, in tons, for NO<sub>x</sub>\*, CO\*, PE/PM<sub>10</sub>, SO<sub>2</sub>, VOC, H<sub>2</sub>SO<sub>4</sub>, and benzene when burning natural gas for all operational loads;
  - the total emissions, in tons, for NO<sub>x</sub>\*, CO\*, PE/PM<sub>10</sub>, SO<sub>2</sub>, VOC, H<sub>2</sub>SO<sub>4</sub>, and benzene when burning diesel fuel for all operational modes;
  - the rolling, 12-month summation emissions total, in tons, for NO<sub>x</sub>, CO, PE/PM<sub>10</sub>, SO<sub>2</sub>, VOC, H<sub>2</sub>SO<sub>4</sub>, and benzene for emission units P001-P008, combined when burning natural gas and diesel fuel (the total amount of emissions calculated in a + b) for the current month plus the total amount of emissions for the previous eleven calendar months).
  - the updated rolling, 12-month average of NO<sub>x</sub> emissions, in ppm, when burning natural gas at normal operations for this emissions unit (the NO<sub>x</sub> ppm average for the current month (from the CEMs data) plus the total NO<sub>x</sub> ppm average for the previous eleven calendar months).

\* The permittee shall use the continuous NO<sub>x</sub> and CO emissions monitoring data to determine the NO<sub>x</sub> and CO emissions for these emissions units. During any period when the NO<sub>x</sub> and/or the CO emissions monitoring systems are not operational, the permittee shall use the appropriate missing data procedures specified in 40 CFR Part 75 to determine NO<sub>x</sub> and CO emissions or an approved data substitution protocol.

7. The permittee shall monitor the sulfur content of the fuel being fired in the turbine. The frequency of the monitoring shall be determined as follows:
- If the turbine is supplied its fuel from a bulk storage tank, the values shall be determined on each occasion that fuel is transferred to the storage tank from any other source.
  - If the turbine is supplied its fuel without intermediate bulk storage, the values shall be determined and recorded daily. Owners, operators or fuel vendors may develop custom fuel schedules for the determination of the values based on the design and operation of the affected facility and the characteristics of the fuel supply. These custom schedules shall be substantiated with data and must be approved by the Ohio EPA, Central Office before they can be used.
  - For each shipment of diesel fuel oil received for burning in this emissions unit, the permittee shall maintain records of the total quantity of diesel fuel oil received and the permittee's or diesel fuel oil supplier's analyses for sulfur content and heat content.(See Section A.III.8 below)

Analyses for the purpose of determining the sulfur content of the natural gas may be performed by the permittee, the fuel vendor, or any other qualified agency in accordance with the analytical methods specified in 40 CFR Part 60, Subpart GG, Section 60.335(d), 40 CFR Part 75, or the appropriate ASTM methods, or equivalent methods as approved by the Director.

8. For each shipment of diesel fuel received for burning in this emissions unit, the permittee shall maintain records of the total quantity of diesel fuel oil received, the permittee's or diesel fuel oil supplier's analyses for sulfur content and heat content, and the calculated sulfur dioxide emission rate (in lbs/MMBtu). [The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F)]. A shipment may be comprised of multiple tank truck loads from the same supplier's batch, or may be represented by single or multiple pipeline deliveries from the same supplier's batch, and the quality of the diesel fuel oil for those loads or pipeline deliveries may be represented by a single batch analysis from the supplier.

The permittee shall perform or require the supplier to perform the analyses for sulfur content and heat content in accordance with 40 CFR Part 60, Appendix A, Method 19, or the appropriate ASTM methods (such as, ASTM methods D240, D4294,),or equivalent methods as approved by the Director.

### III. Monitoring and/or Record Keeping Requirements (continued)

The permittee shall maintain records of the oil burned in this emissions unit in accordance with either Alternative 1 or Alternative 2 described below:

a. Alternative 1:

For each shipment of oil received for burning in this emissions unit, the permittee shall collect or require the oil supplier to collect a representative grab sample of oil and maintain records of the total quantity of oil received, the permittee's or oil supplier's analyses for sulfur content and heat content, and the calculated sulfur dioxide emission rate (in lbs/MMBtu). (The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F).) A shipment may be comprised of multiple tank truck loads from the same supplier's batch, and the quality of the oil for those loads may be represented by a single batch analysis from the supplier.

b. Alternative 2:

The permittee shall collect a representative grab sample of oil that is burned in this emissions unit for each day when the emission unit is in operation. If additional fuel oil is added to the tank serving this emissions unit on a day when the emissions unit is in operation, the permittee shall collect a sufficient number of grab samples to develop a composite sample representative of the fuel oil burned in this emissions unit. A representative grab sample of oil does not need to be collected on days when this emissions unit is only operated for the purpose of "test-firing". The permittee shall maintain records of the total quantity of oil burned each day; except for the purpose of test-firing, the permittee's analyses for sulfur content and heat content, and the calculated sulfur dioxide emission rate (in lbs/MMBtu). [The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F)]

#### 9. Continuous NOx Monitoring

a. In lieu of complying with the monitoring and testing provisions of 40 CFR 60.334 and 60.345 to demonstrate compliance with the NOx emission limitations, the permittee shall operate and maintain systems to continuously monitor and record emissions of NOx from this emissions unit in accordance with this permit.

b. The permittee shall install, operate and maintain equipment to continuously monitor and record NOx from this emissions unit in units of the applicable standard. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13 and/or 40 CFR Part 75.

c. The permittee shall maintain records of the following data obtained by the continuous NOx monitoring system: parts per million (ppm) NOx at 15% oxygen (hourly average), lbs of NOx/hour, results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

d. A statement of certification of the existing continuous NOx monitoring system shall be maintained on site and shall consist of a letter from Ohio EPA detailing the results of an Agency review of the certification tests and a statement by the Agency that the system is considered certified in accordance with the requirements of 40 CFR Part 60, Appendix B, Performance Specification 2 and/or 40 CFR Part 75, Appendix D and Appendix F. Proof of certification shall be made available to the Hamilton County Department of Environmental Services - Air Quality Control Division upon request.

e. Prior to the installation of the continuous NOx monitoring system, 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 and 40 CFR Part 75, Appendix A, for approval by the Ohio EPA, Central Office.

### **III. Monitoring and/or Record Keeping Requirements (continued)**

f. Certification in pounds NO<sub>x</sub> per hour: Within 60 days of the startup of this emissions unit, but not later than 180 days after the initial startup of this emissions unit, the permittee shall conduct certification tests of such equipment pursuant to ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 2, and/or 40 CFR Part 75. When NO<sub>x</sub> mass emissions are being determined as allowed in 40 CFR Part 75, Appendix D and Appendix F, certification testing to show compliance with 40 CFR Part 60, Appendix B, Performance Specification 6 shall not be necessary. However, a stack test shall be conducted to demonstrate 40 CFR Part 75, Appendix F, NO<sub>x</sub> mass determinations.

Personnel from the Hamilton County Department of Environmental Services - Air Quality Control Division 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, all copies of the test results shall be submitted to the Hamilton County Department of Environmental Services - Air Quality Control Division within 30 days after the test is completed. Certification of the continuous NO<sub>x</sub> monitoring system shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 2 and/or 40 CFR Part 75.

g. Within 180 days of the effective date of this permit, the permittee shall develop and maintain a written quality assurance/quality control plan for the continuous NO<sub>x</sub> monitoring system designed to ensure continuous valid and representative readings of NO<sub>x</sub> emissions in units of the applicable standard. The plan shall follow the requirements of 40 CFR Part 60, Appendix F and/or 40 CFR Part 75, Appendix B. The quality assurance/quality control plan and a logbook dedicated to the CEM systems must be kept on site and available for inspection during regular office hours. These documents may be kept in electronic and/or hardcopy format.

#### **10. Continuous CO Monitoring**

a. The permittee shall install, operate and maintain equipment to continuously monitor and record CO from this emissions unit in lbs CO/hour and in the units of any other applicable standard. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13.

b. The permittee shall maintain records of all data obtained by the continuous CO monitoring system including, but not limited to, ppm CO at a minimum of 4 data points per hour sufficient to generate an hourly average, emissions of CO in units of the applicable standard in the appropriate averaging period (hourly), results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

c. A statement of certification of the existing continuous CO monitoring system shall be maintained on site and shall consist of a letter from Ohio EPA detailing the results of an Agency review of the certification tests and a statement by the Agency that the system is considered certified in accordance with the requirements of 40 CFR Part 60, Appendix B, Performance Specification 4. Proof of certification shall be made available to the Hamilton County Department of Environmental Services - Air Quality Control Division upon request.

d. Prior to installation of the continuous CO monitoring system, 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 4 for approval by the Ohio EPA, Central Office.

### III. Monitoring and/or Record Keeping Requirements (continued)

e. Certification in pounds CO per hour: Within 60 days of the effective date of this permit, but not later than 180 days after the initial startup of this emissions unit, the permittee shall conduct certification tests of the continuous CO monitoring system pursuant to ORC section 3704.03(I), 40 CFR Part 60, Appendix B, Performance Specification 4. CO mass emissions may be determined in the same manner as NO<sub>x</sub> emissions in term A.III.10. of this permit using the appropriate CO values in place of the cited NO<sub>x</sub> values. When CO mass emissions are being determined in this manner, certification testing to show compliance with 40 CFR 60, Appendix B, Performance Specification 6 will not be necessary. However, a stack test shall be conducted for CO mass determinations with an accuracy that is equivalent to that required in 40 CFR Part 75, Appendix D.

Personnel from the Hamilton County Department of Environmental Services - Air Quality Control Division 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, all copies of the test results shall be submitted to the Hamilton County Department of Environmental Services - Air Quality Control Division within 30 days after the test is completed. Certification of the continuous CO monitoring system shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 4.

f. Within 180 days of the effective date of this permit, the permittee shall develop and maintain a written quality assurance/quality control plan for the continuous CO monitoring system designed to ensure continuous valid and representative readings of CO. The plan shall follow the requirements of 40 CFR Part 60, Appendix F. The quality assurance/quality control plan and a logbook dedicated to the CEM systems must be kept on site and available for inspection during regular office hours. These documents may be kept in electronic and/or hardcopy format.

#### 11. Continuous O<sub>2</sub> Monitoring

a. The permittee shall operate and maintain equipment to continuously monitor and record O<sub>2</sub> from this emissions unit, in percent O<sub>2</sub>. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13 and/or 40 CFR Part 75.

b. The permittee shall maintain records of all data obtained by the continuous O<sub>2</sub> monitoring system including, but not limited to, percent O<sub>2</sub> at a minimum of 4 data points per hour sufficient to generate an hourly average, results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

c. Prior to the installation of the continuous O<sub>2</sub> monitoring system, 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 3 and 40 CFR Part 75 for approval by the Ohio EPA, Central Office.

d. Within 60 days of the startup of this emissions unit, but not later than 180 days after the initial startup of this emissions unit, the permittee shall conduct certification tests of the continuous O<sub>2</sub> monitoring system pursuant to ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 3, and/or 40 CFR Part 75. Personnel from the Hamilton County Department of Environmental Services - Air Quality Control Division 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, all copies of the test results shall be submitted to the Hamilton County Department of Environmental Services - Air Quality Control Division within 30 days after the test is completed. Certification of the continuous O<sub>2</sub> monitoring system shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 3 and/or 40 CFR Part 75.

e. Within 180 days of the effective date of this permit, the permittee shall develop and maintain a written quality assurance/quality control plan for the continuous O<sub>2</sub> monitoring system designed to ensure continuous valid and representative readings of O<sub>2</sub> emissions in units of the applicable standard. The plan shall follow the requirements of 40 CFR Part 60, Appendix F and/or 40 CFR Part 75, Appendix B. The quality assurance/quality control plan and a logbook dedicated to the CEM systems must be kept on site and available for inspection during regular office hours. These documents may be kept in electronic and/or hardcopy format.

#### IV. Reporting Requirements

1. The permittee shall submit quarterly reports that identify each period during which an exemption for ice-fog provided in 40 CFR 60.332(f) is in effect. The report shall include the ambient conditions existing during the period, the date and time the air pollution control system was deactivated, and the date and time when the air pollution control system was reactivated.
2. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:
  - a. An identification of all exceedances of the rolling, 12-month natural gas usage rate for emissions units P001-P008;
  - b. An identification of all exceedances of the rolling, 12-month emission limitations for PE/PM10, SO<sub>2</sub>, NO<sub>x</sub>, CO, H<sub>2</sub>SO<sub>4</sub> mist, VOC and benzene;
  - c. An identification of all exceedances of the sulfur content (i.e. 0.05%, by weight) of the fuels (natural gas and diesel fuel) received for burning in this emissions unit;
  - d. An identification of all exceedances of the SO<sub>2</sub> lbs/mmBtu limitation of the diesel fuel received for burning in this emissions unit;
  - e. An identification of all exceedances of the 1.0 hour startup/shutdown cycle operational restriction;
  - f. An identification of all exceedances of the rolling, 12-month diesel fuel usage rate for emissions units P001-P008;
  - g. An identification of all exceedances of the startup and shut down emission limitations in term A. I.1 when burning natural gas; and
  - h. An identification of all exceedances of the startup and shut down emission limitations in term A. I.1 when burning diesel fuel.
  - i. An identification of each day when a fuel other than natural gas or diesel fuel was burned in this emissions unit.
3. All quarterly deviation reports shall be submitted in accordance with the reporting requirements specified in Part I - General Terms and Conditions A.1.c.ii unless otherwise specified.
4. Pursuant to OAC rules 3745-15-04, 3745-35-02, and ORC sections 3704.03(l) and 3704.031 and 40 CFR Parts 60.7 and 60.13(h), the permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting the date, commencement and completion times, duration, magnitude, reason (if known), and corrective actions taken (if any), of all instances of NO<sub>x</sub> values in excess of the applicable limits specified in 40 CFR Part 76 or any limitations specified in the terms and conditions of this permit. These reports shall also contain the total NO<sub>x</sub> emissions for the calendar quarter (in tons), including all data collected during startup and shutdown periods or generated pursuant to the missing data procedures specified in 40 CFR Part 75.

The permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting any continuous NO<sub>x</sub> monitoring system downtime while the emissions unit was on line (date, time, duration and reason) along with any corrective action(s) taken. The permittee shall provide the emissions unit operating time during the reporting period and the date, time, reason and corrective action(s) taken for each time period of emissions unit and control equipment malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report.

#### **IV. Reporting Requirements (continued)**

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 emissions unit, control equipment, and/or monitoring system malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line also shall be included in the quarterly report. These quarterly excess emission reports shall be submitted by January 31, April 30, July 31, and October 31 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 appropriate Ohio EPA District Office or local air agency within 30 days following the end of each calendar quarter in a manner prescribed by the Director.

5. Pursuant to OAC rules 3745-15-04, 3745-35-02, and ORC sections 3704.03(I) and 3704.031 and 40 CFR Parts 60.7 and 60.13(h), the permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting the date, commencement and completion times, duration, magnitude, reason (if known), and corrective actions taken (if any) of all instances of CO values in excess of any applicable limitation(s) specified in OAC Chapter 3745-21, 40 CFR Part 60, or any limitation(s) specified in the terms and conditions of this permit, in units of the standard. These reports shall also contain the total CO emissions for the calendar quarter (in tons), including all data collected during startup and shutdown periods or generated pursuant to the missing data procedures for fuel flow measurement as specified in 40 CFR Part 75.

The permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting any continuous CO monitoring system downtime while the emissions unit was on line (date, time, duration and reason) along with any corrective action(s) taken. The permittee shall provide the emissions unit operating time during the reporting period and the date, time, reason and corrective action(s) taken for each time period of emissions unit and control equipment malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report.

If there are no excess emissions during the calendar quarter, the permittee shall submit a statement to that effect along with the emissions unit operating time during the reporting period and the date, time, reason, and corrective action(s) taken for each time period of emissions unit, control equipment, and/or monitoring system malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report. These quarterly excess emission reports shall be submitted by January 31, April 30, July 31, and October 31 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 appropriate local air agency within 30 days following the end of each calendar quarter in a manner prescribed by the Director.

6. The permittee shall submit annual reports that specify the total NO<sub>x</sub>, CO, PE/PM<sub>10</sub>, VOC, SO<sub>2</sub>, benzene and H<sub>2</sub>SO<sub>4</sub> emissions from this emissions unit for the calendar year. These reports shall be submitted by January 31 of each year and cover the previous calendar year.

#### **V. Testing Requirements**

1. Compliance with the emission limitations, fuel usage restrictions and sulfur content limitations specified in Sections A.I and A.II shall be determined by the following methods:

## V. Testing Requirements (continued)

- 1.a** Emission Limitations: The emissions from startup and shutdown operations shall not exceed the following emission limitations for this emissions unit:

Natural Gas  
NOx: 83 lbs/cycle  
CO: 308 lbs/cycle

Diesel Fuel  
NOx: 130 lbs/cycle  
CO: 354 lbs/cycle

Applicable Compliance Method: The lbs/cycle emissions limitations were established based on emissions data contained in the PTI modification application (PTI 14-04682) submitted March, 2001 and the emission factors from the background document, Reference 16, for Stationary Gas Turbines in AP-42, Fifth Edition, Section 3.1, dated April 2000.

Compliance with the NOx emission limitations shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Sections A.III.5 and A.III.9.

- 1.b** Emission Limitations: The hourly emissions from this emissions unit shall not exceed the following amounts:

- i. 58.0 lbs of SO<sub>2</sub> emissions/hour;
- ii. 54.0 lbs of CO emissions/hour;
- iii. 196.0 lbs of NO<sub>x</sub> emissions/hour;
- iv. 6.0 lbs of H<sub>2</sub>SO<sub>4</sub> mist emissions/hour; and
- v. 10.0 lbs of VOC emissions/hour.

Applicable Compliance Method: The hourly emission limitations are based upon the emission unit's potential to emit and the emission factors from the background document for Stationary Gas Turbines in AP-42, Fifth Edition, Section 3.1, dated April 2000.

Compliance with the NOx emission limitation shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Section A.III.9.

Compliance with the CO emission limitation shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Section A.III.10.

If required, the permittee shall demonstrate compliance with the hourly NO<sub>x</sub> emission limitation through emission test performed in accordance with Methods 1-4 and 7 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Section 60.334(c)(1).

If required, the permittee shall demonstrate compliance with the hourly SO<sub>2</sub> emission limitation through emission tests performed in accordance with Methods 1-4 and 6 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

If required, the permittee shall demonstrate compliance with the hourly CO emission limitation through emission tests performed in accordance with Methods 1-4 and 10 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

## V. Testing Requirements (continued)

If required, the permittee shall demonstrate compliance with the hourly H<sub>2</sub>SO<sub>4</sub> mist emission limitation through emission tests performed in accordance with Methods 1-4 and 8 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

If required, the permittee shall demonstrate compliance with the hourly VOC emission limitation through emission tests performed in accordance with Methods 1-4 and 25 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

**1.c** Emission Limitations: The total emissions from emission units P001-P008 combined shall not exceed the following emission limitations:

- i. 60.5 tons of PE/PM<sub>10</sub> emissions per rolling, 12-month period;
- ii. 120.8 tons of SO<sub>2</sub> emissions per rolling, 12-month period;
- iii. 733.3 tons of NO<sub>x</sub> emissions per rolling, 12-month period;
- iv. 541.0 tons of CO emissions per rolling, 12-month period;
- v. 36.4 tons of VOC emissions per rolling, 12-month period;
- vi. 12.2 tons of H<sub>2</sub>SO<sub>4</sub> mist emissions per rolling, 12-month period;
- vii. 7.7 tons of benzene emissions per rolling, 12-month period;
- viii. 0.00084 ton of beryllium emissions per rolling, 12-month period; and
- ix. 0.012 ton of arsenic emissions per rolling, 12-month period.

Applicable Compliance Method: Compliance with the annual PE/PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC, H<sub>2</sub>SO<sub>4</sub> and benzene emission limitations specified above shall be determined by the record keeping requirements specified in Section A.III.6 .

Compliance with the annual beryllium and arsenic emission limitations specified above may be determined by multiplying the pollutant specific emission factor found in AP-42, Fifth Edition, Section 3.1 "Stationary Gas Turbines," updated 4/00, by the amount of fuel collected and recorded in Sections A.III.4 (for natural gas) and A.III.4 (for diesel fuel) by the specific heat content of the each fuel employed.

The specific heat content for diesel fuel oil shall be taken from the information collected and recorded in A.III.8.

**1.d** Emission Limitations:

- i. 0.15 TPY of lead emissions; and
- ii. 0.0023 TPY of mercury emissions.

Applicable Compliance Method: Compliance with the TPY lead and mercury emission limitations specified above may be determined by multiplying the pollutant specific emission factor found in AP-42, Fifth Edition, Section 3.1 "Stationary Gas Turbines," updated 4/00, by the amount of fuel collected and recorded in Sections A.III.4 (for natural gas) and A.III.4 (for diesel fuel) by the specific heat content of the each fuel employed. The heat content for the diesel fuel shall also be taken from the information collected and recorded in Section A.III.8.

## V. Testing Requirements (continued)

**1.e** Emission Limitations: The following NO<sub>x</sub> emission limitations shall not be exceeded:

- i. 15 ppm of NO<sub>x</sub> emissions, by volume, at 15% oxygen on a dry basis when firing natural gas, as a 1-hour average;
- ii. 42 ppm of NO<sub>x</sub> emissions, by volume, at 15% oxygen on a dry basis when firing diesel fuel, as a 1-hour average; and
- iii. When burning natural gas, the NO<sub>x</sub> emission rate shall not exceed 12 ppm, by volume, at 15% oxygen on a dry basis, based on a rolling, 12-month summation of the monthly NO<sub>x</sub> emissions in ppm.

Applicable Compliance Method: Compliance with the NO<sub>x</sub> emission limitations shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Section A.III.9.

If required, the permittee shall demonstrate compliance with the ppm NO<sub>x</sub> emission limitations through emission tests performed in accordance with Methods 1-4 and 7 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Section 60.334(c)(1).

**1.f** PE/PM<sub>10</sub> Emission Limitation: 0.008 lb of PE/PM<sub>10</sub> emissions/mmBtu

Applicable Compliance Method: Compliance with the PE/PM<sub>10</sub> emission limitation may be determined by the manufacturer's guaranteed emissions data found in PTI 14-4682 submitted April 26, 1999.

If required, the permittee shall demonstrate compliance with the PE/PM<sub>10</sub> emission limitation through emission tests performed in accordance with Methods 1-5 of 40 CFR Part 60, Appendix A.

**1.g** Visible PE Limitation: Visible PE from any stack shall not exceed 20% opacity, as a 6-minute average, except as specified by rule, when burning diesel fuel.

Applicable Compliance Method: If required, compliance with the visible PE limitation shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Test Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

**1.h** Visible PE Limitation: Visible PE from any stack shall not exceed 10% opacity, as a 6-minute average, when burning pipeline natural gas.

Applicable Compliance Method: If required, compliance with the visible PE limitation shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Test Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

**1.i** SO<sub>2</sub> Emission Limitation: 0.0456 lb of SO<sub>2</sub> emissions/mmBtu when burning diesel fuel;

Applicable Compliance Method: Compliance with the SO<sub>2</sub> emission limitation shall be determined by the sulfur analysis of the fuels combusted pursuant to the requirements specified in Sections A.III.7 and A.III.8, and by documenting that the sulfur content of each shipment of oil received during a calendar month meets the 0.05% sulfur content restriction.

If required, the permittee shall demonstrate compliance with the SO<sub>2</sub> emission limitation through emission tests performed in accordance with Methods 1-4 and 6 of 40 CFR Part 60, Appendix A.

**1.j** Sulfur Content Restriction: not to exceed 0.05% sulfur, by weight, when burning natural gas or diesel fuel

Applicable Compliance Method: Compliance with the sulfur content restriction shall be determined using standard methods as required in 40 CFR Section 60.335 and the information collected and recorded in Sections A.III.7 and A.III.8.

**V. Testing Requirements (continued)**

- 1.k** Natural Gas and Diesel Fuel Usage Restrictions: The total maximum annual natural gas usage rate for emissions units P001-P008 combined shall not exceed 20.3 billion cubic feet per year, based upon a rolling, 12-month summation of the natural gas usage rate. The total maximum annual diesel fuel usage rate for emissions units P001-P008 combined shall not exceed 34 million gallons per year, based upon a rolling, 12-month summation of the diesel fuel usage rate.

Applicable Compliance Method: Compliance with the natural gas and diesel fuel usage restrictions shall be determined by the record keeping requirements specified in Section A.III.4.

**VI. Miscellaneous Requirements**

**None**

**B. State Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
80 Megawatt (nominal) natural gas/No. 2 fuel oil fired simple-cycle combustion turbine	OAC rules 3745-31-11 thru OAC rule 3745-31-20	These rules are equivalent to 40 CFR Part 52.21. At the time of permit, issuance these regulations have been promulgated in the OAC. However, they have not yet been added to the Ohio SIP.
	OAC rule 3745-31-28	This rule is equivalent to 40 CFR 63.41-40 CFR Part 63.44. At the time of permit, issuance these regulations have been promulgated in the OAC. However, they have not yet been added to the Ohio SIP.

**2. Additional Terms and Conditions**

None

**II. Operational Restrictions**

None

**III. Monitoring and/or Record Keeping Requirements**

None

**IV. Reporting Requirements**

None

**V. Testing Requirements**

None

**VI. Miscellaneous Requirements**

None

### Part III - Terms and Conditions for Emissions Units

**Emissions Unit ID:** #4 Turbine (P004)

**Activity Description:** 80 Megawatt (Nominal) Simple-Cycle Combustion Turbine #4

#### A. State and Federally Enforceable Section

##### I. Applicable Emissions Limitations and/or Control Requirements

- The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
80 megawatt (nominal) natural gas/diesel fuel fired simple-cycle combustion turbine	OAC rule 3745-31-05(D) (PTI 14-4682)	<p>This emissions unit shall not exceed the following emission limitations at all load conditions, including startup and shutdown:</p> <p>54.0 lbs of carbon monoxide (CO) emissions/hour</p> <p>58.0 lbs of sulfur dioxide (SO<sub>2</sub>) emissions/hour*</p> <p>6.0 lbs of hydrogen sulfate (H<sub>2</sub>SO<sub>4</sub>) mist emissions/hour*</p> <p>10.0 lbs of volatile organic compound (VOC) emissions/hour*</p> <p>0.008 lb of particulate emissions (PE)/particulate matter with a diameter of 10 microns or less (PM<sub>10</sub> emissions)/mmBtu*</p>

\* The hourly emission limitations and the lb of PE/PM<sub>10</sub> emissions/mmBtu limitation specified above represent this emissions unit's potential to emit for all operating conditions, including startup and shutdown. Therefore, no additional monitoring, record keeping or reporting requirements are required to demonstrate compliance with these emission limitations.

**Operations, Property,  
and/or Equipment**

**Applicable Rules/  
Requirements**

**Applicable Emissions  
Limitations/Control  
Measures**

The total emissions from emissions units P001 through P008 combined shall not exceed the emission limitations specified below. The annual emission limitations include emissions from operating at "startup and shutdown", "normal", and "full load" conditions combined and for all fuel types (i.e., natural gas and diesel fuel).

60.5 tons of PE/PM10 emissions per rolling, 12-month period

120.8 tons of SO2 emissions per rolling, 12-month period

733.3 tons of NOx emissions per rolling, 12-month period

541.0 tons of CO emissions per rolling, 12-month period

12.2 tons of H2SO4 mist emissions per rolling, 12-month period

36.4 tons of VOC emissions per rolling, 12-month period

7.7 tons of benzene emissions per rolling, 12-month period

0.00084 ton of beryllium emissions per rolling, 12-month period

0.012 ton of arsenic emissions per rolling, 12-month period

Emissions from startup and shutdown operations shall not exceed the following emission limitations:

Natural Gas

NOx: 83 lbs/cycle  
CO: 308 lbs/cycle

Diesel Fuel

NOx: 130 lbs/cycle  
CO: 354 lbs/cycle

Facility Name: **Duke Energy Madison, LLC**  
Facility ID: **14-09-00-0896**  
Emissions Unit: **#4 Turbine (P004)**

**Operations, Property,  
and/or Equipment**

**Applicable Rules/  
Requirements**

**Applicable Emissions  
Limitations/Control  
Measures**

		196.0 lbs of nitrogen oxides (NOx) emissions/hour
		15 ppm of NOx by volume at 15% oxygen on a dry basis when burning natural gas (as a 1-hour average, excluding startup and shutdown conditions)
		42 ppm of NOx by volume at 15% oxygen on a dry basis when burning diesel fuel (as a 1-hour average, excluding startup and shutdown conditions)
		12 ppm of NOx by volume at 15% oxygen on a dry basis, when burning natural gas, based on a rolling, 12-month summation of the monthly NOx emissions in ppm (excluding startup and shutdown conditions)
		0.05% sulfur content, by weight, for diesel fuel and natural gas
		0.0456 lbs of SO2 emissions/mmBtu, for diesel fuel
40 CFR Part 60, Subpart GG		The emission limitations established in 40 CFR Part 60, Subpart GG for SO2 and NOx are less stringent than those established pursuant to OAC rule 3745-31-05(D).
Best Available Control Technology is equivalent to Section 112g of the Clean Air Act		For the purposes of this permit and for the hazardous air pollutants (HAPs) emitted from this emissions unit, the best available control technology determination to satisfy the requirements of 40 CFR Part 52.21 is equivalent to the maximum achievable control technology determination used to satisfy the requirements of 40 CFR Parts 63.41 thru 63.44.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
	OAC rule 3745-31-05(A)(3) (PTI 14-04682)	Emissions from this emissions unit shall not exceed the following emission limitations:  0.15 TPY of lead emissions 0.0023 TPY of mercury emissions  See Section A.I.2.b below.
	OAC rule 3745-17-11(B)(4)	Compliance with this rule also include compliance with the requirements of OAC rules 3745-31-05(D) and 3745-17-07(A) when burning diesel fuel.  The PE limitation specified by this rule is less stringent the PE limitation established pursuant to OAC rule 3745-31-05(D).
	OAC rule 3745-17-07(A)(1)	See Section A.I.2.a below.
	OAC rule 3745-18-06(F)	The SO2 emission limitation specified by this rule (0.5 lb of SO2 emissions/mmBtu) is less stringent than the SO2 emission limitation established pursuant to OAC rule 3745-31-05(D).

