WASHINGTON COUNTY

PUBLIC NOTICE
ISSUANCE OF DRAFT AIR PERMIT TO INSTALL **06-06739** FOR
FOR PSEG WATERFORD ENERGY, LLC

Public Notice is hereby given that the Staff of the Ohio Environmental Protection Agency (EPA) has recommended to the Director that the Ohio EPA issue a draft action of an air Permit to Install (PTI) to PSEG Waterford Energy, LLC in Washington County, Ohio. The draft was issued on March 19, 2002.

This draft permit proposes to modify their current Prevention of Significant Deterioration PTI to allow for the installation of a natural gas fired boiler along with ancillary sources during phase I operations. This resulted in an BACT analysis for the boiler and an revised air dispersion modeling ambient impact demonstration. The new allowable emissions are, in tons per year:

	Phase I Operations	Phase II Operations
Particulate Matter less than 10μm (PM_{10})	47.2	310.8
Sulfur Dioxides (SO_2)	30.6	170.0
Carbon Monoxides (CO)	90.2	1128.9
Nitrogen Oxides (NO_x)	163.2	443
Volatile Organic Compounds (VOC)	8.5	97.3
Sulfuric Acid Mist (H_2SO_4)	1.2	6.9

The revised air dispersion modeling ambient impact demonstration is the following:

The maximum ambient increment allowed by U.S. EPA for PM_{10} is 30 micrograms/meter^3 (μg/m^3) on a 24-hour average, and is 17 μg/m^3 on an annual average; for NO_x, it is 25 μg/m^3 on an annual average; for SO_2, it is 512 μg/m^3 on a 3-hour average, is 91 μg/m^3 on a 24-hour average, and is 20 μg/m^3 on an annual average. The Ohio EPA allows PSD sources to consume less than one half the available increment.

This facility has demonstrated that the impacts from the new sources are less than the PSD significant impact increments of 25 μg/m^3 on a 3-hour average, 5 μg/m^3 on a 24-hour average, and 1 μg/m^3 on an annual average for SO_2. Emissions from the short stack of the auxiliary boiler, though, caused impacts above the significant impact levels for CO, PM_{10} and NO near the property fence line. Therefore, additional modeling to determine that the NAAQS and PSD increments for those pollutants would be protected was necessary. A summary of the PSD increment and NAAQS analyses are as follows:

PM_{10}

PSD Increments (Standards: 30 ug/m^3,24-hour; 17 ug/m^3, annual)
Peak 24-hour: 9.3 ug/m^3
Peak Annual: 1.39 ug/m^3

NAAQS (Standards: 150 ug/m^3, 24-hour; 50 ug/m^3, annual)
Peak 24-hour: 96.3 ug/m^3 (including a background of 87.0 ug/m^3)
Peak Annual: 30.3 ug/m^3 (including a background of 28.8 ug/m^3)

CO

PSD Increment There are no PSD increments for CO.

NAAQS (Standards: 10,000 ug/m^3, 8-hour; 40,000 ug/m^3, 1-hour)
Peak 1-hour: 12,161 ug/m^3 (including a background of 10,049 ug/m^3)
Peak 8-hour: 6,229 ug/m^3 (including a background of 5596 ug/m^3)

NO_2

PSD Increment (Standard: 25 ug/m^3, annual)
Peak Annual: 10.7 ug/m^3

NAAQS (Standard: 100 ug/m^3, annual)
Peak Annual: 53.6 ug/m^3 (including a background of 42.1 ug/m^3)

Each of the modeling analyses assessing compliance with the NAAQS and PSD increments indicated combined ambient impacts from the proposed facility and other potentially interacting facilities were well below the respective ambient standards.

A draft action (permit no. 06-06739) was issued on March 19, 2001. Within 30 days from the date of this notice, any interested party may submit comments or request a public hearing. Comments are to be sent to Ralph Witte, Ohio Environmental Protection Agency, Southeast District Office, 2195 Front Street, Logan, Ohio, 43138.

Further information concerning this application, which is available for public inspection, may be secured from Ohio Environmental Protection Agency, Southeast District Office at the above address during normal business hours. Telephone number: (740) 385-8501.

STAFF DRAFT ACTION DETERMINATION
FOR THE REVISED APPLICATION OF
PSEG WATERFORD ENERGY FACILITY -
PSEG WATERFORD ENERGY, LLC'S
PREVENTION OF SIGNIFICANT DETERIORATION (PSD)
AIR PERMIT TO INSTALL (PTI) NO. 06-06206
(FOR THIS REVISION NEW STATE ONLY AIR PTI NO. 06-06739 WAS USED)
FOR THREE 160 MEGAWATTS NATURAL GAS FIRED
GENERAL ELECTRIC 7FA TURBINES TO BE LOCATED IN
WATERFORD TOWNSHIP IN WASHINGTON, COUNTY, OHIO
THAT WAS ISSUED FINAL ON MARCH 29, 2001

March 19, 2002

Ohio Environmental Protection Agency
Division of Air Pollution Control
122 South Front Street
Columbus, Ohio 43215

Background and facility description of the proposed changes to PSD/Air PTI number 06-06206 that resulted in OEPA issuing an draft air PTI 06-06739

On March 29, 2001, PSEG Waterford Energy, LLC was issued an air PSD/PTI (number 06-06206) by the Ohio Environmental Protection Agency (OEPA) and reviewed by United States Environmental Protection Agency, Region V (USEPA) during the required thirty day comment period to build an electric generating station. The station is being proposed to be constructed in two phases.

Phase 1 construction and operation was proposed to consist of the installation and operation of three 160 megawatts (rated at average summer peak conditions) gas fired General Electric (GE) 7FA, Model PG7241(FA) combustion turbines burning natural gas equipped with GE's state-of-art Dry Low NOx (DLN) combustors at 9 ppm at 15% oxygen operating at three potential scenarios (50% load, 0 degrees F; 75% load, 59 degrees F; 100% load, 93 degrees F, a temporary two-cell mechanical draft cooling tower, a 1,000 kW emergency generator, and a 290 kW emergency fire pump. Total facility output is about 500 MW and will operate less than 1,700 hours per year.

During phase 2 (after the first year of operating in Phase I mode as described in previous paragraph) construction and operation, PSEG Waterford Energy, LLC proposed to operate the three 160 megawatts gas fired General Electric 7FA turbines in combined cycle mode (with three heat recovery steam generators with supplemental natural gas fired duct burners) after the first year equipped with Selective Catalyst Reduction (SCR) at 3.5 ppm

at 15% oxygen operating at three potential scenarios (50% load, 0 degrees F; 75% load, 59 degrees F; 100% load, 93 degrees F.

Also included during phase 2's installation were proposed the following operations: a 13-cell wet cooling tower, a gas-fired 93.2 mmBTU/hr auxiliary boiler operating at less than 1000 hours per year, a 1000 kilowatt (KW) back-up diesel generator operating at less than 52 hours per year, and a small diesel 290 kW firewater pump operating at less than 52 hours per year. Total facility output during phase 2 operations are about 850 MW.

This facility was to be located in Waterford Township, Washington, County, Ohio near the village of Beverly.

The above describes the original PSD proposed installation that resulted in OEPA issuing PSD/Air PTI number 06-06206.

In letters dated October 2, 2001, November 20, 2001 (air permit to install application number 06-06739 attached), and December 17, 2001 (addendum to air permit to install application number 06-06739 attached that included cooling tower emissions and data) PSEG Waterford Energy, LLC, requested changes to the above proposed installations and operations during both Phase I and II which required that PSEG Waterford Energy, LLC to submit an new air PTI application (number 06-06739) for these changes.

The rationale for these changes given by PSEG Waterford Energy, LLC were the following: 1) completing final engineering designs, 2) initiating site preparation and building/equipment construction, and 3) evaluating overall operational requirements.

The following are the changes requested:

1. Installation of an auxiliary boiler during Phase I operations based upon PSEG Waterford Energy, LLC analysis of the pipeline gas to be combusted at the facility and determined that a source of steam was required to heat the natural gas prior to combustion in the simple cycle combustion turbine. Prior to combustion of the natural gas in the turbine's combustor, the natural gas must be heated to a specific temperature to meet the fuel gas quality requirements specified by the combustion turbine manufacturer.

   In order to achieve this required temperature during Phase I operations, PSEG Waterford Energy, LLC is proposing to employ the auxiliary boiler originally planned for Phase II operations. This boiler will have a heat input of 85.2 MMBtu/hr, less than that currently allowed by air PTI number 06-06206 under Phase II operations and will be designed to operate during both Phase I and II.

   PSEG Waterford Energy, LLC is proposing to operate this boiler around 1,700 hours during Phase I operations and during Phase II operations at 8760 hours per year thereafter. PSEG Waterford Energy, LLC can do this because during Phase II operations steam can be obtained from the three heat recovery steam generators that will be operating during Phase II operations. The boiler during Phase II operations will be used to provide steam to the three heat recovery steam generators as a method of keeping certain heat recovery steam generator components warm and hot water from the economizers of the three heat recovery steam generators will provide heat to the natural gas.

2. Installation of a small natural gas boiler (9.3 MMBtu/hr) during both Phase I and II operations to heat the natural gas in order to facilitate lightoff of the combustion turbines. During Phase I operations, PSEG Waterford Energy, LLC indicates that the boiler will be operated for short periods of time (one or two hours) for testing purposes only.

   This boiler is exempt under Ohio Administrative Code (OAC) rule 3745-31-
   03(A)(1)(a) and therefore will not be identified in the air permit except as an exempt air contaminant source.

3. Replace the requirement to install a flow monitor. Pursuant to the resolution of an appeal of an issued final air Dayton Power & Light (DP&L) PTI number 01-08454, located Lancaster, Ohio, PSEG Waterford Energy, LLC is requesting that it be allowed to determined the gas flow rate using an appropriate f-factor calculation obtain from the fuel flow senor data when using a continuous emission monitor (CEM) to show compliance with mass emissions rates listed in the air PTI in lieu of using the current USEPA's 40 Code of Federal Regulations (CFR), Appendix B, Performance Specification 6 methods and procedures.

4. Change the currently listed formaldehyde mass emissions rate based upon GE turbine manufacturer supplied emissions factor. The current formaldehyde emissions factor is 1.07 X E-4 lb/MMBtu, where as, the GE emissions factor is 1.3 X E-4 lb/MMBtu**.**

5. To identify cooling towers as listed emissions units during Phase II operations in this permitting action that OEPA failed to list in the original air PSD/PTI number 06-06206 and to update the original cooling tower emissions and data information ((original application proposed to install thirteen (13) cells, where as, this permitting action is for ten (10) cells)) listed in air PSD/PTI number 06-06206 application.

6. Installation of a two celled blow - down cooling tower during Phase I and II operations.

Air Quality Designations

Under Section 107 of the Clean Air Act as of June 24, 1992, the area which contains the proposed facility was classified as attainment for all of the criteria pollutants, i.e., total suspended particulates, particulate matter less than 10 microns, sulfur dioxide, nitrogen oxides, carbon monoxide, lead, and volatile organic compounds (ozone).

New Source Review (NSR)/PSD Applicability

Proposed emissions during Phase I operations for draft air PTI 06-06739.

Air Pollutants	Air PTI Allowables (in tons per year) for number 06-06206 (see below)	Proposed installation of an 85.2 MMBtu/hr boiler	Proposed installation of an auxiliary 9.3 MMBtu/hr boiler	Proposed increase in formaldehyde emissions due to vendor's supplied emissions factor	Proposed installation of an two-celled blow-down tower	Proposed net increase
NO_x	163.2	2.6	1.1			3.7
CO	84.2	5.4	0.23			5.63
PM/PM_{10}	45.9	0.36	0.13		0.18	0.49
SO_2	30.6	0.04	0.003			0.043
VOC	8.2	0.30	0.06			0.36
formalde-hyde	0.16			0.19		0.03

The net increase as a result of the permitting action for air PTI number 06-06739 during Phase I proposed operation mentioned compared to the above permit allowables listed in air PSD/PTI number 06-06206 as listed in the above "Proposed net increase" column would not trigger federal PSD review, but would trigger the need to secure a new state air permit to install to allow for the proposed increases. Note that the above emissions are

different due to the draft air permit to install identifying certain emissions units that are exempt pursuant to Ohio Administrative Code (OAC) regulation 3745-31-03.

Proposed emissions during Phase II operations for this permitting action.

Air Pollutants	Air PTI Allowables (in tons per year) for number 06-06206 (see below)		Proposed installation of an 85.2 MMBtu/hr boiler	Proposed installation of an auxiliary 9.3 MMBtu/hr boiler	Proposed increase in formaldehyde emissions due to vendor's supplied emissions factor	Proposed installation of an two-celled blow-down tower	Proposed net increase
NO_x	440	2.3*	13.4	5.7			3.7
CO	1104.6	4.7*	5.4	0.23			5.63
PM/PM_{10}	300.3	0.34*	0.36	0.13		0.18	0.49
SO_2	169.7	0.03*	0.04	0.003			0.043
VOC	95.7	0.25*	0.30	0.06			0.36
formalde-hyde	0.16#				0.19		0.03

* note that these emissions are the permit allowables for the 93.2 natural gas fired boiler to be operated during Phase II operations.

\# note that these emissions are the permit allowables for each of the turbines without operating the duct burners and are potentially subject to federal 112(g) and OAC rule 3745-31-2893 regulations.

Note that the above emissions are different due to the draft air permit to install identifying certain emissions units that are exempt pursuant to OAC regulation 3745-31-03.

The rest of this discussion in this section is from the original PSD application and is listed for information purposes only.

While operating the turbines in simple cycle mode during phase 1, the PSEG Waterford Energy Facility would be classified as a "major" stationary source because the potential emissions exceed 250 tons per year of one of the criteria pollutants (nitrogen oxide (NO_x)) threshold level in an attainment area and thus would be classified as a major stationary air source under the federal Prevention of Significant Deterioration (PSD) program.

In this case, since the facility is now classified as a "major" stationary source for PSD by the above analysis, any additional pollutants that would emit a regulated pollutant at a rate in excess of the significance levels would require the facility to perform a PSD analysis for those pollutants. Table 1 shows the potential emissions during phrase 1.

Table 1

Pollutant	Tons/Year #	Significant Level
Nitrogen Oxides (NO_2)	1,019	40
Sulfur Dioxide (SO_2)	160	40
Particulate Matter*	242	15
Carbon Monoxide (CO)	478	100
Volatile Organic Compounds(VOC)	50.1	40
Sulfuric Acid Mist (H_2SO_4)	6.3	7

* Particulate Matter and Particulate Matter <10 microns are assumed to be the same.

\# "PSEG Waterford Facility" has chosen to accept emissions below PSD threshold levels during phase 1 operations. That is, 163.2 tons per year of NOx, 84 tons per year of CO, 8 tons per year of VOC, 46 tons per year of PM *, 31 tons per year of SO_2, and, 1 ton per year of H_2SO_4. But, the applicant was advised for purposes of this application that since this permitting action would occur within or near one year that USEPA might consider phase 1 and 2 as one project for purposes of PSD review. Therefore, these accepted emissions levels will be used in the cost effectiveness BACT analysis to demonstrate whether additional controls will be required over what is being proposed by the applicant, not the potential to emit emission levels listed in Table 1.

The result is that "PSEG Waterford Facility" submitted a PSD analysis for the following pollutants: NOx, VOC, PM*, SO_2, and CO.

National Emission Standards for Hazardous Air Pollutants (NESHAP) Part 63, 112(g) and Ohio Administrative Code (OAC) rule 3745-31-28 Applicability

Currently there are no standards that have been promulgated for this project. If no standard has been promulgated, then the project is evaluated based upon the amount of Hazardous Air Pollutants emitted. If over the threshold levels, then a Maximum Achievable Control Technology (MACT) determination must be submitted for review.

The PSEG Waterford facility will be accepting HAP emission restrictions to levels below to avoid submitting a MACT determination.

For the proposed increase in formaldehyde emissions as denoted in the tables above, will not trigger either one of these regulations.

While operating the turbines in combined cycle mode during phase 2, the PSEG Waterford Energy Facility is classified as a "major" stationary source because the potential emissions exceed 250 tons per year of one of the criteria pollutants (NO_x) and is also one of the 28 source categories because it will generate steam and therefore triggers the 100 tons per year threshold level in an attainment area and thus be classified as a major source under the federal Prevention of Significant Deterioration (PSD) program.

Sulfuric acid mist (H_2SO_4) will be emitted as a PSD regulated non-criteria pollutant.

In this case, since the facility is classified as a "major" stationary source for PSD, and then any addition that would emit a regulated pollutant at a rate in excess of the significance levels would require the facility to perform a PSD analysis for those pollutants also.

Table 2 shows the emissions from the proposed installation.

Table 2

Pollutant	Tons/Year ##	Significant Level
Nitrogen Oxides (NO_2)	579.7	40
Sulfur Dioxide (SO_2)	173.0	40
Particulate Matter*	343.5	15
Carbon Monoxide (CO)	966.0	100
Volatile Organic Compounds(VOC)	96.1	40

Sulfuric Acid Mist (H_2SO_4)	6.8	7

* Particulate Matter and Particulate Matter <10 microns are assumed to be the same.

Based upon the above information, PSD review is required for NO_x, SO_2, PM, CO, and VOC.

"PSEG Waterford Facility" has chosen to accept the following emissions levels while operating the three turbines in combined cycle mode during phase 2. That is, 439 tons per year of NOx, 1099.9 tons per year of CO, 95.4 tons per year of VOC, 299.7 tons per year of PM *, 169.7 tons per year of SO_2, and, 6.8 ton per year of H_2SO_4. But, the applicant was advised for purposes of this application that since this permitting action would occur within or near one year that USEPA might consider phase 1 and 2 as one project for purposes of PSD review. Therefore, these accepted emissions levels will be used in the cost effectiveness BACT analysis to demonstrate whether additional controls will be required over what is being proposed by the applicant, not the potential to emit emission levels listed in Table 1.

Note that the above emissions are different due to the draft air permit to install identifying certain emissions units that are exempt pursuant to OAC regulation 3745-31-03.

New Source Performance Standards (NSPS) Applicability

While operating the turbines in simple cycle mode during phase 1, each of the simple cycle gas fired combustion turbines is subject to 40 CFR 60 Subpart GG.

The Stationary Gas Turbine NSPS applies to emissions for NO_x and SO_2. The emission standard for NO_x emissions applicable to the combustion turbine [from the equation in 40 CFR 60.332(a)(1)] is 0.0075 percent by volume (75 ppmv) at 15 percent oxygen on a dry basis. This standard is applicable to either fuel oil or natural gas combustion. The emission standard for SO_2 emissions applicable to the combustion turbine [from the equation in 40 CFR 60.333(b)] is 0.015 percent by volume (150 ppmv) at 15 percent oxygen on a dry basis. SO_2 emissions from combustion turbines are further limited by 40 CFR 60.333(b) which prohibits burning fuel that contains sulfur in excess of 0.8 percent by weight.

While operating the turbines in combined cycle mode during phase 1 and 2, each of the combined cycle gas fired combustion turbines/HRSG augmented with supplementary natural gas fired duct burners is subject to 40 CFR 60 Subpart GG, "Standards of Performance for Stationary Gas Turbines" and 40 CFR 60 Subpart Da, "Standards of Performance for Electric Utility Steam Generating Units for Which Construction is Commenced After September 18, 1978".

The auxiliary boiler (85.2 mmBTU/hr on an HHV) is subject to 40 CFR 60 Subpart Dc, "Standards of Performance for Small Industrial/Comerica/Institutional Steam Generating Units".

The Stationary Gas Turbine NSPS applies to emissions for NO_x and SO_2. The emission standard for NO_x emissions applicable to the combustion turbine [from the equation in 40 CFR 60.332(a)(1)] is 0.0075 percent by volume (75 ppmv) at 15 percent oxygen on a dry basis. This standard is applicable to either fuel oil or natural gas combustion. The emission standard for SO_2 emissions applicable to the combustion turbine [from the equation in 40 CFR 60.333(b)] is 0.015 percent by volume (150 ppmv) at 15 percent oxygen on a dry basis. SO_2 emissions from combustion turbines are further limited by 40 CFR 60.333(b) which prohibits burning fuel that contains sulfur in excess of 0.8 percent by weight.

National Emission Standards for Hazardous Air Pollutants (NESHAP) Part 63, 112(g) and Ohio Administrative Code (OAC) rule 3745-31-28 Applicability

Currently there are no standards that have been promulgated for this project. If no standard has been promulgated, then the project is evaluated based upon the amount of Hazardous Air Pollutants emitted. If over the threshold levels, then a Maximum Achievable Control Technology (MACT) determination must be submitted for review.

The duct burners associated with this project are exempt from this applicability due to these units meeting the definition of electric steam generating unit.

The PSEG Waterford Facility will be accepting HAP emission restrictions to levels below to avoid submitting a MACT determination.

The proposed increase in formaldehyde emissions will not change the above evaluation.

Control Technology Review

The proposed installations will not alter the previous PSD analysis, but will change the modeling demonstration.

While operating the turbines in simple cycle mode during phrase 1, the "PSEG Waterford Facility" submitted a case-by-case Best Available Control Technology (BACT) analysis for the following pollutant: NO_x, SO_2, PM, CO, and VOC. The application used a "top-down" approach to determine an appropriate level of control.

BACT Review

Control of Nitrogen Oxides

Combustion Turbines

The new installation "PSEG Waterford Facility" looked at the following control technologies for nitrogen oxides:

- Combustion Controls - Lean Combustion and Reduced Residence Times;
- Combustion Controls - Lean Premix Combustion (DLN);
- Wet Controls - Water and Steam Injection;
- Selective Catalytic Reduction - (Back end control);
- Selective Non-Catalytic Reduction (SNCR) - (Back end control);
- Catalytic Oxidation Absorption - $SCONO_x$ - (Back end control); and ,
- Catalytic Combustion - XONON catalytic (flame less)combustion - (Front end control).

Combustion Controls - Lean Combustion and Reduced Residence Times

Historically, gas combustion turbine generator combustors were designed for operation with unit (1) primary zone equivalence ratios (an equivalence ration of one indicates a stoichiometric ratio of fuel and air). However, with fuel-lean combustion (sub-stoichiometric conditions), the additional excess air cools the flame and reduces the rate of thermal NOx formation. With reduced residence time combustors, dilution air is added sooner than with standard combustors resulting in the combustion gases being at a high temperature for a shorter time, thus reducing the rate of thermal NOx formation. Note that with reduced residence time in the combustor there is a potential for incomplete combustion and the formation of additional CO and VOC emissions along with flame stability problems. Thus, in order to avoid such increases in the emissions of CO and VOCs, certain additional changes to promote better fuel-air mixing also need to be incorporated along with reduced residence time in the

combustor - - placement of air ports, design of circulation flow patterns in the combustor and a shorter combustor length.

Combustion Controls - Lean Premix Combustion (DLN)

Due to wide variations in air-to-fuel ratios (A/F ratio) in conventional combustors, combustion of localized fuel-rick pockets produce significant levels of NOx emissions. In lean premixed combustion design, the air and fuel are premixed at very lean A/F ratios prior to introduction into the combustor. The excess air in the well mixed lean mixture acts as a heat sink, which lowers the combustion temperature and reduces NOx formation rates. Since some A/F ratios can approach the lean flammability limits, in order to minimize CO emissions a pilot flame is incorporated into the combustor design.

Wet Controls - Water and Steam Injection

Water injection directly into the flame area of the combustion turbine generator combustor provides a heat sink that lowers the flame temperature and reduces thermal NOx formation. The water injection rate is typically described on a mass basis by a water-to-fuel ratio (WFR). Higher WFRs translate to greater NOx reductions, but may also increase emissions of CO and hydrocarbons, reduce combustion turbine generator combustion efficiency and increase maintenance requirements.
In order to derive maximum control system performance, the injected water must be atomized and sprayed in a configuration that provides a homogeneous mixture of water droplets and fuel in the combustor.

Thus, an optimal combustor geometry and nozzle design is very critical to the desired performance of the control system, otherwise improper mixing yields localized hot spots in the combustor that produce increase NOx emissions.

Steam Injection is essentially the same principle to reduce NOx emissions as water injection, except steam replaces water as the injected fluid. The injection system is also similar to that for water injection, but the water pump is replaced by a heat recovery steam
generator (HRSG) that recovers the gas combustion turbine generator exhaust heat and generates steam.

Selective Catalytic Reduction (SCR) - (Back end control)

SCR is an add-on control which utilizes the injection of ammonia (NH_3) into the exhaust gas stream, which then passes through a catalyst to convert the NO_x and NH_3 into nitrogen and water. The general chemical reactions are:

$$4NO + 4NH_3 + O_2 \rightarrow 4N_2 + 6H_2O \text{ and}$$

$$2NO_2 + 4NH_3 + O_2 \rightarrow 3N_2 + 6H_2O$$

The reactions take place on the surface of a catalyst. The function of the catalyst is to effectively lower the activation energy of the NO_x decomposition reaction. Technical factors related to this technology include the catalyst reactor design, optimum operating temperature, sulfur content of the fuel, and design of the ammonia (NH_3) injection system.

An SCR system is composed of an ammonia storage tank, ammonia forwarding pumps and controls, an injection grid (system nozzles that spray ammonia into the exhaust gas ductwork), a reactor which contains the catalyst and instrumentation, and electronic controls. An injection grid disperses NH_3 in the flue gas upstream of the catalyst, and NH_3 and NO_x are reduced to N_2 and water in the catalyst reactor. This control techniques reduces both thermal NO_x and fuel NO_x in the exhaust streams.

The optimum operating temperature for a vanadium-titanium catalyst has been shown to be in the range of 550° to 800 of. Another catalyst system employs a zeolite-based system that can supposedly handle high temperatures in the range of 790° to 1,100 ° F which is within the proposed simple cycle mode operation depending on the ambient temperature. Applications where heat recovery steam generation is used, SCR catalyst and ammonia injection grids are typically installed between tube bundles within the HRSG where the flue gas temperature remains with the required temperature range during base load operation.

The SCR process is also subject to catalyst deactivation over time. Catalyst deactivation occurs through two primary mechanisms: physical deactivation and chemical poisoning. Physical deactivation is generally the result either of prolonged exposure to excessive temperatures or masking of the catalyst due to entrainment of particulate from ambient air or internal contaminants. Chemical poisoning is caused by the irreversible reaction of the catalyst with a contaminant in the gas stream and is a permanent conditions. Catalyst suppliers typically only guarantee a 3-year lifetime to very low emission level, high performance catalyst systems.

SCR manufacturers typically estimate 20 parts per million (ppm) or more of unreacted ammonia emissions (ammonia slip) when operating at very high efficiency levels. The ammonia is injected into the exhaust stream in excess of stoichiometric amounts to achieve maximum conversion of NO_x. Although this reduces NO_x emissions substantially, a significant quantity of ammonia is not reacted, passes through the SCR reactor and is exhausted to the atmosphere. Thus, there is a clear emissions trade-off between NO_x and ammonia in NO_x reduction applications of SCR.

The firing of diesel fuel and other sulfur-bearing fuels produces SO_3 which may oxidize to sulfite (SO_2) in the catalyst reactor. This SO_3 reacts with ammonia in the exhaust to form ammonium salts, resulting in additional particulate matter emissions. The SO_3 can also form H_2SO_4 in the exhaust, resulting in acid mist emissions. The conversion of SO_3 to H_2SO_4 is directly proportional to the NO_x reduction of the catalyst. Therefore, application of an SCR will increase emissions of other pollutants.

Selective Non-Catalytic Reduction (SNCR) - (Back end control)

SNCR technology involves using ammonia or urea injection in a fashion similar to SCR technology but at a higher temperature window range of 1600° to 2200 ° F. The following chemical reaction occurs without the presents of catalyst :

$$NO_x + NH_3 + O_2 + H_2O + (H_2) \rightarrow N_2 + H_2O$$

Since the temperature range is around 1,100 ° F, this technology would not be feasible for either operating in simple or combined cycle modes.