**2. Additional Terms and Conditions**

- 2.a** Visible PE from any stack shall not exceed 20% opacity, as a 6-minute average, except as specified by rule when combusting diesel fuel.
- 2.b** Visible PE from any stack shall not exceed 10% opacity, as a 6-minute average when combusting natural gas.
- 2.c** The permittee shall install and maintain dry low NOx burners when burning natural gas and install and maintain a water injection system when burning diesel fuel.
- 2.d** The permittee is subject to the requirements of 40 CFR Parts 72 and 75 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.
- 2.e** "Full load" shall be defined as the nameplate electrical output of 84.65 megawatts. Any load that is greater than or equal to 90% of the nameplate electrical output shall be considered full load.
- 2.f** "Normal operation" shall be defined as the period when the combustion turbine achieves dry low NOx mode (GE Mode 6). GE Mode 6 is defined by the manufacturer as the low emissions mode during which all burner nozzles are in use, burning a lean pre-mixed gas for steady-state operation. The continuous emissions monitoring system will indicate and record the GE Mode 6 status of the combustion turbine, including when the emissions unit is shutdown and when operating in startup and shutdown modes.

## **2. Additional Terms and Conditions (continued)**

- 2.g** "Startup" shall be defined as the period between when the combustion turbine is initially started (initial fuel light-off) until the combustion turbine completes transition to GE Mode 6. "Shutdown" shall be defined as the period beginning when the combustion turbine leaves the GE Mode 6 and ending when combustion has ceased.
- 2.h** Compliance with the startup and shutdown NO<sub>x</sub> and CO lbs/cycle values and NO<sub>x</sub> and CO emission limitations during steady-state operations shall be demonstrated by the use of dual range NO<sub>x</sub> and CO Continuous Emission Monitors (CEMs). For CEM systems with dual ranges, certification testing shall be performed on the range normally used for measuring emissions.
- 2.i** For the purpose of this permit, the term "diesel fuel" shall be considered to be any distillate fuel oil that is employed as a fuel in this emissions unit as defined in 40 CFR Part 72.2.

## **II. Operational Restrictions**

- 1.** The maximum annual natural gas usage rate for emissions units P001-P008 shall not exceed 20.3 billion (2.03 x 10<sup>10</sup>) cubic feet per rolling, 12-month period.
- 2.** The maximum annual diesel fuel usage rate for emissions units P001-P008 shall not exceed 34 million (3.40 x 10<sup>7</sup>) gallons per rolling, 12-month period.
- 3.** The permittee shall burn only natural gas, of pipeline quality, or diesel fuel in this emissions unit.
- 4.** The quality of diesel fuel burned in this emissions unit shall have a combination of heat and sulfur content which is sufficient to comply with the allowable SO<sub>2</sub> emission limitation of 0.0456 lb of SO<sub>2</sub>/MMBtu of actual heat input. The diesel fuel shall have a sulfur content of 0.05% or less.
- 5.** When the emissions unit is operating in startup or shutdown conditions, as defined in Section A.I.2.g above, each startup or shutdown cycle shall not exceed 1.0 hours in duration.
- 6.** With the exception of startup and shutdown, this emissions unit shall be operated in GE Mode 6, defined as normal operation (ref. Section A.I.2.f above).

## **III. Monitoring and/or Record Keeping Requirements**

- 1.** For each day during which the permittee burns a fuel other than natural gas and/or diesel fuel, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
- 2.** The permittee shall install, operate, and maintain equipment to continuously monitor and record the actual fuel flow to this emissions unit when it 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.
- 3.** The permittee shall maintain records that document the following:
  - a.** the emissions unit's actual electrical output for each operating hour;
  - b.** all periods of time when the emissions unit was operating in startup and shutdown conditions.

### III. Monitoring and/or Record Keeping Requirements (continued)

4. The permittee shall maintain monthly records of the following information in order to monitor compliance with the applicable fuel usage restrictions:
  - a. the total amount of natural gas burned, in cubic feet, for this emissions unit;
  - b. the total amount of diesel fuel burned, in gallons, for this emissions unit;
  - c. the total amount of natural gas burned, in cubic feet, for emission units P001-P008, combined;
  - d. the total amount of diesel fuel burned, in gallons, for emissions units P001-P008, combined;
  - e. the rolling, 12-month summation for the total amount of natural gas burned, in cubic feet, for emissions units P001-P008, combined (the amount of natural gas burned for the current month plus the total amount of natural gas burned for the previous eleven calendar months); and
  - f. the rolling, 12-month summation for the total amount of diesel fuel burned in emissions units P001-P008, combined (the amount of diesel fuel burned for the current month plus the total amount of diesel fuel burned for the previous eleven calendar months).
5. The permittee shall maintain monthly records of the following information for emissions units P001-P008 in order to monitor compliance with the startup and shutdown emission limitations and operational restrictions:
  - a. the date and duration, in minutes, of each startup/shutdown cycle
  - b. the emissions, in pounds, for NO<sub>x</sub> and CO when burning natural gas at startup and shutdown operation modes; and
  - c. the emissions, in pounds, for NO<sub>x</sub> and CO when burning diesel fuel at startup and shutdown operation modes.

The permittee shall use the continuous NO<sub>x</sub> and CO emissions monitoring data to determine the NO<sub>x</sub> and CO emissions for these emissions units. During any period when the NO<sub>x</sub> and/or the CO emissions monitoring systems are not operational, the permittee shall use the appropriate missing data procedures specified in 40 CFR Part 75 to determine NO<sub>x</sub> and CO emissions or an approved data substitution protocol.

### III. Monitoring and/or Record Keeping Requirements (continued)

6. The permittee shall maintain monthly records of the following information for emission units P001- P008 in order to monitor compliance with the rolling, 12- month summation, emissions limitations:
- the total emissions, in tons, for NO<sub>x</sub>\*, CO\*, PE/PM<sub>10</sub>, SO<sub>2</sub>, VOC, H<sub>2</sub>SO<sub>4</sub>, and benzene when burning natural gas for all operational loads;
  - the total emissions, in tons, for NO<sub>x</sub>\*, CO\*, PE/PM<sub>10</sub>, SO<sub>2</sub>, VOC, H<sub>2</sub>SO<sub>4</sub>, and benzene when burning diesel fuel for all operational modes;
  - the rolling, 12-month summation emissions total, in tons, for NO<sub>x</sub>, CO, PE/PM<sub>10</sub>, SO<sub>2</sub>, VOC, H<sub>2</sub>SO<sub>4</sub>, and benzene for emission units P001-P008, combined when burning natural gas and diesel fuel (the total amount of emissions calculated in a + b) for the current month plus the total amount of emissions for the previous eleven calendar months).
  - the updated rolling, 12-month average of NO<sub>x</sub> emissions, in ppm, when burning natural gas at normal operations for this emissions unit (the NO<sub>x</sub> ppm average for the current month (from the CEMs data) plus the total NO<sub>x</sub> ppm average for the previous eleven calendar months).

\* The permittee shall use the continuous NO<sub>x</sub> and CO emissions monitoring data to determine the NO<sub>x</sub> and CO emissions for these emissions units. During any period when the NO<sub>x</sub> and/or the CO emissions monitoring systems are not operational, the permittee shall use the appropriate missing data procedures specified in 40 CFR Part 75 to determine NO<sub>x</sub> and CO emissions or an approved data substitution protocol.

7. The permittee shall monitor the sulfur content of the fuel being fired in the turbine. The frequency of the monitoring shall be determined as follows:
- If the turbine is supplied its fuel from a bulk storage tank, the values shall be determined on each occasion that fuel is transferred to the storage tank from any other source.
  - If the turbine is supplied its fuel without intermediate bulk storage, the values shall be determined and recorded daily. Owners, operators or fuel vendors may develop custom fuel schedules for the determination of the values based on the design and operation of the affected facility and the characteristics of the fuel supply. These custom schedules shall be substantiated with data and must be approved by the Ohio EPA, Central Office before they can be used.
  - For each shipment of diesel fuel oil received for burning in this emissions unit, the permittee shall maintain records of the total quantity of diesel fuel oil received and the permittee's or diesel fuel oil supplier's analyses for sulfur content and heat content.(See Section A.III.8 below)

Analyses for the purpose of determining the sulfur content of the natural gas may be performed by the permittee, the fuel vendor, or any other qualified agency in accordance with the analytical methods specified in 40 CFR Part 60, Subpart GG, Section 60.335(d), 40 CFR Part 75, or the appropriate ASTM methods, or equivalent methods as approved by the Director.

8. For each shipment of diesel fuel received for burning in this emissions unit, the permittee shall maintain records of the total quantity of diesel fuel oil received, the permittee's or diesel fuel oil supplier's analyses for sulfur content and heat content, and the calculated sulfur dioxide emission rate (in lbs/MMBtu). [The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F)]. A shipment may be comprised of multiple tank truck loads from the same supplier's batch, or may be represented by single or multiple pipeline deliveries from the same supplier's batch, and the quality of the diesel fuel oil for those loads or pipeline deliveries may be represented by a single batch analysis from the supplier.

The permittee shall perform or require the supplier to perform the analyses for sulfur content and heat content in accordance with 40 CFR Part 60, Appendix A, Method 19, or the appropriate ASTM methods (such as, ASTM methods D240, D4294,),or equivalent methods as approved by the Director.

### III. Monitoring and/or Record Keeping Requirements (continued)

The permittee shall maintain records of the oil burned in this emissions unit in accordance with either Alternative 1 or Alternative 2 described below:

a. Alternative 1:

For each shipment of oil received for burning in this emissions unit, the permittee shall collect or require the oil supplier to collect a representative grab sample of oil and maintain records of the total quantity of oil received, the permittee's or oil supplier's analyses for sulfur content and heat content, and the calculated sulfur dioxide emission rate (in lbs/MMBtu). (The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F).) A shipment may be comprised of multiple tank truck loads from the same supplier's batch, and the quality of the oil for those loads may be represented by a single batch analysis from the supplier.

b. Alternative 2:

The permittee shall collect a representative grab sample of oil that is burned in this emissions unit for each day when the emission unit is in operation. If additional fuel oil is added to the tank serving this emissions unit on a day when the emissions unit is in operation, the permittee shall collect a sufficient number of grab samples to develop a composite sample representative of the fuel oil burned in this emissions unit. A representative grab sample of oil does not need to be collected on days when this emissions unit is only operated for the purpose of "test-firing". The permittee shall maintain records of the total quantity of oil burned each day; except for the purpose of test-firing, the permittee's analyses for sulfur content and heat content, and the calculated sulfur dioxide emission rate (in lbs/MMBtu). [The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F)]

#### 9. Continuous NOx Monitoring

a. In lieu of complying with the monitoring and testing provisions of 40 CFR 60.334 and 60.345 to demonstrate compliance with the NOx emission limitations, the permittee shall operate and maintain systems to continuously monitor and record emissions of NOx from this emissions unit in accordance with this permit.

b. The permittee shall install, operate and maintain equipment to continuously monitor and record NOx from this emissions unit in units of the applicable standard. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13 and/or 40 CFR Part 75.

c. The permittee shall maintain records of the following data obtained by the continuous NOx monitoring system: parts per million (ppm) NOx at 15% oxygen (hourly average), lbs of NOx/hour, results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

d. A statement of certification of the existing continuous NOx monitoring system shall be maintained on site and shall consist of a letter from Ohio EPA detailing the results of an Agency review of the certification tests and a statement by the Agency that the system is considered certified in accordance with the requirements of 40 CFR Part 60, Appendix B, Performance Specification 2 and/or 40 CFR Part 75, Appendix D and Appendix F. Proof of certification shall be made available to the Hamilton County Department of Environmental Services - Air Quality Control Division upon request.

e. Prior to the installation of the continuous NOx monitoring system, 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 and 40 CFR Part 75, Appendix A, for approval by the Ohio EPA, Central Office.

### **III. Monitoring and/or Record Keeping Requirements (continued)**

f. Certification in pounds NO<sub>x</sub> per hour: Within 60 days of the startup of this emissions unit, but not later than 180 days after the initial startup of this emissions unit, the permittee shall conduct certification tests of such equipment pursuant to ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 2, and/or 40 CFR Part 75. When NO<sub>x</sub> mass emissions are being determined as allowed in 40 CFR Part 75, Appendix D and Appendix F, certification testing to show compliance with 40 CFR Part 60, Appendix B, Performance Specification 6 shall not be necessary. However, a stack test shall be conducted to demonstrate 40 CFR Part 75, Appendix F, NO<sub>x</sub> mass determinations.

Personnel from the Hamilton County Department of Environmental Services - Air Quality Control Division 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, all copies of the test results shall be submitted to the Hamilton County Department of Environmental Services - Air Quality Control Division within 30 days after the test is completed. Certification of the continuous NO<sub>x</sub> monitoring system shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 2 and/or 40 CFR Part 75.

g. Within 180 days of the effective date of this permit, the permittee shall develop and maintain a written quality assurance/quality control plan for the continuous NO<sub>x</sub> monitoring system designed to ensure continuous valid and representative readings of NO<sub>x</sub> emissions in units of the applicable standard. The plan shall follow the requirements of 40 CFR Part 60, Appendix F and/or 40 CFR Part 75, Appendix B. The quality assurance/quality control plan and a logbook dedicated to the CEM systems must be kept on site and available for inspection during regular office hours. These documents may be kept in electronic and/or hardcopy format.

#### **10. Continuous CO Monitoring**

a. The permittee shall install, operate and maintain equipment to continuously monitor and record CO from this emissions unit in lbs CO/hour and in the units of any other applicable standard. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13.

b. The permittee shall maintain records of all data obtained by the continuous CO monitoring system including, but not limited to, ppm CO at a minimum of 4 data points per hour sufficient to generate an hourly average, emissions of CO in units of the applicable standard in the appropriate averaging period (hourly), results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

c. A statement of certification of the existing continuous CO monitoring system shall be maintained on site and shall consist of a letter from Ohio EPA detailing the results of an Agency review of the certification tests and a statement by the Agency that the system is considered certified in accordance with the requirements of 40 CFR Part 60, Appendix B, Performance Specification 4. Proof of certification shall be made available to the Hamilton County Department of Environmental Services - Air Quality Control Division upon request.

d. Prior to installation of the continuous CO monitoring system, 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 4 for approval by the Ohio EPA, Central Office.

### III. Monitoring and/or Record Keeping Requirements (continued)

e. Certification in pounds CO per hour: Within 60 days of the effective date of this permit, but not later than 180 days after the initial startup of this emissions unit, the permittee shall conduct certification tests of the continuous CO monitoring system pursuant to ORC section 3704.03(I), 40 CFR Part 60, Appendix B, Performance Specification 4. CO mass emissions may be determined in the same manner as NO<sub>x</sub> emissions in term A.III.10. of this permit using the appropriate CO values in place of the cited NO<sub>x</sub> values. When CO mass emissions are being determined in this manner, certification testing to show compliance with 40 CFR 60, Appendix B, Performance Specification 6 will not be necessary. However, a stack test shall be conducted for CO mass determinations with an accuracy that is equivalent to that required in 40 CFR Part 75, Appendix D.

Personnel from the Hamilton County Department of Environmental Services - Air Quality Control Division 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, all copies of the test results shall be submitted to the Hamilton County Department of Environmental Services - Air Quality Control Division within 30 days after the test is completed. Certification of the continuous CO monitoring system shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 4.

f. Within 180 days of the effective date of this permit, the permittee shall develop and maintain a written quality assurance/quality control plan for the continuous CO monitoring system designed to ensure continuous valid and representative readings of CO. The plan shall follow the requirements of 40 CFR Part 60, Appendix F. The quality assurance/quality control plan and a logbook dedicated to the CEM systems must be kept on site and available for inspection during regular office hours. These documents may be kept in electronic and/or hardcopy format.

#### 11. Continuous O<sub>2</sub> Monitoring

a. The permittee shall operate and maintain equipment to continuously monitor and record O<sub>2</sub> from this emissions unit, in percent O<sub>2</sub>. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13 and/or 40 CFR Part 75.

b. The permittee shall maintain records of all data obtained by the continuous O<sub>2</sub> monitoring system including, but not limited to, percent O<sub>2</sub> at a minimum of 4 data points per hour sufficient to generate an hourly average, results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

c. Prior to the installation of the continuous O<sub>2</sub> monitoring system, 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 3 and 40 CFR Part 75 for approval by the Ohio EPA, Central Office.

d. Within 60 days of the startup of this emissions unit, but not later than 180 days after the initial startup of this emissions unit, the permittee shall conduct certification tests of the continuous O<sub>2</sub> monitoring system pursuant to ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 3, and/or 40 CFR Part 75. Personnel from the Hamilton County Department of Environmental Services - Air Quality Control Division 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, all copies of the test results shall be submitted to the Hamilton County Department of Environmental Services - Air Quality Control Division within 30 days after the test is completed. Certification of the continuous O<sub>2</sub> monitoring system shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 3 and/or 40 CFR Part 75.

e. Within 180 days of the effective date of this permit, the permittee shall develop and maintain a written quality assurance/quality control plan for the continuous O<sub>2</sub> monitoring system designed to ensure continuous valid and representative readings of O<sub>2</sub> emissions in units of the applicable standard. The plan shall follow the requirements of 40 CFR Part 60, Appendix F and/or 40 CFR Part 75, Appendix B. The quality assurance/quality control plan and a logbook dedicated to the CEM systems must be kept on site and available for inspection during regular office hours. These documents may be kept in electronic and/or hardcopy format.

#### IV. Reporting Requirements

1. The permittee shall submit quarterly reports that identify each period during which an exemption for ice-fog provided in 40 CFR 60.332(f) is in effect. The report shall include the ambient conditions existing during the period, the date and time the air pollution control system was deactivated, and the date and time when the air pollution control system was reactivated.
2. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:
  - a. An identification of all exceedances of the rolling, 12-month natural gas usage rate for emissions units P001-P008;
  - b. An identification of all exceedances of the rolling, 12-month emission limitations for PE/PM10, SO<sub>2</sub>, NO<sub>x</sub>, CO, H<sub>2</sub>SO<sub>4</sub> mist, VOC and benzene;
  - c. An identification of all exceedances of the sulfur content (i.e. 0.05%, by weight) of the fuels (natural gas and diesel fuel) received for burning in this emissions unit;
  - d. An identification of all exceedances of the SO<sub>2</sub> lbs/mmBtu limitation of the diesel fuel received for burning in this emissions unit;
  - e. An identification of all exceedances of the 1.0 hour startup/shutdown cycle operational restriction;
  - f. An identification of all exceedances of the rolling, 12-month diesel fuel usage rate for emissions units P001-P008;
  - g. An identification of all exceedances of the startup and shut down emission limitations in term A. I.1 when burning natural gas; and
  - h. An identification of all exceedances of the startup and shut down emission limitations in term A. I.1 when burning diesel fuel.
  - i. An identification of each day when a fuel other than natural gas or diesel fuel was burned in this emissions unit.
3. All quarterly deviation reports shall be submitted in accordance with the reporting requirements specified in Part I - General Terms and Conditions A.1.c.ii unless otherwise specified.
4. Pursuant to OAC rules 3745-15-04, 3745-35-02, and ORC sections 3704.03(l) and 3704.031 and 40 CFR Parts 60.7 and 60.13(h), the permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting the date, commencement and completion times, duration, magnitude, reason (if known), and corrective actions taken (if any), of all instances of NO<sub>x</sub> values in excess of the applicable limits specified in 40 CFR Part 76 or any limitations specified in the terms and conditions of this permit. These reports shall also contain the total NO<sub>x</sub> emissions for the calendar quarter (in tons), including all data collected during startup and shutdown periods or generated pursuant to the missing data procedures specified in 40 CFR Part 75.

The permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting any continuous NO<sub>x</sub> monitoring system downtime while the emissions unit was on line (date, time, duration and reason) along with any corrective action(s) taken. The permittee shall provide the emissions unit operating time during the reporting period and the date, time, reason and corrective action(s) taken for each time period of emissions unit and control equipment malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report.

#### **IV. Reporting Requirements (continued)**

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 emissions unit, control equipment, and/or monitoring system malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line also shall be included in the quarterly report. These quarterly excess emission reports shall be submitted by January 31, April 30, July 31, and October 31 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 appropriate Ohio EPA District Office or local air agency within 30 days following the end of each calendar quarter in a manner prescribed by the Director.

5. Pursuant to OAC rules 3745-15-04, 3745-35-02, and ORC sections 3704.03(I) and 3704.031 and 40 CFR Parts 60.7 and 60.13(h), the permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting the date, commencement and completion times, duration, magnitude, reason (if known), and corrective actions taken (if any) of all instances of CO values in excess of any applicable limitation(s) specified in OAC Chapter 3745-21, 40 CFR Part 60, or any limitation(s) specified in the terms and conditions of this permit, in units of the standard. These reports shall also contain the total CO emissions for the calendar quarter (in tons), including all data collected during startup and shutdown periods or generated pursuant to the missing data procedures for fuel flow measurement as specified in 40 CFR Part 75.

The permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting any continuous CO monitoring system downtime while the emissions unit was on line (date, time, duration and reason) along with any corrective action(s) taken. The permittee shall provide the emissions unit operating time during the reporting period and the date, time, reason and corrective action(s) taken for each time period of emissions unit and control equipment malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report.

If there are no excess emissions during the calendar quarter, the permittee shall submit a statement to that effect along with the emissions unit operating time during the reporting period and the date, time, reason, and corrective action(s) taken for each time period of emissions unit, control equipment, and/or monitoring system malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report. These quarterly excess emission reports shall be submitted by January 31, April 30, July 31, and October 31 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 appropriate local air agency within 30 days following the end of each calendar quarter in a manner prescribed by the Director.

6. The permittee shall submit annual reports that specify the total NO<sub>x</sub>, CO, PE/PM<sub>10</sub>, VOC, SO<sub>2</sub>, benzene and H<sub>2</sub>SO<sub>4</sub> emissions from this emissions unit for the calendar year. These reports shall be submitted by January 31 of each year and cover the previous calendar year.

#### **V. Testing Requirements**

1. Compliance with the emission limitations, fuel usage restrictions and sulfur content limitations specified in Sections A.I and A.II shall be determined by the following methods:

## V. Testing Requirements (continued)

- 1.a** Emission Limitations: The emissions from startup and shutdown operations shall not exceed the following emission limitations for this emissions unit:

Natural Gas

NOx: 83 lbs/cycle

CO: 308 lbs/cycle

Diesel Fuel

NOx: 130 lbs/cycle

CO: 354 lbs/cycle

Applicable Compliance Method: The lbs/cycle emissions limitations were established based on emissions data contained in the PTI modification application (PTI 14-04682) submitted March, 2001 and the emission factors from the background document, Reference 16, for Stationary Gas Turbines in AP-42, Fifth Edition, Section 3.1, dated April 2000.

Compliance with the NOx emission limitations shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Sections A.III.5 and A.III.9.

- 1.b** Emission Limitations: The hourly emissions from this emissions unit shall not exceed the following amounts:

- i. 58.0 lbs of SO<sub>2</sub> emissions/hour;
- ii. 54.0 lbs of CO emissions/hour;
- iii. 196.0 lbs of NO<sub>x</sub> emissions/hour;
- iv. 6.0 lbs of H<sub>2</sub>SO<sub>4</sub> mist emissions/hour; and
- v. 10.0 lbs of VOC emissions/hour.

Applicable Compliance Method: The hourly emission limitations are based upon the emission unit's potential to emit and the emission factors from the background document for Stationary Gas Turbines in AP-42, Fifth Edition, Section 3.1, dated April 2000.

Compliance with the NOx emission limitation shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Section A.III.9.

Compliance with the CO emission limitation shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Section A.III.10.

If required, the permittee shall demonstrate compliance with the hourly NO<sub>x</sub> emission limitation through emission test performed in accordance with Methods 1-4 and 7 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Section 60.334(c)(1).

If required, the permittee shall demonstrate compliance with the hourly SO<sub>2</sub> emission limitation through emission tests performed in accordance with Methods 1-4 and 6 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

If required, the permittee shall demonstrate compliance with the hourly CO emission limitation through emission tests performed in accordance with Methods 1-4 and 10 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

## V. Testing Requirements (continued)

If required, the permittee shall demonstrate compliance with the hourly H<sub>2</sub>SO<sub>4</sub> mist emission limitation through emission tests performed in accordance with Methods 1-4 and 8 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

If required, the permittee shall demonstrate compliance with the hourly VOC emission limitation through emission tests performed in accordance with Methods 1-4 and 25 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

**1.c** Emission Limitations: The total emissions from emission units P001-P008 combined shall not exceed the following emission limitations:

- i. 60.5 tons of PE/PM<sub>10</sub> emissions per rolling, 12-month period;
- ii. 120.8 tons of SO<sub>2</sub> emissions per rolling, 12-month period;
- iii. 733.3 tons of NO<sub>x</sub> emissions per rolling, 12-month period;
- iv. 541.0 tons of CO emissions per rolling, 12-month period;
- v. 36.4 tons of VOC emissions per rolling, 12-month period;
- vi. 12.2 tons of H<sub>2</sub>SO<sub>4</sub> mist emissions per rolling, 12-month period;
- vii. 7.7 tons of benzene emissions per rolling, 12-month period;
- viii. 0.00084 ton of beryllium emissions per rolling, 12-month period; and
- ix. 0.012 ton of arsenic emissions per rolling, 12-month period.

Applicable Compliance Method: Compliance with the annual PE/PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC, H<sub>2</sub>SO<sub>4</sub> and benzene emission limitations specified above shall be determined by the record keeping requirements specified in Section A.III.6 .

Compliance with the annual beryllium and arsenic emission limitations specified above may be determined by multiplying the pollutant specific emission factor found in AP-42, Fifth Edition, Section 3.1 "Stationary Gas Turbines," updated 4/00, by the amount of fuel collected and recorded in Sections A.III.4 (for natural gas) and A.III.4 (for diesel fuel) by the specific heat content of the each fuel employed.

The specific heat content for diesel fuel oil shall be taken from the information collected and recorded in A.III.8.

**1.d** Emission Limitations:

- i. 0.15 TPY of lead emissions; and
- ii. 0.0023 TPY of mercury emissions.

Applicable Compliance Method: Compliance with the TPY lead and mercury emission limitations specified above may be determined by multiplying the pollutant specific emission factor found in AP-42, Fifth Edition, Section 3.1 "Stationary Gas Turbines," updated 4/00, by the amount of fuel collected and recorded in Sections A.III.4 (for natural gas) and A.III.4 (for diesel fuel) by the specific heat content of the each fuel employed. The heat content for the diesel fuel shall also be taken from the information collected and recorded in Section A.III.8.

## V. Testing Requirements (continued)

**1.e** Emission Limitations: The following NO<sub>x</sub> emission limitations shall not be exceeded:

- i. 15 ppm of NO<sub>x</sub> emissions, by volume, at 15% oxygen on a dry basis when firing natural gas, as a 1-hour average;
- ii. 42 ppm of NO<sub>x</sub> emissions, by volume, at 15% oxygen on a dry basis when firing diesel fuel, as a 1-hour average; and
- iii. When burning natural gas, the NO<sub>x</sub> emission rate shall not exceed 12 ppm, by volume, at 15% oxygen on a dry basis, based on a rolling, 12-month summation of the monthly NO<sub>x</sub> emissions in ppm.

Applicable Compliance Method: Compliance with the NO<sub>x</sub> emission limitations shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Section A.III.9.

If required, the permittee shall demonstrate compliance with the ppm NO<sub>x</sub> emission limitations through emission tests performed in accordance with Methods 1-4 and 7 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Section 60.334(c)(1).

**1.f** PE/PM<sub>10</sub> Emission Limitation: 0.008 lb of PE/PM<sub>10</sub> emissions/mmBtu

Applicable Compliance Method: Compliance with the PE/PM<sub>10</sub> emission limitation may be determined by the manufacturer's guaranteed emissions data found in PTI 14-4682 submitted April 26, 1999.

If required, the permittee shall demonstrate compliance with the PE/PM<sub>10</sub> emission limitation through emission tests performed in accordance with Methods 1-5 of 40 CFR Part 60, Appendix A.

**1.g** Visible PE Limitation: Visible PE from any stack shall not exceed 20% opacity, as a 6-minute average, except as specified by rule, when burning diesel fuel.