Catalytic Oxidation Absorption - SCONO$_x$ - (Back end control)

An emerging technology called SCONO$_x$, offers the promise of reducing NO_x emissions to values less than 3 ppm. EPA on July 2, 1997 indicated that SCONO$_x$ as a back end catalyst which operates without ammonia has been demonstrated in practice as Lowest Achievable Emission Rate (LAER) as part of a Non attainment Review permit analysis in California on a 23 MW combined-cycle turbine installation with NO_x emissions at 2-2.5 ppm. In December, 1999, EPA Region I issued a letter to the States covered by Region I stating that his technology is considered technically feasible.

The SCONO$_x$ system uses an oxidation/absorption/regeneration cycle across a catalyst bed to achieve back end reductions of NO_x. Unlike SCR, the system does not require ammonia as reagent and involves parallel catalyst beds that are alternately taken off-line for regeneration through means of mechanical dampers.

According to Goal Line, the SCONO$_x$™ catalyst works by simultaneously oxidizing CO to CO_2, NO to NO_2, and

then absorbing NO_2. The NO_2 is absorbed into a potassium carbonate catalyst coating as KNO_2 and KNO_3. When a catalyst module begins to become "loaded" with potassium nitrates and nitrates, it is taken off-line and isolated from the flue gas stream with mechanical campers for regeneration.

Once the module has been isolated from the oxygen rich turbine exhaust, natural gas is used to generate hydrogen gas. An absence of oxygen is necessary to retain the reducing properties necessary for regeneration. It should be noted that four percent is about the lower flammability limit for hydrogen, so it is important that piping and air seals around dampers do not leak. Hydrogen reacts with potassium nitrites and nitrates during regeneration to form H_2O and N_2 that is emitted from the stack.

SCONO$_x$™ is an emerging and very new technology. According to Goal Line, the first generation system (Mod 1) was based on a moving hood design that was used for proof of concept. This research led to the development of a second generation prototype (Mod 2) which has operated for over a year on a 23 MW General Electric LM 2500 turbine at the Federal facility operated by Goal Line's parent, Sunlaw Energy. A June 1999 newsletter from Goal Line announced that on May 29, an authority to construct was issued to the PG&E Generating La Paloma Project. The La Paloma FDOC states "Currently, it is uncertain, due to commercial availability issues, if SCONO$_x$™ will be installed on the fourth gas turbine.... The availability of SCONO$_x$™ for this project is contingent on ABB's ability to scale up and test the SCONO$_x$™ system in a time period consistent with La Paloma's schedule." This is an affirmative determination that SCONO$_x$™ is not yet ready for widespread application to 160 MW turbines.

SCONO$_x$™ catalyst is subject to the same fouling or masking degradation that is experienced by any catalyst operating in a turbine exhaust stream. Trace impurities either ingested from ambient air or internal sources gradually accumulate on the surface of the catalyst, eventually masking or poisoning active catalyst sites over time. This is why catalyst performance is known to degrade or "age" over time. As one example, a catalyst system operating on a similar size cogeneration unit at MIT in Cambridge, Massachusetts, experienced total catalyst failure after only several hundred hours of oil fired operation. It turned out that a trace element contained in an oil additive being supplied by the turbine manufacturer was discovered to be an aggressive catalyst poison. In an event, it is well demonstrated that all catalysts begin life at their highest level of reactivity, resulting in very low emissions when first installed. Goal Line reports that they have had to take periodic outages to wash the catalyst; apparently SO_2 present in natural gas is sufficient to mask the active catalyst sites. Goal Line has developed an SO_2 "guard bed" called SCOSO$_x$ to be installed on future systems such as La Paloma, but this component is not fully proven. As stated previously, catalyst aging is also experienced with conventional SCR catalysts; however, with these systems the operating experience exists to confidently predict catalyst life and catalyst replacement cost.

Another area of concern is that the SCONO$_x$™ process is dependent on numerous hot side dampers and gas seals that must cycle every 10-15 minutes. According to Goal Line's literature, at the scale of the Federal facility, this involves approximately eight mechanical dampers cycling about 4 times per hour, or 32 damper movements per hour. At ten times the scale, an equivalent system for the Project would involve about one damper movement every ten seconds, 8,760 hours per year. While further research and development (R&D) may be done during scale up at La Paloma in an effort to reduce the number of moving parts, the SCONO$_x$™ system requires many mechanical linkages, activators, and damper seals which must operate reliably with a hostile flue gas environment. This, in combination with lack of long-term demonstration and the specter of a 10:1 scale up results in associated concerns with long-term availability. The La Paloma beta test will serve as a valuable R&D process to demonstrate that SCONO$_x$™ can be scaled-up and eventually be guaranteed commercially for a project such as PSEG Waterford facility also provide the CEM data to determine if a large scale SCONO$_x$™ application can meet 2-2.5 ppm NO_x on a continuous basis.

<u>Commercial Availability</u>

SCONO$_x$™ does not represent a commercially mature control technology for application to the PSEG Waterford Facility. On December 1, 1999 ABB Alstrom Power issued a press release making a commercial offering for SCONO™ on combined-cycle turbines. In order for the PSEG Waterford Facility to obtain the financing needed to construct this project, Goal Line or its licensee would typically have to post performance bonds, and would

have to provide meaningful financial guarantees for performance and long-term system availability, including remedies and liquidated damages. Further, the unknowns associated with any pollution control system which is the first of its kind, and which has no long-term company or operating history, represents a level of risk that would alter the ability to reasonably finance the project. Although there are several technical feasibility concerns with this technology, an economic analysis was conducted for completeness.

XONON catalytic (flame less)combustion - (Front end control)

Another emerging technology, **XONON**, is a catalytic (flameless) combustion technology which potentially capable of reducing gas turbine NO_x emissions to around 3-5 ppm. The XONON combustion technology is being sold commercially for certain (i.e., smaller) engine models and is not yet being offered for larger turbines, such as the 160 MW GE units proposed for the "PSEG Waterford Facility" new installation.

Technical Analysis

According to literature provided by Catalytica, XONON™ combustors have reduced combustion turbine NO_x emissions to as low as 3 ppm in laboratory and pilot tests. Unlike SCONO$_x$™ or SCR, flameless combustion requires no down-stream clean up device, but rather prevents the formation of thermal NO_x during combustion of the fuel. This technique avoids the need for ammonia injection and avoids system efficiency losses due to catalyst back pressure. The XONON™ technology actually replaces the traditional diffusion or lean pre-mix combustion cans of the combustion turbine. Hence, this represents the only catalytic control technology that may be a reasonable retrofit to existing units.

In a typical combustor, fuel and air are burned at flame temperatures that may approach 2,700°F. Since the NO_x formation rate is exponential with flame temperature above about 2,000°F, thermal NO_x is formed within the combustors. The combustor exhaust is then diluted with cooling air to get the gas temperature below 2,400°F, which is the upper temperature limit of the metal parts that make up the power turbine. With the XONON™ system, a fuel/air mixture is oxidized across several small catalyst beds to "burn" fuel at less than the flame temperature at which thermal NO_x formation begins. The XONON™ combustor does, however, utilize a partial flame downstream to complete the combustion process (burnout zone) and unavoidable small amounts of NO_x emissions are generated within this zone. Resulting emissions are being guaranteed at 5 ppm for some small turbine applications (less than 3 MW) and have been demonstrated as low as 3 ppm under test conditions. Like all catalysts, the XONON™ combustor catalyst performance can be expected to "age" with time. Unlike other catalysts, the XONON™ combustors can be easily changed out with a simple combustor replacement.

Commercial Availability

XONON™ does not currently represent an available control technology for the GE Frame 7 FA (or any other 160 MW class turbine). While XONON™ is being sold commercially for certain (mostly smaller) engine models, it is not yet offered for large industrial gas turbines. According to Catalytica, a joint venture agreement is in place with GE to eventually develop XONON™ as Original Equipment Manufacturer (OEM) and retrofit equipment for the entire GE turbine line. It is critical to note that General Electric does not currently offer an XONON™ combustor option for 7FA or any other large industrial turbine. Therefore, XONON™ does not represent an available control technology for this project.

Economic Analysis

Since the XONON™ combustors are not offered commercially for the turbines in the size range selected for the PSEG Waterford Facility and GE cannot provide cost data, an economic analysis could not be performed.

In summary

Recent advances in the state of art have resulted in dry low NO_x combustors which limit peak flame temperature and excess oxygen with lean, pre-mix flames that achieve equal or better NO_x control without the addition of water or steam and due SCONOx not being cost effective and XONON™ combustors are not offered commercially for the turbines in the size range selected, PSEG Waterford Facility will be using dry low NO_x combustors to control NO_x emissions emitted from the three 160MW gas fired turbines. Therefore, BACT is proposed to be a NO_x emission rate of 9 ppmvd at 15 percent O_2 when operating in simple cycle mode.

Control of Carbon Monoxide

Formation

Carbon monoxide (CO) is formed as a result of incomplete combustion of fuel. Control of CO is accomplished by providing adequate fuel residence time and high temperature in the combustion zone to ensure complete combustion. These control factors, however, also tend to result in increased emissions of NO_x. Conversely, a low NO_x emission rate achieved through flame temperature control (by water injection or dry lean pre-mix) can result in higher levels of CO emissions. Thus , a compromise is established whereby the flame temperature reduction is set to achieve the lowest NO_x emission rate possible while optimizing CO emission rates.

Gas Turbines - Ranking of Available Control Techniques

CO emissions from gas turbines are a function of oxygen availability (excess air), flame temperature, residence time at flame temperature, combustion zone design, and turbulence. Alternative CO methods include exhaust gas back end controls such as catalytic oxidation, and front end methods such as combustion control wherein CO formation is suppressed within the combustors.

A review of USEPA's RACT/BACT/LAER Clearinghouse indicates several levels of CO control, which may be achieved for natural gas-fired turbines. Potential emission levels and control technologies have been identified and ranked as follows:

- 2 to 6 ppm: CO oxidation catalyst
- 10 to 25 ppm: Combustion control for natural gas firing; oxidation catalyst for distillate oil firing

A review of recent CO BACT determination in Region V indicates only one project that required the installation of an oxidation catalyst as LAER. These levels of control are evaluated in terms of Best Available Control Technology in the following sections.

- LAER: 2 to 6 ppm CO with Catalytic Oxidation

The most stringent CO control level available for gas turbines has been achieved with the use of an oxidation catalyst system, which can remove up to 90 percent of CO in the flue gas stream. According to the list of turbines in the RACT/BACT/LAER Clearinghouse with limits on CO, the lowest emission level listed in the Clearinghouse is 2.0 ppm for Mystic Station in Massachusetts. A CO oxidation catalyst is therefore concluded to represent the top control technology for CO control from natural gas-fired, combined-cycle turbines.

It should be noted that the makers $SCONO_x$™ provide a conventional oxidation catalyst as part of their scope of supply. This is necessary to make the absorption catalyst work, but is not unique or different from CO catalytic oxidation technology reviewed in this section.

Technical Analysis

As with SCR catalyst technology for NO_x control, oxidation catalyst systems seek to remove pollutants from turbine exhaust gas rather than limiting pollutant formation at the source. Unlike an SCR catalyst system, which requires the use of ammonia as a reducing agent, oxidation catalyst technology does not require the introduction of additional chemicals for the reaction to proceed. Rather, the oxidation of CO to CO_2 utilizes the excess air present in the turbine exhaust; the activation energy required for the reaction to proceed is lowered in the presence of the catalyst. Technical factors relating to this technology include the catalyst reactor design, optimum operating temperature, back-pressure loss to the system, catalyst life, and potential collateral increases in emissions of PM_{10}.

As with SCR, CO catalytic oxidation reactors operate in a relatively narrow temperature range. Optimum operating temperatures for base metal systems generally fall into the range of 700°F to 900°F. At lower temperatures, CO conversion efficiency falls off rapidly. Above 1,200°F, catalyst sintering may occur, thus causing permanent damage to the catalyst. For this reason, the CO catalyst is strategically placed within the HRSG for proper turbine exhaust lateral distribution (it is important to evenly distribute gas flow across the catalyst) and proper operating temperature at base load design conditions. Operation with duct burners on or off, at part load, or during start-up/shut-down can result in other than optimum temperatures and reduced control efficiency.

Catalyst systems are subject to loss of activity over time. Since the catalyst itself is the most costly part of the installation, the cost of catalyst replacement has been accounted for on an annualized basis. Depending on the actual installation, catalyst life may vary from the manufacturer's typical 3-year guarantee to a 5- to 6-year predicted life. Periodic testing of catalyst material is necessary to predict actual catalyst life for any given installation. The following economic analysis assumes that catalyst will be replaced every 3 years per vendor guarantee. This system would also be expected to control a small undetermined amount of hydrocarbon (VOC) emissions.

Environmental Analysis

A CO catalyst will also oxidize other species within the turbine exhaust. For example, sulfur in natural gas (fuel sulfur and mercaptans added as an odorant) is oxidized to gaseous SO_2 within the combustor, and a percentage is further oxidized to SO_3 across a CO catalyst (30% conversion is assumed). SO_3 will then be emitted and/or combined with water to form H_2SO_4 (sulfuric acid mist) or ammonia to form ammonia salts (PM_{10}) in the exhaust stack. These sulfates condense in the gas stream or in the atmosphere as additional PM_{10} (and $PM_{2.5}$). Thus, an oxidation catalyst would reduce emissions of CO and to some extent VOC, but would increase emissions of PM_{10} and $PM_{2.5}$.

Economic Analysis

The total capital investment for installation of an oxidation catalyst system per turbine application was estimated to be $2,306,000. The total annualized capital costs and O&M costs for control (CO control efficiency of 60%) were $416,000 per turbine with a cost effectiveness of $12,500 per ton of CO removed for 1,700 hours per year of operation.

Summary

The use of an oxidation catalyst to control emissions of CO from the turbines would result in collateral increases in PM_{10} (and $PM_{2.5}$) emissions, is not cost effective, and therefore does not represent BACT for the Project.

BACT for the project will be 9 ppmvd.

Control of Sulfur Dioxide

Combustion Turbines

SO_2 is emitted from the combustion turbines as a result of the oxidation of the sulfur in the fuel. FDG technology is one technology that is used to control SO_2 emitted from various combustion sources. An FGD system could be comprised of either a spray dryer which uses lime as a reagent followed by particulate control (baghouse or electrostatic precipitator) or a wet scrubber which uses limestone as a reagent. Installation of such systems is an established technology principally on coal-fired and high sulfur oil-fired steam-electric generating stations. FGD systems have not been installed on combustion turbines because of technical and cost factors associated with treating large volumes of high temperature gas containing relatively low levels of SO_2. FDG systems typically operate at an inlet temperature of approximately 400 to 500^0F. In addition, FGD systems are not typically effective for streams with low SO_2 concentrations such as the flue gas stream from the proposed turbines. The concentration of SO_2 in the exhaust gas is the driving force for the reaction between SO_2 and the reagent. Therefore, removal efficiencies are significantly reduced with lower inlet concentrations of SO_2.

FGD systems also have energy and environmental impacts associated with their operation. A significant amount of energy is required to operate a FGD system due to the pressure drop over the scrubbers. There are also environmental impacts (e.g., bulk materials handling, wastewater discharges, and solid waste management) due to the disposal of the spent reagent and the high water use required for a wet scrubbing system.

Traditional flue gas desulfurization (FGD) acid gas controls such as wet scrubbers, spray dryer absorbers (SDA) and dry sorbent injection technology has not been proposed for similar applications due to high temperature regimes with thermal cycling, elevated pressure drop impedances which has significant back pressure implications resulting in severe operational impacts, and very low emissions rates coupled with significant air volumes.

For the technical reason and energy and environmental impacts presented above FGD systems are excluded from further consideration in the Project BACT analysis.

Potential emission levels and control technologies have been identified and ranked as follows:

- Fuel spec: Clean Burn Fuel;
- Good Combustion Practice/Combustion Control; and,
- Low - Sulfur Fuel

Fuel spec: Clean Burn Fuel

Among traditional fuels, natural gas is considered a clean burn fuel since it has a very low potential for generating SO_2 emissions. The proposed project will utilize only natural gas as the primary fuel for all three simple-cycle turbines.

Good Combustion Practice/Combustion Control

The project operators will maintain the turbines in good working order per manufacturer's guidance and implement good combustion practice to minimize SO_2 emissions. Since the turbines will be equipped with low NOx burners that are the state-of-art currently which will provide good combustion practices and thus should achieve lower SO_2 emissions

Low - Sulfur Fuel

The only fuel for the proposed project combustion turbine units is natural gas which has a negligible sulfur content of 2 grains/100 scf.

In summary, the NSPS established maximum allowable SO_2 emissions associated with combustion turbines requires either an SO_2 emissions limitation of 150 ppmvd at 15 percent O_2 or a maximum fuel content of 0.8 percent by weight (40 CFR 60, Subpart GG). Gas firing results in SO_2 emissions at approximately 1 ppmvd. Therefore, the very low SO_2 emission rate that results from the use of natural gas as the sole fuel represents BACT control for SO_2 emissions from the combustion turbine along with good combustion practices mentioned above.

Control of Hydrocarbons and Trace Organics

Formation

Non-methane hydrocarbons (also referred to as volatile organic compounds or VOCs) and trace organics are emitted from gas-fired turbines as a result of incomplete combustion of fuel. Control of these pollutants is accomplished by providing adequate fuel residence time and high temperature in the combustion zone to ensure complete combustion.

Gas Turbines

Potential emission levels and control technologies have been identified and ranked as follows:

- Fuel spec: Clean Burn Fuel;
- Good Combustion Practice/Combustion Control; and,
- VOC Oxidation Catalyst

Fuel spec: Clean Burn Fuel

The proposed project will utilize only natural gas as the primary fuel for all three simple cycle turbines. Natural gas is considered a clean burn fuel since it has a very low potential for generating VOC emissions.

Good Combustion Practice/Combustion Control

The project operators will maintain the turbines in good working order per manufacturer's guidance and implement good combustion practice to minimize VOC emissions. Since the turbines will be equipped with low NOx burners that are the state-of-art currently which will provide good combustion practices and thus should achieve lower VOC emissions.

VOC Oxidation Catalyst

An oxidation catalyst designed to control CO would provide a side benefit of controlling a portion of the VOC emissions. The level of control is dependent on the content of the natural gas. To date, vendors have not been willing to provide guarantees on oxidation catalysts for VOC control. The next level of control is combustion controls where VOC emissions are minimized by optimizing fuel mixing, excess air, and combustion temperature to assure complete combustion of the fuel.

The same technical factors that apply to the use of oxidation catalyst technology for control of CO emissions (narrow operating temperature range, loss of catalyst activity over time, and system pressure losses) apply to the use of this technology for collateral control of VOC. Since the Project will not employ a CO catalyst, the collateral reductions in VOC are not available.

Since an oxidation catalyst was shown to not be cost effective for control of CO, it would not be cost effective for control of VOCs at a much lower emission rate (20% of the CO annual emissions) and lower control efficiency. An oxidation catalyst is therefore no longer considered as a BACT option for this Project.

BACT for controlling VOC emissions is proposed as maintenance of the turbines in good working order, implementation of good combustion practice with the use of state-of-art GE Dry Low-NOX combustor technology and use of a clean burning natural gas fuel as the only fuel to meet a VOC emissions rate of 1.4 ppmvd per turbine.

Control of Particulate Matter

Combustion Turbines

Emissions of PM and particulate matter less than PM_{10} from the combustion turbine result from inert solids contained in the fuel, unburned fuel hydrocarbons which agglomerate to form particles, and mineral matter in the water injected during diesel oil firing. All of the particulate matter emitted from the turbine is expected to be less than 10 micrometers in diameter.

When the New Source Performance Standard for Stationary Gas Turbines (40 CFR 60 Subpart GG) was promulgated in 1979, the EPA recognized that "particulate emissions from stationary gas turbines are minimal," and noted that particulate control devices are not typically installed on gas turbines and that the cost of installing a particulate control device is prohibitive. Performance standards for particulate control of stationary gas turbines were, therefore, not proposed or promulgated.

Natural gas is a clean burning fuel. Natural gas contains essentially no inert solids (ash). Clean fuels are required for combustion turbines in order to prevent damage to the turbine blades and other high precision turbine components. The installation of a particulate control device on a turbine firing clean fuels is considered to be impractical. Additionally, the small size of the particulates (100% 1μ, AP-42, Section 3.1) make add-on controls technically infeasible.

Given the high combustion efficiency of the turbines and the firing of clean fuels, PM emissions will be very low. PM/PM_{10} emissions from the Project will be less than 0.02 $lb/10^6$ Btu. The Project proposes the use of natural gas as the sole fuel and good combustion practices as BACT for particulate matter.

The most stringent particulate control method demonstrated for gas turbines is the use of low ash fuel (such as natural gas or low sulfur transportation diesel). No add-on control technologies are listed in the RACT/BACT/LAER Clearinghouse listings for combustion turbines. Proper combustion control and the firing of fuels with negligible or zero ash content is the predominant control method listed.

Add-on controls, such as ESPs or baghouses, have never been applied to commercial gas/oil fired turbines or diesels engines. The use of ESPs and baghouse filters is considered technically infeasible, and does not represent an available control technology.

In summary,

Proposed BACT is maintenance of the turbines in good working order, implementation of good combustion practice with the use of the state of the art dry low NOx combustor technology and use of a clean burning natural gas fuel.

Control of Nitrogen Oxides, Carbon Oxides, Sulfur Dioxides, Volatile Organic Compounds, and Particulate Matter*

Emergency Diesel Generators

The emissions source will be used only for emergency situations, if any. The source is being permitted for 494 mmBTU/hr based upon 52 hours of operation per year for a weekly operational check.

Due to the projected emissions rate being less than 1.0 ton per year, BACT will be good working order and operation per manufacturer's specifications with an emissions rate of less than 1.0 tons per year.

Emergency Diesel Firewater Pump

The emissions source will be used only for emergency situations, if any. The source is being permitted for 52 hours of operation per year for a weekly operational check.

Due to the projected emissions rate being less than 1.0 ton per year, BACT will be good working order and operation per manufacturer's specifications with an emissions rate of less than 1.0 tons per year.

* Particulate Matter and Particulate Matter <10 microns are assumed to be the same.

Cooling Tower (two-celled blow-down)

Cooling towers are designed to efficiently evaporate water. As water evaporates, it absorbs heat, causing the remaining water to become colder. The cold water is then circulated in non-contact heat exchangers to remove heat from the steam condenser. Water not lost to evaporation in the cooling tower is used for non-contact cooling of the steam turbine condenser. This water will likely contain dissolved solids such as calcium, sodium and potassium. As the water is evaporated in the cooling tower, these total dissolved solids (TDS) tend to concentrate in the water that remains circulating within the cooling tower.

To improve evaporation rate, cooling towers are designed to induce a flow of fresh air across a large wetted surface area (called "fill"). This induced airflow, however, entrains some of the fine water droplets that carry out of the tower, referred to as drift. These fine droplets subsequently evaporate in the ambient air, but when they do they liberate the total dissolved solids that were formerly in solution as emissions of particulate and PM_{10}.

The technologies which are available to control PM_{10} emissions from evaporative cooling towers are limited to devices which seek to minimize drift. Known as Drift Eliminators, this technology represents the top level of control of PM_{10} emissions from evaporative cooling towers. Drift Eliminators typically consist of layers of plastic chevrons located within the tower to knock out and coalesce fine water droplets before they can be emitted to the atmosphere.

Mist drift eliminators will have an 0.0062% efficiency along a water circulation rate of 210,000 gallons per hour using a 2,000 ppm total dissolved solid content during Phase I operations and 99,000 gallons per hour using a 3,100 ppm total dissolved solid content during Phase II operations will result in the PM/PM10 allowables mentioned above.

While operating the turbines in combined cycle mode during phase 2

Under phase 2, the proposed plant will convert the three simple-cycle 160 MW turbines equipped with low NOx burners to combined-cycle operation. This conversion involves the addition of a separate heat recovery steam generator (HRSG) for each turbine which each HRSG is equipped with a 360 mmBTU/hr natural gas duct burner. Downstream of the turbine and duct burner in each of the turbine HRSG assemblies will be a Selective Catalytic Reduction (SCR) system for further reduction of NOx.

As part of the application for any emissions unit regulated under the PSD requirements, as analysis must be conducted that demonstrates that Best Available Control Technology (BACT) will be employed. In this case, the BACT analysis was conducted for NO_x, SO_2, PM*, CO, and VOC.

* Particulate Matter and Particulate Matter <10 microns are assumed to be the same.

Potential control alternatives are the following:

Control of Nitrogen Oxides

Combustion Combined Cycle Turbines

- Wet Controls - Water and Steam Injection;
- Dry Low NOx (DLN) Combustor Technology;
- Combustion Controls - Lean Premix Combustion (DLN);
- Selective Catalytic Reduction - (Back end control);
- Selective Non-Catalytic Reduction (SNCR) - (Back end control);
- $SCONO_x$ Catalytic Oxidation/Absorption -- (Back end control); and ,
- Catalytic Combustion - XONON catalytic (flame less) combustion - (Front end control).

Wet Controls - Water and Steam Injection

See explanation under simple cycle mode.

In addition to the explanation under simple cycle mode, because the proposed will be equipped with low NOx combustors that reduce NOx emissions to 9 ppm at 15% oxygen, which is lower than that attainable with wet control, this control alternative utilizing water or steam injection will be precluded from further consideration in this BACT analysis.

Dry Low NOx (DLN) Combustor Technology

See explanation under simple cycle mode.

Selective Catalytic Reduction

See explanation under simple cycle mode.

In addition to the explanation under simple cycle mode, both the turbines operating in the combine cycle mode will be equipped with DLN and SCR technology with a NOx emissions rate of 3.5 ppm at 15% oxygen.

Selective Non-Catalytic Reduction

See explanation under simple cycle mode.

SCONO$_x$ Catalytic Oxidation/Absorption

See explanation under simple cycle mode.

Catalytic Combustion - XONON catalytic (flame less) combustion - (Front end control)

See explanation under simple cycle mode.

In summary,

BACT is proposed as GE's low NOx combustor technology and SCR technology to meet a NOx emissions rate of 3.5 ppmvd at 15% oxygen.

Control of Carbon Monoxide

Combustion Combined Cycle Turbines

- Combustion Control; and,
- CO Oxidation Catalysts.

Combustion Control

See explanation under simple cycle mode.

CO Oxidation Catalysts

See explanation under simple cycle mode.

In addition to the explanation under simple cycle mode, the PSEG Waterford Facility indicated several combined cycle similar facilities to theirs. But there is not clear precedence of application of CO Oxidation Catalyst in recent permits.

In summary,

BACT is proposed as GE's low NOx combustor technology to meet a CO emissions rate of 15.0 ppmvd at 15% oxygen.

Control of Sulfur Dioxide

Combustion Combined Cycle Turbines

- Fuel Spec: Clean Burn Fuel;
- Good Combustion Practice/Combustion; and,
- Low-Sulfur Fuel.

See explanation under simple cycle mode. Also, note that in simple cycle mode the emissions rate is 11, where as, in combined cycle it is 13 pounds per hour.

In summary,

BACT is proposed as GE's low NOx combustor technology and the use of clean burning natural gas to meet a SO_2 emissions rate of 13 pounds per hour.

Control of Volatile Organic Compounds

Combustion Combined Cycle Turbines

- Combustion Control; and,
- VOC Oxidation Catalysts.

See explanation under simple cycle mode.

See explanation under simple cycle mode. Also, note that in simple cycle mode the emissions rate is 1.4 ppmvd, where as, in combined cycle it is 2.5 ppmvd.

In summary,

BACT is proposed as GE's low NOx combustor technology to meet a Volatile Organic Compounds emissions rate of 2.5 ppmvd at 15% oxygen.