Applicable Compliance Method: If required, compliance with the visible PE limitation shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Test Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

**1.h** Visible PE Limitation: Visible PE from any stack shall not exceed 10% opacity, as a 6-minute average, when burning pipeline natural gas.

Applicable Compliance Method: If required, compliance with the visible PE limitation shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Test Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

**1.i** SO<sub>2</sub> Emission Limitation: 0.0456 lb of SO<sub>2</sub> emissions/mmBtu when burning diesel fuel;

Applicable Compliance Method: Compliance with the SO<sub>2</sub> emission limitation shall be determined by the sulfur analysis of the fuels combusted pursuant to the requirements specified in Sections A.III.7 and A.III.8, and by documenting that the sulfur content of each shipment of oil received during a calendar month meets the 0.05% sulfur content restriction.

If required, the permittee shall demonstrate compliance with the SO<sub>2</sub> emission limitation through emission tests performed in accordance with Methods 1-4 and 6 of 40 CFR Part 60, Appendix A.

**1.j** Sulfur Content Restriction: not to exceed 0.05% sulfur, by weight, when burning natural gas or diesel fuel

Applicable Compliance Method: Compliance with the sulfur content restriction shall be determined using standard methods as required in 40 CFR Section 60.335 and the information collected and recorded in Sections A.III.7 and A.III.8.

**V. Testing Requirements (continued)**

- 1.k** Natural Gas and Diesel Fuel Usage Restrictions: The total maximum annual natural gas usage rate for emissions units P001-P008 combined shall not exceed 20.3 billion cubic feet per year, based upon a rolling, 12-month summation of the natural gas usage rate. The total maximum annual diesel fuel usage rate for emissions units P001-P008 combined shall not exceed 34 million gallons per year, based upon a rolling, 12-month summation of the diesel fuel usage rate.

Applicable Compliance Method: Compliance with the natural gas and diesel fuel usage restrictions shall be determined by the record keeping requirements specified in Section A.III.4.

**VI. Miscellaneous Requirements**

**None**

**B. State Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
80 Megawatt (nominal) natural gas/No. 2 fuel oil fired simple-cycle combustion turbine	OAC rules 3745-31-11 thru OAC rule 3745-31-20	These rules are equivalent to 40 CFR Part 52.21. At the time of permit, issuance these regulations have been promulgated in the OAC. However, they have not yet been added to the Ohio SIP.
	OAC rule 3745-31-28	This rule is equivalent to 40 CFR 63.41-40 CFR Part 63.44. At the time of permit, issuance these regulations have been promulgated in the OAC. However, they have not yet been added to the Ohio SIP.

**2. Additional Terms and Conditions**

None

**II. Operational Restrictions**

None

**III. Monitoring and/or Record Keeping Requirements**

None

**IV. Reporting Requirements**

None

**V. Testing Requirements**

None

**VI. Miscellaneous Requirements**

None

### Part III - Terms and Conditions for Emissions Units

**Emissions Unit ID:** #5 Turbine (P005)

**Activity Description:** 80 Megawatt (Nominal) Simple-Cycle Combustion Turbine #5

#### A. State and Federally Enforceable Section

##### I. Applicable Emissions Limitations and/or Control Requirements

- The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
80 megawatt (nominal) natural gas/diesel fuel fired simple-cycle combustion turbine	OAC rule 3745-31-05(D) (PTI 14-4682)	<p>This emissions unit shall not exceed the following emission limitations at all load conditions, including startup and shutdown:</p> <p>54.0 lbs of carbon monoxide (CO) emissions/hour</p> <p>58.0 lbs of sulfur dioxide (SO<sub>2</sub>) emissions/hour*</p> <p>6.0 lbs of hydrogen sulfate (H<sub>2</sub>SO<sub>4</sub>) mist emissions/hour*</p> <p>10.0 lbs of volatile organic compound (VOC) emissions/hour*</p> <p>0.008 lb of particulate emissions (PE)/particulate matter with a diameter of 10 microns or less (PM<sub>10</sub> emissions)/mmBtu*</p>

\* The hourly emission limitations and the lb of PE/PM<sub>10</sub> emissions/mmBtu limitation specified above represent this emissions unit's potential to emit for all operating conditions, including startup and shutdown. Therefore, no additional monitoring, record keeping or reporting requirements are required to demonstrate compliance with these emission limitations.

**Operations, Property,  
and/or Equipment**

**Applicable Rules/  
Requirements**

**Applicable Emissions  
Limitations/Control  
Measures**

The total emissions from emissions units P001 through P008 combined shall not exceed the emission limitations specified below. The annual emission limitations include emissions from operating at "startup and shutdown", "normal", and "full load" conditions combined and for all fuel types (i.e., natural gas and diesel fuel).

60.5 tons of PE/PM10 emissions per rolling, 12-month period

120.8 tons of SO2 emissions per rolling, 12-month period

733.3 tons of NOx emissions per rolling, 12-month period

541.0 tons of CO emissions per rolling, 12-month period

12.2 tons of H2SO4 mist emissions per rolling, 12-month period

36.4 tons of VOC emissions per rolling, 12-month period

7.7 tons of benzene emissions per rolling, 12-month period

0.00084 ton of beryllium emissions per rolling, 12-month period

0.012 ton of arsenic emissions per rolling, 12-month period

Emissions from startup and shutdown operations shall not exceed the following emission limitations:

Natural Gas

NOx: 83 lbs/cycle  
CO: 308 lbs/cycle

Diesel Fuel

NOx: 130 lbs/cycle  
CO: 354 lbs/cycle

Facility Name: **Duke Energy Madison, LLC**

Facility ID: **14-09-00-0896**

Emissions Unit: **#5 Turbine (P005)**

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
		196.0 lbs of nitrogen oxides (NOx) emissions/hour
		15 ppm of NOx by volume at 15% oxygen on a dry basis when burning natural gas (as a 1-hour average, excluding startup and shutdown conditions)
		42 ppm of NOx by volume at 15% oxygen on a dry basis when burning diesel fuel (as a 1-hour average, excluding startup and shutdown conditions)
		12 ppm of NOx by volume at 15% oxygen on a dry basis, when burning natural gas, based on a rolling, 12-month summation of the monthly NOx emissions in ppm (excluding startup and shutdown conditions)
		0.05% sulfur content, by weight, for diesel fuel and natural gas
	40 CFR Part 60, Subpart GG	0.0456 lbs of SO2 emissions/mmBtu, for diesel fuel The emission limitations established in 40 CFR Part 60, Subpart GG for SO2 and NOx are less stringent than those established pursuant to OAC rule 3745-31-05(D).
	Best Available Control Technology is equivalent to Section 112g of the Clean Air Act	For the purposes of this permit and for the hazardous air pollutants (HAPs) emitted from this emissions unit, the best available control technology determination to satisfy the requirements of 40 CFR Part 52.21 is equivalent to the maximum achievable control technology determination used to satisfy the requirements of 40 CFR Parts 63.41 thru 63.44.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
	OAC rule 3745-31-05(A)(3) (PTI 14-04682)	Emissions from this emissions unit shall not exceed the following emission limitations:  0.15 TPY of lead emissions 0.0023 TPY of mercury emissions  See Section A.I.2.b below.
	OAC rule 3745-17-11(B)(4)	Compliance with this rule also include compliance with the requirements of OAC rules 3745-31-05(D) and 3745-17-07(A) when burning diesel fuel.  The PE limitation specified by this rule is less stringent the PE limitation established pursuant to OAC rule 3745-31-05(D).
	OAC rule 3745-17-07(A)(1)	See Section A.I.2.a below.
	OAC rule 3745-18-06(F)	The SO <sub>2</sub> emission limitation specified by this rule (0.5 lb of SO <sub>2</sub> emissions/mmBtu) is less stringent than the SO <sub>2</sub> emission limitation established pursuant to OAC rule 3745-31-05(D).

**2. Additional Terms and Conditions**

- 2.a** Visible PE from any stack shall not exceed 20% opacity, as a 6-minute average, except as specified by rule when combusting diesel fuel.
- 2.b** Visible PE from any stack shall not exceed 10% opacity, as a 6-minute average when combusting natural gas.
- 2.c** The permittee shall install and maintain dry low NO<sub>x</sub> burners when burning natural gas and install and maintain a water injection system when burning diesel fuel.
- 2.d** The permittee is subject to the requirements of 40 CFR Parts 72 and 75 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.
- 2.e** "Full load" shall be defined as the nameplate electrical output of 84.65 megawatts. Any load that is greater than or equal to 90% of the nameplate electrical output shall be considered full load.
- 2.f** "Normal operation" shall be defined as the period when the combustion turbine achieves dry low NO<sub>x</sub> mode (GE Mode 6). GE Mode 6 is defined by the manufacturer as the low emissions mode during which all burner nozzles are in use, burning a lean pre-mixed gas for steady-state operation. The continuous emissions monitoring system will indicate and record the GE Mode 6 status of the combustion turbine, including when the emissions unit is shutdown and when operating in startup and shutdown modes.

## **2. Additional Terms and Conditions (continued)**

- 2.g** "Startup" shall be defined as the period between when the combustion turbine is initially started (initial fuel light-off) until the combustion turbine completes transition to GE Mode 6. "Shutdown" shall be defined as the period beginning when the combustion turbine leaves the GE Mode 6 and ending when combustion has ceased.
- 2.h** Compliance with the startup and shutdown NO<sub>x</sub> and CO lbs/cycle values and NO<sub>x</sub> and CO emission limitations during steady-state operations shall be demonstrated by the use of dual range NO<sub>x</sub> and CO Continuous Emission Monitors (CEMs). For CEM systems with dual ranges, certification testing shall be performed on the range normally used for measuring emissions.
- 2.i** For the purpose of this permit, the term "diesel fuel" shall be considered to be any distillate fuel oil that is employed as a fuel in this emissions unit as defined in 40 CFR Part 72.2.

## **II. Operational Restrictions**

- 1.** The maximum annual natural gas usage rate for emissions units P001-P008 shall not exceed 20.3 billion (2.03 x 10<sup>10</sup>) cubic feet per rolling, 12-month period.
- 2.** The maximum annual diesel fuel usage rate for emissions units P001-P008 shall not exceed 34 million (3.40 x 10<sup>7</sup>) gallons per rolling, 12-month period.
- 3.** The permittee shall burn only natural gas, of pipeline quality, or diesel fuel in this emissions unit.
- 4.** The quality of diesel fuel burned in this emissions unit shall have a combination of heat and sulfur content which is sufficient to comply with the allowable SO<sub>2</sub> emission limitation of 0.0456 lb of SO<sub>2</sub>/MMBtu of actual heat input. The diesel fuel shall have a sulfur content of 0.05% or less.
- 5.** When the emissions unit is operating in startup or shutdown conditions, as defined in Section A.I.2.g above, each startup or shutdown cycle shall not exceed 1.0 hours in duration.
- 6.** With the exception of startup and shutdown, this emissions unit shall be operated in GE Mode 6, defined as normal operation (ref. Section A.I.2.f above).

## **III. Monitoring and/or Record Keeping Requirements**

- 1.** For each day during which the permittee burns a fuel other than natural gas and/or diesel fuel, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
- 2.** The permittee shall install, operate, and maintain equipment to continuously monitor and record the actual fuel flow to this emissions unit when it 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.
- 3.** The permittee shall maintain records that document the following:
  - a.** the emissions unit's actual electrical output for each operating hour;
  - b.** all periods of time when the emissions unit was operating in startup and shutdown conditions.

### III. Monitoring and/or Record Keeping Requirements (continued)

4. The permittee shall maintain monthly records of the following information in order to monitor compliance with the applicable fuel usage restrictions:
  - a. the total amount of natural gas burned, in cubic feet, for this emissions unit;
  - b. the total amount of diesel fuel burned, in gallons, for this emissions unit;
  - c. the total amount of natural gas burned, in cubic feet, for emission units P001-P008, combined;
  - d. the total amount of diesel fuel burned, in gallons, for emissions units P001-P008, combined;
  - e. the rolling, 12-month summation for the total amount of natural gas burned, in cubic feet, for emissions units P001-P008, combined (the amount of natural gas burned for the current month plus the total amount of natural gas burned for the previous eleven calendar months); and
  - f. the rolling, 12-month summation for the total amount of diesel fuel burned in emissions units P001-P008, combined (the amount of diesel fuel burned for the current month plus the total amount of diesel fuel burned for the previous eleven calendar months).
5. The permittee shall maintain monthly records of the following information for emissions units P001-P008 in order to monitor compliance with the startup and shutdown emission limitations and operational restrictions:
  - a. the date and duration, in minutes, of each startup/shutdown cycle
  - b. the emissions, in pounds, for NO<sub>x</sub> and CO when burning natural gas at startup and shutdown operation modes; and
  - c. the emissions, in pounds, for NO<sub>x</sub> and CO when burning diesel fuel at startup and shutdown operation modes.

The permittee shall use the continuous NO<sub>x</sub> and CO emissions monitoring data to determine the NO<sub>x</sub> and CO emissions for these emissions units. During any period when the NO<sub>x</sub> and/or the CO emissions monitoring systems are not operational, the permittee shall use the appropriate missing data procedures specified in 40 CFR Part 75 to determine NO<sub>x</sub> and CO emissions or an approved data substitution protocol.

### III. Monitoring and/or Record Keeping Requirements (continued)

6. The permittee shall maintain monthly records of the following information for emission units P001- P008 in order to monitor compliance with the rolling, 12- month summation, emissions limitations:
- the total emissions, in tons, for NO<sub>x</sub>\*, CO\*, PE/PM<sub>10</sub>, SO<sub>2</sub>, VOC, H<sub>2</sub>SO<sub>4</sub>, and benzene when burning natural gas for all operational loads;
  - the total emissions, in tons, for NO<sub>x</sub>\*, CO\*, PE/PM<sub>10</sub>, SO<sub>2</sub>, VOC, H<sub>2</sub>SO<sub>4</sub>, and benzene when burning diesel fuel for all operational modes;
  - the rolling, 12-month summation emissions total, in tons, for NO<sub>x</sub>, CO, PE/PM<sub>10</sub>, SO<sub>2</sub>, VOC, H<sub>2</sub>SO<sub>4</sub>, and benzene for emission units P001-P008, combined when burning natural gas and diesel fuel (the total amount of emissions calculated in a + b) for the current month plus the total amount of emissions for the previous eleven calendar months).
  - the updated rolling, 12-month average of NO<sub>x</sub> emissions, in ppm, when burning natural gas at normal operations for this emissions unit (the NO<sub>x</sub> ppm average for the current month (from the CEMs data) plus the total NO<sub>x</sub> ppm average for the previous eleven calendar months).

\* The permittee shall use the continuous NO<sub>x</sub> and CO emissions monitoring data to determine the NO<sub>x</sub> and CO emissions for these emissions units. During any period when the NO<sub>x</sub> and/or the CO emissions monitoring systems are not operational, the permittee shall use the appropriate missing data procedures specified in 40 CFR Part 75 to determine NO<sub>x</sub> and CO emissions or an approved data substitution protocol.

7. The permittee shall monitor the sulfur content of the fuel being fired in the turbine. The frequency of the monitoring shall be determined as follows:
- If the turbine is supplied its fuel from a bulk storage tank, the values shall be determined on each occasion that fuel is transferred to the storage tank from any other source.
  - If the turbine is supplied its fuel without intermediate bulk storage, the values shall be determined and recorded daily. Owners, operators or fuel vendors may develop custom fuel schedules for the determination of the values based on the design and operation of the affected facility and the characteristics of the fuel supply. These custom schedules shall be substantiated with data and must be approved by the Ohio EPA, Central Office before they can be used.
  - For each shipment of diesel fuel oil received for burning in this emissions unit, the permittee shall maintain records of the total quantity of diesel fuel oil received and the permittee's or diesel fuel oil supplier's analyses for sulfur content and heat content.(See Section A.III.8 below)

Analyses for the purpose of determining the sulfur content of the natural gas may be performed by the permittee, the fuel vendor, or any other qualified agency in accordance with the analytical methods specified in 40 CFR Part 60, Subpart GG, Section 60.335(d), 40 CFR Part 75, or the appropriate ASTM methods, or equivalent methods as approved by the Director.

8. For each shipment of diesel fuel received for burning in this emissions unit, the permittee shall maintain records of the total quantity of diesel fuel oil received, the permittee's or diesel fuel oil supplier's analyses for sulfur content and heat content, and the calculated sulfur dioxide emission rate (in lbs/MMBtu). [The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F)]. A shipment may be comprised of multiple tank truck loads from the same supplier's batch, or may be represented by single or multiple pipeline deliveries from the same supplier's batch, and the quality of the diesel fuel oil for those loads or pipeline deliveries may be represented by a single batch analysis from the supplier.

The permittee shall perform or require the supplier to perform the analyses for sulfur content and heat content in accordance with 40 CFR Part 60, Appendix A, Method 19, or the appropriate ASTM methods (such as, ASTM methods D240, D4294,),or equivalent methods as approved by the Director.

### III. Monitoring and/or Record Keeping Requirements (continued)

The permittee shall maintain records of the oil burned in this emissions unit in accordance with either Alternative 1 or Alternative 2 described below:

a. Alternative 1:

For each shipment of oil received for burning in this emissions unit, the permittee shall collect or require the oil supplier to collect a representative grab sample of oil and maintain records of the total quantity of oil received, the permittee's or oil supplier's analyses for sulfur content and heat content, and the calculated sulfur dioxide emission rate (in lbs/MMBtu). (The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F).) A shipment may be comprised of multiple tank truck loads from the same supplier's batch, and the quality of the oil for those loads may be represented by a single batch analysis from the supplier.

b. Alternative 2:

The permittee shall collect a representative grab sample of oil that is burned in this emissions unit for each day when the emission unit is in operation. If additional fuel oil is added to the tank serving this emissions unit on a day when the emissions unit is in operation, the permittee shall collect a sufficient number of grab samples to develop a composite sample representative of the fuel oil burned in this emissions unit. A representative grab sample of oil does not need to be collected on days when this emissions unit is only operated for the purpose of "test-firing". The permittee shall maintain records of the total quantity of oil burned each day; except for the purpose of test-firing, the permittee's analyses for sulfur content and heat content, and the calculated sulfur dioxide emission rate (in lbs/MMBtu). [The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F)]

#### 9. Continuous NOx Monitoring

a. In lieu of complying with the monitoring and testing provisions of 40 CFR 60.334 and 60.345 to demonstrate compliance with the NOx emission limitations, the permittee shall operate and maintain systems to continuously monitor and record emissions of NOx from this emissions unit in accordance with this permit.

b. The permittee shall install, operate and maintain equipment to continuously monitor and record NOx from this emissions unit in units of the applicable standard. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13 and/or 40 CFR Part 75.

c. The permittee shall maintain records of the following data obtained by the continuous NOx monitoring system: parts per million (ppm) NOx at 15% oxygen (hourly average), lbs of NOx/hour, results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

d. A statement of certification of the existing continuous NOx monitoring system shall be maintained on site and shall consist of a letter from Ohio EPA detailing the results of an Agency review of the certification tests and a statement by the Agency that the system is considered certified in accordance with the requirements of 40 CFR Part 60, Appendix B, Performance Specification 2 and/or 40 CFR Part 75, Appendix D and Appendix F. Proof of certification shall be made available to the Hamilton County Department of Environmental Services - Air Quality Control Division upon request.

e. Prior to the installation of the continuous NOx monitoring system, 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 and 40 CFR Part 75, Appendix A, for approval by the Ohio EPA, Central Office.

### **III. Monitoring and/or Record Keeping Requirements (continued)**

f. Certification in pounds NO<sub>x</sub> per hour: Within 60 days of the startup of this emissions unit, but not later than 180 days after the initial startup of this emissions unit, the permittee shall conduct certification tests of such equipment pursuant to ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 2, and/or 40 CFR Part 75. When NO<sub>x</sub> mass emissions are being determined as allowed in 40 CFR Part 75, Appendix D and Appendix F, certification testing to show compliance with 40 CFR Part 60, Appendix B, Performance Specification 6 shall not be necessary. However, a stack test shall be conducted to demonstrate 40 CFR Part 75, Appendix F, NO<sub>x</sub> mass determinations.

Personnel from the Hamilton County Department of Environmental Services - Air Quality Control Division 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, all copies of the test results shall be submitted to the Hamilton County Department of Environmental Services - Air Quality Control Division within 30 days after the test is completed. Certification of the continuous NO<sub>x</sub> monitoring system shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 2 and/or 40 CFR Part 75.

g. Within 180 days of the effective date of this permit, the permittee shall develop and maintain a written quality assurance/quality control plan for the continuous NO<sub>x</sub> monitoring system designed to ensure continuous valid and representative readings of NO<sub>x</sub> emissions in units of the applicable standard. The plan shall follow the requirements of 40 CFR Part 60, Appendix F and/or 40 CFR Part 75, Appendix B. The quality assurance/quality control plan and a logbook dedicated to the CEM systems must be kept on site and available for inspection during regular office hours. These documents may be kept in electronic and/or hardcopy format.

#### **10. Continuous CO Monitoring**

a. The permittee shall install, operate and maintain equipment to continuously monitor and record CO from this emissions unit in lbs CO/hour and in the units of any other applicable standard. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13.

b. The permittee shall maintain records of all data obtained by the continuous CO monitoring system including, but not limited to, ppm CO at a minimum of 4 data points per hour sufficient to generate an hourly average, emissions of CO in units of the applicable standard in the appropriate averaging period (hourly), results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

c. A statement of certification of the existing continuous CO monitoring system shall be maintained on site and shall consist of a letter from Ohio EPA detailing the results of an Agency review of the certification tests and a statement by the Agency that the system is considered certified in accordance with the requirements of 40 CFR Part 60, Appendix B, Performance Specification 4. Proof of certification shall be made available to the Hamilton County Department of Environmental Services - Air Quality Control Division upon request.

d. Prior to installation of the continuous CO monitoring system, 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 4 for approval by the Ohio EPA, Central Office.

### III. Monitoring and/or Record Keeping Requirements (continued)

e. Certification in pounds CO per hour: Within 60 days of the effective date of this permit, but not later than 180 days after the initial startup of this emissions unit, the permittee shall conduct certification tests of the continuous CO monitoring system pursuant to ORC section 3704.03(I), 40 CFR Part 60, Appendix B, Performance Specification 4. CO mass emissions may be determined in the same manner as NO<sub>x</sub> emissions in term A.III.10. of this permit using the appropriate CO values in place of the cited NO<sub>x</sub> values. When CO mass emissions are being determined in this manner, certification testing to show compliance with 40 CFR 60, Appendix B, Performance Specification 6 will not be necessary. However, a stack test shall be conducted for CO mass determinations with an accuracy that is equivalent to that required in 40 CFR Part 75, Appendix D.

Personnel from the Hamilton County Department of Environmental Services - Air Quality Control Division 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, all copies of the test results shall be submitted to the Hamilton County Department of Environmental Services - Air Quality Control Division within 30 days after the test is completed. Certification of the continuous CO monitoring system shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 4.

f. Within 180 days of the effective date of this permit, the permittee shall develop and maintain a written quality assurance/quality control plan for the continuous CO monitoring system designed to ensure continuous valid and representative readings of CO. The plan shall follow the requirements of 40 CFR Part 60, Appendix F. The quality assurance/quality control plan and a logbook dedicated to the CEM systems must be kept on site and available for inspection during regular office hours. These documents may be kept in electronic and/or hardcopy format.

#### 11. Continuous O<sub>2</sub> Monitoring

a. The permittee shall operate and maintain equipment to continuously monitor and record O<sub>2</sub> from this emissions unit, in percent O<sub>2</sub>. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13 and/or 40 CFR Part 75.

b. The permittee shall maintain records of all data obtained by the continuous O<sub>2</sub> monitoring system including, but not limited to, percent O<sub>2</sub> at a minimum of 4 data points per hour sufficient to generate an hourly average, results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

c. Prior to the installation of the continuous O<sub>2</sub> monitoring system, 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 3 and 40 CFR Part 75 for approval by the Ohio EPA, Central Office.

d. Within 60 days of the startup of this emissions unit, but not later than 180 days after the initial startup of this emissions unit, the permittee shall conduct certification tests of the continuous O<sub>2</sub> monitoring system pursuant to ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 3, and/or 40 CFR Part 75. Personnel from the Hamilton County Department of Environmental Services - Air Quality Control Division 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, all copies of the test results shall be submitted to the Hamilton County Department of Environmental Services - Air Quality Control Division within 30 days after the test is completed. Certification of the continuous O<sub>2</sub> monitoring system shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 3 and/or 40 CFR Part 75.

e. Within 180 days of the effective date of this permit, the permittee shall develop and maintain a written quality assurance/quality control plan for the continuous O<sub>2</sub> monitoring system designed to ensure continuous valid and representative readings of O<sub>2</sub> emissions in units of the applicable standard. The plan shall follow the requirements of 40 CFR Part 60, Appendix F and/or 40 CFR Part 75, Appendix B. The quality assurance/quality control plan and a logbook dedicated to the CEM systems must be kept on site and available for inspection during regular office hours. These documents may be kept in electronic and/or hardcopy format.

#### IV. Reporting Requirements

1. The permittee shall submit quarterly reports that identify each period during which an exemption for ice-fog provided in 40 CFR 60.332(f) is in effect. The report shall include the ambient conditions existing during the period, the date and time the air pollution control system was deactivated, and the date and time when the air pollution control system was reactivated.
2. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:
  - a. An identification of all exceedances of the rolling, 12-month natural gas usage rate for emissions units P001-P008;
  - b. An identification of all exceedances of the rolling, 12-month emission limitations for PE/PM10, SO<sub>2</sub>, NO<sub>x</sub>, CO, H<sub>2</sub>SO<sub>4</sub> mist, VOC and benzene;
  - c. An identification of all exceedances of the sulfur content (i.e. 0.05%, by weight) of the fuels (natural gas and diesel fuel) received for burning in this emissions unit;
  - d. An identification of all exceedances of the SO<sub>2</sub> lbs/mmBtu limitation of the diesel fuel received for burning in this emissions unit;
  - e. An identification of all exceedances of the 1.0 hour startup/shutdown cycle operational restriction;
  - f. An identification of all exceedances of the rolling, 12-month diesel fuel usage rate for emissions units P001-P008;
  - g. An identification of all exceedances of the startup and shut down emission limitations in term A. I.1 when burning natural gas; and
  - h. An identification of all exceedances of the startup and shut down emission limitations in term A. I.1 when burning diesel fuel.
  - i. An identification of each day when a fuel other than natural gas or diesel fuel was burned in this emissions unit.
3. All quarterly deviation reports shall be submitted in accordance with the reporting requirements specified in Part I - General Terms and Conditions A.1.c.ii unless otherwise specified.
4. Pursuant to OAC rules 3745-15-04, 3745-35-02, and ORC sections 3704.03(l) and 3704.031 and 40 CFR Parts 60.7 and 60.13(h), the permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting the date, commencement and completion times, duration, magnitude, reason (if known), and corrective actions taken (if any), of all instances of NO<sub>x</sub> values in excess of the applicable limits specified in 40 CFR Part 76 or any limitations specified in the terms and conditions of this permit. These reports shall also contain the total NO<sub>x</sub> emissions for the calendar quarter (in tons), including all data collected during startup and shutdown periods or generated pursuant to the missing data procedures specified in 40 CFR Part 75.

The permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting any continuous NO<sub>x</sub> monitoring system downtime while the emissions unit was on line (date, time, duration and reason) along with any corrective action(s) taken. The permittee shall provide the emissions unit operating time during the reporting period and the date, time, reason and corrective action(s) taken for each time period of emissions unit and control equipment malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report.

#### **IV. Reporting Requirements (continued)**

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 emissions unit, control equipment, and/or monitoring system malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line also shall be included in the quarterly report. These quarterly excess emission reports shall be submitted by January 31, April 30, July 31, and October 31 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 appropriate Ohio EPA District Office or local air agency within 30 days following the end of each calendar quarter in a manner prescribed by the Director.

5. Pursuant to OAC rules 3745-15-04, 3745-35-02, and ORC sections 3704.03(I) and 3704.031 and 40 CFR Parts 60.7 and 60.13(h), the permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting the date, commencement and completion times, duration, magnitude, reason (if known), and corrective actions taken (if any) of all instances of CO values in excess of any applicable limitation(s) specified in OAC Chapter 3745-21, 40 CFR Part 60, or any limitation(s) specified in the terms and conditions of this permit, in units of the standard. These reports shall also contain the total CO emissions for the calendar quarter (in tons), including all data collected during startup and shutdown periods or generated pursuant to the missing data procedures for fuel flow measurement as specified in 40 CFR Part 75.

The permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting any continuous CO monitoring system downtime while the emissions unit was on line (date, time, duration and reason) along with any corrective action(s) taken. The permittee shall provide the emissions unit operating time during the reporting period and the date, time, reason and corrective action(s) taken for each time period of emissions unit and control equipment malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report.

If there are no excess emissions during the calendar quarter, the permittee shall submit a statement to that effect along with the emissions unit operating time during the reporting period and the date, time, reason, and corrective action(s) taken for each time period of emissions unit, control equipment, and/or monitoring system malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report. These quarterly excess emission reports shall be submitted by January 31, April 30, July 31, and October 31 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 appropriate local air agency within 30 days following the end of each calendar quarter in a manner prescribed by the Director.