Control of Particulate Matter*

***** Particulate Matter and Particulate Matter <10 microns are assumed to be the same.

Combustion Combined Cycle Turbines

- Fuel Spec: Clean Burning Fuel;
- Good Combustion Practice/Combination Control; and,
- Low-Sulfur Fuel.

See explanation under simple cycle mode.

Also, note that in simple cycle mode the emissions rate is 18 pounds per hour, where as, in combined cycle it is 25 pounds per hour.

In summary,

BACT is proposed as GE's low NOx combustor technology and the use of clean burning natural gas.

Control of Nitrogen Oxides

Duct Burners

SCR system represents BACT (and LAER) for the proposed project duct burners. NO_x emissions during duct firing will be controlled to 3.5 ppmvd.

Auxiliary Boiler

The proposed 85.2 MMBtu/hr auxiliary boiler will be permitted with at 8760 hours per year with projected NOx emissions listed above in the tables employing low NOx burners firing of natural gas as the sole fuel represents BACT for the proposed auxiliary boiler.

Control of Carbon Monoxide

Auxiliary Boiler

The proposed 85.2 MMBtu/hr auxiliary boiler will be permitted at 8,700 hours per year with projected CO emissions listed in the tables above employing low NOx burners firing of natural gas as the sole fuel represents BACT for the proposed auxiliary boiler. The auxiliary boiler will employ good combustion control for CO that has been determined to represent BACT for this source type.

Control of Sulfur Dioxide

Auxiliary Boiler

The proposed 85.2 MMBtu/hr auxiliary boiler will be permitted at 8,700 hours per year with projected SO_2 emissions listed above in the tables employing natural gas as the sole fuel represents BACT for the proposed auxiliary boiler. The auxiliary boiler will exclusively fire pipeline quality natural gas with an annual average sulfur content of 2 grains per 100 scf. The most stringent method of control for SO_2 that has been demonstrated for combustion sources is limiting operation to pipeline quality natural gas only. The use of pipeline natural gas as the exclusive fuel is, therefore, representative of BACT for SO_2 from the auxiliary boiler.

Control of Volatile Organic Compounds

Auxiliary Boiler

The proposed 85.2 MMBtu/hr auxiliary boiler will be permitted at 8,700 hours per year with projected Volatile Organic Compounds emissions listed in the tables above employing natural gas as the sole fuel represents BACT for the proposed auxiliary boiler. The auxiliary boiler will employ good combustion control for emissions of a VOC and the use of natural gas represent BACT for VOC from the auxiliary boiler.

Control of Particulate Matter

Auxiliary Boiler

The proposed 85.2 MMBtu/hr auxiliary boiler will be permitted at 8,700 hours per year with projected Particulate Matter emissions listed in the tables above employing natural gas as the sole fuel represents BACT for the proposed auxiliary boiler. The auxiliary boiler will employ good combustion control for emissions of a

Particulate Matter and the use of natural gas represent BACT for Particulate Matter from the auxiliary boiler.

Cooling Tower (10 cell and two cell blow-down)

Cooling towers are designed to efficiently evaporate water. As water evaporates, it absorbs heat, causing the remaining water to become colder. The cold water is then circulated in non-contact heat exchangers to remove heat from the steam condenser. Water not lost to evaporation in the cooling tower is used for non-contact cooling of the steam turbine condenser. This water will likely contain dissolved solids such as calcium, sodium and potassium. As the water is evaporated in the cooling tower, these total dissolved solids (TDS) tend to concentrate in the water that remains circulating within the cooling tower.

To improve evaporation rate, cooling towers are designed to induce a flow of fresh air across a large wetted surface area (called "fill"). This induced airflow, however, entrains some of the fine water droplets that carry out of the tower, referred to as drift. These fine droplets subsequently evaporate in the ambient air, but when they do they liberate the total dissolved solids that were formerly in solution as emissions of particulate and PM_{10}.

The technologies which are available to control PM_{10} emissions from evaporative cooling towers are limited to devices which seek to minimize drift. Known as Drift Eliminators, this technology represents the top level of control of PM_{10} emissions from evaporative cooling towers. Drift Eliminators typically consist of layers of plastic chevrons located within the tower to knock out and coalesce fine water droplets before they can be emitted to the atmosphere.

Mist drift eliminators for the ten celled cooling tower will have an 0.0005% efficiency along a water circulation rate of 12,690,000 gallons per hour during Phase II operations will result in the PM/PM10 allowables mentioned above.

Where as, the mist drift eliminators for the two celled blow-down will have an 0.0062% efficiency along a water circulation rate of 210,000 gallons per hour using a 2,000 ppm total dissolved solid content during Phase I operations and 99,000 gallons per hour using a 3,100 ppm total dissolved solid content during Phase II operations will result in the PM/PM10 allowables mentioned above.

Control of Other Non-Criteria Pollutants

The combustion of natural gas and diesel fuel may release trace amounts of a number of non-criteria pollutants. One of the PSD regulated pollutants (sulfuric acid mist) requires a BACT analysis as defined by EPA. Sulfuric acid (H_2SO_4) emissions are based on a conservative estimate that assumes 10 percent of the SO_2 is converted to SO_3 and all the SO_3 converts to sulfuric acid. It is further based on the fact that the turbines, duct burners, and auxiliary boiler will fire natural gas only. The diesel fire pump and back-up generator will fire low sulfur diesel fuel (<0.05% sulfur). It is proposed that BACT for SO_2 also represents BACT for sulfuric acid mist.

Summary

The proposed BACT for the PSEG Waterford facility is summarized in Tables 2 and 3, below.

Table 2: Proposed BACT Limits - Combustion Turbine

Pollutant	Selected Controls	Proposed BACT
NO_x	Gas as sole fuel, DLN combustors, & SCR	9.0 ppmvd at 15% O_2* 3.5 ppmvd at 15% O_2**
SO_2	Gas as sole fuel	2 grains S/100 CF gas*&**

CO	Good combustion practices	9.0 ppmvd at 15% O_2* 15 ppmvd at 15% O_2**
VOC	Good combustion practices	2.8 ppmvd at 15% O_2* 3.5 ppmvd at 15% O_2**
PM/PM_{10}	Gas as sole fuel & good combustion practices	0.01 lb/MMBtu* 0.013 lb/MMBtu**

Table 3: Proposed BACT Limits - Ancillary Equipment

Pollutant	Auxiliary Boiler	Diesel Engines	Cooling Tower
NO_x	Gas as sole fuel & Low NO_x Burners (0.05 lb/MMBtu)	Operating hours $\leq$ 52 hr/yr	N/A
SO_2	Gas as sole fuel	$\leq$ 0.05 wt % sulfur oil	N/A
CO	Good combustion (0.1 lb/MMBtu)	Operating hours $\leq$ 52 hr/yr	N/A
VOC	Good combustion (0.005 lb/MMBtu)	Operating hours $\leq$ 52 hr/yr	N/A
PM/PM_{10}	Gas as sole fuel (0.007 lb/MMBtu)	Operating hours $\leq$ 52 hr/yr	Drift eliminator $\leq$ 0.0005%

* Phase 1
** Phase 2

Ambient Air Quality Monitoring Requirements

The PSEG Waterford facility installation is located in Air Quality Control Region (AQCR) 179. The area is attainment or attainment/unclassifiable for total suspended particulates, particulate matter less than 10 microns, sulfur dioxide, nitrogen oxides, carbon monoxide, volatile organic compounds (ozone) and lead.

U.S. EPA regulations may require a year of ambient air quality data to be obtained as part of the PSD application. An applicant may conduct monitoring on-site, model to demonstrate a "de minimus" impact, or use existing air quality data to fill some of the requirements of a PSD ambient air quality analysis. If monitoring is required, U.S. EPA has set up specific conditions on the acceptability of existing air quality monitors to ensure the monitor is representative of air quality in the area.

In this instance, PSEG Waterford Energy, LLC has conducted ambient air quality modeling of two project phases. Phase I would be simple cycle turbines only while phase II completes the installation as a combined cycle facility and actually exceeds PSD emission thresholds. The modeling for phase II predicts the ambient air quality impact of the source(s) to be less than the monitoring de minimus concentrations for NO_2, PM_{10}, SO_2, and CO. Therefore, PSEG Waterford Energy, LLC would not be required to conduct pre-application monitoring. A summary identifying the worst case impacts of either phase is below:

Pollutant	Period	Monitoring Averaging Predicted Concentration	Monitoring De Minimus Concentration
NO_2	Annual	9.7 ug/m^3	14 ug/m^3
CO	8-hour high	316 ug/m^3	575 ug/m^3
PM_{10}	24-hour high	9.7 ug/m^3	10 ug/m^3
SO_2	24-hour high	1.7 ug/m^3	13 ug/m^3

Modeling

Air quality dispersion modeling was conducted to assess the effect of these sources on ambient air quality standards and PSD increments. The U.S. EPA Industrial Source Complex-Short Term (ISCST3, Version 00101) model was used for the refined modeling analysis. Modeling for the revised permit indicated phase I impacts were below Ohio Acceptable Incremental Impacts. The modeling for phase II indicated significant impacts for CO, PM10 and NOx but continued to indicate insignificant impact for SO2 . Peak impacts were due to the auxiliary boiler and occurred at the fenceline due to a short stack. The inclusion of the cooling towers had insignificant impact on the peak model predictions.
The ISCST model, version 00101, was the appropriate model for this analysis, based on the need to model simple to intermediate terrain, the need to incorporate building wake effects, the need to predict both short-term and long-term (annual) average concentrations, and the need to incorporate impacts from multiple and separated emissions units.

The ISCST model, version 00101, was run with the regulatory default options (stack-tip downwash, buoyancy-induced dispersion, final plume rise), default wind speed profile categories, default potential temperature gradient, and no pollutant decay. Building downwash was assessed using either the Huber-Snyder or Schulman-Sire downwash methodology, depending on the stack and nearby building heights.

The ISCST model, version 00101, was run utilizing the National Weather Service meteorological data processed using the U.S. EPA PCRAMMET program. OEPA provided five years of the most recent PCRAMMET processed meteorological data on our web page. Following OEPA modeling guidance concerning representative meteorological data for various counties, the Parkersburg Surface, Huntington Upper Air (1973-1977) PCRAMMET data were used in the refined modeling analysis.

Building wake effects will influence emissions from stacks with heights less than Good Engineering Practice (GEP). The ISCST model, version 00101, requires input of building heights and projected building widths for 36 wind directions. The U.S. EPA Building Profile Input Program (BPIP) was used to determine the direction-specific building dimensions.

Modeling Results/Increment Analysis

Modeling at the worst case parameters for either 100%, 75% loads, for natural gas, and using combustion turbine stack parameters based on average as well as extreme ambient temperatures, was performed to determine the worst case impacts for each pollutant. While worst case conditions were applied to the combustion turbines (the largest sources), peak impacts were due to relatively small sources with short stacks. Peak impacts occurred at or near the facility property boundary. The results (maximum short term and annual impacts) are as follows:

PM_{10}: The maximum predicted annual and 24-hour average PM_{10} concentration of 1.35 and 9.3 ug/m^3, respectively, were above the corresponding significant impact increments of 1 and 5 ug/m^3. Therefore, additional PSD and NAAQS dispersion modeling analyses for PM_{10} were necessary.

PSD Increments
Peak 24-hour: 9.3 ug/m^3
Peak Annual: 1.39 ug/m^3

NAAQS
Peak 24-hour: 96.3 ug/m^3 (including a background of 87.0 ug/m^3)
Peak Annual: 30.3 ug/m^3 (including a background of 28.8 ug/m^3)

CO: The maximum predicted 1-hour and 8-hour CO concentration of 2112.0 and 516 ug/m^3 respectively. These peaks were above the corresponding significant impact increments of 2000 and 500 ug/m^3, respectively. Therefore, an additional NAAQS dispersion modeling analysis was necessary for CO.

NAAQS
Peak 1-hour: 12,161 ug/m^3 (including a background of 10,049 ug/m^3)
Peak 8-hour: 6,229 ug/m^3 (including a background of 5596 ug/m^3)

Note: The CO summary above includes an Ohio EPA modeled 8-hour CO value using 1-hour emission rates and an Ohio EPA generated background value. Background values cited by the applicant were impacted values taken from the Mingo Junction CO monitor. More appropriate background values were taken from the Steubenville CO monitor and were used in the Ohio EPA summary above.

NO_2: The maximum predicted annual NO_2 concentration of 9.7 ug/m^3 was above the corresponding significant impact increment of 1.0 ug/m^3. Therefore additional PSD and NAAQS dispersion analyses were necessary for NO_2.

PSD Increment
Peak Annual: 10.7 ug/m^3

NAAQS
Peak Annual: 53.6 ug/m^3 (including a background of 42.1 ug/m^3)

SO_2: The maximum predicted annual, 24-hour and 3-hour average SO_2 concentrations of 0.16, 4.3 and 20.1 ug/m^3 were below the corresponding significant impart increments of 1.0, 5.0 and 25.0 ug/m^3. Therefore, no additional dispersion modeling analyses were necessary for SO_2.

Secondary Impact

The closest Class I area to the PSEG Waterford facility is the Mammoth Cave National Park (Kentucky) which is over 200 km to the southwest. Federal PSD regulation regulations require that the reviewing authority provide written notification of projects which may affect a Class 1 area. "May effect" is typically interpreted by EPA as a major source or major modification within 100 kilometers. Since the PSEG Waterford facility is located greater than 100 kilometers from any Class I area, and all modeled impacts are below Significant Impact Levels, the PSEG Waterford facility was not subject to the visibility analysis modeling.

Most of the designated vegetation screening levels are equivalent to or exceed NAAQS and/or PSD increments, so that satisfaction of NAAQS and PSD increment assures compliance with sensitive vegetation screening levels. For SO_2 3-hour and annual averaging periods, sensitive screening levels are more stringent than comparable NAAQS standards. The results demonstrate maximum concentrations are well below sensitive levels.

The project is to employ approximately 25 to 35 permanent positions during operations and an average of 500 people during construction. It is not expected that there will be regional population, commercial, or industrial growth associated with this project.

Conclusions

Based upon analysis of the permit to install application and it's supporting documentation provided by PSEG Waterford Energy. LLC, the Ohio EPA staff has determined that the proposed increase will comply with all applicable State and Federal environmental regulations. Therefore, the Ohio EPA staff recommends that a permit to install be issued to PSEG Waterford Energy. LLC.

WASHINGTON COUNTY

PUBLIC NOTICE
ISSUANCE OF DRAFT AIR PERMIT TO INSTALL
FOR PSEG WATERFORD ENERGY, LLC

Public Notice is hereby given that the Staff of the Ohio Environmental Protection Agency (EPA) has recommended to the Director that the Ohio EPA issue a draft action of an air Permit to Install (PTI) to PSEG Waterford Energy, LLC in Washington County, Ohio. The draft was issued on March , 2002.

This draft permit proposes to modify their current Prevention of Significant Deterioration PTI to allow for the installation of a natural gas fired boiler along with ancillary sources during phase I operations. This resulted in an BACT analysis for the boiler and an revised air dispersion modeling ambient impact demonstration. The new allowable emissions are, in tons per year:

	Phase I Operations	Phase II Operations
Particulate Matter less than 10μm (PM_{10})	47.2	310.8
Sulfur Dioxides (SO_2)	30.6	170.0
Carbon Monoxides (CO)	90.2	1128.9
Nitrogen Oxides (NO_x)	163.2	443
Volatile Organic Compounds (VOC)	8.5	97.3
Sulfuric Acid Mist (H_2SO_4)	1.2	6.9

The revised air dispersion modeling ambient impact demonstration is the following:

The maximum ambient increment allowed by U.S. EPA for PM_{10} is 30 micrograms/meter^3 (μg/m^3) on a 24-hour average, and is 17 μg/m^3 on an annual average; for NO_x, it is 25 μg/m^3 on an annual average; for SO_2, it is 512 μg/m^3 on a 3-hour average, is 91 μg/m^3 on a 24-hour average, and is 20 μg/m^3 on an annual average. The Ohio EPA allows PSD sources to consume less than one half the available increment.

This facility has demonstrated that the impacts from the new sources are less than the PSD significant impact increments of 25 μg/m^3 on a 3-hour average, 5 μg/m^3 on a 24-hour average, and 1 μg/m^3 on an annual average for SO_2. Emissions from the short stack of the auxiliary boiler, though, caused impacts above the significant impact levels for CO, PM_{10} and NO near the property fence line. Therefore, additional modeling to determine that the NAAQS and PSD increments for those pollutants would be protected was necessary. A summary of the PSD increment and NAAQS analyses are as follows:

PM_{10}

PSD Increments (Standards: 30 ug/m^3,24-hour; 17 ug/m^3, annual)
Peak 24-hour: 9.3 ug/m^3
Peak Annual: 1.39 ug/m^3

NAAQS (Standards: 150 ug/m^3, 24-hour; 50 ug/m^3, annual)
Peak 24-hour: 96.3 ug/m^3 (including a background of 87.0 ug/m^3)
Peak Annual: 30.3 ug/m^3 (including a background of 28.8 ug/m^3)

CO

PSD Increment There are no PSD increments for CO.

NAAQS (Standards: 10,000 ug/m^3, 8-hour; 40,000 ug/m^3, 1-hour)
Peak 1-hour: 12,161 ug/m^3 (including a background of 10,049 ug/m^3)
Peak 8-hour: 6,229 ug/m^3 (including a background of 5596 ug/m^3)

NO_2

PSD Increment (Standard: 25 ug/m^3, annual)
Peak Annual: 10.7 ug/m^3

NAAQS (Standard: 100 ug/m^3, annual)
Peak Annual: 53.6 ug/m^3 (including a background of 42.1 ug/m^3)

Each of the modeling analyses assessing compliance with the NAAQS and PSD increments indicated combined ambient impacts from the proposed facility and other potentially interacting facilities were well below the respective ambient standards.

A draft action (permit no. 06-06739) was issued on March , 2001. Within 30 days from the date of this notice, any interested party may submit comments or request a public hearing. Comments are to be sent to Ralph Witte, Ohio Environmental Protection Agency, Southeast District Office, 2195 Front Street, Logan, Ohio, 43138.

Further information concerning this application, which is available for public inspection, may be secured from Ohio Environmental Protection Agency, Southeast District Office at the above address during normal business hours. Telephone number: (740) 385-8501.

State of Ohio Environmental Protection Agency

RE: DRAFT PERMIT TO INSTALL CERTIFIED MAIL
WASHINGTON COUNTY

Street Address: Mailing Address: Lazarus Gov. Center
Lazarus Gov. Center **TELE:** (614) 644-3020 **FAX:** (614) 644-2329

Application No: 06-06739

DATE: 3/19/2002

PSEG Waterford Energy LLC
Mick Mastilovic
80 Park Plaza, Mail Code T191
Newark, NJ 07102

You are hereby notified that the Ohio Environmental Protection Agency has made a draft action recommending that the Director issue a Permit to Install for the air contaminant source(s) [emissions unit(s)] shown on the enclosed draft permit. This draft action is not an authorization to begin construction or modification of your emissions unit(s). The purpose of this draft is to solicit public comments on the proposed installation. A public notice concerning the draft permit will appear in the Ohio EPA Weekly Review and the newspaper in the county where the facility will be located. Public comments will be accepted by the field office within 30 days of the date of publication in the newspaper. Any comments you have on the draft permit should be directed to the appropriate field office within the comment period. A copy of your comments should also be mailed to Robert Hodanbosi, Division of Air Pollution Control, Ohio EPA, P.O. Box 1049, Columbus, OH, 43266-0149.

A Permit to Install may be issued in proposed of final form based on the draft action, any written public comments received within 30 days of the public notice, or record of a public meeting if one is held. You will be notified in writing of a scheduled public meeting. Upon issuance of a final Permit to Install a fee of **$1500** will be due. Please do not submit any payment now.

The Ohio EPA is urging companies to investigate pollution prevention and energy conservation. Not only will this reduce pollution and energy consumption, but it can also save you money. If you would like to learn ways you can save money while protecting the environment, please contact our Office of Pollution Prevention at (614) 644-3469. If you have any questions about this draft permit, please contact the field office where you submitted your application, or Mike Ahern, Field Operations & Permit Section at (614) 644-3631.
Very truly yours,

Thomas G. Rigo
Field Operations and Permit Section
Division of Air Pollution Control

CC: USEPA SEDO WV PA

DRAFT PERMIT TO INSTALL 06-06739

Application Number:	06-06739
APS Premise Number:	0684000213
Permit Fee:	**To be entered upon final issuance**
Name of Facility:	PSEG Waterford Energy LLC
Person to Contact:	Mick Mastilovic
Address:	80 Park Plaza, Mail Code T191 Newark, NJ 07102

Location of proposed air contaminant source(s) [emissions unit(s)]:
Township Rd 32
Beverly, Ohio

Description of proposed emissions unit(s):
Chapter 31 modification of auxiliary boiler (B001) and combustion turbines (P001, P002 and P003) and installation of a cooling tower (P004). Modification of DAPC terms and conditions only.

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

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

Director

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

1. Monitoring and Related Recordkeeping and Reporting Requirements

a. Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall maintain records that include the following, where applicable, for any required monitoring under this permit:

i. The date, place (as defined in the permit), and time of sampling or measurements.

ii. The date(s) analyses were performed.

iii. The company or entity that performed the analyses.

iv. The analytical techniques or methods used.

v. The results of such analyses.

vi. The operating conditions existing at the time of sampling or measurement.

b. Each record of any monitoring data, testing data, and support information required pursuant to this permit shall be retained for a period of five years from the date the record was created. Support information shall include, but not be limited to, all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Such records may be maintained in computerized form.

c. Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall submit required reports in the following manner:

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

ii. Quarterly written reports of (i) any deviations from federally enforceable emission limitations, operational restrictions, and control device operating parameter limitations, excluding deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06, that have been detected by the testing, monitoring and recordkeeping requirements specified in this permit, (ii) the probable cause of such deviations, and (iii) any corrective actions or preventive measures taken, shall be made to the appropriate Ohio EPA District Office or local air agency. The written reports shall be submitted quarterly, i.e., by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. See B.10 below if no deviations occurred during the quarter.

iii. Written reports, which identify any deviations from the federally enforceable monitoring, recordkeeping, and reporting requirements contained in this permit shall be submitted to the appropriate Ohio EPA District Office or local air agency every six months, i.e., by January 31 and July 31 of each year for the previous six calendar months. If no deviations occurred during a six-month period, the permittee shall submit a semi-annual report, which states that no deviations occurred during that period.

iv. Each written report shall be signed by a responsible official certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.

2. Scheduled Maintenance/Malfunction Reporting

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

3. Risk Management Plans

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

4. Title IV Provisions

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

5. Severability Clause

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

6. General Requirements

a. The permittee must comply with all terms and conditions of this permit. Any noncompliance with the federally enforceable terms and conditions of this permit constitutes a violation of the Act, and is grounds for enforcement action or for permit revocation, revocation and reissuance, or modification, or for denial of a permit renewal application.

b. It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the federally enforceable terms and conditions of this permit.

c. This permit may be modified, reopened, revoked, or revoked and reissued, for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or revocation, or of a notification of planned changes or anticipated noncompliance does not stay any term and condition of this permit.

d. This permit does not convey any property rights of any sort, or any exclusive privilege.

e. The permittee shall furnish to the Director of the Ohio EPA, or an authorized representative of the Director, upon receipt of a written request and within a reasonable time, any information that may be requested to determine whether cause exists for modifying, reopening or revoking this permit or to determine compliance with this permit. Upon request, the permittee shall also furnish to the Director or an authorized representative of the Director, copies of records required to be kept by this permit. For information claimed to be confidential in the submittal to the Director, if the Administrator of the U.S. EPA requests such information, the permittee may furnish such records directly to the Administrator along with a claim of confidentiality.

7. Fees

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

8. Federal and State Enforceability

Only those terms and conditions designated in this permit as federally enforceable, that are required under the Act, or any of its applicable requirements, including relevant provisions designed to limit the potential to emit of a source, are enforceable by the Administrator of the U.S. EPA, the State, and citizens under the Act. All other terms and conditions of this permit

shall not be federally enforceable and shall be enforceable under State law only.

9. Compliance Requirements

a. Any document (including reports) required to be submitted and required by a federally applicable requirement in this permit shall include a certification by a responsible official that, based on information and belief formed after reasonable inquiry, the statements in the document are true, accurate, and complete.

b. Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Director of the Ohio EPA or an authorized representative of the Director to:

i. At reasonable times, enter upon the permittee's premises where a source is located or the emissions-related activity is conducted, or where records must be kept under the conditions of this permit.

ii. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit, subject to the protection from disclosure to the public of confidential information consistent with ORC section 3704.08.

iii. Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.

iv. As authorized by the Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit and applicable requirements.

c. The permittee shall submit progress reports to the appropriate Ohio EPA District Office or local air agency concerning any schedule of compliance for meeting an applicable requirement. Progress reports shall be submitted semiannually, or more frequently if specified in the applicable requirement or by the Director of the Ohio EPA. Progress reports shall contain the following:

i. Dates for achieving the activities, milestones, or compliance required in any schedule of compliance, and dates when such activities, milestones, or compliance were achieved.

ii. An explanation of why any dates in any schedule of compliance were not or will not be met, and any preventive or corrective measures adopted.

10. Permit To Operate Application

a. If the permittee is required to apply for a Title V permit pursuant to OAC Chapter 3745-77, the permittee shall submit a complete Title V permit application or a complete Title V permit modification application within twelve (12) months after commencing operation of the emissions units covered by this permit. However, if the proposed new or modified source(s) would be prohibited by the terms and conditions of an existing Title V permit, a Title V permit modification must be obtained before the operation of such new or modified source(s) pursuant to OAC rule 3745-77-04(D) and OAC rule 3745-77-08(C)(3)(d).

b. If the permittee is required to apply for permit(s) pursuant to OAC Chapter 3745-35, the source(s) identified in this Permit To Install is (are) permitted to operate for a period of up to one year from the date the source(s) commenced operation. Permission to operate is granted only if the facility complies with all requirements contained in this permit and all applicable air pollution laws, regulations, and policies. Pursuant to OAC Chapter 3745-35, the permittee shall submit a complete operating permit application within thirty (30) days after commencing operation of the source(s) covered by this permit.

11. Best Available Technology

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

12. Air Pollution Nuisance

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

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

1. Compliance Requirements

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

2. Reporting Requirements Related to Monitoring and Recordkeeping Requirements

The permittee shall submit required reports in the following manner:

a. Reports of any required monitoring and/or recordkeeping of state-only enforceable information shall be submitted to the appropriate Ohio EPA District Office or local air agency.

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

3. Permit Transfers

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

4. Termination of Permit To Install

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

be extended by up to 12 months if application is made to the Director within a reasonable time before the termination date and the party shows good cause for any such extension.

5. Construction of New Sources(s)

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

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

6. Public Disclosure

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

7. Applicability

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

8. Construction Compliance Certification

The applicant shall provide Ohio EPA with a written certification (see enclosed form) that the

facility has been constructed in accordance with the Permit To Install application and the terms and conditions of the Permit to Install. The certification shall be provided to Ohio EPA upon completion of construction but prior to startup of the source.

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

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

C. Permit To Install Summary of Allowable Emissions

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

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

Pollutant	Tons Per Year
NOx	168.0 (Phase I)
	460.9 (Phase II)
SO2	30.6 (Phase I)
	170.0 (Phase II)
CO	90.2 (Phase I)
	1128.9 (Phase II)
VOC	8.5 (Phase I)
	97.3 (Phase II)
PE	47.2 (Phase I)
	310.8 (Phase II)
Ammonia (NH3)	369.3 (Phase II)
Formaldehyde	0.6 (Phase I)
	3.2 (Phase II)
Sulfuric Acid	1.2 (Phase I)
	6.9 (Phase II)

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

1. The following emissions units are also being installed as part of this project:

Emissions Unit	BACT	Phase I Emissions	Phase II Emissions
1000 kW Emergency Diesel Fuel Fired Generator*	Use of low sulfur fuel	0.82 TPY NOx 0.22 TPY CO 0.02 TPY VOC 0.01 TPY SO2 0.01 TPY PE	0.82 TPY NOx 0.22 TPY CO 0.02 TPY VOC 0.01 TPY SO2 0.01 TPY PE
290 kW Emergency Diesel Fuel Fired Fire Water Pump*	Use of low sulfur fuel	0.24 TPY NOx 0.05 TPY CO 0.02 TPY VOC 0.003 TPY SO2 0.017 TPY PE	0.24 TPY NOx 0.05 TPY CO 0.02 TPY VOC 0.003 TPY SO2 0.017 TPY PE
Roadways/Parking Areas	Paving	0.54 TPY PE	0.54 TPY PE
Two-Cell Blow-down Cooling Tower	Not Applicable	0.18 TPY PE	0.69 TPY PE
9.3 MMBtu/hr Natural Gas Fired Gas Heater	Not Applicable	1.10 TPY NOx 0.23 TPY CO 0.06 TPY VOC 0.003 TPY SO2 0.13 TPY PE	5.70 TPY NOx 1.18 TPY CO 0.33 TPY VOC 0.02 TPY SO2 0.68 TPY PE

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

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

None

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

A. State and Federally Enforceable Section

I. Applicable Emission Limitations and/or Control Requirements

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

Operations, Property, and/or Equipment	
PHASE I	**PHASE II**
B001 - 85.2 MMBtu/hr Natural Gas-Fired Boiler	B001 - 85.2 MMBtu/hr Natural Gas-Fired Boiler

Applicable Rules/Requirements		
	OAC rule 3745-21-08(B) and OAC rule 3745-23-06(B)	
OAC rule 3745-31-05(A)(3)		
	OAC rule 3745-31-05(D)	
		40 CFR Part 60, Subpart Dc OAC rule 3745-18-06(A) OAC rule 3745-17-10(B)(1)
		OAC rule 3745-17-07(A)
	OAC rule 3745-31-05(A)(3)	OAC rule 3745-21-08(B) and OAC rule 3745-23-06(B)
		OAC rule 3745-31-05(D)
40 CFR Part 60, Subpart Dc OAC rule 3745-18-06(A) OAC rule 3745-17-10(B)(1)		
OAC rule 3745-17-07(A)		

Applicable Emission Limitations/Control Measures		
The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-07(A) and 3745-31-10 through 3745-31-20.	year. The emission limitations specified by these rules are less stringent than those established pursuant to OAC rule 3745-31-05(A)(3). Visible particulate emissions shall not exceed 20% opacity as a 6-minute average, except as provided by rule. See A.I.2.a below.	Sulfur dioxide (SO2) emissions shall not exceed 0.000584 lb/MMBtu actual heat input, 0.050 lb/hr, and 0.22 ton per year. Carbon monoxide (CO) emissions shall not exceed 0.074 lb/MMBtu actual heat input, 6.30 lbs/hr, and 27.6 tons per year. Volatile organic compound (VOC) emissions shall not exceed 0.0041 lb/MMBtu actual heat input, 0.35 lb/hr, and 1.53 tons per year. Particulate emissions (PE) shall not exceed 0.005 lb/MMBtu actual heat input, 0.43 lb/hr, and 1.87 tons per year. The emission limitations specified by these rules are less stringent than those established pursuant to OAC rule 3745-31-05(A)(3). Visible particulate emissions shall not exceed 20% opacity as a 6-minute average, except as provided by rule. See A.I.2.a below.
PHASE I EMISSION LIMITATIONS Nitrogen oxides (NOx) emissions shall not exceed 0.036 lb/MMBtu actual heat input, 3.07 lbs/hr, and 2.6 tons per year. Sulfur dioxide (SO2) emissions shall not exceed 0.000584 lb/MMBtu actual heat input, 0.050 lb/hr, and 0.04 ton per year. Carbon monoxide (CO) emissions shall not exceed 0.074 lb/MMBtu actual heat input, 6.30 lbs/hr, and 5.4 tons per year. Volatile organic compound (VOC) emissions shall not exceed 0.0041 lb/MMBtu actual heat input, 0.35 lb/hr, and 0.30 ton per year. Particulate emissions (PE) shall not exceed 0.005 lb/MMBtu actual heat input, 0.43 lb/hr, and 0.36 ton per	See A.II.1 and A.II.2 below. NOx emissions shall not exceed 2.6 tons per rolling 12-month period. SO2 emissions shall not exceed 0.04 ton per rolling 12-month period. PE emissions shall not exceed 0.36 ton per rolling 12-month period. CO emissions shall not exceed 5.4 tons per rolling 12-month period. VOC emissions shall not exceed 0.30 ton per rolling 12-month period. The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-07(A) and 3745-31-10 through 3745-31-20. **PHASE II EMISSION LIMITATIONS** Nitrogen oxides (NOx) emissions shall not exceed 0.036 lb/MMBtu actual heat input, 3.07 lbs/hr, and 13.4 tons per year.	See A.II.1 below. NOx emissions shall not exceed 13.4 tons per rolling 12-month period. SO2 emissions shall not exceed 0.22 ton per rolling 12-month period. PE emissions shall not exceed 1.87 tons per rolling 12-month period. CO emissions shall not exceed 27.6 tons per rolling 12-month period. VOC emissions shall not exceed 1.53 tons per rolling 12-month period.

2. Additional Terms and Conditions

2.a The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) and the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this Permit to Install.

II. Operational Restrictions

1. The permittee shall burn only natural gas in this emissions unit. The maximum sulfur content of the natural gas shall not exceed 2 grains per 100 standard cubic feet.

2. The maximum hourly fuel heat input for this emissions unit shall not exceed 85.2 MMBtu. During Phase I, the maximum annual fuel heat input for this emissions unit shall not exceed 144,840 MMBtu, based upon a rolling, 12-month summation of the heat input values.

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

Month	Cumulative Fuel Heat Input (MMBtu)
1	108,630
1-2	144,840
1-3	144,840
1-4	144,840
1-5	144,840
1-6	144,840
1-7	144,840
1-8	144,840
1-9	144,840
1-10	144,840
1-11	144,840
1-12	144,840

If Phase I extends beyond the first 12 calendar months following the start-up of this emissions unit, compliance with the annual fuel heat input restriction shall be based on a rolling, 12-month summation of the heat input values.

Emissions Unit ID: B001

III. Monitoring and/or Recordkeeping Requirements

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

2. The permittee shall monitor the sulfur content and gross calorific value of the fuel being fired in the emissions unit. Fuel sampling and analysis shall be conducted according to the procedures and at the frequency specified by 40 CFR Part 75, Appendix D.

3. The permittee shall maintain hourly records of the fuel quantity used (cubic feet) and the heat input (MMBtu/hr) for this emissions unit.

4. The permittee shall maintain the following monthly records for this emissions unit:

a. during the first 12 calendar months of operation, the cumulative fuel heat input (MMBtu);

b. beginning after the first 12 calendar months of operation, records of the rolling, 12-month summation of fuel heat input (MMBtu);

c. during the first 12 calendar months of operation, the NOx, SO2, PE, CO, and VOC emissions, in tons; and

d. beginning after the first 12 calendar months of operation of this emissions unit, records of the rolling, 12-month summation of the NOx, SO2, PE, CO, and VOC emissions, in tons.

IV. Reporting Requirements

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

2. **Phase I:** The permittee shall submit quarterly deviation (excursion) reports that identify the following:

a. any record which shows that the sulfur content of the natural gas exceeded 2 grains per 100 standard cubic feet;

b. all exceedances of the maximum allowable cumulative fuel heat input limitations during the first 12 calendar months of operation;

c. beginning after the first 12 calendar months of operation, all exceedances of the rolling, 12-month fuel heat input limitation; and

d. beginning after the first 12 calendar months of operation, all exceedances of the rolling,

12-month emission limitations for NOx, SO2, PE, CO, and VOC.

The quarterly deviation reports shall be submitted in accordance with Part 1 - General Term and Condition A.2.

3. **Phase II:** The permittee shall submit quarterly deviation (excursion) reports that identify the following:

a. any record which shows that the sulfur content of the natural gas exceeded 2 grains per 100 standard cubic feet; and

b. beginning after the first 12 calendar months of operation, all exceedances of the rolling, 12-month emission limitations for NOx, SO2, PE, CO, and VOC.

The quarterly deviation reports shall be submitted in accordance with Part 1 - General Term and Condition A.2.

4. The permittee shall also submit annual reports that specify the total NOx, SO2, PE, CO, and VOC emissions from this emissions unit for the previous calendar year. The annual reports shall be submitted by February 15 of each year.

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

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

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

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

c. actual start-up date (within 15 days after such date); and,

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

Reports are to be sent to:

Ohio Environmental Protection Agency
DAPC - Permit Management Unit

P. O. Box 163669
Columbus, Ohio 43216-3669

and

Ohio Environmental Protection Agency
Southeast District Office
Division of Air Pollution Control
2195 Front Street
Logan, Ohio 43138

V. Testing Requirements

1. Emission Limitations:

Phase I:

NOx emissions shall not exceed 0.036 lb/MMBtu, 3.07 lbs/hr, and 2.6 tons per year.

Phase II:

NOx emissions shall not exceed 0.036 lb/MMBtu, 3.07 lbs/hr, and 13.4 tons per year.

Applicable Compliance Method:

Compliance with the lb/MMBtu emission limitation may be demonstrated using the emission factor supplied by the permittee (0.036 lb NOx /MMBtu).

Compliance with the lbs/hr emission limitation may be demonstrated by multiplying the permittee-supplied NOx emission factor (0.036 lb NOx /MMBtu) by the actual fuel heat input rate (MMBtu/hr).

Compliance with the tons per year emission limitations shall be demonstrated by multiplying the permittee-supplied NOx emission factor (0.036 lb NOx/MMBtu) or emissions unit specific NOx emission factor established through emission testing by the actual fuel heat input (MMBtu/yr) and dividing by 2000 lbs/ton.

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

2. Emission Limitations:

Phase I:

SO2 emissions shall not exceed 0.000584 lb/MMBtu, 0.050 lb/hr, and 0.04 ton per year.

Phase II:

SO2 emissions shall not exceed 0.000584 lb/MMBtu, 0.050 lb/hr, and 0.22 ton per year.

Applicable Compliance Method:

Compliance with the lb/MMBtu emission limitation may be demonstrated using the following AP-42 emission factor: 0.000584 lb SO2 /MMBtu (AP-42, Fifth Edition, Section 1.4, Table 1.4-2, 7/98).

Compliance with the lb/hr emission limitation may be demonstrated by multiplying the AP-42 emission factor (0.000584 lb SO2 /MMBtu) by the actual fuel heat input rate (MMBtu/hr).

Compliance with the tons per year emission limitations shall be demonstrated by multiplying the AP-42 SO2 emission factor (0.000584 lb SO2/MMBtu) or emissions unit specific SO2 emission factor established through emission testing by the actual fuel heat input (MMBtu/yr) and dividing by 2000 lbs/ton.

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

3. Emission Limitations:

Phase I:

CO emissions shall not exceed 0.074 lb/MMBtu, 6.30 lbs/hr, and 5.4 tons per year.

Phase II:

CO emissions shall not exceed 0.074 lb/MMBtu, 6.30 lbs/hr, and 27.6 tons per year.

Applicable Compliance Method:

Compliance with the lb/MMBtu emission limitation may be demonstrated using the emission factor supplied by the permittee (0.074 lb CO/MMBtu).

Compliance with the lbs/hr emission limitation may be demonstrated by multiplying the permittee-supplied CO emission factor (0.074 lb CO/MMBtu) by the actual fuel heat input rate (MMBtu/hr).

Compliance with the tons per year emission limitations shall be demonstrated by multiplying the permittee-supplied CO emission factor (0.074 lb CO/MMBtu) or emissions unit specific CO emission factor established through emission testing by the actual fuel heat input (MMBtu/yr) and dividing by 2000 lbs/ton.

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

4. Emission Limitations:

Phase I:

VOC emissions shall not exceed 0.0041 lb/MMBtu, 0.35 lb/hr, and 0.30 ton per year.

Phase II:

VOC emissions shall not exceed 0.0041 lb/MMBtu, 0.35 lb/hr, and 1.53 tons per year.

Applicable Compliance Method:

Compliance with the lb/MMBtu emission limitation may be demonstrated using the emission factor supplied by the permittee (0.0041 lb VOC /MMBtu).

Compliance with the lb/hr emission limitation may be demonstrated by multiplying the permittee-supplied VOC emission factor (0.0041 lb VOC /MMBtu) by the actual fuel heat input rate (MMBtu/hr).

Compliance with the ton(s) per year emission limitations shall be demonstrated by multiplying the permittee-supplied VOC emission factor (0.0041 lb VOC /MMBtu) or emissions unit specific VOC emission factor established through emission testing by the actual fuel heat input (MMBtu/yr) and dividing by 2000 lbs/ton.

If required, the permittee shall demonstrate compliance with the lb/MMBtu and lb/hr emission limitations through emission tests performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 4 and 25.

5. Emission Limitations:

Phase I:

PE emissions shall not exceed 0.005 lb/MMBtu, 0.43 lb/hr, and 0.36 ton per year.

Phase II:

PE emissions shall not exceed 0.005 lb/MMBtu, 0.43 lb/hr, and 1.87 tons per year.

Applicable Compliance Method:

Compliance with the lb/MMBtu emission limitation may be demonstrated using the emission factor supplied by the permittee (0.005 lb PE /MMBtu).

Compliance with the lb/hr emission limitation may be demonstrated by multiplying the permittee-supplied PE emission factor (0.005 lb PE /MMBtu) by the actual fuel heat input rate (MMBtu/hr).

Compliance with the ton(s) per year emission limitations shall be demonstrated by multiplying the permittee-supplied PE emission factor (0.005 lb PE /MMBtu) or emissions unit specific PE emission factor established through emission testing by the actual fuel heat input (MMBtu/yr) and dividing by 2000 lbs/ton.

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

6. Emission Limitations:

Phase I:

NOx emissions shall not exceed 2.6 tons per rolling 12-month period.
SO2 emissions shall not exceed 0.04 ton per rolling 12-month period.
PE emissions shall not exceed 0.36 ton per rolling 12-month period.
CO emissions shall not exceed 5.4 tons per rolling 12-month period.
VOC emissions shall not exceed 0.30 ton per rolling 12-month period.

Phase II:

NOx emissions shall not exceed 13.4 tons per rolling 12-month period.
SO2 emissions shall not exceed 0.22 ton per rolling 12-month period.
PE emissions shall not exceed 1.87 tons per rolling 12-month period.
CO emissions shall not exceed 27.6 tons per rolling 12-month period.
VOC emissions shall not exceed 1.53 tons per rolling 12-month period.

Applicable Compliance Method:

Compliance with the rolling, 12-month emission limitations shall be demonstrated based upon the records required pursuant to section A.III and the associated emission factors specified in section A.V.

7. Emission Limitation:

Visible particulate emissions shall not exceed 20% opacity as a 6-minute average, except as provided by rule.

Applicable Compliance Method:

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

VI. Miscellaneous Requirements

1. The terms and conditions for this emissions unit supercede those contained in PTI 06-06206 issued March 29, 2001.

B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
B001 - 85.2 MMBtu/hr Natural Gas-Fired Boiler	None	None

2. Additional Terms and Conditions

2.a None

II. Operational Restrictions

None

III. Monitoring and/or Recordkeeping Requirements

None

IV. Reporting Requirements

None

V. Testing Requirements

None

VI. Miscellaneous Requirements

None

Emissions Unit ID: P001

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

A. State and Federally Enforceable Section

I. Applicable Emission Limitations and/or Control Requirements

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

Operations, Property, and/or Equipment	
PHASE I	**PHASE II**
P001 - GE 7FA Natural Gas- Fired Dry Low NOx (DLN) Combustion Turbine	P001 - GE 7FA Natural Gas Fired Dry Low NOx (DLN) Combustion Turbine with Duct Firing Operated in Combined Cycle Mode and Controlled by Selective Catalytic Reduction (SCR)

Applicable Rules/Requirements		
	40 CFR Part 60, Subpart GG	
OAC rule 3745-31-05(A)(3)	OAC rule 3745-18-06(F) OAC rule 3745-17-11(B)(4) OAC rule 3745-17-07(A) OAC rule 3745-21-08(B) OAC rule 3745-23-06(B) OAC rule 3745-31-05(D)	
	OAC rule 3745-31-05(A)(3)	40 CFR Part 60, Subpart GG OAC rule 3745-17-07(A) OAC rule 3745-17-11(B)(4) OAC rule 3745-18-06(F) OAC rule 3745-21-08(B) OAC rule 3745-23-06(B) OAC rules 3745-31-10 through 3745-31-20

		Applicable Emission Limitations/Control Measures
		The requirements of this rule also include compliance with the requirements of 40 CFR Part 60, Subpart GG, and OAC rules 3745-31-10 through 3745-31-20.
		PHASE I EMISSION LIMITATIONS
OAC rule 3745-31-05(A)(3)		Nitrogen oxides (NO_x) emissions shall not exceed 9.0 ppmvd at 15% oxygen, 64.0 lbs/hr, and 54.4 tons/yr.
	40 CFR Part 60, Subpart GG	Particulate emissions (PE) shall not exceed 18.0 lbs/hr and 15.3 tons/yr.
	40 CFR Part 60, Subpart Da OAC rule 3745-18-06(F) OAC rule 3745-17-11 (B)(4)	Sulfur dioxide (SO_2) emissions shall not exceed 12.0 lbs/hr and 10.2 tons/yr.
	OAC rule 3745-17-07(A)	Carbon monoxide (CO) emissions shall not exceed 9.0 ppmvd, 33.0 lbs/hr, and 28.1 tons/yr.
	OAC rule 3745-21-08(B) OAC rule 3745-23-06(B)	Volatile organic compound (VOC) emissions shall not exceed 3.2 lbs/hr and 2.7 tons/yr.
	OAC rules 3745-31-10 through 3745-31-20)	Formaldehyde emissions shall not exceed 0.23 lb/hr and 0.20 ton/yr.
		Sulfuric acid emissions shall not exceed 0.48 lb/hr and 0.41 ton/yr.
		Visible particulate emissions from any stack shall not exceed 10% opacity as a 6-minute average.

See A.II.1 and A.II.3 below. See A.I.2.b below. See A.I.2.a below. See A.I.2.d below. NOx emissions shall not exceed 54.4 tons per rolling, 12-month period. SO2 emissions shall not exceed 10.2 tons per rolling, 12-month period. PE emissions shall not exceed 15.3 tons per rolling, 12-month period. CO emissions shall not exceed 28.1 tons per rolling, 12-month period. VOC emissions shall not exceed 2.7 tons per rolling, 12-month period. **EMISSION LIMITATIONS WITHOUT DUCT BURNER FIRING - PHASE II** The requirements of this rule also include compliance with the requirements of 40 CFR Part 60, Subpart GG, and OAC rules 3745-31-10 through 3745-31-20.	Nitrogen oxides (NO_x) emissions shall not exceed 3.5 ppmvd at 15% oxygen, 25.0 lbs/hr, and 146.9 tons/yr, including start-up and shutdown emissions. Particulate emissions (PE) shall not exceed 21.0 lbs/hr and 100.0 tons/yr. Sulfur dioxide (SO_2) emissions shall not exceed 12.0 lbs/hr and 56.6 tons/yr. Carbon monoxide (CO) emissions shall not exceed 9.0 ppmvd, 33.0 lbs/hr, and 366.6 tons/yr, including start-up and shutdown emissions. Volatile organic compound (VOC) emissions shall not exceed 3.2 lbs/hr and 31.8 tons/yr, including start-up and shutdown emissions. Ammonia (NH3) emissions shall not exceed 26.0 lbs/hr and 123.1 tons/yr. Formaldehyde emissions shall not exceed 0.23 lb/hr and 1.06 tons/yr. Sulfuric acid emissions shall not exceed 0.48 lb/hr and 2.3 tons/yr. Visible particulate emissions from any stack shall not exceed 10% opacity as a 6-minute average. See A.II.1 and A.II.4 below. See A.I.2.b below.	See A.I.2.a below. See A.I.2.d below. NOx emissions shall not exceed 149.6 tons per rolling, 12-month period. SO2 emissions shall not exceed 56.6 tons per rolling, 12-month period. PE emissions shall not exceed 100.0 tons per rolling, 12-month period. CO emissions shall not exceed 366.6 tons per rolling, 12-month period. VOC emissions shall not exceed 31.8 tons per rolling, 12-month period. **EMISSION LIMITATIONS WITH DUCT BURNER FIRING - PHASE II** The requirements of this rule also include compliance with the requirements of 40 CFR Part 60, Subparts Da and GG, and OAC rules 3745-31-10 through 3745-31-20. Nitrogen oxides (NO_x) emissions shall not exceed 3.5 ppmvd at 15% oxygen, 30.0 lbs/hr, and 146.9 tons/yr, including start-up and shutdown emissions. Particulate emissions (PE) shall not exceed 25.0 lbs/hr and 100.0 tons/yr. Sulfur dioxide (SO_2) emissions shall not exceed 14.0 lbs/hr and 56.6 tons/yr. Carbon monoxide (CO) emissions shall

not exceed 15.0 ppmvd, 69.0 lbs/hr, and 366.6 tons/yr, including start-up and shutdown emissions. Volatile organic compound (VOC) emissions shall not exceed 6.8 lbs/hr and 31.8 tons/yr, including start-up and shutdown emissions. Ammonia (NH3) emissions shall not exceed 30.6 lbs/hr and 123.1 tons/yr. Formaldehyde emissions shall not exceed 0.26 lb/hr and 1.06 tons/yr. Sulfuric acid emissions shall not exceed 0.56 lb/hr and 2.3 tons/yr. Visible particulate emissions from any stack shall not exceed 10% opacity as a 6-minute average. See A.II.1 and A.II.4 below. See A.I.2.b below. See A.I.2.a below. See A.I.2.d below. NOx emissions shall not exceed 149.6 tons per rolling, 12-month period.	SO2 emissions shall not exceed 56.6 tons per rolling, 12-month period. PE emissions shall not exceed 100.0 tons per rolling, 12-month period. CO emissions shall not exceed 366.6 tons per rolling, 12-month period. VOC emissions shall not exceed 31.8 tons per rolling, 12-month period. **START-UP AND SHUTDOWN EMISSION LIMITATIONS - PHASE II** (See A.II.2 below.) Nitrogen oxides (NO_x) emissions shall not exceed 418 lbs/cycle and 27.4 tons/yr. Carbon monoxide (CO) emissions shall not exceed 1127 lbs/cycle and 150.1 tons/yr. Volatile organic compound (VOC) emissions shall not exceed 97 lbs/cycle and 10.6 tons/yr.	

2. Additional Terms and Conditions

2.a The emission limitations specified in these applicable rules are equivalent to or less stringent than the emission limitations established pursuant to OAC rule 3745-31-05(A)(3).

2.b The emission limitations specified in this applicable rule are equivalent to or less stringent than the emission limitations established pursuant to OAC rule 3745-31-05(A)(3). Except as provided for in the terms and conditions in this permit, the permittee is not exempt from meeting any additional requirements of 40 CFR Part 60, Subpart GG.

2.c If the permittee is subject to the requirements of OAC Chapter 103 and 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.d The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) and the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this Permit to Install.

2.e In lieu of monitoring the nitrogen content of the natural gas being fired in the turbine as required by 40 CFR 60, Subpart GG (section 60.334(b)), the permittee may install and operate systems to continuously monitor and record emissions of NOx from this emissions unit during Phase I operations.

2.f After the NOx continuous emissions monitoring system for this emissions unit is installed and certified, the permittee shall submit excess emissions reports for this emissions unit in accordance with this permit, in lieu of the excess emissions reports required under 40 CFR Part 60.334.

II. Operational Restrictions

1. The permittee shall burn only natural gas in this emissions unit. The maximum sulfur content of the natural gas shall not exceed 2 grains per 100 standard cubic feet.

2. Start-up and shutdown shall be defined as when the unit is running at less than 50% of electric load, but under no circumstances shall start-ups exceed 250 minutes in duration and shutdowns shall not exceed 2 hours in duration. The total of all hot, warm and cold start-ups (as defined below) and shutdowns shall be limited to 286 cycles (each cycle consists of one start-up and one

shutdown) per year.

Hot Start - start-up occurs within 8 hours after a plant shutdown
Warm Start - start-up occurs between 8 to 72 hours after a plant shutdown
Cold Start - start-up occurs more than 72 hours after a plant shutdown

Each cycle shall be limited to the following:

Pollutant	Total lbs/Cycle
NOx	418
CO	1127
VOC	97

During Phase I, start-up and shutdown emissions are not anticipated to increase above levels defined during normal operation of a simple cycle turbine.

3. During Phase I, the maximum hourly fuel heat input for this emissions unit shall not exceed 1744.3 MMBtu/hr and the annual maximum fuel heat input shall not exceed 2,965,310 MMBtu per year based upon a rolling, 12-month summation of the heat input values. Due to this operational restriction, this gas-fired peaking unit will not have to install the applicable continuous emission monitoring systems specified in 40 CFR Part 75 until Phase II.
To ensure enforceability during the first 12 calendar months following the start-up of this emissions unit, the permittee shall not exceed the monthly heat input restrictions specified in the following table:

Month	Cumulative Fuel Heat Input (MMBtu)
1	1,297,759
1-2	2,595,518
1-3	2,965,310
1-4	2,965,310
1-5	2,965,310
1-6	2,965,310
1-7	2,965,310
1-8	2,965,310
1-9	2,965,310
1-10	2,965,310
1-11	2,965,310
1-12	2,965,310

If Phase I extends beyond the first 12 calendar months following the start-up of this emissions unit, compliance with the annual fuel heat input restriction shall be based on a rolling, 12-month summation of the heat input values.

4. During Phase II, the maximum hourly combustion turbine fuel heat input shall not exceed 1744.3 MMBtu/hr.

The maximum hourly fuel heat input of the duct burner for this emissions unit shall not exceed 360 MMBtu/hr. The maximum annual fuel heat input of the duct burner shall not exceed 1,440,000 MMBtu per year, based upon a rolling, 12-month summation of the heat input values.

To ensure enforceability during the first 12 calendar months following the start-up of the duct burner, the permittee shall not exceed the monthly duct burner fuel heat input restrictions specified in the following table:

Month	Cumulative Fuel Heat Input (MMBtu)
1	267,840
1-2	535,680
1-3	803,520
1-4	1,071,360
1-5	1,440,000
1-6	1,440,000
1-7	1,440,000
1-8	1,440,000
1-9	1,440,000
1-10	1,440,000
1-11	1,440,000
1-12	1,440,000

After the first 12 calendar months following the start-up of the duct burner, compliance with the annual fuel heat input restriction shall be based on a rolling, 12-month summation of the heat input values.

5. Continuous NOx Monitoring System Certification

Prior to the installation of the continuous NO_x 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 for approval by the Ohio EPA, Central Office.

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

6. Within 180 days of the effective date of this permit, the permittee shall develop a written quality assurance/quality control plan for the continuous NO_x monitoring system designed to ensure continuous valid and representative readings of NO_x emissions in units of the applicable standard. The plan shall follow the requirements of the appropriate sections of 40 CFR Part 60, Appendix F and 40 CFR Part 75, Appendix B. The quality assurance/quality control plan and a logbook dedicated to the continuous NO_x monitoring system must be kept on site and available for inspection during regular office hours.

7. Continuous CO Monitoring System
Certification

Prior to the 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.