6. The permittee shall submit annual reports that specify the total NO<sub>x</sub>, CO, PE/PM<sub>10</sub>, VOC, SO<sub>2</sub>, benzene and H<sub>2</sub>SO<sub>4</sub> emissions from this emissions unit for the calendar year. These reports shall be submitted by January 31 of each year and cover the previous calendar year.

#### **V. Testing Requirements**

1. Compliance with the emission limitations, fuel usage restrictions and sulfur content limitations specified in Sections A.I and A.II shall be determined by the following methods:

## V. Testing Requirements (continued)

- 1.a** Emission Limitations: The emissions from startup and shutdown operations shall not exceed the following emission limitations for this emissions unit:

Natural Gas  
NOx: 83 lbs/cycle  
CO: 308 lbs/cycle

Diesel Fuel  
NOx: 130 lbs/cycle  
CO: 354 lbs/cycle

Applicable Compliance Method: The lbs/cycle emissions limitations were established based on emissions data contained in the PTI modification application (PTI 14-04682) submitted March, 2001 and the emission factors from the background document, Reference 16, for Stationary Gas Turbines in AP-42, Fifth Edition, Section 3.1, dated April 2000.

Compliance with the NOx emission limitations shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Sections A.III.5 and A.III.9.

- 1.b** Emission Limitations: The hourly emissions from this emissions unit shall not exceed the following amounts:

- i. 58.0 lbs of SO<sub>2</sub> emissions/hour;
- ii. 54.0 lbs of CO emissions/hour;
- iii. 196.0 lbs of NO<sub>x</sub> emissions/hour;
- iv. 6.0 lbs of H<sub>2</sub>SO<sub>4</sub> mist emissions/hour; and
- v. 10.0 lbs of VOC emissions/hour.

Applicable Compliance Method: The hourly emission limitations are based upon the emission unit's potential to emit and the emission factors from the background document for Stationary Gas Turbines in AP-42, Fifth Edition, Section 3.1, dated April 2000.

Compliance with the NOx emission limitation shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Section A.III.9.

Compliance with the CO emission limitation shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Section A.III.10.

If required, the permittee shall demonstrate compliance with the hourly NO<sub>x</sub> emission limitation through emission test performed in accordance with Methods 1-4 and 7 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Section 60.334(c)(1).

If required, the permittee shall demonstrate compliance with the hourly SO<sub>2</sub> emission limitation through emission tests performed in accordance with Methods 1-4 and 6 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

If required, the permittee shall demonstrate compliance with the hourly CO emission limitation through emission tests performed in accordance with Methods 1-4 and 10 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

## V. Testing Requirements (continued)

If required, the permittee shall demonstrate compliance with the hourly H<sub>2</sub>SO<sub>4</sub> mist emission limitation through emission tests performed in accordance with Methods 1-4 and 8 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

If required, the permittee shall demonstrate compliance with the hourly VOC emission limitation through emission tests performed in accordance with Methods 1-4 and 25 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

**1.c** Emission Limitations: The total emissions from emission units P001-P008 combined shall not exceed the following emission limitations:

- i. 60.5 tons of PE/PM<sub>10</sub> emissions per rolling, 12-month period;
- ii. 120.8 tons of SO<sub>2</sub> emissions per rolling, 12-month period;
- iii. 733.3 tons of NO<sub>x</sub> emissions per rolling, 12-month period;
- iv. 541.0 tons of CO emissions per rolling, 12-month period;
- v. 36.4 tons of VOC emissions per rolling, 12-month period;
- vi. 12.2 tons of H<sub>2</sub>SO<sub>4</sub> mist emissions per rolling, 12-month period;
- vii. 7.7 tons of benzene emissions per rolling, 12-month period;
- viii. 0.00084 ton of beryllium emissions per rolling, 12-month period; and
- ix. 0.012 ton of arsenic emissions per rolling, 12-month period.

Applicable Compliance Method: Compliance with the annual PE/PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC, H<sub>2</sub>SO<sub>4</sub> and benzene emission limitations specified above shall be determined by the record keeping requirements specified in Section A.III.6 .

Compliance with the annual beryllium and arsenic emission limitations specified above may be determined by multiplying the pollutant specific emission factor found in AP-42, Fifth Edition, Section 3.1 "Stationary Gas Turbines," updated 4/00, by the amount of fuel collected and recorded in Sections A.III.4 (for natural gas) and A.III.4 (for diesel fuel) by the specific heat content of the each fuel employed.

The specific heat content for diesel fuel oil shall be taken from the information collected and recorded in A.III.8.

**1.d** Emission Limitations:

- i. 0.15 TPY of lead emissions; and
- ii. 0.0023 TPY of mercury emissions.

Applicable Compliance Method: Compliance with the TPY lead and mercury emission limitations specified above may be determined by multiplying the pollutant specific emission factor found in AP-42, Fifth Edition, Section 3.1 "Stationary Gas Turbines," updated 4/00, by the amount of fuel collected and recorded in Sections A.III.4 (for natural gas) and A.III.4 (for diesel fuel) by the specific heat content of the each fuel employed. The heat content for the diesel fuel shall also be taken from the information collected and recorded in Section A.III.8.

## V. Testing Requirements (continued)

**1.e** Emission Limitations: The following NO<sub>x</sub> emission limitations shall not be exceeded:

- i. 15 ppm of NO<sub>x</sub> emissions, by volume, at 15% oxygen on a dry basis when firing natural gas, as a 1-hour average;
- ii. 42 ppm of NO<sub>x</sub> emissions, by volume, at 15% oxygen on a dry basis when firing diesel fuel, as a 1-hour average; and
- iii. When burning natural gas, the NO<sub>x</sub> emission rate shall not exceed 12 ppm, by volume, at 15% oxygen on a dry basis, based on a rolling, 12-month summation of the monthly NO<sub>x</sub> emissions in ppm.

Applicable Compliance Method: Compliance with the NO<sub>x</sub> emission limitations shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Section A.III.9.

If required, the permittee shall demonstrate compliance with the ppm NO<sub>x</sub> emission limitations through emission tests performed in accordance with Methods 1-4 and 7 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Section 60.334(c)(1).

**1.f** PE/PM<sub>10</sub> Emission Limitation: 0.008 lb of PE/PM<sub>10</sub> emissions/mmBtu

Applicable Compliance Method: Compliance with the PE/PM<sub>10</sub> emission limitation may be determined by the manufacturer's guaranteed emissions data found in PTI 14-4682 submitted April 26, 1999.

If required, the permittee shall demonstrate compliance with the PE/PM<sub>10</sub> emission limitation through emission tests performed in accordance with Methods 1-5 of 40 CFR Part 60, Appendix A.

**1.g** Visible PE Limitation: Visible PE from any stack shall not exceed 20% opacity, as a 6-minute average, except as specified by rule, when burning diesel fuel.

Applicable Compliance Method: If required, compliance with the visible PE limitation shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Test Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

**1.h** Visible PE Limitation: Visible PE from any stack shall not exceed 10% opacity, as a 6-minute average, when burning pipeline natural gas.

Applicable Compliance Method: If required, compliance with the visible PE limitation shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Test Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

**1.i** SO<sub>2</sub> Emission Limitation: 0.0456 lb of SO<sub>2</sub> emissions/mmBtu when burning diesel fuel;

Applicable Compliance Method: Compliance with the SO<sub>2</sub> emission limitation shall be determined by the sulfur analysis of the fuels combusted pursuant to the requirements specified in Sections A.III.7 and A.III.8, and by documenting that the sulfur content of each shipment of oil received during a calendar month meets the 0.05% sulfur content restriction.

If required, the permittee shall demonstrate compliance with the SO<sub>2</sub> emission limitation through emission tests performed in accordance with Methods 1-4 and 6 of 40 CFR Part 60, Appendix A.

**1.j** Sulfur Content Restriction: not to exceed 0.05% sulfur, by weight, when burning natural gas or diesel fuel

Applicable Compliance Method: Compliance with the sulfur content restriction shall be determined using standard methods as required in 40 CFR Section 60.335 and the information collected and recorded in Sections A.III.7 and A.III.8.

**V. Testing Requirements (continued)**

- 1.k** Natural Gas and Diesel Fuel Usage Restrictions: The total maximum annual natural gas usage rate for emissions units P001-P008 combined shall not exceed 20.3 billion cubic feet per year, based upon a rolling, 12-month summation of the natural gas usage rate. The total maximum annual diesel fuel usage rate for emissions units P001-P008 combined shall not exceed 34 million gallons per year, based upon a rolling, 12-month summation of the diesel fuel usage rate.

Applicable Compliance Method: Compliance with the natural gas and diesel fuel usage restrictions shall be determined by the record keeping requirements specified in Section A.III.4.

**VI. Miscellaneous Requirements**

**None**

**B. State Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
80 Megawatt (nominal) natural gas/No. 2 fuel oil fired simple-cycle combustion turbine	OAC rules 3745-31-11 thru OAC rule 3745-31-20	These rules are equivalent to 40 CFR Part 52.21. At the time of permit, issuance these regulations have been promulgated in the OAC. However, they have not yet been added to the Ohio SIP.
	OAC rule 3745-31-28	This rule is equivalent to 40 CFR 63.41-40 CFR Part 63.44. At the time of permit, issuance these regulations have been promulgated in the OAC. However, they have not yet been added to the Ohio SIP.

**2. Additional Terms and Conditions**

None

**II. Operational Restrictions**

None

**III. Monitoring and/or Record Keeping Requirements**

None

**IV. Reporting Requirements**

None

**V. Testing Requirements**

None

**VI. Miscellaneous Requirements**

None

### Part III - Terms and Conditions for Emissions Units

**Emissions Unit ID:** #6 Turbine (P006)

**Activity Description:** 80 Megawatt (Nominal) Simple-Cycle Combustion Turbine #6

#### A. State and Federally Enforceable Section

##### I. Applicable Emissions Limitations and/or Control Requirements

- The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
80 megawatt (nominal) natural gas/diesel fuel fired simple-cycle combustion turbine	OAC rule 3745-31-05(D) (PTI 14-4682)	<p>This emissions unit shall not exceed the following emission limitations at all load conditions, including startup and shutdown:</p> <p>54.0 lbs of carbon monoxide (CO) emissions/hour</p> <p>58.0 lbs of sulfur dioxide (SO<sub>2</sub>) emissions/hour*</p> <p>6.0 lbs of hydrogen sulfate (H<sub>2</sub>SO<sub>4</sub>) mist emissions/hour*</p> <p>10.0 lbs of volatile organic compound (VOC) emissions/hour*</p> <p>0.008 lb of particulate emissions (PE)/particulate matter with a diameter of 10 microns or less (PM<sub>10</sub> emissions)/mmBtu*</p>

\* The hourly emission limitations and the lb of PE/PM<sub>10</sub> emissions/mmBtu limitation specified above represent this emissions unit's potential to emit for all operating conditions, including startup and shutdown. Therefore, no additional monitoring, record keeping or reporting requirements are required to demonstrate compliance with these emission limitations.

**Operations, Property,  
and/or Equipment**

**Applicable Rules/  
Requirements**

**Applicable Emissions  
Limitations/Control  
Measures**

The total emissions from emissions units P001 through P008 combined shall not exceed the emission limitations specified below. The annual emission limitations include emissions from operating at "startup and shutdown", "normal", and "full load" conditions combined and for all fuel types (i.e., natural gas and diesel fuel).

60.5 tons of PE/PM10 emissions per rolling, 12-month period

120.8 tons of SO2 emissions per rolling, 12-month period

733.3 tons of NOx emissions per rolling, 12-month period

541.0 tons of CO emissions per rolling, 12-month period

12.2 tons of H2SO4 mist emissions per rolling, 12-month period

36.4 tons of VOC emissions per rolling, 12-month period

7.7 tons of benzene emissions per rolling, 12-month period

0.00084 ton of beryllium emissions per rolling, 12-month period

0.012 ton of arsenic emissions per rolling, 12-month period

Emissions from startup and shutdown operations shall not exceed the following emission limitations:

Natural Gas

NOx: 83 lbs/cycle  
CO: 308 lbs/cycle

Diesel Fuel

NOx: 130 lbs/cycle  
CO: 354 lbs/cycle

Facility Name: **Duke Energy Madison, LLC**  
Facility ID: **14-09-00-0896**  
Emissions Unit: **#6 Turbine (P006)**

**Operations, Property,  
and/or Equipment**

**Applicable Rules/  
Requirements**

**Applicable Emissions  
Limitations/Control  
Measures**

		196.0 lbs of nitrogen oxides (NOx) emissions/hour
		15 ppm of NOx by volume at 15% oxygen on a dry basis when burning natural gas (as a 1-hour average, excluding startup and shutdown conditions)
		42 ppm of NOx by volume at 15% oxygen on a dry basis when burning diesel fuel (as a 1-hour average, excluding startup and shutdown conditions)
		12 ppm of NOx by volume at 15% oxygen on a dry basis, when burning natural gas, based on a rolling, 12-month summation of the monthly NOx emissions in ppm (excluding startup and shutdown conditions)
		0.05% sulfur content, by weight, for diesel fuel and natural gas
		0.0456 lbs of SO2 emissions/mmBtu, for diesel fuel
40 CFR Part 60, Subpart GG		The emission limitations established in 40 CFR Part 60, Subpart GG for SO2 and NOx are less stringent than those established pursuant to OAC rule 3745-31-05(D).
Best Available Control Technology is equivalent to Section 112g of the Clean Air Act		For the purposes of this permit and for the hazardous air pollutants (HAPs) emitted from this emissions unit, the best available control technology determination to satisfy the requirements of 40 CFR Part 52.21 is equivalent to the maximum achievable control technology determination used to satisfy the requirements of 40 CFR Parts 63.41 thru 63.44.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
	OAC rule 3745-31-05(A)(3) (PTI 14-04682)	Emissions from this emissions unit shall not exceed the following emission limitations:  0.15 TPY of lead emissions 0.0023 TPY of mercury emissions  See Section A.I.2.b below.  Compliance with this rule also include compliance with the requirements of OAC rules 3745-31-05(D) and 3745-17-07(A) when burning diesel fuel.
	OAC rule 3745-17-11(B)(4)	The PE limitation specified by this rule is less stringent the PE limitation established pursuant to OAC rule 3745-31-05(D).
	OAC rule 3745-17-07(A)(1)	See Section A.I.2.a below.
	OAC rule 3745-18-06(F)	The SO <sub>2</sub> emission limitation specified by this rule (0.5 lb of SO <sub>2</sub> emissions/mmBtu) is less stringent than the SO <sub>2</sub> emission limitation established pursuant to OAC rule 3745-31-05(D).

**2. Additional Terms and Conditions**

- 2.a** Visible PE from any stack shall not exceed 20% opacity, as a 6-minute average, except as specified by rule when combusting diesel fuel.
- 2.b** Visible PE from any stack shall not exceed 10% opacity, as a 6-minute average when combusting natural gas.
- 2.c** The permittee shall install and maintain dry low NO<sub>x</sub> burners when burning natural gas and install and maintain a water injection system when burning diesel fuel.
- 2.d** The permittee is subject to the requirements of 40 CFR Parts 72 and 75 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.
- 2.e** "Full load" shall be defined as the nameplate electrical output of 84.65 megawatts. Any load that is greater than or equal to 90% of the nameplate electrical output shall be considered full load.
- 2.f** "Normal operation" shall be defined as the period when the combustion turbine achieves dry low NO<sub>x</sub> mode (GE Mode 6). GE Mode 6 is defined by the manufacturer as the low emissions mode during which all burner nozzles are in use, burning a lean pre-mixed gas for steady-state operation. The continuous emissions monitoring system will indicate and record the GE Mode 6 status of the combustion turbine, including when the emissions unit is shutdown and when operating in startup and shutdown modes.

## **2. Additional Terms and Conditions (continued)**

- 2.g** "Startup" shall be defined as the period between when the combustion turbine is initially started (initial fuel light-off) until the combustion turbine completes transition to GE Mode 6. "Shutdown" shall be defined as the period beginning when the combustion turbine leaves the GE Mode 6 and ending when combustion has ceased.
- 2.h** Compliance with the startup and shutdown NO<sub>x</sub> and CO lbs/cycle values and NO<sub>x</sub> and CO emission limitations during steady-state operations shall be demonstrated by the use of dual range NO<sub>x</sub> and CO Continuous Emission Monitors (CEMs). For CEM systems with dual ranges, certification testing shall be performed on the range normally used for measuring emissions.
- 2.i** For the purpose of this permit, the term "diesel fuel" shall be considered to be any distillate fuel oil that is employed as a fuel in this emissions unit as defined in 40 CFR Part 72.2.

## **II. Operational Restrictions**

- 1.** The maximum annual natural gas usage rate for emissions units P001-P008 shall not exceed 20.3 billion (2.03 x 10<sup>10</sup>) cubic feet per rolling, 12-month period.
- 2.** The maximum annual diesel fuel usage rate for emissions units P001-P008 shall not exceed 34 million (3.40 x 10<sup>7</sup>) gallons per rolling, 12-month period.
- 3.** The permittee shall burn only natural gas, of pipeline quality, or diesel fuel in this emissions unit.
- 4.** The quality of diesel fuel burned in this emissions unit shall have a combination of heat and sulfur content which is sufficient to comply with the allowable SO<sub>2</sub> emission limitation of 0.0456 lb of SO<sub>2</sub>/MMBtu of actual heat input. The diesel fuel shall have a sulfur content of 0.05% or less.
- 5.** When the emissions unit is operating in startup or shutdown conditions, as defined in Section A.I.2.g above, each startup or shutdown cycle shall not exceed 1.0 hours in duration.
- 6.** With the exception of startup and shutdown, this emissions unit shall be operated in GE Mode 6, defined as normal operation (ref. Section A.I.2.f above).

## **III. Monitoring and/or Record Keeping Requirements**

- 1.** For each day during which the permittee burns a fuel other than natural gas and/or diesel fuel, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
- 2.** The permittee shall install, operate, and maintain equipment to continuously monitor and record the actual fuel flow to this emissions unit when it 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.
- 3.** The permittee shall maintain records that document the following:
  - a.** the emissions unit's actual electrical output for each operating hour;
  - b.** all periods of time when the emissions unit was operating in startup and shutdown conditions.

### III. Monitoring and/or Record Keeping Requirements (continued)

4. The permittee shall maintain monthly records of the following information in order to monitor compliance with the applicable fuel usage restrictions:
  - a. the total amount of natural gas burned, in cubic feet, for this emissions unit;
  - b. the total amount of diesel fuel burned, in gallons, for this emissions unit;
  - c. the total amount of natural gas burned, in cubic feet, for emission units P001-P008, combined;
  - d. the total amount of diesel fuel burned, in gallons, for emissions units P001-P008, combined;
  - e. the rolling, 12-month summation for the total amount of natural gas burned, in cubic feet, for emissions units P001-P008, combined (the amount of natural gas burned for the current month plus the total amount of natural gas burned for the previous eleven calendar months); and
  - f. the rolling, 12-month summation for the total amount of diesel fuel burned in emissions units P001-P008, combined (the amount of diesel fuel burned for the current month plus the total amount of diesel fuel burned for the previous eleven calendar months).
5. The permittee shall maintain monthly records of the following information for emissions units P001-P008 in order to monitor compliance with the startup and shutdown emission limitations and operational restrictions:
  - a. the date and duration, in minutes, of each startup/shutdown cycle
  - b. the emissions, in pounds, for NO<sub>x</sub> and CO when burning natural gas at startup and shutdown operation modes; and
  - c. the emissions, in pounds, for NO<sub>x</sub> and CO when burning diesel fuel at startup and shutdown operation modes.

The permittee shall use the continuous NO<sub>x</sub> and CO emissions monitoring data to determine the NO<sub>x</sub> and CO emissions for these emissions units. During any period when the NO<sub>x</sub> and/or the CO emissions monitoring systems are not operational, the permittee shall use the appropriate missing data procedures specified in 40 CFR Part 75 to determine NO<sub>x</sub> and CO emissions or an approved data substitution protocol.

### III. Monitoring and/or Record Keeping Requirements (continued)

6. The permittee shall maintain monthly records of the following information for emission units P001- P008 in order to monitor compliance with the rolling, 12- month summation, emissions limitations:
- the total emissions, in tons, for NO<sub>x</sub>\*, CO\*, PE/PM<sub>10</sub>, SO<sub>2</sub>, VOC, H<sub>2</sub>SO<sub>4</sub>, and benzene when burning natural gas for all operational loads;
  - the total emissions, in tons, for NO<sub>x</sub>\*, CO\*, PE/PM<sub>10</sub>, SO<sub>2</sub>, VOC, H<sub>2</sub>SO<sub>4</sub>, and benzene when burning diesel fuel for all operational modes;
  - the rolling, 12-month summation emissions total, in tons, for NO<sub>x</sub>, CO, PE/PM<sub>10</sub>, SO<sub>2</sub>, VOC, H<sub>2</sub>SO<sub>4</sub>, and benzene for emission units P001-P008, combined when burning natural gas and diesel fuel (the total amount of emissions calculated in a + b) for the current month plus the total amount of emissions for the previous eleven calendar months).
  - the updated rolling, 12-month average of NO<sub>x</sub> emissions, in ppm, when burning natural gas at normal operations for this emissions unit (the NO<sub>x</sub> ppm average for the current month (from the CEMs data) plus the total NO<sub>x</sub> ppm average for the previous eleven calendar months).

\* The permittee shall use the continuous NO<sub>x</sub> and CO emissions monitoring data to determine the NO<sub>x</sub> and CO emissions for these emissions units. During any period when the NO<sub>x</sub> and/or the CO emissions monitoring systems are not operational, the permittee shall use the appropriate missing data procedures specified in 40 CFR Part 75 to determine NO<sub>x</sub> and CO emissions or an approved data substitution protocol.

7. The permittee shall monitor the sulfur content of the fuel being fired in the turbine. The frequency of the monitoring shall be determined as follows:
- If the turbine is supplied its fuel from a bulk storage tank, the values shall be determined on each occasion that fuel is transferred to the storage tank from any other source.
  - If the turbine is supplied its fuel without intermediate bulk storage, the values shall be determined and recorded daily. Owners, operators or fuel vendors may develop custom fuel schedules for the determination of the values based on the design and operation of the affected facility and the characteristics of the fuel supply. These custom schedules shall be substantiated with data and must be approved by the Ohio EPA, Central Office before they can be used.
  - For each shipment of diesel fuel oil received for burning in this emissions unit, the permittee shall maintain records of the total quantity of diesel fuel oil received and the permittee's or diesel fuel oil supplier's analyses for sulfur content and heat content.(See Section A.III.8 below)

Analyses for the purpose of determining the sulfur content of the natural gas may be performed by the permittee, the fuel vendor, or any other qualified agency in accordance with the analytical methods specified in 40 CFR Part 60, Subpart GG, Section 60.335(d), 40 CFR Part 75, or the appropriate ASTM methods, or equivalent methods as approved by the Director.

8. For each shipment of diesel fuel received for burning in this emissions unit, the permittee shall maintain records of the total quantity of diesel fuel oil received, the permittee's or diesel fuel oil supplier's analyses for sulfur content and heat content, and the calculated sulfur dioxide emission rate (in lbs/MMBtu). [The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F)]. A shipment may be comprised of multiple tank truck loads from the same supplier's batch, or may be represented by single or multiple pipeline deliveries from the same supplier's batch, and the quality of the diesel fuel oil for those loads or pipeline deliveries may be represented by a single batch analysis from the supplier.

The permittee shall perform or require the supplier to perform the analyses for sulfur content and heat content in accordance with 40 CFR Part 60, Appendix A, Method 19, or the appropriate ASTM methods (such as, ASTM methods D240, D4294,),or equivalent methods as approved by the Director.

### III. Monitoring and/or Record Keeping Requirements (continued)

The permittee shall maintain records of the oil burned in this emissions unit in accordance with either Alternative 1 or Alternative 2 described below:

a. Alternative 1:

For each shipment of oil received for burning in this emissions unit, the permittee shall collect or require the oil supplier to collect a representative grab sample of oil and maintain records of the total quantity of oil received, the permittee's or oil supplier's analyses for sulfur content and heat content, and the calculated sulfur dioxide emission rate (in lbs/MMBtu). (The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F).) A shipment may be comprised of multiple tank truck loads from the same supplier's batch, and the quality of the oil for those loads may be represented by a single batch analysis from the supplier.

b. Alternative 2:

The permittee shall collect a representative grab sample of oil that is burned in this emissions unit for each day when the emission unit is in operation. If additional fuel oil is added to the tank serving this emissions unit on a day when the emissions unit is in operation, the permittee shall collect a sufficient number of grab samples to develop a composite sample representative of the fuel oil burned in this emissions unit. A representative grab sample of oil does not need to be collected on days when this emissions unit is only operated for the purpose of "test-firing". The permittee shall maintain records of the total quantity of oil burned each day; except for the purpose of test-firing, the permittee's analyses for sulfur content and heat content, and the calculated sulfur dioxide emission rate (in lbs/MMBtu). [The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F)]

#### 9. Continuous NOx Monitoring

a. In lieu of complying with the monitoring and testing provisions of 40 CFR 60.334 and 60.345 to demonstrate compliance with the NOx emission limitations, the permittee shall operate and maintain systems to continuously monitor and record emissions of NOx from this emissions unit in accordance with this permit.

b. The permittee shall install, operate and maintain equipment to continuously monitor and record NOx from this emissions unit in units of the applicable standard. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13 and/or 40 CFR Part 75.

c. The permittee shall maintain records of the following data obtained by the continuous NOx monitoring system: parts per million (ppm) NOx at 15% oxygen (hourly average), lbs of NOx/hour, results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

d. A statement of certification of the existing continuous NOx monitoring system shall be maintained on site and shall consist of a letter from Ohio EPA detailing the results of an Agency review of the certification tests and a statement by the Agency that the system is considered certified in accordance with the requirements of 40 CFR Part 60, Appendix B, Performance Specification 2 and/or 40 CFR Part 75, Appendix D and Appendix F. Proof of certification shall be made available to the Hamilton County Department of Environmental Services - Air Quality Control Division upon request.

e. Prior to the installation of the continuous NOx monitoring system, 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 and 40 CFR Part 75, Appendix A, for approval by the Ohio EPA, Central Office.

### **III. Monitoring and/or Record Keeping Requirements (continued)**

f. Certification in pounds NO<sub>x</sub> per hour: Within 60 days of the startup of this emissions unit, but not later than 180 days after the initial startup of this emissions unit, the permittee shall conduct certification tests of such equipment pursuant to ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 2, and/or 40 CFR Part 75. When NO<sub>x</sub> mass emissions are being determined as allowed in 40 CFR Part 75, Appendix D and Appendix F, certification testing to show compliance with 40 CFR Part 60, Appendix B, Performance Specification 6 shall not be necessary. However, a stack test shall be conducted to demonstrate 40 CFR Part 75, Appendix F, NO<sub>x</sub> mass determinations.

Personnel from the Hamilton County Department of Environmental Services - Air Quality Control Division 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, all copies of the test results shall be submitted to the Hamilton County Department of Environmental Services - Air Quality Control Division within 30 days after the test is completed. Certification of the continuous NO<sub>x</sub> monitoring system shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 2 and/or 40 CFR Part 75.

g. Within 180 days of the effective date of this permit, the permittee shall develop and maintain a written quality assurance/quality control plan for the continuous NO<sub>x</sub> monitoring system designed to ensure continuous valid and representative readings of NO<sub>x</sub> emissions in units of the applicable standard. The plan shall follow the requirements of 40 CFR Part 60, Appendix F and/or 40 CFR Part 75, Appendix B. The quality assurance/quality control plan and a logbook dedicated to the CEM systems must be kept on site and available for inspection during regular office hours. These documents may be kept in electronic and/or hardcopy format.

#### **10. Continuous CO Monitoring**

a. The permittee shall install, operate and maintain equipment to continuously monitor and record CO from this emissions unit in lbs CO/hour and in the units of any other applicable standard. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13.

b. The permittee shall maintain records of all data obtained by the continuous CO monitoring system including, but not limited to, ppm CO at a minimum of 4 data points per hour sufficient to generate an hourly average, emissions of CO in units of the applicable standard in the appropriate averaging period (hourly), results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

c. A statement of certification of the existing continuous CO monitoring system shall be maintained on site and shall consist of a letter from Ohio EPA detailing the results of an Agency review of the certification tests and a statement by the Agency that the system is considered certified in accordance with the requirements of 40 CFR Part 60, Appendix B, Performance Specification 4. Proof of certification shall be made available to the Hamilton County Department of Environmental Services - Air Quality Control Division upon request.

d. Prior to installation of the continuous CO monitoring system, 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 4 for approval by the Ohio EPA, Central Office.

### III. Monitoring and/or Record Keeping Requirements (continued)

e. Certification in pounds CO per hour: Within 60 days of the effective date of this permit, but not later than 180 days after the initial startup of this emissions unit, the permittee shall conduct certification tests of the continuous CO monitoring system pursuant to ORC section 3704.03(I), 40 CFR Part 60, Appendix B, Performance Specification 4. CO mass emissions may be determined in the same manner as NO<sub>x</sub> emissions in term A.III.10. of this permit using the appropriate CO values in place of the cited NO<sub>x</sub> values. When CO mass emissions are being determined in this manner, certification testing to show compliance with 40 CFR 60, Appendix B, Performance Specification 6 will not be necessary. However, a stack test shall be conducted for CO mass determinations with an accuracy that is equivalent to that required in 40 CFR Part 75, Appendix D.