Within 60 days after achieving the maximum production rate at which the emissions unit will be operated, but not later than 180 days after initial start-up of such 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. Personnel from the appropriate Ohio EPA District Office or local air agency shall be notified 30 days prior to initiation of the applicable tests and shall be permitted to examine equipment and witness the

certification tests. In accordance with OAC rule 3745-15-04, all copies of the test results shall be submitted to the appropriate Ohio EPA District Office or local air agency within 30 days after the test is completed. Copies of the test results shall be sent to the appropriate Ohio EPA District Office or local air agency and the Ohio EPA, Central Office. 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.

8. Within 180 days of the effective date of this permit, the permittee shall develop 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 continuous CO monitoring system must be kept on site and available for inspection during regular office hours.

9. Continuous O_2 Monitoring System
Certification

Prior to the installation of the continuous O_2 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 for approval by the Ohio EPA, Central Office.

Within 60 days after achieving the maximum production rate at which the emissions unit will be operated, but not later than 180 days after initial start-up of such emissions unit, the permittee shall conduct certification tests of such equipment pursuant to the appropriate sections of ORC section 3704.03(I), 40 CFR Part 60, Appendix B, Performance Specification 3, and 40 CFR Part 75. Personnel from the appropriate Ohio EPA District Office or local air agency shall be notified 30 days prior to initiation of the applicable tests and shall be permitted to examine equipment and witness the certification tests. In accordance with OAC rule 3745-15-04, all copies of the test results shall be submitted to the appropriate Ohio EPA District Office or local air agency within 30 days after the test is completed. Copies of the test results shall be sent to the appropriate Ohio EPA District Office or local air agency and the Ohio EPA, Central Office.

Certification of the continuous O_2 monitoring system shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of the appropriate sections of ORC section 3704.03(I), 40 CFR Part 60, Appendix B, Performance Specification 3, and 40 CFR Part 75.

10. Within 180 days of the effective date of this permit, the permittee shall develop a written quality assurance/quality control plan for the continuous O_2 monitoring system designed to ensure continuous valid and representative readings of O_2 emissions in units of the applicable standard. The plan shall follow the requirements of the appropriate sections of 40 CFR Part 60, Appendix F and 40 CFR Part 75, Appendix B. The quality assurance/quality control plan and a logbook

dedicated to the continuous O_2 monitoring system must be kept on site and available for inspection during regular office hours.

III. Monitoring and/or Recordkeeping Requirements

1. **Phase I**: The permittee shall maintain monthly records of the following information for this emissions unit:

a. The natural gas usage rate, in standard cubic feet.

b. Hours of operation of the combustion turbine.

c. Monthly fuel heat input (MMBtu) to the combustion turbine.

d. During the first 12 calendar months of operation, records of the cumulative fuel heat input to the combustion turbine.

e. Beginning after the first 12 months of operation, the rolling, 12-month summation of fuel heat input to the combustion turbine.

f. The NOx, CO, PE, SO2, VOC, formaldehyde, and sulfuric acid emission rates, in lbs.

g. The average hourly NOx, CO, PE, SO2, VOC, formaldehyde, and sulfuric acid emission rates, in lbs (i.e., the values from (f) divided by (b)).

h. Beginning after the first 12 months of operation, the rolling, 12-month summations of the NOx, CO, PE, SO2, VOC, emission rates, in tons.

2. **Phase I:** The permittee shall determine the hourly heat input rate to the combustion turbine from the fuel flow rate as determined in term A.III.6 and fuel gross calorific value as determined in term A.III.7. The heat input rate shall be calculated in accordance with the procedures in Section 5 of 40 CFR Part 75, Appendix F.

3. The permittee shall install, operate and maintain equipment to continuously monitor and record NO_x emissions from this emissions unit in units of the applicable standard. This NO_x monitoring equipment must be installed for Phase II operation. The NO_x monitoring equipment may be used during Phase I in order to minimize or eliminate fuel nitrogen content sampling requirements specified in 40 CFR Part 60, Subpart GG. Such continuous monitoring and recording equipment shall comply with the requirements of the appropriate sections specified in 40 CFR Part 60.13 and 40 CFR Part 75.

The permittee shall maintain records of all data obtained by the continuous NO_x monitoring system including, but not limited to, parts per million NO_x on an instantaneous (one-minute) basis, emissions of NO_x in units of the applicable standard in the appropriate averaging period (i.e.,

ppmvd at 15% oxygen and lbs/hr), results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

4. The permittee shall install, operate and maintain equipment to continuously monitor and record CO emissions 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.

The permittee shall maintain records of all data obtained by the continuous CO monitoring system including, but not limited to, parts per million CO on an instantaneous (one minute) basis, emissions of CO in units of the applicable standard in the appropriate averaging period (i.e., ppmvd and lbs/hr), results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

5. The permittee shall install, operate and maintain equipment to continuously monitor and record O_2 emissions from this emissions unit in percent O_2. Such continuous monitoring and recording equipment shall comply with the requirements in the appropriate sections specified in 40 CFR Part 60.13 and 40 CFR Part 75.

The permittee shall maintain records of all data obtained by the continuous O_2 monitoring system including, but not limited to, percent O_2 on an instantaneous (one-minute) basis, emissions of O_2 in units of the applicable standard in the appropriate averaging period (e.g., hourly, hourly rolling, 3-hour, daily, 30-day rolling, etc.), results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

6. **Phase I and II**: The permittee shall install, operate and maintain equipment to continuously monitor and record the fuel flow to this emissions unit when the emissions unit is in operation. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 75. If the fuel flow monitoring and/or recording equipment is (are) not in service when the emissions unit is in operation, the permittee shall comply with the appropriate missing data procedures specified in 40 CFR Part 75.

7. **Phase I and II:** The permittee shall monitor the sulfur content and gross calorific value of the fuel being fired in the combustion turbine and duct burner. Fuel sampling and analysis shall be conducted according to the procedures and at the frequency specified by 40 CFR Part 75, Appendix D, section 2.3.3.1.

8. **Phase II**: The permittee shall determine the hourly heat input rate to the combustion turbine and duct burner from the fuel flow rate as determined in term A.III.6 and fuel gross calorific value as determined in term A.III.7. The heat input rate shall be calculated in accordance with the procedures in Section 5 of 40 CFR Part 75, Appendix F.

9. **Phase II**: The permittee shall maintain monthly records of the following information for this emissions unit:

a. The natural gas usage rate, in standard cubic feet.

b. Hours of operation of the combustion turbine.

c. Hours of operation of the duct burner.

d. Monthly fuel heat input (MMBtu) to the combustion turbine.

e. Monthly fuel heat input (MMBtu) to the duct burner.

f. During the first 12 calendar months of operation, records the cumulative fuel heat input to the combustion turbine and the duct burner.

g. Beginning after the first 12 months of operation, the rolling, 12-month summations of fuel heat inputs to the combustion turbine and the duct burner.

h. Number of start-ups, type of startup (hot, warm or cold) and the duration, in minutes, of each start-up.

i. Number of shutdowns, and the duration, in hours, of each shutdown.

j. The total number of start-up/shutdown cycles.

k. The NOx, CO, and VOC emissions, in pounds, for all start-up/shutdown cycles.

l. The total NOx emissions, in pounds, including start-up/shutdown emissions.

m. The total CO emissions, in pounds, including start-up/shutdown emissions.

n. The total VOC emissions, in pounds, including start-up/shutdown emissions.

o. The total SO2, PE, NH3, formaldehyde, and sulfuric acid emissions, in pounds.

p. Beginning after the first 12 months of operation under Phase II , the rolling, 12-month summation of the NOx emissions, in tons, including start-up/shutdown emissions.

q. Beginning after the first 12 months of operation under Phase II , the rolling, 12-month summation of the CO emissions, in tons, including start-up/shutdown emissions.

r. Beginning after the first 12 months of operation under Phase II , the rolling, 12-month

summation of the VOC emissions, in tons, including start-up/shutdown emissions.

s. Beginning after the first 12 months of operation under Phase II , the rolling, 12-month summations of the SO2, PE, emissions, in tons.

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

IV. Reporting Requirements - Phase I and II

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

2. **Phase I:** The permittee shall submit quarterly deviation (excursion) reports that identify the following:

a. All exceedances of the Phase I hourly allowable combustion turbine fuel heat input level.

b. During the first 12 months of operation, all exceedances of the Phase I maximum allowable cumulative combustion turbine heat input levels.

c. Beginning after the first 12 months of operation, all exceedances of the Phase I rolling, 12-month allowable combustion turbine fuel heat input level.

d. All exceedances of the Phase I average hourly NOx, CO, PE, SO2, VOC, formaldehyde, and/or sulfuric acid emission limitations.

e. Beginning after the first 12 months of operation, all exceedances of the rolling, 12-month Phase I NOx, CO, PE, SO2, and/or VOC, emission limitations.

f. Any record which shows that the sulfur content of the natural gas exceeded 2 grains per 100 standard cubic feet.

The quarterly deviation reports shall be submitted in accordance with General Term and Condition A.2.

3. **Phase II**: The permittee shall submit quarterly deviation (excursion) reports that identify the following:

a. All exceedances of the Phase II hourly allowable combustion turbine fuel heat input level.

b. All exceedances of the Phase II hourly allowable duct burner fuel heat input level.

c. During the first 12 months of operation, all exceedances of the Phase II maximum allowable cumulative duct burner heat input levels.

d. Beginning after the first 12 months of operation, all exceedances of the Phase II rolling, 12-month allowable duct burner fuel heat input level.

e. Any record which shows that the sulfur content of the natural gas exceeded 2 grains per 100 standard cubic feet.

f. Any record which shows that the start-up duration exceeded 250 minutes.

g. Any record which shows that the shutdown duration exceeded 2 hours.

h. Any record which shows that the total number of start-up/shutdown cycles exceeded 286.

i. All exceedances of the NOx, CO, and/or VOC start-up/shutdown emission limitations during any cycle.

j. Beginning after the first 12 months of operation, all exceedances of the Phase II rolling, 12-month NOx, CO, VOC, SO2, and/or PE, emission limitations.

The quarterly deviation reports shall be submitted in accordance with General Term and Condition A.2.

4. Pursuant to OAC rule 3745-15-04, 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 NO_x values in excess of the applicable limitations specified in the terms and conditions of this permit. These reports shall also contain the total NO_x emissions for the calendar quarter (in tons).

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_x 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 date, time, reason, and corrective action(s) taken for each time period of monitoring system malfunction. 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 30, April 30, July 30, and October 30 of each year and shall address the data obtained during the previous calendar quarter.

5. Pursuant to OAC rule 3745-15-04, 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 the terms and conditions of this permit. These reports shall also contain the total CO emissions for the calendar quarter (in tons).

The permittee shall submit reports within 30 days following the end of each calendar quarter to the 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 date, time, reason, and corrective action(s) taken for each time period of monitoring system malfunction. 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 30, April 30, July 30, and October 30 of each year and shall address the data obtained during the previous calendar quarter.

6. Pursuant to OAC rule 3745-15-04, 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 all instances of continuous O_2 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 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 be included in the quarterly report. These quarterly reports shall be submitted by January 30, April 30, July 30, and October 30 of each year and shall address the

data obtained during the previous calendar quarter.

7. The permittee shall submit annual reports that specify the total NOx, CO, PE, SO2, VOC, formaldehyde, and sulfuric acid emissions from this emissions unit during Phase I for the previous calendar year. The reports shall be submitted by February 15 of each year.

8. The permittee shall submit annual reports that specify the total NOx, CO, PE, SO2, VOC, NH3, formaldehyde, and sulfuric acid emissions from this emissions unit during Phase II for the previous calendar year. The reports shall be submitted by February 15 of each year.

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

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

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

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

c. actual start-up date (within 15 days after such date); and,

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

Reports are to be sent to:

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

and

Ohio Environmental Protection Agency
Southeast District Office
Division of Air Pollution Control
2195 Front Street
Logan, Ohio 43138

V. Testing Requirements - Phase I and II

1. The permittee shall conduct, or have conducted, emission testing for this emissions unit in

accordance with the following requirements:

a. For Phase I, the emission testing shall be conducted within 60 days after achieving the maximum production rate at which the emissions unit will be operated, but not later than 180 days after initial start-up of the emissions unit. For Phase II, the emission testing shall be conducted within 60 days after initiating operation.

b. The emission testing shall be conducted to demonstrate compliance with the NO_x and CO outlet concentrations, the mass emission limitations for NO_x, CO, formaldehyde, VOC, and PE, and the visible particulate emission limitations.

c. The following test methods shall be employed to demonstrate compliance with the above emission limitations: for NO_x, Method 20 of 40 CFR Part 60, Appendix A and the procedures required under 40 CFR Part 60.335; for PE, Method 5 of 40 CFR Part 60, Appendix A; for visible particulate emission limitations, Method 9 of 40 CFR Part 60, Appendix A; for formaldehyde, SW-846 Method 0011; for VOC, Method 25 of 40 CFR Part 60, Appendix A; and for CO, Method 10 of 40 CFR Part 60, Appendix A. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

d. The testing shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by Ohio EPA or local air agency. For Phase II, the emission testing shall be conducted with and without duct burner firing.

e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA, Southeast District Office. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA, Southeast District Office refusal to accept the results of the emission test(s).

f. Personnel from the Ohio EPA, Southeast District Office shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

g. A comprehensive written report on the results of the emission test(s) shall be signed by the person or persons responsible for the tests and submitted to the Ohio EPA, Southeast District Office within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Ohio EPA, Southeast District Office.

2. Compliance with the allowable emission limitations in this permit shall be determined according to the following methods:

a. Emission Limitations:

Phase I:

NO_x emissions shall not exceed 9.0 ppmvd at 15% oxygen, 64.0 lbs/hr, and 54.4 tons/yr.

Emissions Unit ID: P001

Applicable Compliance Method:

Initial compliance with the allowable outlet concentration, and the lbs/hr emission limitation shall be demonstrated through emission testing performed in accordance with section A.V.1. Until the initial emission testing is completed, compliance with the lbs/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the permittee-supplied NOx emission factor (0.0367 lb of NOx/MMBtu). Ongoing compliance with the lbs/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the emissions unit-specific NOx emission factor established during the emission testing that demonstrated that the emissions unit was in compliance. Compliance with the tons/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III.

Phase II:

Emission Limitations:

NO_x emissions shall not exceed 3.5 ppmvd at 15% oxygen, 25.0 lbs/hr without duct burner firing, 30.0 lbs/hr with duct burner firing, and 146.9 tons/yr, which includes 27.4 tons/yr for start-ups and shutdowns.

Applicable Compliance Method:

Initial compliance with the allowable outlet concentration, and the lbs/hr emission limitations shall be demonstrated through emission testing performed in accordance with section A.V.1. Ongoing compliance with these emission limitations shall be demonstrated based upon the continuous NOx and oxygen monitoring systems data required pursuant to section A.III. Compliance with the tons/yr emission limitation, including start-up and shutdown emissions, shall be demonstrated based upon the records required pursuant to section A.III.

b. Emission Limitations:

Phase I:

PE emissions shall not exceed 18.0 lbs/hr and 15.3 tons/yr.

Applicable Compliance Method:

Initial compliance with the lbs/hr emission limitation shall be demonstrated through

emission testing performed in accordance with section A.V.1. Until the initial emission testing is completed, compliance with the lbs/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the permittee-supplied PE emission factor (0.0103 lb of PE/MMBtu). Ongoing compliance with the lbs/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the emissions unit-specific PE emission factor established during the emission testing that demonstrated that the emissions unit was in compliance. Compliance with the tons/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III.

Phase II:

Emission Limitations:

PE emissions shall not exceed 21.0 lbs/hr without duct burner firing, 25.0 lbs/hr with duct burner firing, and 100.0 tons/yr.

Applicable Compliance Method:

Initial compliance with the lbs/hr emission limitations shall be demonstrated through emission testing performed in accordance with section A.V.1. Until the initial emission testing is completed, compliance with the lbs/hr emission limitations may be demonstrated through the records required pursuant to section A.III and the permittee-supplied PE emission factors (0.0120 lb of PE/MMBtu without duct burner firing and 0.01188 lb of PE/MMBtu with duct burner firing). Ongoing compliance with the lbs/hr emission limitations may be demonstrated through the records required pursuant to section A.III and the emissions unit-specific PE emission factors established during the emission testing that demonstrated that the emissions unit was in compliance. Compliance with the tons/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III.

c. Emission Limitations:

Phase I:

SO2 emissions shall not exceed 12.0 lbs/hr, and 10.2 tons/yr. per year

Applicable Compliance Method:

Initial compliance with the lbs/hr emission limitation shall be demonstrated through emission testing performed in accordance with section A.V.1. Until the initial emission

testing is completed, compliance with the lbs/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the permittee-supplied SO2 emission factor (0.0069 lb of SO2/MMBtu). Ongoing compliance with the lbs/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the emissions unit-specific SO2 emission factor established during the emission testing that demonstrated that the emissions unit was in compliance. Compliance with the tons/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III.

Phase II:

Emission Limitations:

SO2 emissions shall not exceed 12.0 lbs/hr without duct burner firing, 14.0 lbs/hr with duct burner firing, and 56.6 tons /yr.

Applicable Compliance Method:

Compliance with the lbs/hr emission limitations may be demonstrated through the records required pursuant to section A.III and the permittee-supplied SO2 emission factors (0.0069 lb of SO2/MMBtu without duct burner firing and 0.00665 lb of SO2/MMBtu with duct burner firing). Compliance with the tons/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III. If required the permittee shall demonstrate compliance with the hourly emission limitations through emission tests performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 4 and 6.

d. Emission Limitations:

Phase I:

VOC emissions shall not exceed 3.2 lbs/hr and 2.7 tons/yr.

Applicable Compliance Method:

Initial compliance with the lbs/hr emission limitation shall be demonstrated through emission testing performed in accordance with section A.V.1. Until the initial emission testing is completed, compliance with the lbs/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the permittee-supplied VOC emission factor (0.0018 lb of VOC/MMBtu). Ongoing compliance with the lbs/hr emission limitation may be demonstrated through the records required pursuant to section

Emissions Unit ID: P001

A.III and the emissions unit-specific VOC emission factor established during the emission testing that demonstrated that the emissions unit was in compliance. Compliance with the tons/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III.

Phase II:

Emission Limitations:

VOC emissions shall not exceed 3.2 lbs/hr without duct burner firing, 6.8 lbs/hr with duct burner firing, and 31.8 tons/yr, which includes 10.6 tons/yr for start-ups and shutdowns.

Applicable Compliance Method:

Initial compliance with the lbs/hr emission limitations shall be demonstrated through emission testing performed in accordance with section A.V.1. Until the initial emission testing is completed, compliance with the lbs/hr emission limitations may be demonstrated through the records required pursuant to section A.III and the permittee-supplied VOC emission factors (0.0018 lb of VOC/MMBtu without duct burner firing and 0.00323 lb of VOC/MMBtu with duct burner firing). Ongoing compliance with the lbs/hr emission limitations may be demonstrated through the records required pursuant to section A.III and the emissions unit-specific VOC emission factors established during the emission testing that demonstrated that the emissions unit was in compliance. Compliance with the tons/yr emission limitation, including start-up and shutdown emissions, shall be demonstrated based upon the records required pursuant to section A.III.

e. Emission Limitations:

Phase I:

CO emissions shall not exceed 9.0 ppmvd, 33.0 lbs/hr, and 28.1 tons/yr.

Applicable Compliance Method:

Initial compliance with the allowable outlet concentration, and the lbs/hr emission limitation shall be demonstrated through emission testing performed in accordance with section A.V.1. Until the initial emission testing is completed, compliance with the lbs/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the permittee-supplied CO emission factor (0.01892 lb of CO/MMBtu). Ongoing compliance with the lbs/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the emissions unit-specific CO emission factor established during the emission testing that demonstrated that the emissions unit was in compliance. Compliance with the tons/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III.

Phase II:

Emission Limitations:

CO emissions shall not exceed 9.0 ppmvd without duct burner firing, 15.0 ppmvd with duct burner firing, 33.0 lbs/hr without duct burner firing, 69.0 lbs/hr with duct burner firing, and 366.6 tons/yr, which includes 150.1 tons/yr for start-ups and shutdowns.

Emissions Unit ID: P001

Applicable Compliance Method:

Initial compliance with the allowable outlet concentrations, and the lbs/hr emission limitations shall be demonstrated through emission testing performed in accordance with section A.V.1. Ongoing compliance with these emission limitations shall be demonstrated based upon the continuous CO monitoring system data required pursuant to section A.III. Compliance with the tons/yr emission limitation, including start-up and shutdown emissions, shall be demonstrated based upon the records required pursuant to section A.III.

f. Emission Limitations:

Phase II:

NH3 emissions shall not exceed 26.0 lbs/hr without duct burner firing, 30.6 lbs/hr with duct burner firing, and 123.1 tons/yr.

Applicable Compliance Method:

Compliance with the lbs/hr emission limitations may be demonstrated through the records required pursuant to section A.III and the permittee-supplied NH3 emission factors (0.0149 lb of NH3/MMBtu without duct burner firing and 0.01454 lb of NH3/MMBtu with duct burner firing). Compliance with the tons/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III. If required, the permittee shall demonstrate compliance with the hourly emission limitations through emission tests performed in accordance with U.S. EPA-approved methods.

g. Emission Limitations:

Phase I:

Formaldehyde emissions shall not exceed 0.23 lb/hr and 0.20 ton/yr.

Applicable Compliance Method:

Initial compliance with the lb/hr emission limitation shall be demonstrated through emission testing performed in accordance with section A.V.1. Until the initial emission testing is completed, compliance with the lb/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the permittee-supplied formaldehyde emission factor (0.00013 lb of formaldehyde/MMBtu). Ongoing compliance with the lb/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the emissions unit-specific formaldehyde emission factor established during the emission testing that demonstrated that the emissions unit

was in compliance. Compliance with the ton/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III.

Phase II:

Emission Limitations:

Formaldehyde emissions shall not exceed 0.23 lb/hr without duct burner firing, 0.26 lb/hr with duct burner firing, and 1.06 tons/yr.

Applicable Compliance Method:

Initial compliance with the lb/hr emission limitations shall be demonstrated through emission testing performed in accordance with section A.V.1. Until the initial emission testing is completed, compliance with the lb/hr emission limitations may be demonstrated through the records required pursuant to section A.III and the permittee-supplied formaldehyde emission factors (0.00013 lb of formaldehyde/MMBtu without duct burner firing and 0.00012 lb of formaldehyde/MMBtu with duct burner firing). Ongoing compliance with the lbs/hr emission limitations may be demonstrated through the records required pursuant to section A.III and the emissions unit-specific formaldehyde emission factors established during the emission testing that demonstrated that the emissions unit was in compliance. Compliance with the tons/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III.

h. Emission Limitations:

Phase I:

Sulfuric acid emissions shall not exceed 0.48 lb/hr and 0.41 ton /yr.

Applicable Compliance Method:

Compliance with the lb/hr emission limitation may be demonstrated through the records

required pursuant to section A.III and the permittee-supplied sulfuric acid emission factor (0.000275 lb of sulfuric acid/MMBtu). Compliance with the ton/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III. If required, the permittee shall demonstrate compliance with the hourly emission limitation through emission tests performed in accordance with U.S. EPA-approved methods.

Phase II:

Emission Limitations:

Sulfuric acid emissions shall not exceed 0.48 lb/hr without duct burner firing, 0.56 lb/hr with duct burner firing, and 2.3 tons/yr.

Applicable Compliance Method:

Compliance with the lb/hr emission limitations may be demonstrated through the records required pursuant to section A.III and the permittee-supplied sulfuric acid emission factors (0.000275 lb of sulfuric acid/MMBtu without duct burner firing and 0.000266 lb of sulfuric acid/MMBtu with duct burner firing). Compliance with the tons/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III. If required the permittee shall demonstrate compliance with the hourly emission limitations through emission tests performed in accordance with U.S. EPA-approved methods.

i. Emission Limitation:

Visible particulate emissions from any stack shall not exceed 10% opacity as a 6-minute average.

Applicable Compliance Method:

If required, compliance with this emission limitation shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A.

VI. Miscellaneous Requirements

1. In accordance with good engineering practices, the SCR unit on this emissions unit shall be installed, operated and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee. The permittee shall maintain on site a copy of the operation and maintenance manual, as provided by the manufacturer.

2. The terms and conditions for this emissions unit supercede those contained in PTI 06-06206

issued March 29, 2001.

B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
PHASE I		
P001 - GE 7FA Natural Gas Fired Dry Low NOx (DLN) Combustion Turbine	None	None
PHASE II		
P001 - GE 7FA Natural Gas Fired Dry Low NOx (DLN) Combustion Turbine with Duct Firing Operated in Combined Cycle Mode and Controlled by Selective Catalytic Reduction (SCR)	None	None

2. Additional Terms and Conditions

2.a None

II. Operational Restrictions

None

III. Monitoring and/or Recordkeeping Requirements

1. The permit to install for this emissions unit (P001) was evaluated based on actual materials (typically coatings and clean up materials) and the design parameters of the emissions unit's

exhaust system, as specified by the permittee in the air permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy (Air Toxic Policy) was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following summarizes the results of the modeling:

Pollutant: Formaldehyde
TLV (ug/m^3): 368 (Converted from the STEL)
Maximum Hourly Emission Rate (lbs/hr): 0.81*
Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 2.60
MAGLC (ug/m3): 8.76

Pollutant: Sulfuric Acid
TLV (ug/m3): 1000
Maximum Hourly Emission Rate (lbs/hr): 1.68*
Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 1.74
MAGLC (ug/m3): 23.8

Pollutant: Ammonia
TLV (ug/m3): 17413
Maximum Hourly Emission Rate (lbs/hr): 92*
Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 94.7
MAGLC (ug/m3): 415

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

Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value specified in the above table;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is (are) defined as a modification under other provisions of the modification definition (other than (VV)(1)(a)(ii)), then the permittee shall obtain a final permit to install prior to the change.
The permittee shall collect, record and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

IV. Reporting Requirements

None

V. Testing Requirements

None

VI. Miscellaneous Requirements

None

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

A. State and Federally Enforceable Section

I. Applicable Emission Limitations and/or Control Requirements

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

Operations, Property, and/or Equipment	
PHASE I P002 - GE 7FA Natural Gas- Fired Dry Low NOx (DLN) Combustion Turbine	**PHASE II** P002 - GE 7FA Natural Gas Fired Dry Low NOx (DLN) Combustion Turbine with Duct Firing Operated in Combined Cycle Mode and Controlled by Selective Catalytic Reduction (SCR)

Applicable Rules/Requirements		
	40 CFR Part 60, Subpart GG	
	OAC rule 3745-18-06(F)	
	OAC rule 3745-17-11(B)(4)	
OAC rule 3745-31-05(A)(3)	OAC rule 3745-17-07(A)	
	OAC rule 3745-21-08(B)	
	OAC rule 3745-23-06(B)	
	OAC rule 3745-31-05(D)	
	OAC rule 3745-31-05(A)(3)	
		40 CFR Part 60, Subpart GG
		OAC rule 3745-17-07(A)
		OAC rule 3745-17-11(B)(4)
		OAC rule 3745-18-06(F)
		OAC rule 3745-21-08(B)
		OAC rule 3745-23-06(B)
		OAC rules 3745-31-10 through 3745-31-20

		Applicable Emission Limitations/Control Measures
		The requirements of this rule also include compliance with the requirements of 40 CFR Part 60, Subpart GG, and OAC rules 3745-31-10 through 3745-31-20.
		PHASE I EMISSION LIMITATIONS
OAC rule 3745-31-05(A)(3)	40 CFR Part 60, Subpart GG	Nitrogen oxides (NO_x) emissions shall not exceed 9.0 ppmvd at 15% oxygen, 64.0 lbs/hr, and 54.4 tons/yr.
	40 CFR Part 60, Subpart Da OAC rule 3745-18-06(F) OAC rule 3745-17-11 (B)(4) OAC rule 3745-17-07(A)	Particulate emissions (PE) shall not exceed 18.0 lbs/hr and 15.3 tons/yr. Sulfur dioxide (SO_2) emissions shall not exceed 12.0 lbs/hr and 10.2 tons/yr.
	OAC rule 3745-21-08(B) OAC rule 3745-23-06(B)	Carbon monoxide (CO) emissions shall not exceed 9.0 ppmvd, 33.0 lbs/hr, and 28.1 tons/yr.
	OAC rules 3745-31-10 through 3745-31-20)	Volatile organic compound (VOC) emissions shall not exceed 3.2 lbs/hr and 2.7 tons/yr. Formaldehyde emissions shall not exceed 0.23 lb/hr and 0.20 ton/yr. Sulfuric acid emissions shall not exceed 0.48 lb/hr and 0.41 ton/yr. Visible particulate emissions from any stack shall not exceed 10% opacity as a 6-minute average.

See A.II.1 and A.II.3 below.	25.0 lbs/hr, and 146.9 tons/yr, including start-up and shutdown emissions.	
See A.I.2.b below.		NOx emissions shall not exceed 149.6 tons per rolling, 12-month period.
See A.I.2.a below.	Particulate emissions (PE) shall not exceed 21.0 lbs/hr and 100.0 tons/yr.	SO2 emissions shall not exceed 56.6 tons per rolling, 12-month period.
		PE emissions shall not exceed 100.0 tons per rolling, 12-month period.
See A.I.2.d below.	Sulfur dioxide (SO_2) emissions shall not exceed 12.0 lbs/hr and 56.6 tons/yr.	CO emissions shall not exceed 366.6 tons per rolling, 12-month period.
		VOC emissions shall not exceed 31.8 tons per rolling, 12-month period.
NOx emissions shall not exceed 54.4 tons per rolling, 12-month period.	Carbon monoxide (CO) emissions shall not exceed 9.0 ppmvd, 33.0 lbs/hr, and 366.6 tons/yr, including start-up and shutdown emissions.	
SO2 emissions shall not exceed 10.2 tons per rolling, 12-month period.		**EMISSION LIMITATIONS WITH DUCT BURNER FIRING - PHASE II**
PE emissions shall not exceed 15.3 tons per rolling, 12-month period.	Volatile organic compound (VOC) emissions shall not exceed 3.2 lbs/hr and 31.8 tons/yr, including start-up and shutdown emissions.	The requirements of this rule also include compliance with the requirements of 40 CFR Part 60, Subparts Da and GG, and OAC rules 3745-31-10 through 3745-31-20.
CO emissions shall not exceed 28.1 tons per rolling, 12-month period.	Ammonia (NH3) emissions shall not exceed 26.0 lbs/hr and 123.1 tons/yr.	
VOC emissions shall not exceed 2.7 tons per rolling, 12-month period.	Formaldehyde emissions shall not exceed 0.23 lb/hr and 1.06 tons/yr.	Nitrogen oxides (NO_x) emissions shall not exceed 3.5 ppmvd at 15% oxygen, 30.0 lbs/hr, and 146.9 tons/yr, including start-up and shutdown emissions.
	Sulfuric acid emissions shall not exceed 0.48 lb/hr and 2.3 tons/yr.	Particulate emissions (PE) shall not exceed 25.0 lbs/hr and 100.0 tons/yr.
EMISSION LIMITATIONS WITHOUT DUCT BURNER FIRING - PHASE II	Visible particulate emissions from any stack shall not exceed 10% opacity as a 6-minute average.	Sulfur dioxide (SO_2) emissions shall not exceed 14.0 lbs/hr and 56.6 tons/yr.
The requirements of this rule also include compliance with the requirements of 40 CFR Part 60, Subpart GG, and OAC rules 3745-31-10 through 3745-31-20.	See A.II.1 and A.II.4 below.	Carbon monoxide (CO) emissions shall not exceed 15.0 ppmvd, 69.0 lbs/hr, and 366.6 tons/yr, including start-up and shutdown emissions.
	See A.I.2.b below.	
	See A.I.2.a below.	Volatile organic compound (VOC) emissions shall not exceed 6.8 lbs/hr and 31.8 tons/yr, including start-up and shutdown emissions.
Nitrogen oxides (NO_x) emissions shall not exceed 3.5 ppmvd at 15% oxygen,	See A.I.2.d below.	

Ammonia (NH3) emissions shall not exceed 30.6 lbs/hr and 123.1 tons/yr.	12-month period.
	START-UP AND SHUTDOWN EMISSION LIMITATIONS - PHASE II (See A.II.2 below.)
Formaldehyde emissions shall not exceed 0.26 lb/hr and 1.06 tons/yr.	Nitrogen oxides (NO_x) emissions shall not exceed 418 lbs/cycle and 27.4 tons/yr.
Sulfuric acid emissions shall not exceed 0.56 lb/hr and 2.3 tons/yr.	Carbon monoxide (CO) emissions shall not exceed 1127 lbs/cycle and 150.1 tons/yr.
Visible particulate emissions from any stack shall not exceed 10% opacity as a 6-minute average.	Volatile organic compound (VOC) emissions shall not exceed 97 lbs/cycle and 10.6 tons/yr.
See A.II.1 and A.II.4 below.	
See A.I.2.b below.	
See A.I.2.a below.	
See A.I.2.d below.	
NOx emissions shall not exceed 149.6 tons per rolling, 12-month period. SO2 emissions shall not exceed 56.6 tons per rolling, 12-month period. PE emissions shall not exceed 100.0 tons per rolling, 12-month period. CO emissions shall not exceed 366.6 tons per rolling, 12-month period. VOC emissions shall not exceed 31.8 tons per rolling,	

Emissions Unit ID: P002

2. Additional Terms and Conditions

2.a The emission limitations specified in these applicable rules are equivalent to or less stringent than the emission limitations established pursuant to OAC rule 3745-31-05(A)(3).

2.b The emission limitations specified in this applicable rule are equivalent to or less stringent than the emission limitations established pursuant to OAC rule 3745-31-05(A)(3). Except as provided for in the terms and conditions in this permit, the permittee is not exempt from meeting any additional requirements of 40 CFR Part 60, Subpart GG.

2.c If the permittee is subject to the requirements of OAC Chapter 103 and 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.d The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) and the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this Permit to Install.

2.e In lieu of monitoring the nitrogen content of the natural gas being fired in the turbine as required by 40 CFR 60, Subpart GG (section 60.334(b)), the permittee may install and operate systems to continuously monitor and record emissions of NOx from this emissions unit during Phase I operations.

2.f After the NOx continuous emissions monitoring system for this emissions unit is installed and certified, the permittee shall submit excess emissions reports for this emissions unit in accordance with this permit, in lieu of the excess emissions reports required under 40 CFR Part 60.334.

II. Operational Restrictions

1. The permittee shall burn only natural gas in this emissions unit. The maximum sulfur content of the natural gas shall not exceed 2 grains per 100 standard cubic feet.

2. Start-up and shutdown shall be defined as when the unit is running at less than 50% of electric load, but under no circumstances shall start-ups exceed 250 minutes in duration and shutdowns shall not exceed 2 hours in duration. The total of all hot, warm and cold start-ups (as defined below) and shutdowns shall be limited to 286 cycles (each cycle consists of one start-up and one

shutdown) per year.

Hot Start - start-up occurs within 8 hours after a plant shutdown
Warm Start - start-up occurs between 8 to 72 hours after a plant shutdown
Cold Start - start-up occurs more than 72 hours after a plant shutdown

Each cycle shall be limited to the following:

Pollutant	Total lbs/Cycle
NOx	418
CO	1127
VOC	97

During Phase I, start-up and shutdown emissions are not anticipated to increase above levels defined during normal operation of a simple cycle turbine.

3. During Phase I, the maximum hourly fuel heat input for this emissions unit shall not exceed 1744.3 MMBtu/hr and the annual maximum fuel heat input shall not exceed 2,965,310 MMBtu per year based upon a rolling, 12-month summation of the heat input values. Due to this operational restriction, this gas-fired peaking unit will not have to install the applicable continuous emission monitoring systems specified in 40 CFR Part 75 until Phase II.
To ensure enforceability during the first 12 calendar months following the start-up of this emissions unit, the permittee shall not exceed the monthly heat input restrictions specified in the following table:

Month	Cumulative Fuel Heat Input (MMBtu)
1	1,297,759
1-2	2,595,518
1-3	2,965,310
1-4	2,965,310
1-5	2,965,310
1-6	2,965,310
1-7	2,965,310
1-8	2,965,310
1-9	2,965,310
1-10	2,965,310
1-11	2,965,310
1-12	2,965,310

If Phase I extends beyond the first 12 calendar months following the start-up of this emissions unit, compliance with the annual fuel heat input restriction shall be based on a rolling, 12-month summation of the heat input values.

4. During Phase II, the maximum hourly combustion turbine fuel heat input shall not exceed 1744.3 MMBtu/hr.

The maximum hourly fuel heat input of the duct burner for this emissions unit shall not exceed 360 MMBtu/hr. The maximum annual fuel heat input of the duct burner shall not exceed 1,440,000 MMBtu per year, based upon a rolling, 12-month summation of the heat input values.

To ensure enforceability during the first 12 calendar months following the start-up of the duct burner, the permittee shall not exceed the monthly duct burner fuel heat input restrictions specified in the following table:

Month	Cumulative Fuel Heat Input (MMBtu)
1	267,840
1-2	535,680
1-3	803,520
1-4	1,071,360
1-5	1,440,000
1-6	1,440,000
1-7	1,440,000
1-8	1,440,000
1-9	1,440,000
1-10	1,440,000
1-11	1,440,000
1-12	1,440,000

After the first 12 calendar months following the start-up of the duct burner, compliance with the annual fuel heat input restriction shall be based on a rolling, 12-month summation of the heat input values.

5. Continuous NOx Monitoring System Certification

Prior to the installation of the continuous NO_x 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 for approval by the Ohio EPA, Central Office.

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

6. Within 180 days of the effective date of this permit, the permittee shall develop a written quality assurance/quality control plan for the continuous NO_x monitoring system designed to ensure continuous valid and representative readings of NO_x emissions in units of the applicable standard. The plan shall follow the requirements of the appropriate sections of 40 CFR Part 60, Appendix F and 40 CFR Part 75, Appendix B. The quality assurance/quality control plan and a logbook dedicated to the continuous NO_x monitoring system must be kept on site and available for inspection during regular office hours.

7. Continuous CO Monitoring System
Certification

Prior to the 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.

Within 60 days after achieving the maximum production rate at which the emissions unit will be operated, but not later than 180 days after initial start-up of such 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. Personnel from the appropriate Ohio EPA District Office or local air agency shall be notified 30 days prior to initiation of the applicable tests and shall be permitted to examine equipment and witness the certification tests. In accordance with OAC rule 3745-15-04, all copies of the test results shall be submitted to the appropriate Ohio EPA District Office or local air agency within 30 days after the test is completed. Copies of the test results shall be sent to the appropriate Ohio EPA District Office or local air agency and the Ohio EPA, Central Office. 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.

8. Within 180 days of the effective date of this permit, the permittee shall develop 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 continuous CO monitoring system must be kept on site and available for inspection during regular office hours.

9. Continuous O_2 Monitoring System
Certification

Prior to the installation of the continuous O_2 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 for approval by the Ohio EPA, Central Office.

Within 60 days after achieving the maximum production rate at which the emissions unit will be operated, but not later than 180 days after initial start-up of such emissions unit, the permittee shall conduct certification tests of such equipment pursuant to the appropriate sections of ORC section 3704.03(I), 40 CFR Part 60, Appendix B, Performance Specification 3, and 40 CFR Part 75. Personnel from the appropriate Ohio EPA District Office or local air agency shall be notified 30 days prior to initiation of the applicable tests and shall be permitted to examine equipment and witness the certification tests. In accordance with OAC rule 3745-15-04, all copies of the test results shall be submitted to the appropriate Ohio EPA District Office or local air agency within 30 days after the test is completed. Copies of the test results shall be sent to the appropriate Ohio EPA District Office or local air agency and the Ohio EPA, Central Office.

Certification of the continuous O_2 monitoring system shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of the appropriate sections of ORC section 3704.03(I), 40 CFR Part 60, Appendix B, Performance Specification 3, and 40 CFR Part 75.

10. Within 180 days of the effective date of this permit, the permittee shall develop a written quality assurance/quality control plan for the continuous O_2 monitoring system designed to ensure continuous valid and representative readings of O_2 emissions in units of the applicable standard. The plan shall follow the requirements of the appropriate sections of 40 CFR Part 60, Appendix F and 40 CFR Part 75, Appendix B. The quality assurance/quality control plan and a logbook dedicated to the continuous O_2 monitoring system must be kept on site and available for inspection during regular office hours.

Emissions Unit ID: P002

III. Monitoring and/or Recordkeeping Requirements

1. **Phase I**: The permittee shall maintain monthly records of the following information for this emissions unit:

a. The natural gas usage rate, in standard cubic feet.

b. Hours of operation of the combustion turbine.

c. Monthly fuel heat input (MMBtu) to the combustion turbine.

d. During the first 12 calendar months of operation, records of the cumulative fuel heat input to the combustion turbine.

e. Beginning after the first 12 months of operation, the rolling, 12-month summation of fuel heat input to the combustion turbine.

f. The NOx, CO, PE, SO2, VOC, formaldehyde, and sulfuric acid emission rates, in lbs.

g. The average hourly NOx, CO, PE, SO2, VOC, formaldehyde, and sulfuric acid emission rates, in lbs (i.e., the values from (f) divided by (b)).

h. Beginning after the first 12 months of operation, the rolling, 12-month summations of the NOx, CO, PE, SO2, VOC, emission rates, in tons.

2. **Phase I:** The permittee shall determine the hourly heat input rate to the combustion turbine from the fuel flow rate as determined in term A.III.6 and fuel gross calorific value as determined in term A.III.7. The heat input rate shall be calculated in accordance with the procedures in Section 5 of 40 CFR Part 75, Appendix F.

3. The permittee shall install, operate and maintain equipment to continuously monitor and record NO_x emissions from this emissions unit in units of the applicable standard. This NO_x monitoring equipment must be installed for Phase II operation. The NO_x monitoring equipment may be used during Phase I in order to minimize or eliminate fuel nitrogen content sampling requirements specified in 40 CFR Part 60, Subpart GG. Such continuous monitoring and recording equipment shall comply with the requirements of the appropriate sections specified in 40 CFR Part 60.13 and 40 CFR Part 75.

The permittee shall maintain records of all data obtained by the continuous NO_x monitoring system including, but not limited to, parts per million NO_x on an instantaneous (one-minute) basis, emissions of NO_x in units of the applicable standard in the appropriate averaging period (i.e., ppmvd at 15% oxygen and lbs/hr), results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

4. The permittee shall install, operate and maintain equipment to continuously monitor and record CO emissions 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.

The permittee shall maintain records of all data obtained by the continuous CO monitoring system including, but not limited to, parts per million CO on an instantaneous (one minute) basis, emissions of CO in units of the applicable standard in the appropriate averaging period (i.e., ppmvd and lbs/hr), results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

5. The permittee shall install, operate and maintain equipment to continuously monitor and record O_2 emissions from this emissions unit in percent O_2. Such continuous monitoring and recording equipment shall comply with the requirements in the appropriate sections specified in 40 CFR Part 60.13 and 40 CFR Part 75.

The permittee shall maintain records of all data obtained by the continuous O_2 monitoring system including, but not limited to, percent O_2 on an instantaneous (one-minute) basis, emissions of O_2 in units of the applicable standard in the appropriate averaging period (e.g., hourly, hourly rolling, 3-hour, daily, 30-day rolling, etc.), results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

6. **Phase I and II**: The permittee shall install, operate and maintain equipment to continuously monitor and record the fuel flow to this emissions unit when the emissions unit is in operation. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 75. If the fuel flow monitoring and/or recording equipment is (are) not in service when the emissions unit is in operation, the permittee shall comply with the appropriate missing data procedures specified in 40 CFR Part 75.

7. **Phase I and II:** The permittee shall monitor the sulfur content and gross calorific value of the fuel being fired in the combustion turbine and duct burner. Fuel sampling and analysis shall be conducted according to the procedures and at the frequency specified by 40 CFR Part 75, Appendix D, section 2.3.3.1.

8. **Phase II**: The permittee shall determine the hourly heat input rate to the combustion turbine and duct burner from the fuel flow rate as determined in term A.III.6 and fuel gross calorific value as determined in term A.III.7. The heat input rate shall be calculated in accordance with the procedures in Section 5 of 40 CFR Part 75, Appendix F.

9. **Phase II**: The permittee shall maintain monthly records of the following information for this emissions unit:

a. The natural gas usage rate, in standard cubic feet.

b. Hours of operation of the combustion turbine.

c. Hours of operation of the duct burner.

d. Monthly fuel heat input (MMBtu) to the combustion turbine.

e. Monthly fuel heat input (MMBtu) to the duct burner.

f. During the first 12 calendar months of operation, records the cumulative fuel heat input to the combustion turbine and the duct burner.

g. Beginning after the first 12 months of operation, the rolling, 12-month summations of fuel heat inputs to the combustion turbine and the duct burner.

h. Number of start-ups, type of startup (hot, warm or cold) and the duration, in minutes, of each start-up.

i. Number of shutdowns, and the duration, in hours, of each shutdown.

j. The total number of start-up/shutdown cycles.

k. The NOx, CO, and VOC emissions, in pounds, for all start-up/shutdown cycles.

l. The total NOx emissions, in pounds, including start-up/shutdown emissions.

m. The total CO emissions, in pounds, including start-up/shutdown emissions.

n. The total VOC emissions, in pounds, including start-up/shutdown emissions.

o. The total SO2, PE, NH3, formaldehyde, and sulfuric acid emissions, in pounds.

p. Beginning after the first 12 months of operation under Phase II , the rolling, 12-month summation of the NOx emissions, in tons, including start-up/shutdown emissions.

q. Beginning after the first 12 months of operation under Phase II , the rolling, 12-month summation of the CO emissions, in tons, including start-up/shutdown emissions.

r. Beginning after the first 12 months of operation under Phase II , the rolling, 12-month summation of the VOC emissions, in tons, including start-up/shutdown emissions.

s. Beginning after the first 12 months of operation under Phase II , the rolling, 12-month summations of the SO2, PE, emissions, in tons.

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

IV. Reporting Requirements - Phase I and II

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

2. **Phase I:** The permittee shall submit quarterly deviation (excursion) reports that identify the following:

a. All exceedances of the Phase I hourly allowable combustion turbine fuel heat input level.

b. During the first 12 months of operation, all exceedances of the Phase I maximum allowable cumulative combustion turbine heat input levels.

c. Beginning after the first 12 months of operation, all exceedances of the Phase I rolling, 12-month allowable combustion turbine fuel heat input level.

d. All exceedances of the Phase I average hourly NOx, CO, PE, SO2, VOC, formaldehyde, and/or sulfuric acid emission limitations.

e. Beginning after the first 12 months of operation, all exceedances of the rolling, 12-month Phase I NOx, CO, PE, SO2, and/or VOC, emission limitations.

f. Any record which shows that the sulfur content of the natural gas exceeded 2 grains per 100 standard cubic feet.

The quarterly deviation reports shall be submitted in accordance with General Term and Condition A.2.

3. **Phase II**: The permittee shall submit quarterly deviation (excursion) reports that identify the following:

a. All exceedances of the Phase II hourly allowable combustion turbine fuel heat input level.

b. All exceedances of the Phase II hourly allowable duct burner fuel heat input level.

c. During the first 12 months of operation, all exceedances of the Phase II maximum allowable cumulative duct burner heat input levels.

d. Beginning after the first 12 months of operation, all exceedances of the Phase II rolling, 12-month allowable duct burner fuel heat input level.

e. Any record which shows that the sulfur content of the natural gas exceeded 2 grains per 100 standard cubic feet.

f. Any record which shows that the start-up duration exceeded 250 minutes.

g. Any record which shows that the shutdown duration exceeded 2 hours.

h. Any record which shows that the total number of start-up/shutdown cycles exceeded 286.

i. All exceedances of the NOx, CO, and/or VOC start-up/shutdown emission limitations during any cycle.

j. Beginning after the first 12 months of operation, all exceedances of the Phase II rolling, 12-month NOx, CO, VOC, SO2, and/or PE, emission limitations.

The quarterly deviation reports shall be submitted in accordance with General Term and Condition A.2.

4. Pursuant to OAC rule 3745-15-04, 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 NO_x values in excess of the applicable limitations specified in the terms and conditions of this permit. These reports shall also contain the total NO_x emissions for the calendar quarter (in tons).

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_x 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 date, time, reason, and corrective action(s) taken for each time period

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

5. Pursuant to OAC rule 3745-15-04, 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 the terms and conditions of this permit. These reports shall also contain the total CO emissions for the calendar quarter (in tons).

The permittee shall submit reports within 30 days following the end of each calendar quarter to the 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 date, time, reason, and corrective action(s) taken for each time period of monitoring system malfunction. 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 30, April 30, July 30, and October 30 of each year and shall address the data obtained during the previous calendar quarter.

6. Pursuant to OAC rule 3745-15-04, 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 all instances of continuous O_2 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 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 be included in the quarterly report. These quarterly reports shall be submitted by January 30, April 30, July 30, and October 30 of each year and shall address the data obtained during the previous calendar quarter.

7. The permittee shall submit annual reports that specify the total NOx, CO, PE, SO2, VOC,

formaldehyde, and sulfuric acid emissions from this emissions unit during Phase I for the previous calendar year. The reports shall be submitted by February 15 of each year.

8. The permittee shall submit annual reports that specify the total NOx, CO, PE, SO2, VOC, NH3, formaldehyde, and sulfuric acid emissions from this emissions unit during Phase II for the previous calendar year. The reports shall be submitted by February 15 of each year.

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

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

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

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

c. actual start-up date (within 15 days after such date); and,

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

Reports are to be sent to:

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

and

Ohio Environmental Protection Agency
Southeast District Office
Division of Air Pollution Control
2195 Front Street
Logan, Ohio 43138

V. Testing Requirements - Phase I and II

1. The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

a. For Phase I, the emission testing shall be conducted within 60 days after achieving the

maximum production rate at which the emissions unit will be operated, but not later than 180 days after initial start-up of the emissions unit. For Phase II, the emission testing shall be conducted within 60 days after initiating operation.

b. The emission testing shall be conducted to demonstrate compliance with the NO_x and CO outlet concentrations, the mass emission limitations for NO_x, CO, formaldehyde, VOC, and PE, and the visible particulate emission limitations.

c. The following test methods shall be employed to demonstrate compliance with the above emission limitations: for NO_x, Method 20 of 40 CFR Part 60, Appendix A and the procedures required under 40 CFR Part 60.335; for PE, Method 5 of 40 CFR Part 60, Appendix A; for visible particulate emission limitations, Method 9 of 40 CFR Part 60, Appendix A; for formaldehyde, SW-846 Method 0011; for VOC, Method 25 of 40 CFR Part 60, Appendix A; and for CO, Method 10 of 40 CFR Part 60, Appendix A. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

d. The testing shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by Ohio EPA or local air agency. For Phase II, the emission testing shall be conducted with and without duct burner firing.

e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA, Southeast District Office. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA, Southeast District Office refusal to accept the results of the emission test(s).

f. Personnel from the Ohio EPA, Southeast District Office shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

g. A comprehensive written report on the results of the emission test(s) shall be signed by the person or persons responsible for the tests and submitted to the Ohio EPA, Southeast District Office within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Ohio EPA, Southeast District Office.

2. Compliance with the allowable emission limitations in this permit shall be determined according to the following methods:

a. Emission Limitations:

Phase I:

NO_x emissions shall not exceed 9.0 ppmvd at 15% oxygen, 64.0 lbs/hr, and 54.4 tons/yr.

Applicable Compliance Method:

Initial compliance with the allowable outlet concentration, and the lbs/hr emission limitation shall be demonstrated through emission testing performed in accordance with section A.V.1. Until the initial emission testing is completed, compliance with the lbs/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the permittee-supplied NOx emission factor (0.0367 lb of NOx/MMBtu). Ongoing compliance with the lbs/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the emissions unit-specific NOx emission factor established during the emission testing that demonstrated that the emissions unit was in compliance. Compliance with the tons/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III.

Phase II:

Emission Limitations:

NO_x emissions shall not exceed 3.5 ppmvd at 15% oxygen, 25.0 lbs/hr without duct burner firing, 30.0 lbs/hr with duct burner firing, and 146.9 tons/yr, which includes 27.4 tons/yr for start-ups and shutdowns.

Applicable Compliance Method:

Initial compliance with the allowable outlet concentration, and the lbs/hr emission limitations shall be demonstrated through emission testing performed in accordance with section A.V.1. Ongoing compliance with these emission limitations shall be demonstrated based upon the continuous NOx and oxygen monitoring systems data required pursuant to section A.III. Compliance with the tons/yr emission limitation, including start-up and shutdown emissions, shall be demonstrated based upon the records required pursuant to section A.III.

b. Emission Limitations:

Phase I:

PE emissions shall not exceed 18.0 lbs/hr and 15.3 tons/yr.

Applicable Compliance Method:

Initial compliance with the lbs/hr emission limitation shall be demonstrated through emission testing performed in accordance with section A.V.1. Until the initial emission testing is completed, compliance with the lbs/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the permittee-supplied PE emission factor (0.0103 lb of PE/MMBtu). Ongoing compliance with the lbs/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the emissions unit-specific PE emission factor established during the emission testing that demonstrated that the emissions unit was in compliance. Compliance with the tons/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III.

Phase II:

Emission Limitations:

PE emissions shall not exceed 21.0 lbs/hr without duct burner firing, 25.0 lbs/hr with duct burner firing, and 100.0 tons/yr.

Applicable Compliance Method:

Initial compliance with the lbs/hr emission limitations shall be demonstrated through emission testing performed in accordance with section A.V.1. Until the initial emission testing is completed, compliance with the lbs/hr emission limitations may be demonstrated through the records required pursuant to section A.III and the permittee-supplied PE emission factors (0.0120 lb of PE/MMBtu without duct burner firing and 0.01188 lb of PE/MMBtu with duct burner firing). Ongoing compliance with the lbs/hr emission limitations may be demonstrated through the records required pursuant to section A.III and the emissions unit-specific PE emission factors established during the emission testing that demonstrated that the emissions unit was in compliance. Compliance with the tons/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III.

c. Emission Limitations:

Phase I:

SO2 emissions shall not exceed 12.0 lbs/hr, and 10.2 tons/yr. per year

Applicable Compliance Method:

Initial compliance with the lbs/hr emission limitation shall be demonstrated through emission testing performed in accordance with section A.V.1. Until the initial emission testing is completed, compliance with the lbs/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the permittee-supplied SO2 emission factor (0.0069 lb of SO2/MMBtu). Ongoing compliance with the lbs/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the emissions unit-specific SO2 emission factor established during the emission testing that demonstrated that the emissions unit was in compliance. Compliance with the tons/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III.

Phase II:

Emission Limitations:

SO2 emissions shall not exceed 12.0 lbs/hr without duct burner firing, 14.0 lbs/hr with duct burner firing, and 56.6 tons /yr.

Applicable Compliance Method:

Compliance with the lbs/hr emission limitations may be demonstrated through the records required pursuant to section A.III and the permittee-supplied SO2 emission factors (0.0069 lb of SO2/MMBtu without duct burner firing and 0.00665 lb of SO2/MMBtu with duct burner firing). Compliance with the tons/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III. If required the permittee shall demonstrate compliance with the hourly emission limitations through emission tests performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 4 and 6.

d. Emission Limitations:

Phase I:

VOC emissions shall not exceed 3.2 lbs/hr and 2.7 tons/yr.

Applicable Compliance Method:

Initial compliance with the lbs/hr emission limitation shall be demonstrated through emission testing performed in accordance with section A.V.1. Until the initial emission testing is completed, compliance with the lbs/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the permittee-supplied VOC emission factor (0.0018 lb of VOC/MMBtu). Ongoing compliance with the lbs/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the emissions unit-specific VOC emission factor established during the emission testing that demonstrated that the emissions unit was in compliance. Compliance with the tons/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III.