Personnel from the Hamilton County Department of Environmental Services - Air Quality Control Division 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, all copies of the test results shall be submitted to the Hamilton County Department of Environmental Services - Air Quality Control Division within 30 days after the test is completed. Certification of the continuous CO monitoring system shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 4.

f. Within 180 days of the effective date of this permit, the permittee shall develop and maintain a written quality assurance/quality control plan for the continuous CO monitoring system designed to ensure continuous valid and representative readings of CO. The plan shall follow the requirements of 40 CFR Part 60, Appendix F. The quality assurance/quality control plan and a logbook dedicated to the CEM systems must be kept on site and available for inspection during regular office hours. These documents may be kept in electronic and/or hardcopy format.

#### 11. Continuous O<sub>2</sub> Monitoring

a. The permittee shall operate and maintain equipment to continuously monitor and record O<sub>2</sub> from this emissions unit, in percent O<sub>2</sub>. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13 and/or 40 CFR Part 75.

b. The permittee shall maintain records of all data obtained by the continuous O<sub>2</sub> monitoring system including, but not limited to, percent O<sub>2</sub> at a minimum of 4 data points per hour sufficient to generate an hourly average, results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

c. Prior to the installation of the continuous O<sub>2</sub> monitoring system, 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 3 and 40 CFR Part 75 for approval by the Ohio EPA, Central Office.

d. Within 60 days of the startup of this emissions unit, but not later than 180 days after the initial startup of this emissions unit, the permittee shall conduct certification tests of the continuous O<sub>2</sub> monitoring system pursuant to ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 3, and/or 40 CFR Part 75. Personnel from the Hamilton County Department of Environmental Services - Air Quality Control Division 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, all copies of the test results shall be submitted to the Hamilton County Department of Environmental Services - Air Quality Control Division within 30 days after the test is completed. Certification of the continuous O<sub>2</sub> monitoring system shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 3 and/or 40 CFR Part 75.

e. Within 180 days of the effective date of this permit, the permittee shall develop and maintain a written quality assurance/quality control plan for the continuous O<sub>2</sub> monitoring system designed to ensure continuous valid and representative readings of O<sub>2</sub> emissions in units of the applicable standard. The plan shall follow the requirements of 40 CFR Part 60, Appendix F and/or 40 CFR Part 75, Appendix B. The quality assurance/quality control plan and a logbook dedicated to the CEM systems must be kept on site and available for inspection during regular office hours. These documents may be kept in electronic and/or hardcopy format.

#### IV. Reporting Requirements

1. The permittee shall submit quarterly reports that identify each period during which an exemption for ice-fog provided in 40 CFR 60.332(f) is in effect. The report shall include the ambient conditions existing during the period, the date and time the air pollution control system was deactivated, and the date and time when the air pollution control system was reactivated.
2. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:
  - a. An identification of all exceedances of the rolling, 12-month natural gas usage rate for emissions units P001-P008;
  - b. An identification of all exceedances of the rolling, 12-month emission limitations for PE/PM10, SO<sub>2</sub>, NO<sub>x</sub>, CO, H<sub>2</sub>SO<sub>4</sub> mist, VOC and benzene;
  - c. An identification of all exceedances of the sulfur content (i.e. 0.05%, by weight) of the fuels (natural gas and diesel fuel) received for burning in this emissions unit;
  - d. An identification of all exceedances of the SO<sub>2</sub> lbs/mmBtu limitation of the diesel fuel received for burning in this emissions unit;
  - e. An identification of all exceedances of the 1.0 hour startup/shutdown cycle operational restriction;
  - f. An identification of all exceedances of the rolling, 12-month diesel fuel usage rate for emissions units P001-P008;
  - g. An identification of all exceedances of the startup and shut down emission limitations in term A. I.1 when burning natural gas; and
  - h. An identification of all exceedances of the startup and shut down emission limitations in term A. I.1 when burning diesel fuel.
  - i. An identification of each day when a fuel other than natural gas or diesel fuel was burned in this emissions unit.
3. All quarterly deviation reports shall be submitted in accordance with the reporting requirements specified in Part I - General Terms and Conditions A.1.c.ii unless otherwise specified.
4. Pursuant to OAC rules 3745-15-04, 3745-35-02, and ORC sections 3704.03(l) and 3704.031 and 40 CFR Parts 60.7 and 60.13(h), the permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting the date, commencement and completion times, duration, magnitude, reason (if known), and corrective actions taken (if any), of all instances of NO<sub>x</sub> values in excess of the applicable limits specified in 40 CFR Part 76 or any limitations specified in the terms and conditions of this permit. These reports shall also contain the total NO<sub>x</sub> emissions for the calendar quarter (in tons), including all data collected during startup and shutdown periods or generated pursuant to the missing data procedures specified in 40 CFR Part 75.

The permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting any continuous NO<sub>x</sub> monitoring system downtime while the emissions unit was on line (date, time, duration and reason) along with any corrective action(s) taken. The permittee shall provide the emissions unit operating time during the reporting period and the date, time, reason and corrective action(s) taken for each time period of emissions unit and control equipment malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report.

#### **IV. Reporting Requirements (continued)**

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 emissions unit, control equipment, and/or monitoring system malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line also shall be included in the quarterly report. These quarterly excess emission reports shall be submitted by January 31, April 30, July 31, and October 31 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 appropriate Ohio EPA District Office or local air agency within 30 days following the end of each calendar quarter in a manner prescribed by the Director.

5. Pursuant to OAC rules 3745-15-04, 3745-35-02, and ORC sections 3704.03(I) and 3704.031 and 40 CFR Parts 60.7 and 60.13(h), the permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting the date, commencement and completion times, duration, magnitude, reason (if known), and corrective actions taken (if any) of all instances of CO values in excess of any applicable limitation(s) specified in OAC Chapter 3745-21, 40 CFR Part 60, or any limitation(s) specified in the terms and conditions of this permit, in units of the standard. These reports shall also contain the total CO emissions for the calendar quarter (in tons), including all data collected during startup and shutdown periods or generated pursuant to the missing data procedures for fuel flow measurement as specified in 40 CFR Part 75.

The permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting any continuous CO monitoring system downtime while the emissions unit was on line (date, time, duration and reason) along with any corrective action(s) taken. The permittee shall provide the emissions unit operating time during the reporting period and the date, time, reason and corrective action(s) taken for each time period of emissions unit and control equipment malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report.

If there are no excess emissions during the calendar quarter, the permittee shall submit a statement to that effect along with the emissions unit operating time during the reporting period and the date, time, reason, and corrective action(s) taken for each time period of emissions unit, control equipment, and/or monitoring system malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report. These quarterly excess emission reports shall be submitted by January 31, April 30, July 31, and October 31 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 appropriate local air agency within 30 days following the end of each calendar quarter in a manner prescribed by the Director.

6. The permittee shall submit annual reports that specify the total NO<sub>x</sub>, CO, PE/PM<sub>10</sub>, VOC, SO<sub>2</sub>, benzene and H<sub>2</sub>SO<sub>4</sub> emissions from this emissions unit for the calendar year. These reports shall be submitted by January 31 of each year and cover the previous calendar year.

#### **V. Testing Requirements**

1. Compliance with the emission limitations, fuel usage restrictions and sulfur content limitations specified in Sections A.I and A.II shall be determined by the following methods:

## V. Testing Requirements (continued)

- 1.a** Emission Limitations: The emissions from startup and shutdown operations shall not exceed the following emission limitations for this emissions unit:

Natural Gas  
NOx: 83 lbs/cycle  
CO: 308 lbs/cycle

Diesel Fuel  
NOx: 130 lbs/cycle  
CO: 354 lbs/cycle

Applicable Compliance Method: The lbs/cycle emissions limitations were established based on emissions data contained in the PTI modification application (PTI 14-04682) submitted March, 2001 and the emission factors from the background document, Reference 16, for Stationary Gas Turbines in AP-42, Fifth Edition, Section 3.1, dated April 2000.

Compliance with the NOx emission limitations shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Sections A.III.5 and A.III.9.

- 1.b** Emission Limitations: The hourly emissions from this emissions unit shall not exceed the following amounts:

- i. 58.0 lbs of SO<sub>2</sub> emissions/hour;
- ii. 54.0 lbs of CO emissions/hour;
- iii. 196.0 lbs of NO<sub>x</sub> emissions/hour;
- iv. 6.0 lbs of H<sub>2</sub>SO<sub>4</sub> mist emissions/hour; and
- v. 10.0 lbs of VOC emissions/hour.

Applicable Compliance Method: The hourly emission limitations are based upon the emission unit's potential to emit and the emission factors from the background document for Stationary Gas Turbines in AP-42, Fifth Edition, Section 3.1, dated April 2000.

Compliance with the NOx emission limitation shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Section A.III.9.

Compliance with the CO emission limitation shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Section A.III.10.

If required, the permittee shall demonstrate compliance with the hourly NO<sub>x</sub> emission limitation through emission test performed in accordance with Methods 1-4 and 7 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Section 60.334(c)(1).

If required, the permittee shall demonstrate compliance with the hourly SO<sub>2</sub> emission limitation through emission tests performed in accordance with Methods 1-4 and 6 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

If required, the permittee shall demonstrate compliance with the hourly CO emission limitation through emission tests performed in accordance with Methods 1-4 and 10 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

## V. Testing Requirements (continued)

If required, the permittee shall demonstrate compliance with the hourly H<sub>2</sub>SO<sub>4</sub> mist emission limitation through emission tests performed in accordance with Methods 1-4 and 8 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

If required, the permittee shall demonstrate compliance with the hourly VOC emission limitation through emission tests performed in accordance with Methods 1-4 and 25 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

**1.c** Emission Limitations: The total emissions from emission units P001-P008 combined shall not exceed the following emission limitations:

- i. 60.5 tons of PE/PM<sub>10</sub> emissions per rolling, 12-month period;
- ii. 120.8 tons of SO<sub>2</sub> emissions per rolling, 12-month period;
- iii. 733.3 tons of NO<sub>x</sub> emissions per rolling, 12-month period;
- iv. 541.0 tons of CO emissions per rolling, 12-month period;
- v. 36.4 tons of VOC emissions per rolling, 12-month period;
- vi. 12.2 tons of H<sub>2</sub>SO<sub>4</sub> mist emissions per rolling, 12-month period;
- vii. 7.7 tons of benzene emissions per rolling, 12-month period;
- viii. 0.00084 ton of beryllium emissions per rolling, 12-month period; and
- ix. 0.012 ton of arsenic emissions per rolling, 12-month period.

Applicable Compliance Method: Compliance with the annual PE/PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC, H<sub>2</sub>SO<sub>4</sub> and benzene emission limitations specified above shall be determined by the record keeping requirements specified in Section A.III.6 .

Compliance with the annual beryllium and arsenic emission limitations specified above may be determined by multiplying the pollutant specific emission factor found in AP-42, Fifth Edition, Section 3.1 "Stationary Gas Turbines," updated 4/00, by the amount of fuel collected and recorded in Sections A.III.4 (for natural gas) and A.III.4 (for diesel fuel) by the specific heat content of the each fuel employed.

The specific heat content for diesel fuel oil shall be taken from the information collected and recorded in A.III.8.

**1.d** Emission Limitations:

- i. 0.15 TPY of lead emissions; and
- ii. 0.0023 TPY of mercury emissions.

Applicable Compliance Method: Compliance with the TPY lead and mercury emission limitations specified above may be determined by multiplying the pollutant specific emission factor found in AP-42, Fifth Edition, Section 3.1 "Stationary Gas Turbines," updated 4/00, by the amount of fuel collected and recorded in Sections A.III.4 (for natural gas) and A.III.4 (for diesel fuel) by the specific heat content of the each fuel employed. The heat content for the diesel fuel shall also be taken from the information collected and recorded in Section A.III.8.

## V. Testing Requirements (continued)

**1.e** Emission Limitations: The following NO<sub>x</sub> emission limitations shall not be exceeded:

- i. 15 ppm of NO<sub>x</sub> emissions, by volume, at 15% oxygen on a dry basis when firing natural gas, as a 1-hour average;
- ii. 42 ppm of NO<sub>x</sub> emissions, by volume, at 15% oxygen on a dry basis when firing diesel fuel, as a 1-hour average; and
- iii. When burning natural gas, the NO<sub>x</sub> emission rate shall not exceed 12 ppm, by volume, at 15% oxygen on a dry basis, based on a rolling, 12-month summation of the monthly NO<sub>x</sub> emissions in ppm.

Applicable Compliance Method: Compliance with the NO<sub>x</sub> emission limitations shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Section A.III.9.

If required, the permittee shall demonstrate compliance with the ppm NO<sub>x</sub> emission limitations through emission tests performed in accordance with Methods 1-4 and 7 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Section 60.334(c)(1).

**1.f** PE/PM<sub>10</sub> Emission Limitation: 0.008 lb of PE/PM<sub>10</sub> emissions/mmBtu

Applicable Compliance Method: Compliance with the PE/PM<sub>10</sub> emission limitation may be determined by the manufacturer's guaranteed emissions data found in PTI 14-4682 submitted April 26, 1999.

If required, the permittee shall demonstrate compliance with the PE/PM<sub>10</sub> emission limitation through emission tests performed in accordance with Methods 1-5 of 40 CFR Part 60, Appendix A.

**1.g** Visible PE Limitation: Visible PE from any stack shall not exceed 20% opacity, as a six-minute average, except as specified by rule, when burning diesel fuel.

Applicable Compliance Method: If required, compliance with the visible PE limitation shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Test Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

**1.h** Visible PE Limitation: Visible PE from any stack shall not exceed 10% opacity, as a six-minute average, when burning pipeline natural gas.

Applicable Compliance Method: If required, compliance with the visible PE limitation shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Test Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

**1.i** SO<sub>2</sub> Emission Limitation: 0.0456 lb of SO<sub>2</sub> emissions/mmBtu when burning diesel fuel;

Applicable Compliance Method: Compliance with the SO<sub>2</sub> emission limitation shall be determined by the sulfur analysis of the fuels combusted pursuant to the requirements specified in Sections A.III.7 and A.III.8, and by documenting that the sulfur content of each shipment of oil received during a calendar month meets the limitation

If required, the permittee shall demonstrate compliance with the SO<sub>2</sub> emission limitation through emission tests performed in accordance with Methods 1-4 and 6 of 40 CFR Part 60, Appendix A.

**1.j** Sulfur Content Restriction: not to exceed 0.05% sulfur, by weight, when burning natural gas or diesel fuel

Applicable Compliance Method: Compliance with the sulfur content restriction shall be determined using standard methods as required in 40 CFR Section 60.335 and the information collected and recorded in Sections A.III.7 and A.III.8.

**V. Testing Requirements (continued)**

- 1.k** Natural Gas and Diesel Fuel Usage Restrictions: The total maximum annual natural gas usage rate for emissions units P001-P008 combined shall not exceed 20.3 billion cubic feet per year, based upon a rolling, 12-month summation of the natural gas usage rate. The total maximum annual diesel fuel usage rate for emissions units P001-P008 combined shall not exceed 34 million gallons per year, based upon a rolling, 12-month summation of the diesel fuel usage rate.

Applicable Compliance Method: Compliance with the natural gas and diesel fuel usage restrictions shall be determined by the record keeping requirements specified in Section A.III.4.

**VI. Miscellaneous Requirements**

**None**

**B. State Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
80 Megawatt (nominal) natural gas/No. 2 fuel oil fired simple-cycle combustion turbine	OAC rules 3745-31-11 thru OAC rule 3745-31-20	These rules are equivalent to 40 CFR Part 52.21. At the time of permit, issuance these regulations have been promulgated in the OAC. However, they have not yet been added to the Ohio SIP.
	OAC rule 3745-31-28	This rule is equivalent to 40 CFR 63.41-40 CFR Part 63.44. At the time of permit, issuance these regulations have been promulgated in the OAC. However, they have not yet been added to the Ohio SIP.

**2. Additional Terms and Conditions**

None

**II. Operational Restrictions**

None

**III. Monitoring and/or Record Keeping Requirements**

None

**IV. Reporting Requirements**

None

**V. Testing Requirements**

None

**VI. Miscellaneous Requirements**

None

### Part III - Terms and Conditions for Emissions Units

**Emissions Unit ID:** #7 Turbine (P007)

**Activity Description:** 80 Megawatt (Nominal) Simple-Cycle Combustion Turbine #7

#### A. State and Federally Enforceable Section

##### I. Applicable Emissions Limitations and/or Control Requirements

- The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
80 megawatt (nominal) natural gas/diesel fuel fired simple-cycle combustion turbine	OAC rule 3745-31-05(D) (PTI 14-4682)	This emissions unit shall not exceed the following emission limitations at all load conditions, including startup and shutdown:  54.0 lbs of carbon monoxide (CO) emissions/hour  58.0 lbs of sulfur dioxide (SO2) emissions/hour*  6.0 lbs of hydrogen sulfate (H2SO4) mist emissions/hour*  10.0 lbs of volatile organic compound (VOC) emissions/hour*  0.008 lb of particulate emissions (PE)/particulate matter with a diameter of 10 microns or less (PM10 emissions)/mmBtu*

\* The hourly emission limitations and the lb of PE/PM10 emissions/mmBtu limitation specified above represent this emissions unit's potential to emit for all operating conditions, including startup and shutdown. Therefore, no additional monitoring, record keeping or reporting requirements are required to demonstrate compliance with these emission limitations.

**Operations, Property,  
and/or Equipment**

**Applicable Rules/  
Requirements**

**Applicable Emissions  
Limitations/Control  
Measures**

The total emissions from emissions units P001 through P008 combined shall not exceed the emission limitations specified below. The annual emission limitations include emissions from operating at "startup and shutdown", "normal", and "full load" conditions combined and for all fuel types (i.e., natural gas and diesel fuel).

60.5 tons of PE/PM10 emissions per rolling, 12-month period

120.8 tons of SO2 emissions per rolling, 12-month period

733.3 tons of NOx emissions per rolling, 12-month period

541.0 tons of CO emissions per rolling, 12-month period

12.2 tons of H2SO4 mist emissions per rolling, 12-month period

36.4 tons of VOC emissions per rolling, 12-month period

7.7 tons of benzene emissions per rolling, 12-month period

0.00084 ton of beryllium emissions per rolling, 12-month period

0.012 ton of arsenic emissions per rolling, 12-month period

Emissions from startup and shutdown operations shall not exceed the following emission limitations:

Natural Gas

NOx: 83 lbs/cycle  
CO: 308 lbs/cycle

Diesel Fuel

NOx: 130 lbs/cycle  
CO: 354 lbs/cycle

**Operations, Property,  
and/or Equipment**

**Applicable Rules/  
Requirements**

**Applicable Emissions  
Limitations/Control  
Measures**

		196.0 lbs of nitrogen oxides (NOx) emissions/hour
		15 ppm of NOx by volume at 15% oxygen on a dry basis when burning natural gas (as a 1-hour average, excluding startup and shutdown conditions)
		42 ppm of NOx by volume at 15% oxygen on a dry basis when burning diesel fuel (as a 1-hour average, excluding startup and shutdown conditions)
		12 ppm of NOx by volume at 15% oxygen on a dry basis, when burning natural gas, based on a rolling, 12-month summation of the monthly NOx emissions in ppm (excluding startup and shutdown conditions)
		0.05% sulfur content, by weight, for diesel fuel and natural gas
		0.0456 lbs of SO2 emissions/mmBtu, for diesel fuel
	40 CFR Part 60, Subpart GG	The emission limitations established in 40 CFR Part 60, Subpart GG for SO2 and NOx are less stringent than those established pursuant to OAC rule 3745-31-05(D).
	Best Available Control Technology is equivalent to Section 112g of the Clean Air Act	For the purposes of this permit and for the hazardous air pollutants (HAPs) emitted from this emissions unit, the best available control technology determination to satisfy the requirements of 40 CFR Part 52.21 is equivalent to the maximum achievable control technology determination used to satisfy the requirements of 40 CFR Parts 63.41 thru 63.44.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
	OAC rule 3745-31-05(A)(3) (PTI 14-04682)	Emissions from this emissions unit shall not exceed the following emission limitations:  0.15 TPY of lead emissions 0.0023 TPY of mercury emissions  See Section A.I.2.b below.  Compliance with this rule also include compliance with the requirements of OAC rules 3745-31-05(D) and 3745-17-07(A) when burning diesel fuel.
	OAC rule 3745-17-11(B)(4)	The PE limitation specified by this rule is less stringent the PE limitation established pursuant to OAC rule 3745-31-05(D).
	OAC rule 3745-17-07(A)(1)	See Section A.I.2.a below.
	OAC rule 3745-18-06(F)	The SO <sub>2</sub> emission limitation specified by this rule (0.5 lb of SO <sub>2</sub> emissions/mmBtu) is less stringent than the SO <sub>2</sub> emission limitation established pursuant to OAC rule 3745-31-05(D).

**2. Additional Terms and Conditions**

- 2.a** Visible PE from any stack shall not exceed 20% opacity, as a 6-minute average, except as specified by rule when combusting diesel fuel.
- 2.b** Visible PE from any stack shall not exceed 10% opacity, as a 6-minute average when combusting natural gas.
- 2.c** The permittee shall install and maintain dry low NO<sub>x</sub> burners when burning natural gas and install and maintain a water injection system when burning diesel fuel.
- 2.d** The permittee is subject to the requirements of 40 CFR Parts 72 and 75 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.
- 2.e** "Full load" shall be defined as the nameplate electrical output of 84.65 megawatts. Any load that is greater than or equal to 90% of the nameplate electrical output shall be considered full load.
- 2.f** "Normal operation" shall be defined as the period when the combustion turbine achieves dry low NO<sub>x</sub> mode (GE Mode 6). GE Mode 6 is defined by the manufacturer as the low emissions mode during which all burner nozzles are in use, burning a lean pre-mixed gas for steady-state operation. The continuous emissions monitoring system will indicate and record the GE Mode 6 status of the combustion turbine, including when the emissions unit is shutdown and when operating in startup and shutdown modes.

## **2. Additional Terms and Conditions (continued)**

- 2.g** "Startup" shall be defined as the period between when the combustion turbine is initially started (initial fuel light-off) until the combustion turbine completes transition to GE Mode 6. "Shutdown" shall be defined as the period beginning when the combustion turbine leaves the GE Mode 6 and ending when combustion has ceased.
- 2.h** Compliance with the startup and shutdown NO<sub>x</sub> and CO lbs/cycle values and NO<sub>x</sub> and CO emission limitations during steady-state operations shall be demonstrated by the use of dual range NO<sub>x</sub> and CO Continuous Emission Monitors (CEMs). For CEM systems with dual ranges, certification testing shall be performed on the range normally used for measuring emissions.
- 2.i** For the purpose of this permit, the term "diesel fuel" shall be considered to be any distillate fuel oil that is employed as a fuel in this emissions unit as defined in 40 CFR Part 72.2.

## **II. Operational Restrictions**

- 1.** The maximum annual natural gas usage rate for emissions units P001-P008 shall not exceed 20.3 billion (2.03 x 10<sup>10</sup>) cubic feet per rolling, 12-month period.
- 2.** The maximum annual diesel fuel usage rate for emissions units P001-P008 shall not exceed 34 million (3.40 x 10<sup>7</sup>) gallons per rolling, 12-month period.
- 3.** The permittee shall burn only natural gas, of pipeline quality, or diesel fuel in this emissions unit.
- 4.** The quality of diesel fuel burned in this emissions unit shall have a combination of heat and sulfur content which is sufficient to comply with the allowable SO<sub>2</sub> emission limitation of 0.0456 lb of SO<sub>2</sub>/MMBtu of actual heat input. The diesel fuel shall have a sulfur content of 0.05% or less.
- 5.** When the emissions unit is operating in startup or shutdown conditions, as defined in Section A.I.2.g above, each startup or shutdown cycle shall not exceed 1.0 hours in duration.
- 6.** With the exception of startup and shutdown, this emissions unit shall be operated in GE Mode 6, defined as normal operation (ref. Section A.I.2.f above).

## **III. Monitoring and/or Record Keeping Requirements**

- 1.** For each day during which the permittee burns a fuel other than natural gas and/or diesel fuel, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
- 2.** The permittee shall install, operate, and maintain equipment to continuously monitor and record the actual fuel flow to this emissions unit when it 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.
- 3.** The permittee shall maintain records that document the following:
  - a.** the emissions unit's actual electrical output for each operating hour;
  - b.** all periods of time when the emissions unit was operating in startup and shutdown conditions.

### III. Monitoring and/or Record Keeping Requirements (continued)

4. The permittee shall maintain monthly records of the following information in order to monitor compliance with the applicable fuel usage restrictions:
  - a. the total amount of natural gas burned, in cubic feet, for this emissions unit;
  - b. the total amount of diesel fuel burned, in gallons, for this emissions unit;
  - c. the total amount of natural gas burned, in cubic feet, for emission units P001-P008, combined;
  - d. the total amount of diesel fuel burned, in gallons, for emissions units P001-P008, combined;
  - e. the rolling, 12-month summation for the total amount of natural gas burned, in cubic feet, for emissions units P001-P008, combined (the amount of natural gas burned for the current month plus the total amount of natural gas burned for the previous eleven calendar months); and
  - f. the rolling, 12-month summation for the total amount of diesel fuel burned in emissions units P001-P008, combined (the amount of diesel fuel burned for the current month plus the total amount of diesel fuel burned for the previous eleven calendar months).
5. The permittee shall maintain monthly records of the following information for emissions units P001-P008 in order to monitor compliance with the startup and shutdown emission limitations and operational restrictions:
  - a. the date and duration, in minutes, of each startup/shutdown cycle
  - b. the emissions, in pounds, for NO<sub>x</sub> and CO when burning natural gas at startup and shutdown operation modes; and
  - c. the emissions, in pounds, for NO<sub>x</sub> and CO when burning diesel fuel at startup and shutdown operation modes.

The permittee shall use the continuous NO<sub>x</sub> and CO emissions monitoring data to determine the NO<sub>x</sub> and CO emissions for these emissions units. During any period when the NO<sub>x</sub> and/or the CO emissions monitoring systems are not operational, the permittee shall use the appropriate missing data procedures specified in 40 CFR Part 75 to determine NO<sub>x</sub> and CO emissions or an approved data substitution protocol.

### III. Monitoring and/or Record Keeping Requirements (continued)

6. The permittee shall maintain monthly records of the following information for emission units P001- P008 in order to monitor compliance with the rolling, 12- month summation, emissions limitations:
- the total emissions, in tons, for NO<sub>x</sub>\*, CO\*, PE/PM<sub>10</sub>, SO<sub>2</sub>, VOC, H<sub>2</sub>SO<sub>4</sub>, and benzene when burning natural gas for all operational loads;
  - the total emissions, in tons, for NO<sub>x</sub>\*, CO\*, PE/PM<sub>10</sub>, SO<sub>2</sub>, VOC, H<sub>2</sub>SO<sub>4</sub>, and benzene when burning diesel fuel for all operational modes;
  - the rolling, 12-month summation emissions total, in tons, for NO<sub>x</sub>, CO, PE/PM<sub>10</sub>, SO<sub>2</sub>, VOC, H<sub>2</sub>SO<sub>4</sub>, and benzene for emission units P001-P008, combined when burning natural gas and diesel fuel (the total amount of emissions calculated in a + b) for the current month plus the total amount of emissions for the previous eleven calendar months).
  - the updated rolling, 12-month average of NO<sub>x</sub> emissions, in ppm, when burning natural gas at normal operations for this emissions unit (the NO<sub>x</sub> ppm average for the current month (from the CEMs data) plus the total NO<sub>x</sub> ppm average for the previous eleven calendar months).

\* The permittee shall use the continuous NO<sub>x</sub> and CO emissions monitoring data to determine the NO<sub>x</sub> and CO emissions for these emissions units. During any period when the NO<sub>x</sub> and/or the CO emissions monitoring systems are not operational, the permittee shall use the appropriate missing data procedures specified in 40 CFR Part 75 to determine NO<sub>x</sub> and CO emissions or an approved data substitution protocol.

7. The permittee shall monitor the sulfur content of the fuel being fired in the turbine. The frequency of the monitoring shall be determined as follows:
- If the turbine is supplied its fuel from a bulk storage tank, the values shall be determined on each occasion that fuel is transferred to the storage tank from any other source.
  - If the turbine is supplied its fuel without intermediate bulk storage, the values shall be determined and recorded daily. Owners, operators or fuel vendors may develop custom fuel schedules for the determination of the values based on the design and operation of the affected facility and the characteristics of the fuel supply. These custom schedules shall be substantiated with data and must be approved by the Ohio EPA, Central Office before they can be used.
  - For each shipment of diesel fuel oil received for burning in this emissions unit, the permittee shall maintain records of the total quantity of diesel fuel oil received and the permittee's or diesel fuel oil supplier's analyses for sulfur content and heat content.(See Section A.III.8 below)

Analyses for the purpose of determining the sulfur content of the natural gas may be performed by the permittee, the fuel vendor, or any other qualified agency in accordance with the analytical methods specified in 40 CFR Part 60, Subpart GG, Section 60.335(d), 40 CFR Part 75, or the appropriate ASTM methods, or equivalent methods as approved by the Director.