Phase II:

Emission Limitations:

VOC emissions shall not exceed 3.2 lbs/hr without duct burner firing, 6.8 lbs/hr with duct burner firing, and 31.8 tons/yr, which includes 10.6 tons/yr for start-ups and shutdowns.

Applicable Compliance Method:

Initial compliance with the lbs/hr emission limitations shall be demonstrated through emission testing performed in accordance with section A.V.1. Until the initial emission testing is completed, compliance with the lbs/hr emission limitations may be demonstrated through the records required pursuant to section A.III and the permittee-supplied VOC emission factors (0.0018 lb of VOC/MMBtu without duct burner firing and 0.00323 lb of VOC/MMBtu with duct burner firing). Ongoing compliance with the lbs/hr emission limitations may be demonstrated through the records required pursuant to section A.III and the emissions unit-specific VOC emission factors established during the emission testing that demonstrated that the emissions unit was in compliance. Compliance with the tons/yr emission limitation, including start-up and shutdown emissions, shall be demonstrated based upon the records required pursuant to section A.III.

e. Emission Limitations:

Phase I:

CO emissions shall not exceed 9.0 ppmvd, 33.0 lbs/hr, and 28.1 tons/yr.

Applicable Compliance Method:

Initial compliance with the allowable outlet concentration, and the lbs/hr emission limitation shall be demonstrated through emission testing performed in accordance with section A.V.1. Until the initial emission testing is completed, compliance with the lbs/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the permittee-supplied CO emission factor (0.01892 lb of CO/MMBtu). Ongoing compliance with the lbs/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the emissions unit-specific CO emission factor established during the emission testing that demonstrated that the emissions unit was in compliance. Compliance with the tons/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III.

Phase II:

Emission Limitations:

Emissions Unit ID: P002

CO emissions shall not exceed 9.0 ppmvd without duct burner firing, 15.0 ppmvd with duct burner firing, 33.0 lbs/hr without duct burner firing, 69.0 lbs/hr with duct burner firing, and 366.6 tons/yr, which includes 150.1 tons/yr for start-ups and shutdowns.

Applicable Compliance Method:

Initial compliance with the allowable outlet concentrations, and the lbs/hr emission limitations shall be demonstrated through emission testing performed in accordance with section A.V.1. Ongoing compliance with these emission limitations shall be demonstrated based upon the continuous CO monitoring system data required pursuant to section A.III. Compliance with the tons/yr emission limitation, including start-up and shutdown emissions, shall be demonstrated based upon the records required pursuant to section A.III.

f. Emission Limitations:

Phase II:

NH3 emissions shall not exceed 26.0 lbs/hr without duct burner firing, 30.6 lbs/hr with duct burner firing, and 123.1 tons/yr.

Applicable Compliance Method:

Compliance with the lbs/hr emission limitations may be demonstrated through the records required pursuant to section A.III and the permittee-supplied NH3 emission factors (0.0149 lb of NH3/MMBtu without duct burner firing and 0.01454 lb of NH3/MMBtu with duct burner firing). Compliance with the tons/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III. If required, the permittee shall demonstrate compliance with the hourly emission limitations through emission tests performed in accordance with U.S. EPA-approved methods.

g. Emission Limitations:

Phase I:

Formaldehyde emissions shall not exceed 0.23 lb/hr and 0.20 ton/yr.

Applicable Compliance Method:

Initial compliance with the lb/hr emission limitation shall be demonstrated through emission testing performed in accordance with section A.V.1. Until the initial emission testing is completed, compliance with the lb/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the permittee-supplied formaldehyde emission factor (0.00013 lb of formaldehyde/MMBtu). Ongoing

compliance with the lb/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the emissions unit-specific formaldehyde emission factor established during the emission testing that demonstrated that the emissions unit was in compliance. Compliance with the ton/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III.

Phase II:

Emission Limitations:

Formaldehyde emissions shall not exceed 0.23 lb/hr without duct burner firing, 0.26 lb/hr with duct burner firing, and 1.06 tons/yr.

Applicable Compliance Method:

Initial compliance with the lb/hr emission limitations shall be demonstrated through emission testing performed in accordance with section A.V.1. Until the initial emission testing is completed, compliance with the lb/hr emission limitations may be demonstrated through the records required pursuant to section A.III and the permittee-supplied formaldehyde emission factors (0.00013 lb of formaldehyde/MMBtu without duct burner firing and 0.00012 lb of formaldehyde/MMBtu with duct burner firing). Ongoing compliance with the lbs/hr emission limitations may be demonstrated through the records required pursuant to section A.III and the emissions unit-specific formaldehyde emission factors established during the emission testing that demonstrated that the emissions unit was in compliance. Compliance with the tons/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III.

h. Emission Limitations:

Phase I:

Sulfuric acid emissions shall not exceed 0.48 lb/hr and 0.41 ton /yr.

Applicable Compliance Method:

Compliance with the lb/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the permittee-supplied sulfuric acid emission factor (0.000275 lb of sulfuric acid/MMBtu). Compliance with the ton/yr emission limitation

shall be demonstrated based upon the records required pursuant to section A.III. If required, the permittee shall demonstrate compliance with the hourly emission limitation through emission tests performed in accordance with U.S. EPA-approved methods.

Phase II:

Emission Limitations:

Sulfuric acid emissions shall not exceed 0.48 lb/hr without duct burner firing, 0.56 lb/hr with duct burner firing, and 2.3 tons/yr.

Applicable Compliance Method:

Compliance with the lb/hr emission limitations may be demonstrated through the records required pursuant to section A.III and the permittee-supplied sulfuric acid emission factors (0.000275 lb of sulfuric acid/MMBtu without duct burner firing and 0.000266 lb of sulfuric acid/MMBtu with duct burner firing). Compliance with the tons/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III. If required the permittee shall demonstrate compliance with the hourly emission limitations through emission tests performed in accordance with U.S. EPA-approved methods.

i. Emission Limitation:

Visible particulate emissions from any stack shall not exceed 10% opacity as a 6-minute average.

Applicable Compliance Method:

If required, compliance with this emission limitation shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A.

VI. Miscellaneous Requirements

1. In accordance with good engineering practices, the SCR unit on this emissions unit shall be installed, operated and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee. The permittee shall maintain on site a copy of the operation and maintenance manual, as provided by the manufacturer.

2. The terms and conditions for this emissions unit supercede those contained in PTI 06-06206 issued March 29, 2001.

Emissions Unit ID: P002

B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
PHASE I		
P002 - GE 7FA Natural Gas Fired Dry Low NOx (DLN) Combustion Turbine	None	None
PHASE II		
P002 - GE 7FA Natural Gas Fired Dry Low NOx (DLN) Combustion Turbine with Duct Firing Operated in Combined Cycle Mode and Controlled by Selective Catalytic Reduction (SCR)	None	None

2. Additional Terms and Conditions

2.a None

II. Operational Restrictions

None

III. Monitoring and/or Recordkeeping Requirements

1. The permit to install for this emissions unit (P002) was evaluated based on actual materials

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

Pollutant: Formaldehyde
TLV (ug/m^3): 368 (Converted from the STEL)
Maximum Hourly Emission Rate (lbs/hr): 0.81*
Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 2.60
MAGLC (ug/m3): 8.76

Pollutant: Sulfuric Acid
TLV (ug/m3): 1000
Maximum Hourly Emission Rate (lbs/hr): 1.68*
Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 1.74
MAGLC (ug/m3): 23.8

Pollutant: Ammonia
TLV (ug/m3): 17413
Maximum Hourly Emission Rate (lbs/hr): 92*
Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 94.7
MAGLC (ug/m3): 415

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

Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value specified in the above table;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is (are) defined as a modification under other provisions of the modification definition (other than (VV)(1)(a)(ii)), then the permittee shall obtain a final permit to install prior to the change.

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

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

IV. Reporting Requirements

None

V. Testing Requirements

None

VI. Miscellaneous Requirements

None

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

A. State and Federally Enforceable Section

I. Applicable Emission Limitations and/or Control Requirements

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

Operations, Property, and/or Equipment		
PHASE I		
P003 - GE 7FA Natural Gas- Fired Dry Low NOx (DLN) Combustion Turbine		**PHASE II**
		P003 - GE 7FA Natural Gas Fired Dry Low NOx (DLN) Combustion Turbine with Duct Firing Operated in Combined Cycle Mode and Controlled by Selective Catalytic Reduction (SCR)

Applicable Rules/Requirements		
	40 CFR Part 60, Subpart GG	
	OAC rule 3745-18-06(F)	
	OAC rule 3745-17-11(B)(4)	
OAC rule 3745-31-05(A)(3)	OAC rule 3745-17-07(A)	
	OAC rule 3745-21-08(B)	
	OAC rule 3745-23-06(B)	
	OAC rule 3745-31-05(D)	
	OAC rule 3745-31-05(A)(3)	
		40 CFR Part 60, Subpart GG
		OAC rule 3745-17-07(A)
		OAC rule 3745-17-11(B)(4)
		OAC rule 3745-18-06(F)
		OAC rule 3745-21-08(B)
		OAC rule 3745-23-06(B)
		OAC rules 3745-31-10 through 3745-31-20

		Applicable Emission Limitations/Control Measures
		The requirements of this rule also include compliance with the requirements of 40 CFR Part 60, Subpart GG, and OAC rules 3745-31-10 through 3745-31-20.
		PHASE I EMISSION LIMITATIONS
OAC rule 3745-31-05(A)(3)	40 CFR Part 60, Subpart GG	Nitrogen oxides (NO_x) emissions shall not exceed 9.0 ppmvd at 15% oxygen, 64.0 lbs/hr, and 54.4 tons/yr.
	40 CFR Part 60, Subpart Da OAC rule 3745-18-06(F) OAC rule 3745-17-11 (B)(4) OAC rule 3745-17-07(A)	Particulate emissions (PE) shall not exceed 18.0 lbs/hr and 15.3 tons/yr. Sulfur dioxide (SO_2) emissions shall not exceed 12.0 lbs/hr and 10.2 tons/yr.
	OAC rule 3745-21-08(B) OAC rule 3745-23-06(B)	Carbon monoxide (CO) emissions shall not exceed 9.0 ppmvd, 33.0 lbs/hr, and 28.1 tons/yr.
	OAC rules 3745-31-10 through 3745-31-20)	Volatile organic compound (VOC) emissions shall not exceed 3.2 lbs/hr and 2.7 tons/yr. Formaldehyde emissions shall not exceed 0.23 lb/hr and 0.20 ton/yr. Sulfuric acid emissions shall not exceed 0.48 lb/hr and 0.41 ton/yr.
		Visible particulate emissions from any stack shall not exceed 10% opacity as a 6-minute average.

See A.II.1 and A.II.3 below.	25.0 lbs/hr, and 146.9 tons/yr, including start-up and shutdown emissions.	
See A.I.2.b below.		NOx emissions shall not exceed 149.6 tons per rolling, 12-month period.
See A.I.2.a below.	Particulate emissions (PE) shall not exceed 21.0 lbs/hr and 100.0 tons/yr.	SO2 emissions shall not exceed 56.6 tons per rolling, 12-month period.
		PE emissions shall not exceed 100.0 tons per rolling, 12-month period.
See A.I.2.d below.	Sulfur dioxide (SO_2) emissions shall not exceed 12.0 lbs/hr and 56.6 tons/yr.	CO emissions shall not exceed 366.6 tons per rolling, 12-month period.
		VOC emissions shall not exceed 31.8 tons per rolling, 12-month period.
NOx emissions shall not exceed 54.4 tons per rolling, 12-month period.	Carbon monoxide (CO) emissions shall not exceed 9.0 ppmvd, 33.0 lbs/hr, and 366.6 tons/yr, including start-up and shutdown emissions.	
SO2 emissions shall not exceed 10.2 tons per rolling, 12-month period.		**EMISSION LIMITATIONS WITH DUCT BURNER FIRING - PHASE II**
PE emissions shall not exceed 15.3 tons per rolling, 12-month period.	Volatile organic compound (VOC) emissions shall not exceed 3.2 lbs/hr and 31.8 tons/yr, including start-up and shutdown emissions.	The requirements of this rule also include compliance with the requirements of 40 CFR Part 60, Subparts Da and GG, and OAC rules 3745-31-10 through 3745-31-20.
CO emissions shall not exceed 28.1 tons per rolling, 12-month period.	Ammonia (NH3) emissions shall not exceed 26.0 lbs/hr and 123.1 tons/yr.	
VOC emissions shall not exceed 2.7 tons per rolling, 12-month period.	Formaldehyde emissions shall not exceed 0.23 lb/hr and 1.06 tons/yr.	Nitrogen oxides (NO_x) emissions shall not exceed 3.5 ppmvd at 15% oxygen, 30.0 lbs/hr, and 146.9 tons/yr, including start-up and shutdown emissions.
	Sulfuric acid emissions shall not exceed 0.48 lb/hr and 2.3 tons/yr.	Particulate emissions (PE) shall not exceed 25.0 lbs/hr and 100.0 tons/yr.
EMISSION LIMITATIONS WITHOUT DUCT BURNER FIRING - PHASE II	Visible particulate emissions from any stack shall not exceed 10% opacity as a 6-minute average.	Sulfur dioxide (SO_2) emissions shall not exceed 14.0 lbs/hr and 56.6 tons/yr.
The requirements of this rule also include compliance with the requirements of 40 CFR Part 60, Subpart GG, and OAC rules 3745-31-10 through 3745-31-20.	See A.II.1 and A.II.4 below.	Carbon monoxide (CO) emissions shall not exceed 15.0 ppmvd, 69.0 lbs/hr, and 366.6 tons/yr, including start-up and shutdown emissions.
	See A.I.2.b below.	
	See A.I.2.a below.	Volatile organic compound (VOC) emissions shall not exceed 6.8 lbs/hr and 31.8 tons/yr, including start-up and shutdown emissions.
Nitrogen oxides (NO_x) emissions shall not exceed 3.5 ppmvd at 15% oxygen,	See A.I.2.d below.	

Ammonia (NH3) emissions shall not exceed 30.6 lbs/hr and 123.1 tons/yr.

Formaldehyde emissions shall not exceed 0.26 lb/hr and 1.06 tons/yr.

Sulfuric acid emissions shall not exceed
0.56 lb/hr and 2.3 tons/yr.

Visible particulate emissions from any stack shall not exceed 10% opacity as a 6-minute average.

See A.II.1 and A.II.4 below.

See A.I.2.b below.

See A.I.2.a below.

See A.I.2.d below.

NOx emissions shall not exceed 149.6 tons per rolling, 12-month period.
SO2 emissions shall not exceed 56.6 tons per rolling, 12-month period.
PE emissions shall not exceed 100.0 tons per rolling, 12-month period.
CO emissions shall not exceed 366.6 tons per rolling, 12-month period.
VOC emissions shall not exceed 31.8 tons per rolling, 12-month period.

START-UP AND SHUTDOWN EMISSION LIMITATIONS - PHASE II (See A.II.2 below.)

Nitrogen oxides (NO_x) emissions shall not exceed 418 lbs/cycle and 27.4 tons/yr.

Carbon monoxide (CO) emissions shall not exceed 1127 lbs/cycle and 150.1 tons/yr.

Volatile organic compound (VOC) emissions shall not exceed 97 lbs/cycle and 10.6 tons/yr.

Emissions Unit ID: P003

2. Additional Terms and Conditions

2.a The emission limitations specified in these applicable rules are equivalent to or less stringent than the emission limitations established pursuant to OAC rule 3745-31-05(A)(3).

2.b The emission limitations specified in this applicable rule are equivalent to or less stringent than the emission limitations established pursuant to OAC rule 3745-31-05(A)(3). Except as provided for in the terms and conditions in this permit, the permittee is not exempt from meeting any additional requirements of 40 CFR Part 60, Subpart GG.

2.c If the permittee is subject to the requirements of OAC Chapter 103 and 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.d The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) and the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this Permit to Install.

2.e In lieu of monitoring the nitrogen content of the natural gas being fired in the turbine as required by 40 CFR 60, Subpart GG (section 60.334(b)), the permittee may install and operate systems to continuously monitor and record emissions of NOx from this emissions unit during Phase I operations.

2.f After the NOx continuous emissions monitoring system for this emissions unit is installed and certified, the permittee shall submit excess emissions reports for this emissions unit in accordance with this permit, in lieu of the excess emissions reports required under 40 CFR Part 60.334.

II. Operational Restrictions

1. The permittee shall burn only natural gas in this emissions unit. The maximum sulfur content of the natural gas shall not exceed 2 grains per 100 standard cubic feet.

2. Start-up and shutdown shall be defined as when the unit is running at less than 50% of electric load, but under no circumstances shall start-ups exceed 250 minutes in duration and shutdowns shall not exceed 2 hours in duration. The total of all hot, warm and cold start-ups (as defined below) and shutdowns shall be limited to 286 cycles (each cycle consists of one start-up and one shutdown) per year.

Hot Start - start-up occurs within 8 hours after a plant shutdown
Warm Start - start-up occurs between 8 to 72 hours after a plant shutdown
Cold Start - start-up occurs more than 72 hours after a plant shutdown

Each cycle shall be limited to the following:

Pollutant	Total lbs/Cycle
NOx	418
CO	1127
VOC	97

During Phase I, start-up and shutdown emissions are not anticipated to increase above levels defined during normal operation of a simple cycle turbine.

3. During Phase I, the maximum hourly fuel heat input for this emissions unit shall not exceed 1744.3 MMBtu/hr and the annual maximum fuel heat input shall not exceed 2,965,310 MMBtu per year based upon a rolling, 12-month summation of the heat input values. Due to this operational restriction, this gas-fired peaking unit will not have to install the applicable continuous emission monitoring systems specified in 40 CFR Part 75 until Phase II.
To ensure enforceability during the first 12 calendar months following the start-up of this emissions unit, the permittee shall not exceed the monthly heat input restrictions specified in the following table:

Month	Cumulative Fuel Heat Input (MMBtu)
1	1,297,759
1-2	2,595,518
1-3	2,965,310
1-4	2,965,310
1-5	2,965,310
1-6	2,965,310
1-7	2,965,310
1-8	2,965,310
1-9	2,965,310
1-10	2,965,310
1-11	2,965,310
1-12	2,965,310

If Phase I extends beyond the first 12 calendar months following the start-up of this emissions unit, compliance with the annual fuel heat input restriction shall be based on a rolling, 12-month summation of the heat input values.

4. During Phase II, the maximum hourly combustion turbine fuel heat input shall not exceed 1744.3 MMBtu/hr.

The maximum hourly fuel heat input of the duct burner for this emissions unit shall not exceed 360 MMBtu/hr. The maximum annual fuel heat input of the duct burner shall not exceed 1,440,000 MMBtu per year, based upon a rolling, 12-month summation of the heat input values.

To ensure enforceability during the first 12 calendar months following the start-up of the duct burner, the permittee shall not exceed the monthly duct burner fuel heat input restrictions specified in the following table:

Month	Cumulative Fuel Heat Input (MMBtu)
1	267,840
1-2	535,680
1-3	803,520
1-4	1,071,360
1-5	1,440,000
1-6	1,440,000
1-7	1,440,000
1-8	1,440,000
1-9	1,440,000
1-10	1,440,000
1-11	1,440,000
1-12	1,440,000

After the first 12 calendar months following the start-up of the duct burner, compliance with the annual fuel heat input restriction shall be based on a rolling, 12-month summation of the heat input values.

5. Continuous NOx Monitoring System Certification

Prior to the installation of the continuous NO_x 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 for approval by the Ohio EPA, Central Office.

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

6. Within 180 days of the effective date of this permit, the permittee shall develop a written quality assurance/quality control plan for the continuous NO_x monitoring system designed to ensure continuous valid and representative readings of NO_x emissions in units of the applicable standard. The plan shall follow the requirements of the appropriate sections of 40 CFR Part 60, Appendix F and 40 CFR Part 75, Appendix B. The quality assurance/quality control plan and a logbook dedicated to the continuous NO_x monitoring system must be kept on site and available for inspection during regular office hours.

7. Continuous CO Monitoring System
Certification

Prior to the 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.

Within 60 days after achieving the maximum production rate at which the emissions unit will be operated, but not later than 180 days after initial start-up of such 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. Personnel from the appropriate Ohio EPA District Office or local air agency shall be notified 30 days prior to initiation of the applicable tests and shall be permitted to examine equipment and witness the certification tests. In accordance with OAC rule 3745-15-04, all copies of the test results shall be submitted to the appropriate Ohio EPA District Office or local air agency within 30 days after the test is completed. Copies of the test results shall be sent to the appropriate Ohio EPA District Office or local air agency and the Ohio EPA, Central Office. 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.

8. Within 180 days of the effective date of this permit, the permittee shall develop 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 continuous CO monitoring system must be kept on site and available for inspection during regular office hours.

9. Continuous O_2 Monitoring System
Certification

Prior to the installation of the continuous O_2 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 for approval by the Ohio EPA, Central Office.

Within 60 days after achieving the maximum production rate at which the emissions unit will be operated, but not later than 180 days after initial start-up of such emissions unit, the permittee shall conduct certification tests of such equipment pursuant to the appropriate sections of ORC section 3704.03(I), 40 CFR Part 60, Appendix B, Performance Specification 3, and 40 CFR Part 75. Personnel from the appropriate Ohio EPA District Office or local air agency shall be notified 30 days prior to initiation of the applicable tests and shall be permitted to examine equipment and witness the certification tests. In accordance with OAC rule 3745-15-04, all copies of the test results shall be submitted to the appropriate Ohio EPA District Office or local air agency within 30 days after the test is completed. Copies of the test results shall be sent to the appropriate Ohio EPA District Office or local air agency and the Ohio EPA, Central Office.

Certification of the continuous O_2 monitoring system shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of the appropriate sections of ORC section 3704.03(I), 40 CFR Part 60, Appendix B, Performance Specification 3, and 40 CFR Part 75.

10. Within 180 days of the effective date of this permit, the permittee shall develop a written quality assurance/quality control plan for the continuous O_2 monitoring system designed to ensure continuous valid and representative readings of O_2 emissions in units of the applicable standard. The plan shall follow the requirements of the appropriate sections of 40 CFR Part 60, Appendix F and 40 CFR Part 75, Appendix B. The quality assurance/quality control plan and a logbook dedicated to the continuous O_2 monitoring system must be kept on site and available for inspection during regular office hours.

Emissions Unit ID: P003

III. Monitoring and/or Recordkeeping Requirements

1. **Phase I**: The permittee shall maintain monthly records of the following information for this emissions unit:

a. The natural gas usage rate, in standard cubic feet.

b. Hours of operation of the combustion turbine.

c. Monthly fuel heat input (MMBtu) to the combustion turbine.

d. During the first 12 calendar months of operation, records of the cumulative fuel heat input to the combustion turbine.

e. Beginning after the first 12 months of operation, the rolling, 12-month summation of fuel heat input to the combustion turbine.

f. The NOx, CO, PE, SO2, VOC, formaldehyde, and sulfuric acid emission rates, in lbs.

g. The average hourly NOx, CO, PE, SO2, VOC, formaldehyde, and sulfuric acid emission rates, in lbs (i.e., the values from (f) divided by (b)).

h. Beginning after the first 12 months of operation, the rolling, 12-month summations of the NOx, CO, PE, SO2, VOC, emission rates, in tons.

2. **Phase I:** The permittee shall determine the hourly heat input rate to the combustion turbine from the fuel flow rate as determined in term A.III.6 and fuel gross calorific value as determined in term A.III.7. The heat input rate shall be calculated in accordance with the procedures in Section 5 of 40 CFR Part 75, Appendix F.

3. The permittee shall install, operate and maintain equipment to continuously monitor and record NO_x emissions from this emissions unit in units of the applicable standard. This NO_x monitoring equipment must be installed for Phase II operation. The NO_x monitoring equipment may be used during Phase I in order to minimize or eliminate fuel nitrogen content sampling requirements specified in 40 CFR Part 60, Subpart GG. Such continuous monitoring and recording equipment shall comply with the requirements of the appropriate sections specified in 40 CFR Part 60.13 and 40 CFR Part 75.

The permittee shall maintain records of all data obtained by the continuous NO_x monitoring system including, but not limited to, parts per million NO_x on an instantaneous (one-minute) basis, emissions of NO_x in units of the applicable standard in the appropriate averaging period (i.e., ppmvd at 15% oxygen and lbs/hr), results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

4. The permittee shall install, operate and maintain equipment to continuously monitor and record CO emissions 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.

The permittee shall maintain records of all data obtained by the continuous CO monitoring system including, but not limited to, parts per million CO on an instantaneous (one minute) basis, emissions of CO in units of the applicable standard in the appropriate averaging period (i.e., ppmvd and lbs/hr), results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

5. The permittee shall install, operate and maintain equipment to continuously monitor and record O_2 emissions from this emissions unit in percent O_2. Such continuous monitoring and recording equipment shall comply with the requirements in the appropriate sections specified in 40 CFR Part 60.13 and 40 CFR Part 75.

The permittee shall maintain records of all data obtained by the continuous O_2 monitoring system including, but not limited to, percent O_2 on an instantaneous (one-minute) basis, emissions of O_2 in units of the applicable standard in the appropriate averaging period (e.g., hourly, hourly rolling, 3-hour, daily, 30-day rolling, etc.), results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

6. **Phase I and II**: The permittee shall install, operate and maintain equipment to continuously monitor and record the fuel flow to this emissions unit when the emissions unit is in operation. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 75. If the fuel flow monitoring and/or recording equipment is (are) not in service when the emissions unit is in operation, the permittee shall comply with the appropriate missing data procedures specified in 40 CFR Part 75.

7. **Phase I and II:** The permittee shall monitor the sulfur content and gross calorific value of the fuel being fired in the combustion turbine and duct burner. Fuel sampling and analysis shall be conducted according to the procedures and at the frequency specified by 40 CFR Part 75, Appendix D, section 2.3.3.1.

8. **Phase II**: The permittee shall determine the hourly heat input rate to the combustion turbine and duct burner from the fuel flow rate as determined in term A.III.6 and fuel gross calorific value as determined in term A.III.7. The heat input rate shall be calculated in accordance with the procedures in Section 5 of 40 CFR Part 75, Appendix F.

9. **Phase II**: The permittee shall maintain monthly records of the following information for this emissions unit:

a. The natural gas usage rate, in standard cubic feet.

b. Hours of operation of the combustion turbine.

c. Hours of operation of the duct burner.

d. Monthly fuel heat input (MMBtu) to the combustion turbine.

e. Monthly fuel heat input (MMBtu) to the duct burner.

f. During the first 12 calendar months of operation, records the cumulative fuel heat input to the combustion turbine and the duct burner.

g. Beginning after the first 12 months of operation, the rolling, 12-month summations of fuel heat inputs to the combustion turbine and the duct burner.

h. Number of start-ups, type of startup (hot, warm or cold) and the duration, in minutes, of each start-up.

i. Number of shutdowns, and the duration, in hours, of each shutdown.

j. The total number of start-up/shutdown cycles.

k. The NOx, CO, and VOC emissions, in pounds, for all start-up/shutdown cycles.

l. The total NOx emissions, in pounds, including start-up/shutdown emissions.

m. The total CO emissions, in pounds, including start-up/shutdown emissions.

n. The total VOC emissions, in pounds, including start-up/shutdown emissions.

o. The total SO2, PE, NH3, formaldehyde, and sulfuric acid emissions, in pounds.

p. Beginning after the first 12 months of operation under Phase II , the rolling, 12-month summation of the NOx emissions, in tons, including start-up/shutdown emissions.

q. Beginning after the first 12 months of operation under Phase II , the rolling, 12-month summation of the CO emissions, in tons, including start-up/shutdown emissions.

r. Beginning after the first 12 months of operation under Phase II , the rolling, 12-month summation of the VOC emissions, in tons, including start-up/shutdown emissions.

s. Beginning after the first 12 months of operation under Phase II , the rolling, 12-month summations of the SO2, PE, emissions, in tons.