8. For each shipment of diesel fuel received for burning in this emissions unit, the permittee shall maintain records of the total quantity of diesel fuel oil received, the permittee's or diesel fuel oil supplier's analyses for sulfur content and heat content, and the calculated sulfur dioxide emission rate (in lbs/MMBtu). [The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F)]. A shipment may be comprised of multiple tank truck loads from the same supplier's batch, or may be represented by single or multiple pipeline deliveries from the same supplier's batch, and the quality of the diesel fuel oil for those loads or pipeline deliveries may be represented by a single batch analysis from the supplier.

The permittee shall perform or require the supplier to perform the analyses for sulfur content and heat content in accordance with 40 CFR Part 60, Appendix A, Method 19, or the appropriate ASTM methods (such as, ASTM methods D240, D4294,),or equivalent methods as approved by the Director.

### III. Monitoring and/or Record Keeping Requirements (continued)

The permittee shall maintain records of the oil burned in this emissions unit in accordance with either Alternative 1 or Alternative 2 described below:

a. Alternative 1:

For each shipment of oil received for burning in this emissions unit, the permittee shall collect or require the oil supplier to collect a representative grab sample of oil and maintain records of the total quantity of oil received, the permittee's or oil supplier's analyses for sulfur content and heat content, and the calculated sulfur dioxide emission rate (in lbs/MMBtu). (The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F).) A shipment may be comprised of multiple tank truck loads from the same supplier's batch, and the quality of the oil for those loads may be represented by a single batch analysis from the supplier.

b. Alternative 2:

The permittee shall collect a representative grab sample of oil that is burned in this emissions unit for each day when the emission unit is in operation. If additional fuel oil is added to the tank serving this emissions unit on a day when the emissions unit is in operation, the permittee shall collect a sufficient number of grab samples to develop a composite sample representative of the fuel oil burned in this emissions unit. A representative grab sample of oil does not need to be collected on days when this emissions unit is only operated for the purpose of "test-firing". The permittee shall maintain records of the total quantity of oil burned each day, except for the purpose of test-firing, the permittee's analyses for sulfur content and heat content, and the calculated sulfur dioxide emission rate (in lbs/MMBtu). [The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F)]

#### 9. Continuous NOx Monitoring

a. In lieu of complying with the monitoring and testing provisions of 40 CFR 60.334 and 60.345 to demonstrate compliance with the NOx emission limitations, the permittee shall operate and maintain systems to continuously monitor and record emissions of NOx from this emissions unit in accordance with this permit.

b. The permittee shall install, operate and maintain equipment to continuously monitor and record NOx from this emissions unit in units of the applicable standard. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13 and/or 40 CFR Part 75.

c. The permittee shall maintain records of the following data obtained by the continuous NOx monitoring system: parts per million (ppm) NOx at 15% oxygen (hourly average), lbs of NOx/hour, results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

d. A statement of certification of the existing continuous NOx monitoring system shall be maintained on site and shall consist of a letter from Ohio EPA detailing the results of an Agency review of the certification tests and a statement by the Agency that the system is considered certified in accordance with the requirements of 40 CFR Part 60, Appendix B, Performance Specification 2 and/or 40 CFR Part 75, Appendix D and Appendix F. Proof of certification shall be made available to the Hamilton County Department of Environmental Services - Air Quality Control Division upon request.

e. Prior to the installation of the continuous NOx monitoring system, 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 and 40 CFR Part 75, Appendix A, for approval by the Ohio EPA, Central Office.

### **III. Monitoring and/or Record Keeping Requirements (continued)**

f. Certification in pounds NO<sub>x</sub> per hour: Within 60 days of the startup of this emissions unit, but not later than 180 days after the initial startup of this emissions unit, the permittee shall conduct certification tests of such equipment pursuant to ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 2, and/or 40 CFR Part 75. When NO<sub>x</sub> mass emissions are being determined as allowed in 40 CFR Part 75, Appendix D and Appendix F, certification testing to show compliance with 40 CFR Part 60, Appendix B, Performance Specification 6 shall not be necessary. However, a stack test shall be conducted to demonstrate 40 CFR Part 75, Appendix F, NO<sub>x</sub> mass determinations.

Personnel from the Hamilton County Department of Environmental Services - Air Quality Control Division 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, all copies of the test results shall be submitted to the Hamilton County Department of Environmental Services - Air Quality Control Division within 30 days after the test is completed. Certification of the continuous NO<sub>x</sub> monitoring system shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 2 and/or 40 CFR Part 75.

g. Within 180 days of the effective date of this permit, the permittee shall develop and maintain a written quality assurance/quality control plan for the continuous NO<sub>x</sub> monitoring system designed to ensure continuous valid and representative readings of NO<sub>x</sub> emissions in units of the applicable standard. The plan shall follow the requirements of 40 CFR Part 60, Appendix F and/or 40 CFR Part 75, Appendix B. The quality assurance/quality control plan and a logbook dedicated to the CEM systems must be kept on site and available for inspection during regular office hours. These documents may be kept in electronic and/or hardcopy format.

#### **10. Continuous CO Monitoring**

a. The permittee shall install, operate and maintain equipment to continuously monitor and record CO from this emissions unit in lbs CO/hour and in the units of any other applicable standard. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13.

b. The permittee shall maintain records of all data obtained by the continuous CO monitoring system including, but not limited to, ppm CO at a minimum of 4 data points per hour sufficient to generate an hourly average, emissions of CO in units of the applicable standard in the appropriate averaging period (hourly), results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

c. A statement of certification of the existing continuous CO monitoring system shall be maintained on site and shall consist of a letter from Ohio EPA detailing the results of an Agency review of the certification tests and a statement by the Agency that the system is considered certified in accordance with the requirements of 40 CFR Part 60, Appendix B, Performance Specification 4. Proof of certification shall be made available to the Hamilton County Department of Environmental Services - Air Quality Control Division upon request.

d. Prior to installation of the continuous CO monitoring system, 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 4 for approval by the Ohio EPA, Central Office.

### III. Monitoring and/or Record Keeping Requirements (continued)

e. Certification in pounds CO per hour: Within 60 days of the effective date of this permit, but not later than 180 days after the initial startup of this emissions unit, the permittee shall conduct certification tests of the continuous CO monitoring system pursuant to ORC section 3704.03(I), 40 CFR Part 60, Appendix B, Performance Specification 4. CO mass emissions may be determined in the same manner as NO<sub>x</sub> emissions in term A.III.10. of this permit using the appropriate CO values in place of the cited NO<sub>x</sub> values. When CO mass emissions are being determined in this manner, certification testing to show compliance with 40 CFR 60, Appendix B, Performance Specification 6 will not be necessary. However, a stack test shall be conducted for CO mass determinations with an accuracy that is equivalent to that required in 40 CFR Part 75, Appendix D.

Personnel from the Hamilton County Department of Environmental Services - Air Quality Control Division 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, all copies of the test results shall be submitted to the Hamilton County Department of Environmental Services - Air Quality Control Division within 30 days after the test is completed. Certification of the continuous CO monitoring system shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 4.

f. Within 180 days of the effective date of this permit, the permittee shall develop and maintain a written quality assurance/quality control plan for the continuous CO monitoring system designed to ensure continuous valid and representative readings of CO. The plan shall follow the requirements of 40 CFR Part 60, Appendix F. The quality assurance/quality control plan and a logbook dedicated to the CEM systems must be kept on site and available for inspection during regular office hours. These documents may be kept in electronic and/or hardcopy format.

#### 11. Continuous O<sub>2</sub> Monitoring

a. The permittee shall operate and maintain equipment to continuously monitor and record O<sub>2</sub> from this emissions unit, in percent O<sub>2</sub>. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13 and/or 40 CFR Part 75.

b. The permittee shall maintain records of all data obtained by the continuous O<sub>2</sub> monitoring system including, but not limited to, percent O<sub>2</sub> at a minimum of 4 data points per hour sufficient to generate an hourly average, results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

c. Prior to the installation of the continuous O<sub>2</sub> monitoring system, 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 3 and 40 CFR Part 75 for approval by the Ohio EPA, Central Office.

d. Within 60 days of the startup of this emissions unit, but not later than 180 days after the initial startup of this emissions unit, the permittee shall conduct certification tests of the continuous O<sub>2</sub> monitoring system pursuant to ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 3, and/or 40 CFR Part 75. Personnel from the Hamilton County Department of Environmental Services - Air Quality Control Division 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, all copies of the test results shall be submitted to the Hamilton County Department of Environmental Services - Air Quality Control Division within 30 days after the test is completed. Certification of the continuous O<sub>2</sub> monitoring system shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 3 and/or 40 CFR Part 75.

e. Within 180 days of the effective date of this permit, the permittee shall develop and maintain a written quality assurance/quality control plan for the continuous O<sub>2</sub> monitoring system designed to ensure continuous valid and representative readings of O<sub>2</sub> emissions in units of the applicable standard. The plan shall follow the requirements of 40 CFR Part 60, Appendix F and/or 40 CFR Part 75, Appendix B. The quality assurance/quality control plan and a logbook dedicated to the CEM systems must be kept on site and available for inspection during regular office hours. These documents may be kept in electronic and/or hardcopy format.

#### IV. Reporting Requirements

1. The permittee shall submit quarterly reports that identify each period during which an exemption for ice-fog provided in 40 CFR 60.332(f) is in effect. The report shall include the ambient conditions existing during the period, the date and time the air pollution control system was deactivated, and the date and time when the air pollution control system was reactivated.
2. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:
  - a. An identification of all exceedances of the rolling, 12-month natural gas usage rate for emissions units P001-P008;
  - b. An identification of all exceedances of the rolling, 12-month emission limitations for PE/PM10, SO<sub>2</sub>, NO<sub>x</sub>, CO, H<sub>2</sub>SO<sub>4</sub> mist, VOC and benzene;
  - c. An identification of all exceedances of the sulfur content (i.e. 0.05%, by weight) of the fuels (natural gas and diesel fuel) received for burning in this emissions unit;
  - d. An identification of all exceedances of the SO<sub>2</sub> lbs/mmBtu limitation of the diesel fuel received for burning in this emissions unit;
  - e. An identification of all exceedances of the 1.0 hour startup/shutdown cycle operational restriction;
  - f. An identification of all exceedances of the rolling, 12-month diesel fuel usage rate for emissions units P001-P008;
  - g. An identification of all exceedances of the startup and shut down emission limitations in term A. I.1 when burning natural gas; and
  - h. An identification of all exceedances of the startup and shut down emission limitations in term A. I.1 when burning diesel fuel.
  - i. An identification of each day when a fuel other than natural gas or diesel fuel was burned in this emissions unit.
3. All quarterly deviation reports shall be submitted in accordance with the reporting requirements specified in Part I - General Terms and Conditions A.1.c.ii unless otherwise specified.
4. Pursuant to OAC rules 3745-15-04, 3745-35-02, and ORC sections 3704.03(l) and 3704.031 and 40 CFR Parts 60.7 and 60.13(h), the permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting the date, commencement and completion times, duration, magnitude, reason (if known), and corrective actions taken (if any), of all instances of NO<sub>x</sub> values in excess of the applicable limits specified in 40 CFR Part 76 or any limitations specified in the terms and conditions of this permit. These reports shall also contain the total NO<sub>x</sub> emissions for the calendar quarter (in tons), including all data collected during startup and shutdown periods or generated pursuant to the missing data procedures specified in 40 CFR Part 75.

The permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting any continuous NO<sub>x</sub> monitoring system downtime while the emissions unit was on line (date, time, duration and reason) along with any corrective action(s) taken. The permittee shall provide the emissions unit operating time during the reporting period and the date, time, reason and corrective action(s) taken for each time period of emissions unit and control equipment malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report.

#### IV. Reporting Requirements (continued)

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 emissions unit, control equipment, and/or monitoring system malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line also shall be included in the quarterly report. These quarterly excess emission reports shall be submitted by January 31, April 30, July 31, and October 31 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 appropriate Ohio EPA District Office or local air agency within 30 days following the end of each calendar quarter in a manner prescribed by the Director.

5. Pursuant to OAC rules 3745-15-04, 3745-35-02, and ORC sections 3704.03(I) and 3704.031 and 40 CFR Parts 60.7 and 60.13(h), the permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting the date, commencement and completion times, duration, magnitude, reason (if known), and corrective actions taken (if any) of all instances of CO values in excess of any applicable limitation(s) specified in OAC Chapter 3745-21, 40 CFR Part 60, or any limitation(s) specified in the terms and conditions of this permit, in units of the standard. These reports shall also contain the total CO emissions for the calendar quarter (in tons), including all data collected during startup and shutdown periods or generated pursuant to the missing data procedures for fuel flow measurement as specified in 40 CFR Part 75.

The permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting any continuous CO monitoring system downtime while the emissions unit was on line (date, time, duration and reason) along with any corrective action(s) taken. The permittee shall provide the emissions unit operating time during the reporting period and the date, time, reason and corrective action(s) taken for each time period of emissions unit and control equipment malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report.

If there are no excess emissions during the calendar quarter, the permittee shall submit a statement to that effect along with the emissions unit operating time during the reporting period and the date, time, reason, and corrective action(s) taken for each time period of emissions unit, control equipment, and/or monitoring system malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report. These quarterly excess emission reports shall be submitted by January 31, April 30, July 31, and October 31 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 appropriate local air agency within 30 days following the end of each calendar quarter in a manner prescribed by the Director.

6. The permittee shall submit annual reports that specify the total NO<sub>x</sub>, CO, PE/PM<sub>10</sub>, VOC, SO<sub>2</sub>, benzene and H<sub>2</sub>SO<sub>4</sub> emissions from this emissions unit for the calendar year. These reports shall be submitted by January 31 of each year and cover the previous calendar year.

#### V. Testing Requirements

1. Compliance with the emission limitations, fuel usage restrictions and sulfur content limitations specified in Sections A.I and A.II shall be determined by the following methods:

## V. Testing Requirements (continued)

- 1.a** Emission Limitations: The emissions from startup and shutdown operations shall not exceed the following emission limitations for this emissions unit:

Natural Gas  
NOx: 83 lbs/cycle  
CO: 308 lbs/cycle

Diesel Fuel  
NOx: 130 lbs/cycle  
CO: 354 lbs/cycle

Applicable Compliance Method: The lbs/cycle emissions limitations were established based on emissions data contained in the PTI modification application (PTI 14-04682) submitted March, 2001 and the emission factors from the background document, Reference 16, for Stationary Gas Turbines in AP-42, Fifth Edition, Section 3.1, dated April 2000.

Compliance with the NOx emission limitations shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Sections A.III.5 and A.III.9.

- 1.b** Emission Limitations: The hourly emissions from this emissions unit shall not exceed the following amounts:

- i. 58.0 lbs of SO<sub>2</sub> emissions/hour;
- ii. 54.0 lbs of CO emissions/hour;
- iii. 196.0 lbs of NO<sub>x</sub> emissions/hour;
- iv. 6.0 lbs of H<sub>2</sub>SO<sub>4</sub> mist emissions/hour; and
- v. 10.0 lbs of VOC emissions/hour.

Applicable Compliance Method: The hourly emission limitations are based upon the emission unit's potential to emit and the emission factors from the background document for Stationary Gas Turbines in AP-42, Fifth Edition, Section 3.1, dated April 2000.

Compliance with the NOx emission limitation shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Section A.III.9.

Compliance with the CO emission limitation shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Section A.III.10.

If required, the permittee shall demonstrate compliance with the hourly NO<sub>x</sub> emission limitation through emission test performed in accordance with Methods 1-4 and 7 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Section 60.334(c)(1).

If required, the permittee shall demonstrate compliance with the hourly SO<sub>2</sub> emission limitation through emission tests performed in accordance with Methods 1-4 and 6 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

If required, the permittee shall demonstrate compliance with the hourly CO emission limitation through emission tests performed in accordance with Methods 1-4 and 10 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

## V. Testing Requirements (continued)

If required, the permittee shall demonstrate compliance with the hourly H<sub>2</sub>SO<sub>4</sub> mist emission limitation through emission tests performed in accordance with Methods 1-4 and 8 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

If required, the permittee shall demonstrate compliance with the hourly VOC emission limitation through emission tests performed in accordance with Methods 1-4 and 25 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

**1.c** Emission Limitations: The total emissions from emission units P001-P008 combined shall not exceed the following emission limitations:

- i. 60.5 tons of PE/PM<sub>10</sub> emissions per rolling, 12-month period;
- ii. 120.8 tons of SO<sub>2</sub> emissions per rolling, 12-month period;
- iii. 733.3 tons of NO<sub>x</sub> emissions per rolling, 12-month period;
- iv. 541.0 tons of CO emissions per rolling, 12-month period;
- v. 36.4 tons of VOC emissions per rolling, 12-month period;
- vi. 12.2 tons of H<sub>2</sub>SO<sub>4</sub> mist emissions per rolling, 12-month period;
- vii. 7.7 tons of benzene emissions per rolling, 12-month period;
- viii. 0.00084 ton of beryllium emissions per rolling, 12-month period; and
- ix. 0.012 ton of arsenic emissions per rolling, 12-month period.

Applicable Compliance Method: Compliance with the annual PE/PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC, H<sub>2</sub>SO<sub>4</sub> and benzene emission limitations specified above shall be determined by the record keeping requirements specified in Section A.III.6 .

Compliance with the annual beryllium and arsenic emission limitations specified above may be determined by multiplying the pollutant specific emission factor found in AP-42, Fifth Edition, Section 3.1 "Stationary Gas Turbines," updated 4/00, by the amount of fuel collected and recorded in Sections A.III.4 (for natural gas) and A.III.4 (for diesel fuel) by the specific heat content of the each fuel employed.

The specific heat content for diesel fuel oil shall be taken from the information collected and recorded in A.III.8.

**1.d** Emission Limitations:

- i. 0.15 TPY of lead emissions; and
- ii. 0.0023 TPY of mercury emissions.

Applicable Compliance Method: Compliance with the TPY lead and mercury emission limitations specified above may be determined by multiplying the pollutant specific emission factor found in AP-42, Fifth Edition, Section 3.1 "Stationary Gas Turbines," updated 4/00, by the amount of fuel collected and recorded in Sections A.III.4 (for natural gas) and A.III.4 (for diesel fuel) by the specific heat content of the each fuel employed. The heat content for the diesel fuel shall also be taken from the information collected and recorded in Section A.III.8.

## V. Testing Requirements (continued)

**1.e** Emission Limitations: The following NO<sub>x</sub> emission limitations shall not be exceeded:

- i. 15 ppm of NO<sub>x</sub> emissions, by volume, at 15% oxygen on a dry basis when firing natural gas, as a 1-hour average;
- ii. 42 ppm of NO<sub>x</sub> emissions, by volume, at 15% oxygen on a dry basis when firing diesel fuel, as a 1-hour average; and
- iii. When burning natural gas, the NO<sub>x</sub> emission rate shall not exceed 12 ppm, by volume, at 15% oxygen on a dry basis, based on a rolling, 12-month summation of the monthly NO<sub>x</sub> emissions in ppm.

Applicable Compliance Method: Compliance with the NO<sub>x</sub> emission limitations shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Section A.III.9.

If required, the permittee shall demonstrate compliance with the ppm NO<sub>x</sub> emission limitations through emission tests performed in accordance with Methods 1-4 and 7 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Section 60.334(c)(1).

**1.f** PE/PM<sub>10</sub> Emission Limitation: 0.008 lb of PE/PM<sub>10</sub> emissions/mmBtu

Applicable Compliance Method: Compliance with the PE/PM<sub>10</sub> emission limitation may be determined by the manufacturer's guaranteed emissions data found in PTI 14-4682 submitted April 26, 1999.

If required, the permittee shall demonstrate compliance with the PE/PM<sub>10</sub> emission limitation through emission tests performed in accordance with Methods 1-5 of 40 CFR Part 60, Appendix A.

**1.g** Visible PE Limitation: Visible PE from any stack shall not exceed 20% opacity, as a 6-minute average, except as specified by rule, when burning diesel fuel.

Applicable Compliance Method: If required, compliance with the visible PE limitation shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Test Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

**1.h** Visible PE Limitation: Visible PE from any stack shall not exceed 10% opacity, as a 6-minute average, when burning pipeline natural gas.

Applicable Compliance Method: If required, compliance with the visible PE limitation shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Test Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

**1.i** SO<sub>2</sub> Emission Limitation: 0.0456 lb of SO<sub>2</sub> emissions/mmBtu when burning diesel fuel;

Applicable Compliance Method: Compliance with the SO<sub>2</sub> emission limitation shall be determined by the sulfur analysis of the fuels combusted pursuant to the requirements specified in Sections A.III.7 and A.III.8, and by documenting that the sulfur content of each shipment of oil received during a calendar month meets the 0.05% sulfur content restriction.

If required, the permittee shall demonstrate compliance with the SO<sub>2</sub> emission limitation through emission tests performed in accordance with Methods 1-4 and 6 of 40 CFR Part 60, Appendix A.

**1.j** Sulfur Content Restriction: not to exceed 0.05% sulfur, by weight, when burning natural gas or diesel fuel

Applicable Compliance Method: Compliance with the sulfur content restriction shall be determined using standard methods as required in 40 CFR Section 60.335 and the information collected and recorded in Sections A.III.7 and A.III.8.

**V. Testing Requirements (continued)**

- 1.k** Natural Gas and Diesel Fuel Usage Restrictions: The total maximum annual natural gas usage rate for emissions units P001-P008 combined shall not exceed 20.3 billion cubic feet per year, based upon a rolling, 12-month summation of the natural gas usage rate. The total maximum annual diesel fuel usage rate for emissions units P001-P008 combined shall not exceed 34 million gallons per year, based upon a rolling, 12-month summation of the diesel fuel usage rate.

Applicable Compliance Method: Compliance with the natural gas and diesel fuel usage restrictions shall be determined by the record keeping requirements specified in Section A.III.4.

**VI. Miscellaneous Requirements**

**None**

**B. State Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
80 Megawatt (nominal) natural gas/No. 2 fuel oil fired simple-cycle combustion turbine	OAC rules 3745-31-11 thru OAC rule 3745-31-20	These rules are equivalent to 40 CFR Part 52.21. At the time of permit, issuance these regulations have been promulgated in the OAC. However, they have not yet been added to the Ohio SIP.
	OAC rule 3745-31-28	This rule is equivalent to 40 CFR 63.41-40 CFR Part 63.44. At the time of permit, issuance these regulations have been promulgated in the OAC. However, they have not yet been added to the Ohio SIP.

**2. Additional Terms and Conditions**

None

**II. Operational Restrictions**

None

**III. Monitoring and/or Record Keeping Requirements**

None

**IV. Reporting Requirements**

None

**V. Testing Requirements**

None

**VI. Miscellaneous Requirements**

None

### Part III - Terms and Conditions for Emissions Units

**Emissions Unit ID:** #8 Turbine (P008)

**Activity Description:** 80 Megawatt (Nominal) Simple-Cycle Combustion Turbine #8

#### A. State and Federally Enforceable Section

##### I. Applicable Emissions Limitations and/or Control Requirements

- The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
80 megawatt (nominal) natural gas/diesel fuel fired simple-cycle combustion turbine	OAC rule 3745-31-05(D) (PTI 14-4682)	<p>This emissions unit shall not exceed the following emission limitations at all load conditions, including startup and shutdown:</p> <p>54.0 lbs of carbon monoxide (CO) emissions/hour</p> <p>58.0 lbs of sulfur dioxide (SO<sub>2</sub>) emissions/hour*</p> <p>6.0 lbs of hydrogen sulfate (H<sub>2</sub>SO<sub>4</sub>) mist emissions/hour*</p> <p>10.0 lbs of volatile organic compound (VOC) emissions/hour*</p> <p>0.008 lb of particulate emissions (PE)/particulate matter with a diameter of 10 microns or less (PM<sub>10</sub> emissions)/mmBtu*</p>

\* The hourly emission limitations and the lb of PE/PM<sub>10</sub> emissions/mmBtu limitation specified above represent this emissions unit's potential to emit for all operating conditions, including startup and shutdown. Therefore, no additional monitoring, record keeping or reporting requirements are required to demonstrate compliance with these emission limitations.

**Operations, Property,  
and/or Equipment**

**Applicable Rules/  
Requirements**

**Applicable Emissions  
Limitations/Control  
Measures**

The total emissions from emissions units P001 through P008 combined shall not exceed the emission limitations specified below. The annual emission limitations include emissions from operating at "startup and shutdown", "normal", and "full load" conditions combined and for all fuel types (i.e., natural gas and diesel fuel).

60.5 tons of PE/PM10 emissions per rolling, 12-month period

120.8 tons of SO2 emissions per rolling, 12-month period

733.3 tons of NOx emissions per rolling, 12-month period

541.0 tons of CO emissions per rolling, 12-month period

12.2 tons of H2SO4 mist emissions per rolling, 12-month period

36.4 tons of VOC emissions per rolling, 12-month period

7.7 tons of benzene emissions per rolling, 12-month period

0.00084 ton of beryllium emissions per rolling, 12-month period

0.012 ton of arsenic emissions per rolling, 12-month period

Emissions from startup and shutdown operations shall not exceed the following emission limitations:

Natural Gas

NOx: 83 lbs/cycle  
CO: 308 lbs/cycle

Diesel Fuel

NOx: 130 lbs/cycle  
CO: 354 lbs/cycle

Facility Name: **Duke Energy Madison, LLC**  
Facility ID: **14-09-00-0896**  
Emissions Unit: **#8 Turbine (P008)**

**Operations, Property,  
and/or Equipment**

**Applicable Rules/  
Requirements**

**Applicable Emissions  
Limitations/Control  
Measures**

		196.0 lbs of nitrogen oxides (NOx) emissions/hour
		15 ppm of NOx by volume at 15% oxygen on a dry basis when burning natural gas (as a 1-hour average, excluding startup and shutdown conditions)
		42 ppm of NOx by volume at 15% oxygen on a dry basis when burning diesel fuel (as a 1-hour average, excluding startup and shutdown conditions)
		12 ppm of NOx by volume at 15% oxygen on a dry basis, when burning natural gas, based on a rolling, 12-month summation of the monthly NOx emissions in ppm (excluding startup and shutdown conditions)
		0.05% sulfur content, by weight, for diesel fuel and natural gas
		0.0456 lbs of SO2 emissions/mmBtu, for diesel fuel
40 CFR Part 60, Subpart GG		The emission limitations established in 40 CFR Part 60, Subpart GG for SO2 and NOx are less stringent than those established pursuant to OAC rule 3745-31-05(D).
Best Available Control Technology is equivalent to Section 112g of the Clean Air Act		For the purposes of this permit and for the hazardous air pollutants (HAPs) emitted from this emissions unit, the best available control technology determination to satisfy the requirements of 40 CFR Part 52.21 is equivalent to the maximum achievable control technology determination used to satisfy the requirements of 40 CFR Parts 63.41 thru 63.44.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
	OAC rule 3745-31-05(A)(3) (PTI 14-04682)	Emissions from this emissions unit shall not exceed the following emission limitations:  0.15 TPY of lead emissions 0.0023 TPY of mercury emissions  See Section A.I.2.b below.
	OAC rule 3745-17-11(B)(4)	Compliance with this rule also include compliance with the requirements of OAC rules 3745-31-05(D) and 3745-17-07(A) when burning diesel fuel.  The PE limitation specified by this rule is less stringent the PE limitation established pursuant to OAC rule 3745-31-05(D).
	OAC rule 3745-17-07(A)(1)	See Section A.I.2.a below.
	OAC rule 3745-18-06(F)	The SO2 emission limitation specified by this rule (0.5 lb of SO2 emissions/mmBtu) is less stringent than the SO2 emission limitation established pursuant to OAC rule 3745-31-05(D).

**2. Additional Terms and Conditions**

- 2.a** Visible PE from any stack shall not exceed 20% opacity, as a 6-minute average, except as specified by rule when combusting diesel fuel.
- 2.b** Visible PE from any stack shall not exceed 10 percent opacity, as a 6-minute average when combusting natural gas.
- 2.c** The permittee shall install and maintain dry low NOx burners when burning natural gas and install and maintain a water injection system when burning diesel fuel.
- 2.d** The permittee is subject to the requirements of 40 CFR Parts 72 and 75 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.
- 2.e** "Full load" shall be defined as the nameplate electrical output of 84.65 megawatts. Any load that is greater than or equal to 90% of the nameplate electrical output shall be considered full load.
- 2.f** "Normal operation" shall be defined as the period when the combustion turbine achieves dry low NOx mode (GE Mode 6). GE Mode 6 is defined by the manufacturer as the low emissions mode during which all burner nozzles are in use, burning a lean pre-mixed gas for steady-state operation. The continuous emissions monitoring system will indicate and record the GE Mode 6 status of the combustion turbine, including when the emissions unit is shutdown and when operating in startup and shutdown modes.

## **2. Additional Terms and Conditions (continued)**

- 2.g** "Startup" shall be defined as the period between when the combustion turbine is initially started (initial fuel light-off) until the combustion turbine completes transition to GE Mode 6. "Shutdown" shall be defined as the period beginning when the combustion turbine leaves the GE Mode 6 and ending when combustion has ceased.
- 2.h** Compliance with the startup and shutdown NO<sub>x</sub> and CO lbs/cycle values and NO<sub>x</sub> and CO emission limitations during steady-state operations shall be demonstrated by the use of dual range NO<sub>x</sub> and CO Continuous Emission Monitors (CEMs). For CEM systems with dual ranges, certification testing shall be performed on the range normally used for measuring emissions.
- 2.i** For the purpose of this permit, the term "diesel fuel" shall be considered to be any distillate fuel oil that is employed as a fuel in this emissions unit as defined in 40 CFR Part 72.2.

## **II. Operational Restrictions**

- 1.** The maximum annual natural gas usage rate for emissions units P001-P008 shall not exceed 20.3 billion (2.03 x 10<sup>10</sup>) cubic feet per rolling, 12-month period.
- 2.** The maximum annual diesel fuel usage rate for emissions units P001-P008 shall not exceed 34 million (3.40 x 10<sup>7</sup>) gallons per rolling, 12-month period.
- 3.** The permittee shall burn only natural gas, of pipeline quality, or diesel fuel in this emissions unit.
- 4.** The quality of diesel fuel burned in this emissions unit shall have a combination of heat and sulfur content which is sufficient to comply with the allowable SO<sub>2</sub> emission limitation of 0.0456 lb of SO<sub>2</sub>/MMBtu of actual heat input. The diesel fuel shall have a sulfur content of 0.05% or less.
- 5.** When the emissions unit is operating in startup or shutdown conditions, as defined in Section A.I.2.g above, each startup or shutdown cycle shall not exceed 1.0 hours in duration.
- 6.** With the exception of startup and shutdown, this emissions unit shall be operated in GE Mode 6, defined as normal operation (ref. Section A.I.2.f above).

## **III. Monitoring and/or Record Keeping Requirements**

- 1.** For each day during which the permittee burns a fuel other than natural gas and/or diesel fuel, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
- 2.** The permittee shall install, operate, and maintain equipment to continuously monitor and record the actual fuel flow to this emissions unit when it 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.
- 3.** The permittee shall maintain records that document the following:
  - a.** the emissions unit's actual electrical output for each operating hour;
  - b.** all periods of time when the emissions unit was operating in startup and shutdown conditions.

### III. Monitoring and/or Record Keeping Requirements (continued)

4. The permittee shall maintain monthly records of the following information in order to monitor compliance with the applicable fuel usage restrictions:
  - a. the total amount of natural gas burned, in cubic feet, for this emissions unit;
  - b. the total amount of diesel fuel burned, in gallons, for this emissions unit;
  - c. the total amount of natural gas burned, in cubic feet, for emission units P001-P008, combined;
  - d. the total amount of diesel fuel burned, in gallons, for emissions units P001-P008, combined;
  - e. the rolling, 12-month summation for the total amount of natural gas burned, in cubic feet, for emissions units P001-P008, combined (the amount of natural gas burned for the current month plus the total amount of natural gas burned for the previous eleven calendar months); and
  - f. the rolling, 12-month summation for the total amount of diesel fuel burned in emissions units P001-P008, combined (the amount of diesel fuel burned for the current month plus the total amount of diesel fuel burned for the previous eleven calendar months).
5. The permittee shall maintain monthly records of the following information for emissions units P001-P008 in order to monitor compliance with the startup and shutdown emission limitations and operational restrictions:
  - a. the date and duration, in minutes, of each startup/shutdown cycle
  - b. the emissions, in pounds, for NO<sub>x</sub> and CO when burning natural gas at startup and shutdown operation modes; and
  - c. the emissions, in pounds, for NO<sub>x</sub> and CO when burning diesel fuel at startup and shutdown operation modes.

The permittee shall use the continuous NO<sub>x</sub> and CO emissions monitoring data to determine the NO<sub>x</sub> and CO emissions for these emissions units. During any period when the NO<sub>x</sub> and/or the CO emissions monitoring systems are not operational, the permittee shall use the appropriate missing data procedures specified in 40 CFR Part 75 to determine NO<sub>x</sub> and CO emissions or an approved data substitution protocol.

### III. Monitoring and/or Record Keeping Requirements (continued)

6. The permittee shall maintain monthly records of the following information for emission units P001- P008 in order to monitor compliance with the rolling, 12- month summation, emissions limitations:
- the total emissions, in tons, for NO<sub>x</sub>\*, CO\*, PE/PM<sub>10</sub>, SO<sub>2</sub>, VOC, H<sub>2</sub>SO<sub>4</sub>, and benzene when burning natural gas for all operational loads;
  - the total emissions, in tons, for NO<sub>x</sub>\*, CO\*, PE/PM<sub>10</sub>, SO<sub>2</sub>, VOC, H<sub>2</sub>SO<sub>4</sub>, and benzene when burning diesel fuel for all operational modes;
  - the rolling, 12-month summation emissions total, in tons, for NO<sub>x</sub>, CO, PE/PM<sub>10</sub>, SO<sub>2</sub>, VOC, H<sub>2</sub>SO<sub>4</sub>, and benzene for emission units P001-P008, combined when burning natural gas and diesel fuel (the total amount of emissions calculated in a + b) for the current month plus the total amount of emissions for the previous eleven calendar months).
  - the updated rolling, 12-month average of NO<sub>x</sub> emissions, in ppm, when burning natural gas at normal operations for this emissions unit (the NO<sub>x</sub> ppm average for the current month (from the CEMs data) plus the total NO<sub>x</sub> ppm average for the previous eleven calendar months).

\* The permittee shall use the continuous NO<sub>x</sub> and CO emissions monitoring data to determine the NO<sub>x</sub> and CO emissions for these emissions units. During any period when the NO<sub>x</sub> and/or the CO emissions monitoring systems are not operational, the permittee shall use the appropriate missing data procedures specified in 40 CFR Part 75 to determine NO<sub>x</sub> and CO emissions or an approved data substitution protocol.

7. The permittee shall monitor the sulfur content of the fuel being fired in the turbine. The frequency of the monitoring shall be determined as follows:
- If the turbine is supplied its fuel from a bulk storage tank, the values shall be determined on each occasion that fuel is transferred to the storage tank from any other source.
  - If the turbine is supplied its fuel without intermediate bulk storage, the values shall be determined and recorded daily. Owners, operators or fuel vendors may develop custom fuel schedules for the determination of the values based on the design and operation of the affected facility and the characteristics of the fuel supply. These custom schedules shall be substantiated with data and must be approved by the Ohio EPA, Central Office before they can be used.
  - For each shipment of diesel fuel oil received for burning in this emissions unit, the permittee shall maintain records of the total quantity of diesel fuel oil received and the permittee's or diesel fuel oil supplier's analyses for sulfur content and heat content.(See Section A.III.8 below)

Analyses for the purpose of determining the sulfur content of the natural gas may be performed by the permittee, the fuel vendor, or any other qualified agency in accordance with the analytical methods specified in 40 CFR Part 60, Subpart GG, Section 60.335(d), 40 CFR Part 75, or the appropriate ASTM methods, or equivalent methods as approved by the Director.

8. For each shipment of diesel fuel received for burning in this emissions unit, the permittee shall maintain records of the total quantity of diesel fuel oil received, the permittee's or diesel fuel oil supplier's analyses for sulfur content and heat content, and the calculated sulfur dioxide emission rate (in lbs/MMBtu). [The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F)]. A shipment may be comprised of multiple tank truck loads from the same supplier's batch, or may be represented by single or multiple pipeline deliveries from the same supplier's batch, and the quality of the diesel fuel oil for those loads or pipeline deliveries may be represented by a single batch analysis from the supplier.

The permittee shall perform or require the supplier to perform the analyses for sulfur content and heat content in accordance with 40 CFR Part 60, Appendix A, Method 19, or the appropriate ASTM methods (such as, ASTM methods D240, D4294,),or equivalent methods as approved by the Director.

### III. Monitoring and/or Record Keeping Requirements (continued)

The permittee shall maintain records of the oil burned in this emissions unit in accordance with either Alternative 1 or Alternative 2 described below:

a. Alternative 1:

For each shipment of oil received for burning in this emissions unit, the permittee shall collect or require the oil supplier to collect a representative grab sample of oil and maintain records of the total quantity of oil received, the permittee's or oil supplier's analyses for sulfur content and heat content, and the calculated sulfur dioxide emission rate (in lbs/MMBtu). (The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F).) A shipment may be comprised of multiple tank truck loads from the same supplier's batch, and the quality of the oil for those loads may be represented by a single batch analysis from the supplier.

b. Alternative 2:

The permittee shall collect a representative grab sample of oil that is burned in this emissions unit for each day when the emission unit is in operation. If additional fuel oil is added to the tank serving this emissions unit on a day when the emissions unit is in operation, the permittee shall collect a sufficient number of grab samples to develop a composite sample representative of the fuel oil burned in this emissions unit. A representative grab sample of oil does not need to be collected on days when this emissions unit is only operated for the purpose of "test-firing". The permittee shall maintain records of the total quantity of oil burned each day, except for the purpose of test-firing, the permittee's analyses for sulfur content and heat content, and the calculated sulfur dioxide emission rate (in lbs/MMBtu). [The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F)]

#### 9. Continuous NOx Monitoring

a. In lieu of complying with the monitoring and testing provisions of 40 CFR 60.334 and 60.345 to demonstrate compliance with the NOx emission limitations, the permittee shall operate and maintain systems to continuously monitor and record emissions of NOx from this emissions unit in accordance with this permit.

b. The permittee shall install, operate and maintain equipment to continuously monitor and record NOx from this emissions unit in units of the applicable standard. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13 and/or 40 CFR Part 75.

c. The permittee shall maintain records of the following data obtained by the continuous NOx monitoring system: parts per million (ppm) NOx at 15% oxygen (hourly average), lbs of NOx/hour, results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

d. A statement of certification of the existing continuous NOx monitoring system shall be maintained on site and shall consist of a letter from Ohio EPA detailing the results of an Agency review of the certification tests and a statement by the Agency that the system is considered certified in accordance with the requirements of 40 CFR Part 60, Appendix B, Performance Specification 2 and/or 40 CFR Part 75, Appendix D and Appendix F. Proof of certification shall be made available to the Hamilton County Department of Environmental Services - Air Quality Control Division upon request.

e. Prior to the installation of the continuous NOx monitoring system, 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 and 40 CFR Part 75, Appendix A, for approval by the Ohio EPA, Central Office.

### **III. Monitoring and/or Record Keeping Requirements (continued)**

f. Certification in pounds NOx per hour: Within 60 days of the startup of this emissions unit, but not later than 180 days after the initial startup of this emissions unit, the permittee shall conduct certification tests of such equipment pursuant to ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 2, and/or 40 CFR Part 75. When NOx mass emissions are being determined as allowed in 40 CFR Part 75, Appendix D and Appendix F, certification testing to show compliance with 40 CFR Part 60, Appendix B, Performance Specification 6 shall not be necessary. However, a stack test shall be conducted to demonstrate 40 CFR Part 75, Appendix F, NOx mass determinations.

Personnel from the Hamilton County Department of Environmental Services - Air Quality Control Division 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, all copies of the test results shall be submitted to the Hamilton County Department of Environmental Services - Air Quality Control Division within 30 days after the test is completed. Certification of the continuous NOx monitoring system shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 2 and/or 40 CFR Part 75.

g. Within 180 days of the effective date of this permit, the permittee shall develop and maintain a written quality assurance/quality control plan for the continuous NOx monitoring system designed to ensure continuous valid and representative readings of NOx emissions in units of the applicable standard. The plan shall follow the requirements of 40 CFR Part 60, Appendix F and/or 40 CFR Part 75, Appendix B. The quality assurance/quality control plan and a logbook dedicated to the CEM systems must be kept on site and available for inspection during regular office hours. These documents may be kept in electronic and/or hardcopy format.

#### **10. Continuous CO Monitoring**

a. The permittee shall install, operate and maintain equipment to continuously monitor and record CO from this emissions unit in lbs CO/hour and in the units of any other applicable standard. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13.

b. The permittee shall maintain records of all data obtained by the continuous CO monitoring system including, but not limited to, ppm CO at a minimum of 4 data points per hour sufficient to generate an hourly average, emissions of CO in units of the applicable standard in the appropriate averaging period (hourly), results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

c. A statement of certification of the existing continuous CO monitoring system shall be maintained on site and shall consist of a letter from Ohio EPA detailing the results of an Agency review of the certification tests and a statement by the Agency that the system is considered certified in accordance with the requirements of 40 CFR Part 60, Appendix B, Performance Specification 4. Proof of certification shall be made available to the Hamilton County Department of Environmental Services - Air Quality Control Division upon request.

d. Prior to installation of the continuous CO monitoring system, 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 4 for approval by the Ohio EPA, Central Office.

**III. Monitoring and/or Record Keeping Requirements (continued)**

e. Certification in pounds CO per hour: Within 60 days of the effective date of this permit, but not later than 180 days after the initial startup of this emissions unit, the permittee shall conduct certification tests of the continuous CO monitoring system pursuant to ORC section 3704.03(I), 40 CFR Part 60, Appendix B, Performance Specification 4. CO mass emissions may be determined in the same manner as NO<sub>x</sub> emissions in term A.III.10. of this permit using the appropriate CO values in place of the cited NO<sub>x</sub> values. When CO mass emissions are being determined in this manner, certification testing to show compliance with 40 CFR 60, Appendix B, Performance Specification 6 will not be necessary. However, a stack test shall be conducted for CO mass determinations with an accuracy that is equivalent to that required in 40 CFR Part 75, Appendix D.

Personnel from the Hamilton County Department of Environmental Services - Air Quality Control Division 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, all copies of the test results shall be submitted to the Hamilton County Department of Environmental Services - Air Quality Control Division within 30 days after the test is completed. Certification of the continuous CO monitoring system shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 4.

f. Within 180 days of the effective date of this permit, the permittee shall develop and maintain a written quality assurance/quality control plan for the continuous CO monitoring system designed to ensure continuous valid and representative readings of CO. The plan shall follow the requirements of 40 CFR Part 60, Appendix F. The quality assurance/quality control plan and a logbook dedicated to the CEM systems must be kept on site and available for inspection during regular office hours. These documents may be kept in electronic and/or hardcopy format.

**11. Continuous O<sub>2</sub> Monitoring**

a. The permittee shall operate and maintain equipment to continuously monitor and record O<sub>2</sub> from this emissions unit, in percent O<sub>2</sub>. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13 and/or 40 CFR Part 75.

b. The permittee shall maintain records of all data obtained by the continuous O<sub>2</sub> monitoring system including, but not limited to, percent O<sub>2</sub> at a minimum of 4 data points per hour sufficient to generate an hourly average, results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

c. Prior to the installation of the continuous O<sub>2</sub> monitoring system, 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 3 and 40 CFR Part 75 for approval by the Ohio EPA, Central Office.

d. Within 60 days of the startup of this emissions unit, but not later than 180 days after the initial startup of this emissions unit, the permittee shall conduct certification tests of the continuous O<sub>2</sub> monitoring system pursuant to ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 3, and/or 40 CFR Part 75. Personnel from the Hamilton County Department of Environmental Services - Air Quality Control Division 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, all copies of the test results shall be submitted to the Hamilton County Department of Environmental Services - Air Quality Control Division within 30 days after the test is completed. Certification of the continuous O<sub>2</sub> monitoring system shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 3 and/or 40 CFR Part 75.

e. Within 180 days of the effective date of this permit, the permittee shall develop and maintain a written quality assurance/quality control plan for the continuous O<sub>2</sub> monitoring system designed to ensure continuous valid and representative readings of O<sub>2</sub> emissions in units of the applicable standard. The plan shall follow the requirements of 40 CFR Part 60, Appendix F and/or 40 CFR Part 75, Appendix B. The quality assurance/quality control plan and a logbook dedicated to the CEM systems must be kept on site and available for inspection during regular office hours. These documents may be kept in electronic and/or hardcopy format.

#### IV. Reporting Requirements

1. The permittee shall submit quarterly reports that identify each period during which an exemption for ice-fog provided in 40 CFR 60.332(f) is in effect. The report shall include the ambient conditions existing during the period, the date and time the air pollution control system was deactivated, and the date and time when the air pollution control system was reactivated.
2. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:
  - a. An identification of all exceedances of the rolling, 12-month natural gas usage rate for emissions units P001-P008;
  - b. An identification of all exceedances of the rolling, 12-month emission limitations for PE/PM10, SO<sub>2</sub>, NO<sub>x</sub>, CO, H<sub>2</sub>SO<sub>4</sub> mist, VOC and benzene;
  - c. An identification of all exceedances of the sulfur content (i.e. 0.05%, by weight) of the fuels (natural gas and diesel fuel) received for burning in this emissions unit;
  - d. An identification of all exceedances of the SO<sub>2</sub> lbs/mmBtu limitation of the diesel fuel received for burning in this emissions unit;
  - e. An identification of all exceedances of the 1.0 hour startup/shutdown cycle operational restriction;
  - f. An identification of all exceedances of the rolling, 12-month diesel fuel usage rate for emissions units P001-P008;
  - g. An identification of all exceedances of the startup and shut down emission limitations in term A. I.1 when burning natural gas; and
  - h. An identification of all exceedances of the startup and shut down emission limitations in term A. I.1 when burning diesel fuel.
  - i. An identification of each day when a fuel other than natural gas or diesel fuel was burned in this emissions unit.
3. All quarterly deviation reports shall be submitted in accordance with the reporting requirements specified in Part I - General Terms and Conditions A.1.c.ii unless otherwise specified.
4. Pursuant to OAC rules 3745-15-04, 3745-35-02, and ORC sections 3704.03(l) and 3704.031 and 40 CFR Parts 60.7 and 60.13(h), the permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting the date, commencement and completion times, duration, magnitude, reason (if known), and corrective actions taken (if any), of all instances of NO<sub>x</sub> values in excess of the applicable limits specified in 40 CFR Part 76 or any limitations specified in the terms and conditions of this permit. These reports shall also contain the total NO<sub>x</sub> emissions for the calendar quarter (in tons), including all data collected during startup and shutdown periods or generated pursuant to the missing data procedures specified in 40 CFR Part 75.

The permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting any continuous NO<sub>x</sub> monitoring system downtime while the emissions unit was on line (date, time, duration and reason) along with any corrective action(s) taken. The permittee shall provide the emissions unit operating time during the reporting period and the date, time, reason and corrective action(s) taken for each time period of emissions unit and control equipment malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report.

#### **IV. Reporting Requirements (continued)**

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 emissions unit, control equipment, and/or monitoring system malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line also shall be included in the quarterly report. These quarterly excess emission reports shall be submitted by January 31, April 30, July 31, and October 31 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 appropriate Ohio EPA District Office or local air agency within 30 days following the end of each calendar quarter in a manner prescribed by the Director.

5. Pursuant to OAC rules 3745-15-04, 3745-35-02, and ORC sections 3704.03(I) and 3704.031 and 40 CFR Parts 60.7 and 60.13(h), the permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting the date, commencement and completion times, duration, magnitude, reason (if known), and corrective actions taken (if any) of all instances of CO values in excess of any applicable limitation(s) specified in OAC Chapter 3745-21, 40 CFR Part 60, or any limitation(s) specified in the terms and conditions of this permit, in units of the standard. These reports shall also contain the total CO emissions for the calendar quarter (in tons), including all data collected during startup and shutdown periods or generated pursuant to the missing data procedures for fuel flow measurement as specified in 40 CFR Part 75.

The permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting any continuous CO monitoring system downtime while the emissions unit was on line (date, time, duration and reason) along with any corrective action(s) taken. The permittee shall provide the emissions unit operating time during the reporting period and the date, time, reason and corrective action(s) taken for each time period of emissions unit and control equipment malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report.

If there are no excess emissions during the calendar quarter, the permittee shall submit a statement to that effect along with the emissions unit operating time during the reporting period and the date, time, reason, and corrective action(s) taken for each time period of emissions unit, control equipment, and/or monitoring system malfunctions. The total operating time of the emissions unit and the total operating time of the analyzer while the emissions unit was on line shall also be included in the quarterly report. These quarterly excess emission reports shall be submitted by January 31, April 30, July 31, and October 31 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 appropriate local air agency within 30 days following the end of each calendar quarter in a manner prescribed by the Director.

6. The permittee shall submit annual reports that specify the total NO<sub>x</sub>, CO, PE/PM<sub>10</sub>, VOC, SO<sub>2</sub>, benzene and H<sub>2</sub>SO<sub>4</sub> emissions from this emissions unit for the calendar year. These reports shall be submitted by January 31 of each year and cover the previous calendar year.

#### **V. Testing Requirements**

1. Compliance with the emission limitations, fuel usage restrictions and sulfur content limitations specified in Sections A.I and A.II shall be determined by the following methods:

## V. Testing Requirements (continued)

- 1.a** Emission Limitations: The emissions from startup and shutdown operations shall not exceed the following emission limitations for this emissions unit:

Natural Gas  
NOx: 83 lbs/cycle  
CO: 308 lbs/cycle

Diesel Fuel  
NOx: 130 lbs/cycle  
CO: 354 lbs/cycle

Applicable Compliance Method: The lbs/cycle emissions limitations were established based on emissions data contained in the PTI modification application (PTI 14-04682) submitted March, 2001 and the emission factors from the background document, Reference 16, for Stationary Gas Turbines in AP-42, Fifth Edition, Section 3.1, dated April 2000.

Compliance with the NOx emission limitations shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Sections A.III.5 and A.III.9.

- 1.b** Emission Limitations: The hourly emissions from this emissions unit shall not exceed the following amounts:

- i. 58.0 lbs of SO<sub>2</sub> emissions/hour;
- ii. 54.0 lbs of CO emissions/hour;
- iii. 196.0 lbs of NO<sub>x</sub> emissions/hour;
- iv. 6.0 lbs of H<sub>2</sub>SO<sub>4</sub> mist emissions/hour; and
- v. 10.0 lbs of VOC emissions/hour.

Applicable Compliance Method: The hourly emission limitations are based upon the emission unit's potential to emit and the emission factors from the background document for Stationary Gas Turbines in AP-42, Fifth Edition, Section 3.1, dated April 2000.

Compliance with the NOx emission limitation shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Section A.III.9.

Compliance with the CO emission limitation shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Section A.III.10.

If required, the permittee shall demonstrate compliance with the hourly NO<sub>x</sub> emission limitation through emission test performed in accordance with Methods 1-4 and 7 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Section 60.334(c)(1).

If required, the permittee shall demonstrate compliance with the hourly SO<sub>2</sub> emission limitation through emission tests performed in accordance with Methods 1-4 and 6 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

If required, the permittee shall demonstrate compliance with the hourly CO emission limitation through emission tests performed in accordance with Methods 1-4 and 10 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

## V. Testing Requirements (continued)

If required, the permittee shall demonstrate compliance with the hourly H<sub>2</sub>SO<sub>4</sub> mist emission limitation through emission tests performed in accordance with Methods 1-4 and 8 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

If required, the permittee shall demonstrate compliance with the hourly VOC emission limitation through emission tests performed in accordance with Methods 1-4 and 25 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Part 60.334(c)(1).

**1.c** Emission Limitations: The total emissions from emission units P001-P008 combined shall not exceed the following emission limitations:

- i. 60.5 tons of PE/PM<sub>10</sub> emissions per rolling, 12-month period;
- ii. 120.8 tons of SO<sub>2</sub> emissions per rolling, 12-month period;
- iii. 733.3 tons of NO<sub>x</sub> emissions per rolling, 12-month period;
- iv. 541.0 tons of CO emissions per rolling, 12-month period;
- v. 36.4 tons of VOC emissions per rolling, 12-month period;
- vi. 12.2 tons of H<sub>2</sub>SO<sub>4</sub> mist emissions per rolling, 12-month period;
- vii. 7.7 tons of benzene emissions per rolling, 12-month period;
- viii. 0.00084 ton of beryllium emissions per rolling, 12-month period; and
- ix. 0.012 ton of arsenic emissions per rolling, 12-month period.

Applicable Compliance Method: Compliance with the annual PE/PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC, H<sub>2</sub>SO<sub>4</sub> and benzene emission limitations specified above shall be determined by the record keeping requirements specified in Section A.III.6 .

Compliance with the annual beryllium and arsenic emission limitations specified above may be determined by multiplying the pollutant specific emission factor found in AP-42, Fifth Edition, Section 3.1 "Stationary Gas Turbines," updated 4/00, by the amount of fuel collected and recorded in Sections A.III.4 (for natural gas) and A.III.4 (for diesel fuel) by the specific heat content of the each fuel employed.

The specific heat content for diesel fuel oil shall be taken from the information collected and recorded in A.III.8.

**1.d** Emission Limitations:

- i. 0.15 TPY of lead emissions; and
- ii. 0.0023 TPY of mercury emissions.

Applicable Compliance Method: Compliance with the TPY lead and mercury emission limitations specified above may be determined by multiplying the pollutant specific emission factor found in AP-42, Fifth Edition, Section 3.1 "Stationary Gas Turbines," updated 4/00, by the amount of fuel collected and recorded in Sections A.III.4 (for natural gas) and A.III.4 (for diesel fuel) by the specific heat content of the each fuel employed. The heat content for the diesel fuel shall also be taken from the information collected and recorded in Section A.III.8.

## V. Testing Requirements (continued)

**1.e** Emission Limitations: The following NO<sub>x</sub> emission limitations shall not be exceeded:

- i. 15 ppm of NO<sub>x</sub> emissions, by volume, at 15% oxygen on a dry basis when firing natural gas, as a 1-hour average;
- ii. 42 ppm of NO<sub>x</sub> emissions, by volume, at 15% oxygen on a dry basis when firing diesel fuel, as a 1-hour average; and
- iii. When burning natural gas, the NO<sub>x</sub> emission rate shall not exceed 12 ppm, by volume, at 15% oxygen on a dry basis, based on a rolling, 12-month summation of the monthly NO<sub>x</sub> emissions in ppm.

Applicable Compliance Method: Compliance with the NO<sub>x</sub> emission limitations shall be determined by the continuous emission monitoring data collected pursuant to the record keeping requirements specified in Section A.III.9.

If required, the permittee shall demonstrate compliance with the ppm NO<sub>x</sub> emission limitations through emission tests performed in accordance with Methods 1-4 and 7 of 40 CFR Part 60, Appendix A and the equation specified in 40 CFR Section 60.334(c)(1).

**1.f** PE/PM<sub>10</sub> Emission Limitation: 0.008 lb of PE/PM<sub>10</sub> emissions/mmBtu

Applicable Compliance Method: Compliance with the PE/PM<sub>10</sub> emission limitation may be determined by the manufacturer's guaranteed emissions data found in PTI 14-4682 submitted April 26, 1999.

If required, the permittee shall demonstrate compliance with the PE/PM<sub>10</sub> emission limitation through emission tests performed in accordance with Methods 1-5 of 40 CFR Part 60, Appendix A.

**1.g** Visible PE Limitation: Visible PE from any stack shall not exceed 20% opacity, as a 6-minute average, except as specified by rule, when burning diesel fuel.

Applicable Compliance Method: If required, compliance with the visible PE limitation shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Test Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

**1.h** Visible PE Limitation: Visible PE from any stack shall not exceed 10% opacity, as a 6-minute average, when burning pipeline natural gas.

Applicable Compliance Method: If required, compliance with the visible PE limitation shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Test Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

**1.i** SO<sub>2</sub> Emission Limitation: 0.0456 lb of SO<sub>2</sub> emissions/mmBtu when burning diesel fuel;

Applicable Compliance Method: Compliance with the SO<sub>2</sub> emission limitation shall be determined by the sulfur analysis of the fuels combusted pursuant to the requirements specified in Sections A.III.7 and A.III.8, and by documenting that the sulfur content of each shipment of oil received during a calendar month meets the 0.05% sulfur content restriction.

If required, the permittee shall demonstrate compliance with the SO<sub>2</sub> emission limitation through emission tests performed in accordance with Methods 1-4 and 6 of 40 CFR Part 60, Appendix A.

**1.j** Sulfur Content Restriction: not to exceed 0.05% sulfur, by weight, when burning natural gas or diesel fuel

Applicable Compliance Method: Compliance with the sulfur content restriction shall be determined using standard methods as required in 40 CFR Section 60.335 and the information collected and recorded in Sections A.III.7 and A.III.8.

**V. Testing Requirements (continued)**

- 1.k** Natural Gas and Diesel Fuel Usage Restrictions: The total maximum annual natural gas usage rate for emissions units P001-P008 combined shall not exceed 20.3 billion cubic feet per year, based upon a rolling, 12-month summation of the natural gas usage rate. The total maximum annual diesel fuel usage rate for emissions units P001-P008 combined shall not exceed 34 million gallons per year, based upon a rolling, 12-month summation of the diesel fuel usage rate.

Applicable Compliance Method: Compliance with the natural gas and diesel fuel usage restrictions shall be determined by the record keeping requirements specified in Section A.III.4.

**VI. Miscellaneous Requirements**

**None**

**B. State Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
80 Megawatt (nominal) natural gas/No. 2 fuel oil fired simple-cycle combustion turbine	OAC rules 3745-31-11 thru OAC rule 3745-31-20	These rules are equivalent to 40 CFR Part 52.21. At the time of permit, issuance these regulations have been promulgated in the OAC. However, they have not yet been added to the Ohio SIP.
	OAC rule 3745-31-28	This rule is equivalent to 40 CFR 63.41-40 CFR Part 63.44. At the time of permit, issuance these regulations have been promulgated in the OAC. However, they have not yet been added to the Ohio SIP.

**2. Additional Terms and Conditions**

None

**II. Operational Restrictions**

None

**III. Monitoring and/or Record Keeping Requirements**

None

**IV. Reporting Requirements**

None

**V. Testing Requirements**

None

**VI. Miscellaneous Requirements**

None

### Part III - Terms and Conditions for Emissions Units

**Emissions Unit ID:** #1 EDG (P009)

**Activity Description:** 1.5 Megawatt Emergency Diesel Generator #1

#### A. State and Federally Enforceable Section

##### I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
17.21 mmBtu/hour (1.5 megawatt) emergency diesel-fired generator	OAC rule 3745-31-05(A)(3) (PTI 14-04682)	See Sections A.I.2.a and A.I.2.b below.  The requirements of this rule also include compliance with the requirements of OAC rule 3745-17-07(A)(1), OAC rule 3745-17-11(B)(5)(b), and OAC rule 3745-31-05(D).
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions (PE) from any stack shall not exceed 20% opacity, as a 6-minute average, except as specified by rule.
	OAC rule 3745-17-11(B)(5)(b)	0.062 lb PE/mmBtu of actual heat input
	OAC rule 3745-18-06(G)	SO <sub>2</sub> emissions shall not exceed 0.5 lb/mmBtu of actual heat input
	OAC rule 3745-31-05(D)	See Section A.II.1 below.

##### 2. Additional Terms and Conditions

**2.a** The permittee shall not exceed the following hourly emission limitations:

- i. 6.95 lbs of sulfur dioxide (SO<sub>2</sub>) emissions/hour;
- ii. 55.07 lbs of nitrogen oxides (NO<sub>x</sub>) emissions/hour;
- iii. 14.63 lbs of carbon monoxide (CO) emissions/hour; and
- iv. 1.41 lbs of volatile organic compound (VOC) emissions/hour.

The hourly emission limitations specified above are based on the emissions unit's potential to emit. Therefore, it is not necessary to develop any additional monitoring, record keeping or reporting requirements to ensure compliance with these emission limitations.

## **2. Additional Terms and Conditions (continued)**

**2.b** The permittee shall not exceed the following annual emission limitations:

- i. 0.27 ton of PE per rolling, 12-month period;
- ii. 1.74 tons of SO<sub>2</sub> emissions per rolling, 12-month period;
- iii. 13.77 TPY of NO<sub>x</sub> emissions per rolling, 12-month period;
- iv. 3.66 TPY of CO emissions per rolling, 12-month period; and
- v. 0.35 TPY of VOC emissions per rolling, 12-month period.

## **II. Operational Restrictions**

1. The maximum annual operating hours for this emissions unit shall not exceed 499 hours per rolling, 12-month period.
2. The quality of diesel fuel burned in this emissions unit shall have a combination of heat and sulfur content that is sufficient to comply with the allowable sulfur dioxide emission limitation.

Compliance with the above mentioned specification shall be determined by using analytical results provided by the permittee or oil supplier for each shipment of diesel fuel.

3. The permittee shall burn only diesel fuel in this emissions unit.

## **III. Monitoring and/or Record Keeping Requirements**

1. The permittee shall collect and record the following information each month for this emissions unit:
  - a. The total hours of operation for this emissions unit; and
  - b. the updated rolling, 12-month summation for the total hours of operation for this emissions unit (the total number of operating hours for the current month plus the total amount of operating hours for the previous 11 calendar months).
2. For each day during which the permittee burns a fuel other than diesel fuel, the permittee shall maintain a record of the type and quantity of the fuel burned in this emissions unit.
3. For each shipment of diesel fuel received for burning in this emissions unit, the permittee shall collect or require the oil supplier to collect a representative grab sample of oil and maintain records of the total quantity of oil received, the permittee's or oil supplier's analyses for sulfur content and heat content, and the calculated sulfur dioxide emission rate (in lbs mmBTU). (The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F).) A shipment may be comprised of multiple tank truck loads from the same supplier's batch, and the quality of the oil for those loads may be represented by a single batch analysis from the supplier.

The permittee shall perform or require the supplier to perform the analyses for sulfur content and heat content in accordance with 40 CFR Part 60, Appendix A, Method 19, or the appropriate ASTM methods (such as, ASTM methods D240 and D4294), or equivalent methods as approved by the Director.

## **IV. Reporting Requirements**

1. The permittee shall submit deviation (excursion) reports to the Hamilton County Department of Environmental Services that identify each day when a fuel other than diesel fuel was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
2. The permittee shall submit quarterly deviation (excursion) reports to the Hamilton County Department of Environmental Services that identify all exceedances of the rolling, 12-month annual hours of operation limitation.

The quarterly deviation reports shall be submitted in accordance with the reporting requirements specified in Part I - General Terms and Conditions A.1.c.ii.

#### IV. Reporting Requirements (continued)

3. The permittee shall notify the Hamilton County Department of Environmental Services in writing of any record that shows a deviation of the allowable SO<sub>2</sub> limitation specified in Section A.I.1, based upon the calculated SO<sub>2</sub> emission rate from Section A.III.3 above. The notification shall include a copy of such record and shall be sent to the Hamilton County Department of Environmental Services within 45 days after the deviation occurs.

#### V. Testing Requirements

1. Compliance with the visible PE limitation, the particulate, SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC emission limitations and the hours of operation restriction specified in Section A.I.1, A.I.2 and A.II shall be determined by the following methods:

- 1.a Emission Limitations:

6.95 lbs of SO<sub>2</sub> emissions/hour;  
55.07 lbs of NO<sub>x</sub> emissions/hour;  
14.63 lbs of CO emissions/hour; and  
1.41 lbs of VOC emissions/hour.

Applicable Compliance Method: The hourly emission limitations specified above are based upon the emissions unit's potential to emit and were established by the following methodology:

- i. The hourly SO<sub>2</sub> emission limitation was established by multiplying the emission factor of 1.01(S) lbs of SO<sub>2</sub>/mmBtu (where "S" is the % sulfur in the fuel oil) by the maximum heat input of 17.21 mmBtu/hour.

If required, the permittee shall demonstrate compliance with the hourly SO<sub>2</sub> emission limitation through emission tests performed in accordance with Methods 1-4 and 6 of 40 CFR Part 60, Appendix A.

- ii. The hourly NO<sub>x</sub> emission limitation was established by multiplying the emission factor of 3.2 lbs of NO<sub>x</sub> emissions/mmBtu by the maximum heat input of 17.21 mmBtu/hour.

If required, the permittee shall demonstrate compliance with the hourly NO<sub>x</sub> emission limitation through emission tests performed in accordance with Methods 1-4 and 7 of 40 CFR Part 60, Appendix A.

- iii. The hourly CO emission limitation was established by multiplying the emission factor of 0.85 lb of CO emissions/mmBtu by the maximum heat input of 17.21 mmBtu/hour.

If required, the permittee shall demonstrate compliance with the hourly CO emission limitation through emission tests performed in accordance with Methods 1-4 and 10 of 40 CFR Part 60, Appendix A.

- iv. The hourly VOC emission limitation was established by multiplying the emission factor of 0.09 lb of VOC emissions/mmBtu by the maximum heat input of 17.21 mmBtu/hour.

If required, the permittee shall demonstrate compliance with the hourly VOC emission limitation through emission tests performed in accordance with Methods 1-4 and 25 of 40 CFR Part 60, Appendix A.

Note: The emission factor used to determine SO<sub>2</sub> emissions from the burning of diesel fuel is 1.01(S), where S is the percent (%) sulfur in the fuel oil. The emission factors specified above for each pollutant, including SO<sub>2</sub>, were obtained from AP-42, Fifth Edition, Chapter 3, Section 3.4, "Large Stationary Diesel Engines", Table 3.4-1, dated 10/96.

## **V. Testing Requirements (continued)**

- 1.b** Emission Limitations: The total emissions from this emissions unit shall not exceed the following emission limitations, per rolling, 12-month period:

0.27 ton of PE;  
1.74 tons of SO<sub>2</sub> emissions;  
13.77 tons of NO<sub>x</sub> emissions;  
3.66 tons of CO emissions; and  
0.35 tons of VOC emissions.

Applicable Compliance Method: Compliance with the annual emission limitations for the pollutants specified above are ensured if compliance is maintained with the maximum annual operating hours (i.e., 499 per rolling, 12-month period). The annual emission limitations were calculated by multiplying the hourly emissions (for each pollutant respectively), by the maximum annual operating schedule of 499 hours, and dividing by 2,000 lbs/ton.

- 1.c** PE Limitation: 0.062 lb of PE/mmBtu of actual heat input

Applicable Compliance Method: Compliance may be based upon an emission factor of 0.062 lb/mmBtu. This emission factor is specified in the U.S. EPA reference document AP-42, Fifth Edition, Chapter 3, Section 3.4, "Large Stationary Diesel Engines", Table 3.4-2, dated 10/96.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with the methods and procedures specified in OAC rule 3745-17-03(B)(10).

- 1.d** SO<sub>2</sub> Emission Limitation: 0.5 lb of SO<sub>2</sub> emissions/mmBtu of actual heat input

Applicable Compliance Method: Compliance with the SO<sub>2</sub> emission limitation shall be determined by the record keeping requirements specified in Section A.III.3.

If required, the permittee shall demonstrate compliance with the SO<sub>2</sub> emission limitation through emission tests performed in accordance with Methods 1-4 and 6 of 40 CFR Part 60, Appendix A.

- 1.e** Visible PE Limitation: Visible PE from any stack shall not exceed 20% opacity, as a 6-minute average, except as specified by rule.

Applicable Compliance Method: If required, compliance with the visible PE limitation shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Test Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

- 1.f** Operating Hours Restriction: 499 hours per rolling, 12-month period

Applicable Compliance Method: Compliance with the operating hours restriction shall be determined by the record keeping requirements specified in Section A.III.1.

## **VI. Miscellaneous Requirements**

**None**

**B. State Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
17.21 mmBtu/hour (1.5 megawatt) emergency diesel-fired generator		

**2. Additional Terms and Conditions**

None

**II. Operational Restrictions**

None

**III. Monitoring and/or Record Keeping Requirements**

None

**IV. Reporting Requirements**

None

**V. Testing Requirements**

1. None

**VI. Miscellaneous Requirements**

None

### Part III - Terms and Conditions for Emissions Units

**Emissions Unit ID:** #2 EDG (P010)

**Activity Description:** 1.5 Megawatt Emergency Diesel Generator #2

#### A. State and Federally Enforceable Section

##### I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
17.21 mmBtu/hour (1.5 megawatt) emergency diesel-fired generator	OAC rule 3745-31-05(A)(3) (PTI 14-04682)	See Sections A.I.2.a and A.I.2.b below.  The requirements of this rule also include compliance with the requirements of OAC rule 3745-17-07(A)(1), OAC rule 3745-17-11(B)(5)(b), and OAC rule 3745-31-05(D).
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions (PE) from any stack shall not exceed 20% opacity, as a 6-minute average, except as specified by rule.
	OAC rule 3745-17-11(B)(5)(b)	0.062 lb PE/mmBtu of actual heat input
	OAC rule 3745-18-06(G)	SO2 emissions shall not exceed 0.5 lb/mmBtu of actual heat input
	OAC rule 3745-31-05(D)	See Section A.II.1 below.

##### 2. Additional Terms and Conditions

- 2.a The permittee shall not exceed the following hourly emission limitations:
  - i. 6.95 lbs of sulfur dioxide (SO2) emissions/hour;
  - ii. 55.07 lbs of nitrogen oxides (NOx) emissions/hour;
  - iii. 14.63 lbs of carbon monoxide (CO) emissions/hour; and
  - iv. 1.41 lbs of volatile organic compound (VOC) emissions/hour.

The hourly emission limitations specified above are based on the emissions unit's potential to emit. Therefore, it is not necessary to develop any additional monitoring, record keeping or reporting requirements to ensure compliance with these emission limitations.

## **2. Additional Terms and Conditions (continued)**

**2.b** The permittee shall not exceed the following annual emission limitations:

- i. 0.27 ton of PE per rolling, 12-month period;
- ii. 1.74 tons of SO<sub>2</sub> emissions per rolling, 12-month period;
- iii. 13.77 TPY of NO<sub>x</sub> emissions per rolling, 12-month period;
- iv. 3.66 TPY of CO emissions per rolling, 12-month period; and
- v. 0.35 TPY of VOC emissions per rolling, 12-month period.

## **II. Operational Restrictions**

1. The maximum annual operating hours for this emissions unit shall not exceed 499 hours per rolling, 12-month period.
2. The quality of diesel fuel burned in this emissions unit shall have a combination of heat and sulfur content that is sufficient to comply with the allowable sulfur dioxide emission limitation.

Compliance with the above mentioned specification shall be determined by using analytical results provided by the permittee or oil supplier for each shipment of diesel fuel.

3. The permittee shall burn only diesel fuel in this emissions unit.

## **III. Monitoring and/or Record Keeping Requirements**

1. The permittee shall collect and record the following information each month for this emissions unit:
  - a. The total hours of operation for this emissions unit; and
  - b. the updated rolling, 12-month summation for the total hours of operation for this emissions unit (the total number of operating hours for the current month plus the total amount of operating hours for the previous 11 calendar months).
2. For each day during which the permittee burns a fuel other than diesel fuel, the permittee shall maintain a record of the type and quantity of the fuel burned in this emissions unit.
3. For each shipment of diesel fuel received for burning in this emissions unit, the permittee shall collect or require the oil supplier to collect a representative grab sample of oil and maintain records of the total quantity of oil received, the permittee's or oil supplier's analyses for sulfur content and heat content, and the calculated sulfur dioxide emission rate (in lbs mmBTU). (The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F).) A shipment may be comprised of multiple tank truck loads from the same supplier's batch, and the quality of the oil for those loads may be represented by a single batch analysis from the supplier.

The permittee shall perform or require the supplier to perform the analyses for sulfur content and heat content in accordance with 40 CFR Part 60, Appendix A, Method 19, or the appropriate ASTM methods (such as, ASTM methods D240 and D4294), or equivalent methods as approved by the Director.

## **IV. Reporting Requirements**

1. The permittee shall submit deviation (excursion) reports to the Hamilton County Department of Environmental Services that identify each day when a fuel other than diesel fuel was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
2. The permittee shall submit quarterly deviation (excursion) reports to the Hamilton County Department of Environmental Services that identify all exceedances of the rolling, 12-month annual hours of operation limitation.

The quarterly deviation reports shall be submitted in accordance with the reporting requirements specified in Part I - General Terms and Conditions A.1.c.ii.

#### IV. Reporting Requirements (continued)

3. The permittee shall notify the Hamilton County Department of Environmental Services in writing of any record that shows a deviation of the allowable SO<sub>2</sub> limitation specified in Section A.I.1, based upon the calculated SO<sub>2</sub> emission rate from Section A.III.3 above. The notification shall include a copy of such record and shall be sent to the Hamilton County Department of Environmental Services within 45 days after the deviation occurs.

#### V. Testing Requirements

1. Compliance with the visible PE limitation, the particulate, SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC emission limitations and the hours of operation restriction specified in Section A.I.1, A.I.2 and A.II shall be determined by the following methods:

- 1.a Emission Limitations:

6.95 lbs of SO<sub>2</sub> emissions/hour;  
55.07 lbs of NO<sub>x</sub> emissions/hour;  
14.63 lbs of CO emissions/hour; and  
1.41 lbs of VOC emissions/hour.

Applicable Compliance Method: The hourly emission limitations specified above are based upon the emissions unit's potential to emit and were established by the following methodology:

- i. The hourly SO<sub>2</sub> emission limitation was established by multiplying the emission factor of 1.01(S) lbs of SO<sub>2</sub>/mmBtu (where "S" is the % sulfur in the fuel oil) by the maximum heat input of 17.21 mmBtu/hour.

If required, the permittee shall demonstrate compliance with the hourly SO<sub>2</sub> emission limitation through emission tests performed in accordance with Methods 1-4 and 6 of 40 CFR Part 60, Appendix A.

- ii. The hourly NO<sub>x</sub> emission limitation was established by multiplying the emission factor of 3.2 lbs of NO<sub>x</sub> emissions/mmBtu by the maximum heat input of 17.21 mmBtu/hour.

If required, the permittee shall demonstrate compliance with the hourly NO<sub>x</sub> emission limitation through emission tests performed in accordance with Methods 1-4 and 7 of 40 CFR Part 60, Appendix A.

- iii. The hourly CO emission limitation was established by multiplying the emission factor of 0.85 lb of CO emissions/mmBtu by the maximum heat input of 17.21 mmBtu/hour.

If required, the permittee shall demonstrate compliance with the hourly CO emission limitation through emission tests performed in accordance with Methods 1-4 and 10 of 40 CFR Part 60, Appendix A.

- iv. The hourly VOC emission limitation was established by multiplying the emission factor of 0.09 lb of VOC emissions/mmBtu by the maximum heat input of 17.21 mmBtu/hour.

If required, the permittee shall demonstrate compliance with the hourly VOC emission limitation through emission tests performed in accordance with Methods 1-4 and 25 of 40 CFR Part 60, Appendix A.

Note: The emission factor used to determine SO<sub>2</sub> emissions from the burning of diesel fuel is 1.01(S), where S is the percent (%) sulfur in the fuel oil. The emission factors specified above for each pollutant, including SO<sub>2</sub>, were obtained from AP-42, Fifth Edition, Chapter 3, Section 3.4, "Large Stationary Diesel Engines", Table 3.4-1, dated 10/96.

## V. Testing Requirements (continued)

- 1.b** Emission Limitations: The total emissions from this emissions unit shall not exceed the following emission limitations, per rolling, 12-month period:

0.27 ton of PE;  
1.74 tons of SO<sub>2</sub> emissions;  
13.77 tons of NO<sub>x</sub> emissions;  
3.66 tons of CO emissions; and  
0.35 tons of VOC emissions.

Applicable Compliance Method: Compliance with the annual emission limitations for the pollutants specified above are ensured if compliance is maintained with the maximum annual operating hours (i.e., 499 per rolling, 12-month period). The annual emission limitations were calculated by multiplying the hourly emissions (for each pollutant respectively), by the maximum annual operating schedule of 499 hours, and dividing by 2,000 lbs/ton.

- 1.c** PE Limitation: 0.062 lb of PE/mmBtu of actual heat input

Applicable Compliance Method: Compliance may be based upon an emission factor of 0.062 lb/mmBtu. This emission factor is specified in the U.S. EPA reference document AP-42, Fifth Edition, Chapter 3, Section 3.4, "Large Stationary Diesel Engines", Table 3.4-2, dated 10/96.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with the methods and procedures specified in OAC rule 3745-17-03(B)(10).

- 1.d** SO<sub>2</sub> Emission Limitation: 0.5 lb of SO<sub>2</sub> emissions/mmBtu of actual heat input

Applicable Compliance Method: Compliance with the SO<sub>2</sub> emission limitation shall be determined by the record keeping requirements specified in Section A.III.3.

If required, the permittee shall demonstrate compliance with the SO<sub>2</sub> emission limitation through emission tests performed in accordance with Methods 1-4 and 6 of 40 CFR Part 60, Appendix A.

- 1.e** Visible PE Limitation: Visible PE from any stack shall not exceed 20% opacity, as a 6-minute average, except as specified by rule.

Applicable Compliance Method: If required, compliance with the visible PE limitation shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Test Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

- 1.f** Operating Hours Restriction: 499 hours per rolling, 12-month period

Applicable Compliance Method: Compliance with the operating hours restriction shall be determined by the record keeping requirements specified in Section A.III.1.

## VI. Miscellaneous Requirements

**None**

**B. State Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
17.21 mmBtu/hour (1.5 megawatt) emergency diesel-fired generator		

**2. Additional Terms and Conditions**

None

**II. Operational Restrictions**

None

**III. Monitoring and/or Record Keeping Requirements**

None

**IV. Reporting Requirements**

None

**V. Testing Requirements**

None

**VI. Miscellaneous Requirements**

None

### Part III - Terms and Conditions for Emissions Units

**Emissions Unit ID:** Fire Pump (P011)

**Activity Description:** 140 Kilowatt Emergency Diesel Fire Pump

#### A. State and Federally Enforceable Section

##### I. Applicable Emissions Limitations and/or Control Requirements

- The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
1.6 mmBtu/hour (140 kilowatt) emergency diesel-fired pump	OAC rule 3745-31-05(A)(3) (PTI 14-04682)	See Sections A.I.2.a and A.I.2.b below.  The requirements of this rule also include compliance with the requirements of OAC rule 3745-17-07(A)(1), OAC rule 3745-17-11(B)(5)(a), and 3745-31-05(D).
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions (PE) from any stack shall not exceed 20% opacity, as a 6-minute average, except as specified by rule.
	OAC rule 3745-17-11(B)(5)(a)	0.310 lb of PE/mmBtu of actual heat input
	OAC rule 3745-31-05(D)	See Section A.II.1 below.
	OAC rule 3745-18-06(G)	Exempt, pursuant to the provisions of OAC rule 3745-18-06(B). See Section A.I.2.c below.

##### 2. Additional Terms and Conditions

- The permittee shall not exceed the following hourly emission limitations:

0.65 lb of sulfur dioxide (SO<sub>2</sub>) emissions/hour;  
 5.14 lbs of nitrogen oxides (NO<sub>x</sub>) emissions/hour;  
 1.37 lbs of carbon monoxide (CO) emissions/hour; and  
 0.13 lb of volatile organic compound (VOC) emissions/hour.

The hourly emission limitations specified above are based on the emissions unit's potential to emit. Therefore, it is not necessary to develop any additional monitoring, record keeping or reporting requirements to ensure compliance with these emission limitations.

## **2. Additional Terms and Conditions (continued)**

**2.b** The permittee shall not exceed the following annual emission limitations:

0.04 ton of PE per rolling, 12-month period;  
0.16 ton of SO<sub>2</sub> emissions per rolling, 12-month period;  
1.28 tons of NO<sub>x</sub> emissions per rolling, 12-month period;  
0.34 tons of CO emissions per rolling, 12-month period; and  
0.03 ton of VOC emissions per rolling, 12-month period.

**2.c** The rated heat input capacity of this emissions unit is equal to or less than 10 mmBtu/hour. Therefore, this emissions unit is exempt from the requirements of OAC rule 3745-18-06(G).

## **II. Operational Restrictions**

1. The maximum annual operating hours for this emissions unit shall not exceed 500 hours per rolling, 12-month period.
2. The permittee shall burn only diesel fuel in this emissions unit.
3. The quality of diesel fuel burned in this emissions unit shall have a combination of heat and sulfur content that is sufficient to comply with the allowable sulfur dioxide emission limitation.

## **III. Monitoring and/or Record Keeping Requirements**

1. The permittee shall collect and record the following records each month for this emissions unit:
  - a. the total hours of operation for this emissions unit; and
  - b. the updated rolling, 12-month summation for the total hours of operation for this emissions unit (the total number of operating hours for the current month plus the total amount of operating hours for the previous 11 calendar months).
2. For each day during which the permittee burns a fuel other than diesel fuel, the permittee shall maintain a record of the type and quantity of the fuel burned in this emissions unit.
3. For each shipment of diesel fuel received for burning in this emissions unit, the permittee shall collect or require the oil supplier to collect a representative grab sample of oil and maintain records of the total quantity of oil received, the permittee's or oil supplier's analyses for sulfur content and heat content, and the calculated sulfur dioxide emission rate (in lbs/MMBTU). (The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F).) A shipment may be comprised of multiple tank truck loads from the same supplier's batch, and the quality of the oil for those loads may be represented by a single batch analysis from the supplier.

The permittee shall perform or require the supplier to perform the analyses for sulfur content and heat content in accordance with 40 CFR Part 60, Appendix A, Method 19, or the appropriate ASTM methods (such as, ASTM methods D240 and D4294), or equivalent methods as approved by the Director.

## **IV. Reporting Requirements**

1. The permittee shall submit deviation (excursion) reports to the Hamilton County Department of Environmental Services that identify each day when a fuel other than diesel fuel was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
2. The permittee shall submit quarterly deviation (excursion) reports to the Hamilton County Department of Environmental Services that identify all exceedances of the rolling, 12-month hours of operation limitation.

The quarterly deviation reports shall be submitted in accordance with the reporting requirements specified in Part I - General Terms and Conditions A.1.c.ii.

#### IV. Reporting Requirements (continued)

3. The permittee shall notify the Hamilton County Department of Environmental Services in writing of any record which shows a deviation of the allowable sulfur dioxide limitation based upon the calculated sulfur dioxide emission rates from Section A.III above. The notification shall include a copy of such record and shall be sent to the Hamilton County Department of Environmental Services within 45 days after the deviation occurs.

#### V. Testing Requirements

1. Compliance with the visible PE limitation, the PE, SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC emission limitations and the hours of operation restriction specified in Sections A.I.1, A.I.2 and A.II shall be determined by the following methods:

- 1.a Emission Limitations:

0.65 lb of SO<sub>2</sub> emissions/hour;  
5.14 lb of NO<sub>x</sub> emissions/hour;  
1.37 lbs of CO emissions/hour; and  
0.13 lbs of VOC emissions/hour.

Applicable Compliance Method: The hourly emission limitations specified above are based upon the emissions unit's potential to emit and were established by the following methodology:

- i. The hourly SO<sub>2</sub> emission limitation was established by multiplying the emission factor of 1.01(S) lbs of SO<sub>2</sub>/mmBtu (where "S" is the % sulfur in the fuel oil) by the maximum heat input of 1.6 mmBtu/hour.

If required, the permittee shall demonstrate compliance with the hourly SO<sub>2</sub> emission limitation through emission tests performed in accordance with Methods 1-4 and 6 of 40 CFR Part 60, Appendix A.

- ii. The hourly NO<sub>x</sub> emission limitation was established by multiplying the emission factor of 3.2 lbs of NO<sub>x</sub> emissions/mmBtu by the maximum heat input of 1.6 mmBtu/hour.

If required, the permittee shall demonstrate compliance with the hourly NO<sub>x</sub> emission limitation through emission tests performed in accordance with Methods 1-4 and 7 of 40 CFR Part 60, Appendix A.

- iii. The hourly CO emission limitation was established by multiplying the emission factor of 0.85 lb of CO emissions/mmBtu by the maximum heat input of 1.6 mmBtu/hour.

If required, the permittee shall demonstrate compliance with the hourly CO emission limitation through emission tests performed in accordance with Methods 1-4 and 10 of 40 CFR Part 60, Appendix A.

- iv. The hourly VOC emission limitation was established by multiplying the emission factor of 0.09 lb of VOC emissions/mmBtu by the maximum heat input of 1.6 mmBtu/hour.

If required, the permittee shall demonstrate compliance with the hourly VOC emission limitation through emission tests performed in accordance with Methods 1-4 and 25 of 40 CFR Part 60, Appendix A.

Note: The emission factor used to determine SO<sub>2</sub> emissions from the burning of diesel fuel is 1.01(S), where S is the percent (%) sulfur in the fuel oil. The emission factors specified above for each pollutant, including SO<sub>2</sub>, were obtained from the U.S. EPA reference document AP-42, Fifth Edition, Chapter 3, Section 3.4, "Large Stationary Diesel Engines", Table 3.4-1, dated 10/96.

## V. Testing Requirements (continued)

- 1.b** Emission Limitations: The total emissions from this emissions unit shall not exceed the following emission limitations per rolling, 12-month period:

0.04 ton of PE;  
0.16 ton of SO<sub>2</sub> emissions;  
1.28 tons of NO<sub>x</sub> emissions;  
0.34 tons of CO emissions; and  
0.03 ton of VOC emissions.

Applicable Compliance Method: Compliance with the annual emission limitations for the pollutants specified above are ensured if compliance is maintained with the maximum annual operating hours (i.e., 500 per rolling, 12-month period). The annual emission limitations were calculated by multiplying the hourly emissions (for each pollutant respectively), by the maximum annual operating schedule of 500 hours, and dividing by 2,000 lbs/ton.

- 1.c** PE Limitation: 0.310 lb of PE/mmBtu of actual heat input

Applicable Compliance Method: Compliance may be based upon an emission factor of 0.310 lb/mmBtu. This emission factor is specified in the U.S. EPA reference document AP-42, Fifth Edition, Chapter 3, Section 3.4, "Large Stationary Diesel Engines", Table 3.4-2, dated 10/96.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with the methods and procedures specified in OAC rule 3745-17-03(B)(10).

- 1.d** Visible PE Limitation: Visible PE from any stack shall not exceed 20% opacity, as a 6-minute average, except as specified by rule.

Applicable Compliance Method: If required, compliance with the visible PE limitation shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Test Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

- 1.e** Operating Hours Restriction: 500 hours per rolling, 12-month period

Applicable Compliance Method: Compliance with the operating hours restriction shall be determined by the record keeping requirements specified in Section A.III.1.

## VI. Miscellaneous Requirements

**None**

**B. State Enforceable Section**

**I. Applicable Emissions Limitations and/or Control Requirements**

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
1.6 mmBtu/hour (140 kilowatt) emergency diesel-fired pump		

**2. Additional Terms and Conditions**

None

**II. Operational Restrictions**

None

**III. Monitoring and/or Record Keeping Requirements**

None

**IV. Reporting Requirements**

None

**V. Testing Requirements**

None

**VI. Miscellaneous Requirements**

None

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