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

IV. Reporting Requirements - Phase I and II

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

2. **Phase I:** The permittee shall submit quarterly deviation (excursion) reports that identify the following:

a. All exceedances of the Phase I hourly allowable combustion turbine fuel heat input level.

b. During the first 12 months of operation, all exceedances of the Phase I maximum allowable cumulative combustion turbine heat input levels.

c. Beginning after the first 12 months of operation, all exceedances of the Phase I rolling, 12-month allowable combustion turbine fuel heat input level.

d. All exceedances of the Phase I average hourly NOx, CO, PE, SO2, VOC, formaldehyde, and/or sulfuric acid emission limitations.

e. Beginning after the first 12 months of operation, all exceedances of the rolling, 12-month Phase I NOx, CO, PE, SO2, and/or VOC, emission limitations.

f. Any record which shows that the sulfur content of the natural gas exceeded 2 grains per 100 standard cubic feet.

The quarterly deviation reports shall be submitted in accordance with General Term and Condition A.2.

3. **Phase II**: The permittee shall submit quarterly deviation (excursion) reports that identify the following:

a. All exceedances of the Phase II hourly allowable combustion turbine fuel heat input level.

b. All exceedances of the Phase II hourly allowable duct burner fuel heat input level.

c. During the first 12 months of operation, all exceedances of the Phase II maximum allowable cumulative duct burner heat input levels.

d. Beginning after the first 12 months of operation, all exceedances of the Phase II rolling, 12-month allowable duct burner fuel heat input level.

e. Any record which shows that the sulfur content of the natural gas exceeded 2 grains per 100 standard cubic feet.

f. Any record which shows that the start-up duration exceeded 250 minutes.

g. Any record which shows that the shutdown duration exceeded 2 hours.

h. Any record which shows that the total number of start-up/shutdown cycles exceeded 286.

i. All exceedances of the NOx, CO, and/or VOC start-up/shutdown emission limitations during any cycle.

j. Beginning after the first 12 months of operation, all exceedances of the Phase II rolling, 12-month NOx, CO, VOC, SO2, and/or PE, emission limitations.

The quarterly deviation reports shall be submitted in accordance with General Term and Condition A.2.

4. Pursuant to OAC rule 3745-15-04, 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 NO_x values in excess of the applicable limitations specified in the terms and conditions of this permit. These reports shall also contain the total NO_x emissions for the calendar quarter (in tons).

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_x 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 date, time, reason, and corrective action(s) taken for each time period

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

5. Pursuant to OAC rule 3745-15-04, 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 the terms and conditions of this permit. These reports shall also contain the total CO emissions for the calendar quarter (in tons).

The permittee shall submit reports within 30 days following the end of each calendar quarter to the 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 date, time, reason, and corrective action(s) taken for each time period of monitoring system malfunction. 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 30, April 30, July 30, and October 30 of each year and shall address the data obtained during the previous calendar quarter.

6. Pursuant to OAC rule 3745-15-04, 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 all instances of continuous O_2 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 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 be included in the quarterly report. These quarterly reports shall be submitted by January 30, April 30, July 30, and October 30 of each year and shall address the data obtained during the previous calendar quarter.

7. The permittee shall submit annual reports that specify the total NOx, CO, PE, SO2, VOC,

formaldehyde, and sulfuric acid emissions from this emissions unit during Phase I for the previous calendar year. The reports shall be submitted by February 15 of each year.

8. The permittee shall submit annual reports that specify the total NOx, CO, PE, SO2, VOC, NH3, formaldehyde, and sulfuric acid emissions from this emissions unit during Phase II for the previous calendar year. The reports shall be submitted by February 15 of each year.

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

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

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

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

c. actual start-up date (within 15 days after such date); and,

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

Reports are to be sent to:

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

and

Ohio Environmental Protection Agency
Southeast District Office
Division of Air Pollution Control
2195 Front Street
Logan, Ohio 43138

V. Testing Requirements - Phase I and II

1. The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

a. For Phase I, the emission testing shall be conducted within 60 days after achieving the

maximum production rate at which the emissions unit will be operated, but not later than 180 days after initial start-up of the emissions unit. For Phase II, the emission testing shall be conducted within 60 days after initiating operation.

b. The emission testing shall be conducted to demonstrate compliance with the NO_x and CO outlet concentrations, the mass emission limitations for NO_x, CO, formaldehyde, VOC, and PE, and the visible particulate emission limitations.

c. The following test methods shall be employed to demonstrate compliance with the above emission limitations: for NO_x, Method 20 of 40 CFR Part 60, Appendix A and the procedures required under 40 CFR Part 60.335; for PE, Method 5 of 40 CFR Part 60, Appendix A; for visible particulate emission limitations, Method 9 of 40 CFR Part 60, Appendix A; for formaldehyde, SW-846 Method 0011; for VOC, Method 25 of 40 CFR Part 60, Appendix A; and for CO, Method 10 of 40 CFR Part 60, Appendix A. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

d. The testing shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by Ohio EPA or local air agency. For Phase II, the emission testing shall be conducted with and without duct burner firing.

e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA, Southeast District Office. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA, Southeast District Office refusal to accept the results of the emission test(s).

f. Personnel from the Ohio EPA, Southeast District Office shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

g. A comprehensive written report on the results of the emission test(s) shall be signed by the person or persons responsible for the tests and submitted to the Ohio EPA, Southeast District Office within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Ohio EPA, Southeast District Office.

Emissions Unit ID: P003

2. Compliance with the allowable emission limitations in this permit shall be determined according to the following methods:

a. Emission Limitations:

Phase I:

NO_x emissions shall not exceed 9.0 ppmvd at 15% oxygen, 64.0 lbs/hr, and 54.4 tons/yr.

Applicable Compliance Method:

Initial compliance with the allowable outlet concentration, and the lbs/hr emission limitation shall be demonstrated through emission testing performed in accordance with section A.V.1. Until the initial emission testing is completed, compliance with the lbs/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the permittee-supplied NOx emission factor (0.0367 lb of NOx/MMBtu). Ongoing compliance with the lbs/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the emissions unit-specific NOx emission factor established during the emission testing that demonstrated that the emissions unit was in compliance. Compliance with the tons/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III.

Phase II:

Emission Limitations:

NO_x emissions shall not exceed 3.5 ppmvd at 15% oxygen, 25.0 lbs/hr without duct burner firing, 30.0 lbs/hr with duct burner firing, and 146.9 tons/yr, which includes 27.4 tons/yr for start-ups and shutdowns.

Applicable Compliance Method:

Initial compliance with the allowable outlet concentration, and the lbs/hr emission limitations shall be demonstrated through emission testing performed in accordance with section A.V.1. Ongoing compliance with these emission limitations shall be demonstrated based upon the continuous NOx and oxygen monitoring systems data required pursuant to section A.III. Compliance with the tons/yr emission limitation, including start-up and shutdown emissions, shall be demonstrated based upon the records required pursuant to section A.III.

b. Emission Limitations:

Phase I:

PE emissions shall not exceed 18.0 lbs/hr and 15.3 tons/yr.

Applicable Compliance Method:

Initial compliance with the lbs/hr emission limitation shall be demonstrated through emission testing performed in accordance with section A.V.1. Until the initial emission testing is completed, compliance with the lbs/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the permittee-supplied PE emission factor (0.0103 lb of PE/MMBtu). Ongoing compliance with the lbs/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the emissions unit-specific PE emission factor established during the emission testing that demonstrated that the emissions unit was in compliance. Compliance with the tons/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III.

Phase II:

Emission Limitations:

PE emissions shall not exceed 21.0 lbs/hr without duct burner firing, 25.0 lbs/hr with duct burner firing, and 100.0 tons/yr.

Applicable Compliance Method:

Initial compliance with the lbs/hr emission limitations shall be demonstrated through emission testing performed in accordance with section A.V.1. Until the initial emission testing is completed, compliance with the lbs/hr emission limitations may be demonstrated through the records required pursuant to section A.III and the permittee-supplied PE emission factors (0.0120 lb of PE/MMBtu without duct burner firing and 0.01188 lb of PE/MMBtu with duct burner firing). Ongoing compliance with the lbs/hr emission limitations may be demonstrated through the records required pursuant to section A.III and the emissions unit-specific PE emission factors established during the emission testing that demonstrated that the emissions unit was in compliance. Compliance with the tons/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III.

c. Emission Limitations:

Phase I:

SO2 emissions shall not exceed 12.0 lbs/hr, and 10.2 tons/yr. per year

Applicable Compliance Method:

Initial compliance with the lbs/hr emission limitation shall be demonstrated through emission testing performed in accordance with section A.V.1. Until the initial emission testing is completed, compliance with the lbs/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the permittee-supplied SO2 emission factor (0.0069 lb of SO2/MMBtu). Ongoing compliance with the lbs/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the emissions unit-specific SO2 emission factor established during the emission testing that demonstrated that the emissions unit was in compliance. Compliance with the tons/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III.

Phase II:

Emission Limitations:

SO2 emissions shall not exceed 12.0 lbs/hr without duct burner firing, 14.0 lbs/hr with duct burner firing, and 56.6 tons /yr.

Applicable Compliance Method:

Compliance with the lbs/hr emission limitations may be demonstrated through the records required pursuant to section A.III and the permittee-supplied SO2 emission factors (0.0069 lb of SO2/MMBtu without duct burner firing and 0.00665 lb of SO2/MMBtu with duct burner firing). Compliance with the tons/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III. If required the permittee shall demonstrate compliance with the hourly emission limitations through emission tests performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 4 and 6.

d. Emission Limitations:

Phase I:

VOC emissions shall not exceed 3.2 lbs/hr and 2.7 tons/yr.

Applicable Compliance Method:

Initial compliance with the lbs/hr emission limitation shall be demonstrated through emission testing performed in accordance with section A.V.1. Until the initial emission testing is completed, compliance with the lbs/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the permittee-supplied VOC emission factor (0.0018 lb of VOC/MMBtu). Ongoing compliance with the lbs/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the emissions unit-specific VOC emission factor established during the emission testing that demonstrated that the emissions unit was in compliance. Compliance with the tons/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III.

Phase II:

Emission Limitations:

VOC emissions shall not exceed 3.2 lbs/hr without duct burner firing, 6.8 lbs/hr with duct burner firing, and 31.8 tons/yr, which includes 10.6 tons/yr for start-ups and shutdowns.

Applicable Compliance Method:

Initial compliance with the lbs/hr emission limitations shall be demonstrated through emission testing performed in accordance with section A.V.1. Until the initial emission testing is completed, compliance with the lbs/hr emission limitations may be demonstrated through the records required pursuant to section A.III and the permittee-supplied VOC emission factors (0.0018 lb of VOC/MMBtu without duct burner firing and 0.00323 lb of VOC/MMBtu with duct burner firing). Ongoing compliance with the lbs/hr emission limitations may be demonstrated through the records required pursuant to section A.III and the emissions unit-specific VOC emission factors established during the emission testing that demonstrated that the emissions unit was in compliance. Compliance with the tons/yr emission limitation, including start-up and shutdown emissions, shall be demonstrated based upon the records required pursuant to section A.III.

e. Emission Limitations:

Phase I:

CO emissions shall not exceed 9.0 ppmvd, 33.0 lbs/hr, and 28.1 tons/yr.

Applicable Compliance Method:

Initial compliance with the allowable outlet concentration, and the lbs/hr emission limitation shall be demonstrated through emission testing performed in accordance with section A.V.1. Until the initial emission testing is completed, compliance with the lbs/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the permittee-supplied CO emission factor (0.01892 lb of CO/MMBtu). Ongoing compliance with the lbs/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the emissions unit-specific CO emission factor established during the emission testing that demonstrated that the emissions unit was in compliance. Compliance with the tons/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III.

Phase II:

Emission Limitations:

CO emissions shall not exceed 9.0 ppmvd without duct burner firing, 15.0 ppmvd with duct burner firing, 33.0 lbs/hr without duct burner firing, 69.0 lbs/hr with duct burner firing, and 366.6 tons/yr, which includes 150.1 tons/yr for start-ups and shutdowns.

Emissions Unit ID: P003

Applicable Compliance Method:

Initial compliance with the allowable outlet concentrations, and the lbs/hr emission limitations shall be demonstrated through emission testing performed in accordance with section A.V.1. Ongoing compliance with these emission limitations shall be demonstrated based upon the continuous CO monitoring system data required pursuant to section A.III. Compliance with the tons/yr emission limitation, including start-up and shutdown emissions, shall be demonstrated based upon the records required pursuant to section A.III.

f. Emission Limitations:

Phase II:

NH3 emissions shall not exceed 26.0 lbs/hr without duct burner firing, 30.6 lbs/hr with duct burner firing, and 123.1 tons/yr.

Applicable Compliance Method:

Compliance with the lbs/hr emission limitations may be demonstrated through the records required pursuant to section A.III and the permittee-supplied NH3 emission factors (0.0149 lb of NH3/MMBtu without duct burner firing and 0.01454 lb of NH3/MMBtu with duct burner firing). Compliance with the tons/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III. If required, the permittee shall demonstrate compliance with the hourly emission limitations through emission tests performed in accordance with U.S. EPA-approved methods.

g. Emission Limitations:

Phase I:

Formaldehyde emissions shall not exceed 0.23 lb/hr and 0.20 ton/yr.

Applicable Compliance Method:

Initial compliance with the lb/hr emission limitation shall be demonstrated through emission testing performed in accordance with section A.V.1. Until the initial emission testing is completed, compliance with the lb/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the permittee-supplied formaldehyde emission factor (0.00013 lb of formaldehyde/MMBtu). Ongoing

compliance with the lb/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the emissions unit-specific formaldehyde emission factor established during the emission testing that demonstrated that the emissions unit was in compliance. Compliance with the ton/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III.

Phase II:

Emission Limitations:

Formaldehyde emissions shall not exceed 0.23 lb/hr without duct burner firing, 0.26 lb/hr with duct burner firing, and 1.06 tons/yr.

Applicable Compliance Method:

Initial compliance with the lb/hr emission limitations shall be demonstrated through emission testing performed in accordance with section A.V.1. Until the initial emission testing is completed, compliance with the lb/hr emission limitations may be demonstrated through the records required pursuant to section A.III and the permittee-supplied formaldehyde emission factors (0.00013 lb of formaldehyde/MMBtu without duct burner firing and 0.00012 lb of formaldehyde/MMBtu with duct burner firing). Ongoing compliance with the lbs/hr emission limitations may be demonstrated through the records required pursuant to section A.III and the emissions unit-specific formaldehyde emission factors established during the emission testing that demonstrated that the emissions unit was in compliance. Compliance with the tons/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III.

h. Emission Limitations:

Phase I:

Sulfuric acid emissions shall not exceed 0.48 lb/hr and 0.41 ton /yr.

Applicable Compliance Method:

Compliance with the lb/hr emission limitation may be demonstrated through the records required pursuant to section A.III and the permittee-supplied sulfuric acid emission factor (0.000275 lb of sulfuric acid/MMBtu). Compliance with the ton/yr emission limitation

shall be demonstrated based upon the records required pursuant to section A.III. If required, the permittee shall demonstrate compliance with the hourly emission limitation through emission tests performed in accordance with U.S. EPA-approved methods.

Phase II:

Emission Limitations:

Sulfuric acid emissions shall not exceed 0.48 lb/hr without duct burner firing, 0.56 lb/hr with duct burner firing, and 2.3 tons/yr.

Applicable Compliance Method:

Compliance with the lb/hr emission limitations may be demonstrated through the records required pursuant to section A.III and the permittee-supplied sulfuric acid emission factors (0.000275 lb of sulfuric acid/MMBtu without duct burner firing and 0.000266 lb of sulfuric acid/MMBtu with duct burner firing). Compliance with the tons/yr emission limitation shall be demonstrated based upon the records required pursuant to section A.III. If required the permittee shall demonstrate compliance with the hourly emission limitations through emission tests performed in accordance with U.S. EPA-approved methods.

i. Emission Limitation:

Visible particulate emissions from any stack shall not exceed 10% opacity as a 6-minute average.

Applicable Compliance Method:

If required, compliance with this emission limitation shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A.

VI. Miscellaneous Requirements

1. In accordance with good engineering practices, the SCR unit on this emissions unit shall be installed, operated and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee. The permittee shall maintain on site a copy of the operation and maintenance manual, as provided by the manufacturer.

2. The terms and conditions for this emissions unit supercede those contained in PTI 06-06206 issued March 29, 2001.

Emissions Unit ID: P003

B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
PHASE I		
P003 - GE 7FA Natural Gas Fired Dry Low NOx (DLN) Combustion Turbine	None	None
PHASE II		
P003 - GE 7FA Natural Gas Fired Dry Low NOx (DLN) Combustion Turbine with Duct Firing Operated in Combined Cycle Mode and Controlled by Selective Catalytic Reduction (SCR)	None	None

2. Additional Terms and Conditions

2.a None

II. Operational Restrictions

None

III. Monitoring and/or Recordkeeping Requirements

1. The permit to install for this emissions unit (P003) was evaluated based on actual materials (typically coatings and clean up materials) and the design parameters of the emissions unit's exhaust system, as specified by the permittee in the air permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy (Air Toxic Policy) was applied for each pollutant emitted by this emissions unit using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour

maximum ground-level concentration to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following summarizes the results of the modeling:

Pollutant: Formaldehyde
TLV (ug/m^3): 368 (Converted from the STEL)
Maximum Hourly Emission Rate (lbs/hr): 0.81*
Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 2.60
MAGLC (ug/m3): 8.76

Pollutant: Sulfuric Acid
TLV (ug/m3): 1000
Maximum Hourly Emission Rate (lbs/hr): 1.68*
Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 1.74
MAGLC (ug/m3): 23.8

Pollutant: Ammonia
TLV (ug/m3): 17413
Maximum Hourly Emission Rate (lbs/hr): 92*
Predicted 1-Hour Maximum Ground-Level Concentration (ug/m3): 94.7
MAGLC (ug/m3): 415

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

Physical changes to or changes in the method of operation of the emissions unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

a. changes in the composition of the materials used, or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value specified in the above table;

b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and

c. physical changes to the emissions unit or its exhaust parameters (e.g., increased/decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is (are) defined as a modification under other provisions of the modification definition (other than (VV)(1)(a)(ii)), then the permittee shall obtain a final permit to install prior to the change.
The permittee shall collect, record and retain the following information when it conducts evaluations to determine that the changed emissions unit will still satisfy the "Air Toxic Policy:"

a. a description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);

b. documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and

c. where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

IV. Reporting Requirements

None

V. Testing Requirements

None

VI. Miscellaneous Requirements

None

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

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
PHASE II		
P004 - Cooling Tower	OAC rule 3745-31-05 (A)(3)	The requirements of this rule also include compliance with the requirements of OAC rule 3745-31- (10) thru (20) and OAC rule 3745-17-07 (A).
	OAC rules 3745-31- (10) thru (20)	Particulate emissions (PE) shall not exceed 1.59 lbs/hr and 7.0 tons per year.
	OAC rule 3745-17-07 (A)	Visible particulate emissions shall not exceed 20 percent opacity as a six-minute average, except as provided by rule.
	OAC rule 3745-17-11 (B)(4)	See A.I.2.a below.

2. Additional Terms and Conditions

2.a. The emissions limit based on this applicable rule is less stringent than the limit established pursuant to OAC rule 3745-31-05(A)(3).

II. Operational Restrictions

1. The permittee shall maintain an average total dissolved solids (TDS) content of 3,000 ppm or less in the circulating cooling water.

III. Monitoring and/or Recordkeeping Requirements

1. The permittee shall perform the following monitoring requirements on a monthly basis:

a. test and record the total dissolved solids content of the circulating cooling water, in ppm; and

b. determine the average total dissolved solids content based on a rolling, 12-month average.

IV. Reporting Requirements

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

2. The permittee shall also submit annual reports that specify the total PE emissions from this emissions unit for the previous calendar year. The annual reports shall be submitted by February 15 of each year.

V. Testing Requirements

1. Compliance with the allowable emission limitations in this permit shall be determined according to the following methods:

a. Emission Limitation

PE emissions shall not exceed 1.59 lbs/hr and 7.0 tons per year.

Applicable Compliance Method
Compliance with the lb/hr emission limitation shall be demonstrated by multiplying the drift loss factor supplied by the permittee (0.0416 lb/thousand gallons water flow based on 0.0005 percent drift) by the circulating water flow rate (in thousands of gallons per hour) and by the average total dissolved solids content (ppm) of the cooling water and dividing by 1,000,000 (ppm). Compliance with the annual emission limitation shall be determined by multiplying the hourly emission rate by 8760 hours and dividing by 2000 lbs/ton.

If required, the permittee shall submit a testing proposal which will demonstrate that the maximum drift loss does not exceed 0.0005 percent.

b. Emission Limitation

Emissions Unit ID: P004

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

Applicable Compliance Method:

If required, compliance shall be demonstrated by the method specified in OAC rule 3745-17-03(B)(1).

VI. Miscellaneous Requirements

None

B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P004 - Cooling Tower	None	None

2. Additional Terms and Conditions

2.a None

II. Operational Restrictions

None

III. Monitoring and/or Recordkeeping Requirements

None

IV. Reporting Requirements

None

V. Testing Requirements

None

VI. Miscellaneous Requirements

None

NEW SOURCE REVIEW FORM B

PTI Number: 06-06739 Facility ID: 0684000213

FACILITY NAME PSEG Waterford Energy LLC

FACILITY DESCRIPTION Modification of auxiliary boiler (B001) and combustion turbines (P001, P002 and P003) and installation of a cooling tower (P004). CITY/TWP Beverly

SIC CODE 4911 SCC CODE 1-01-006-02 EMISSIONS UNIT ID B001

EMISSIONS UNIT DESCRIPTION 85.2 MMBtu/hr Natural Gas Fired Boiler

DATE INSTALLED To Be Determined

EMISSIONS: (Click on bubble help for Air Quality Descriptions)

Pollutants	Air Quality Description	Actual Emissions Rate		PTI Allowable	
		Short Term Rate	Tons Per Year	Short Term Rate	Tons Per Year
Particulate Matter	Attainment	0.005 lb/MMBtu	Phase I - 0.36 Phase II - 1.87	0.005 lb/MMBtu	Phase I - 0.36 Phase II - 1.87
PM_{10}	Attainment				
Sulfur Dioxide	Attainment	0.000584 lb/MMBtu	Phase I - 0.042 Phase II - 0.22	0.000584 lb/MMBtu	Phase I - 0.042 Phase II - 0.22
Organic Compounds	Attainment	0.0041 lb/MMBtu	Phase I - 0.30 Phase II - 1.53	0.0041 lb/MMBtu	Phase I - 0.30 Phase II - 1.53
Nitrogen Oxides	Attainment	0.036 lb/MMBtu	Phase I - 2.6 Phase II - 13.4	0.036 lb/MMBtu	Phase I - 2.6 Phase II - 13.4
Carbon Monoxide	Attainment	0.074 lb/MMBtu	Phase I - 5.4 Phase II - 27.6	0.074 lb/MMBtu	Phase I - 5.4 Phase II - 27.6
Lead					
Other: Air Toxics					

APPLICABLE FEDERAL RULES:

NSPS? Subpart Dc NESHAP? PSD? Y OFFSET POLICY?

WHAT IS THE BAT DETERMINATION, AND WHAT IS THE BASIS FOR THE DETERMINATION?
Enter Determination Natural Gas Fired Only

IS THIS SOURCE SUBJECT TO THE AIR TOXICS POLICY? No

OPTIONAL: WHAT IS THE CAPITAL COST OF CONTROL EQUIPMENT? $ NA

TOXIC AIR CONTAMINANTS

Ohio EPA's air toxics policy applies to contaiminants for which the American Conference of Governmental Industrial Hygienists (ACGIH) has a listed threshold limit value.

AIR TOXICS MODELING PERFORMED*? YES X NO

IDENTIFY THE AIR CONTAMINANTS:

NEW SOURCE REVIEW FORM B

PTI Number: 06-06739 Facility ID: 0684000213

FACILITY NAME PSEG Waterford Energy LLC

FACILITY DESCRIPTION Modification of auxiliary boiler (B001) and CITY/TWP Beverly

Emissions Unit ID: P004

SIC CODE 4911 SCC CODE 2-02-002-01 EMISSIONS UNIT ID P001

EMISSIONS UNIT DESCRIPTION GE 7FA Natural Gas Fired Dry Low NOx (DLN) Combustion Turbine

DATE INSTALLED To Be Determined

EMISSIONS: (Click on bubble help for Air Quality Descriptions)

Pollutants	Air Quality Description	Actual Emissions Rate		PTI Allowable	
		Short Term Rate	Tons Per Year	Short Term Rate	Tons Per Year
Particulate Matter	Attainment	Phase I - 18 lb/hr Phase II - 21.0 lb/hr (25.0 lb/hr)	Phase I - 15.3 Phase II - 100.0	Phase I - 18 lb/hr Phase II - 21.0 lb/hr (25.0 lb/hr)	Phase I - 15.3 Phase II - 100.0
PM_{10}					
Sulfur Dioxide	Attainment	Phase I - 12.0 lb/hr Phase II - 12.0 lb/hr (14.0 lb/hr)	Phase I - 10.2 Phase II - 56.6	Phase I - 12.0 lb/hr Phase II - 12.0 lb/hr (14.0 lb/hr)	Phase I - 10.2 Phase II - 56.6
Organic Compounds	Attainment	Phase I - 3.2 lb/hr Phase II - 3.2 lb/hr (6.8 lb/hr)	Phase I - 2.7 Phase II - 31.8*	Phase I - 3.2 lb/hr Phase II - 3.2 lb/hr (6.8 lb/hr)	Phase I - 2.7 Phase II - 31.8*
Nitrogen Oxides	Attainment	Phase I - 9.0 ppmvd at 15% O_2 - 64.0 lb/hr Phase II -3.5 ppmvd at 15% O2 - 25.0 lb/hr (30.0 lb/hr)	Phase I - 54.4 Phase II - 146.9*	Phase I - 9.0 ppmvd at 15% O_2 - 64.0 lb/hr Phase II -3.5 ppmvd at 15% O2 - 25.0 lb/hr (30.0 lb/hr)	Phase I - 54.4 Phase II-146.9*
Carbon Monoxide	Attainment	Phase I - 9.0 ppmvd - 33.0 lb/hr Phase II - 9.0 (15.0) ppmvd - 33.0 lb/hr (69.0 lb/hr)	Phase I - 28.1 Phase II - 366.6*	Phase I - 9.0 ppmvd - 33.0 lb/hr Phase II - 9.0 (15.0) ppmvd - 33.0 lb/hr (69.0 lb/hr)	Phase I - 28.1 Phase II-366.6*
Lead					
Other: Air Toxics	Ammonia (NH3) Formaldehyde Sulfuric Acid	PhII-26.0(30.6)lb/hr PhI - 0.23 lb/hr PhII-0.23(0.26)lb/hr PhI - 0.48 lb/hr PhII-0.48(0.56)lb/hr	123.1 0.20 1.06 0.41 2.3	PhII-26.0(30.6)lb/hr PhI - 0.23 lb/hr PhII-0.23(0.26)lb/hr PhI - 0.48 lb/hr PhII-0.48(0.56)lb/hr	123.1 0.20 1.06 0.41 2.3

( ) Emission rates with duct burner firing - 4000 hrs/yr * includes annual startup and shutdown emissions

NEW SOURCE REVIEW FORM B

PTI Number: 06-06739 Facility ID: 0684000213

FACILITY NAME PSEG Waterford Energy LLC

FACILITY DESCRIPTION Modification of auxiliary boiler (B001) and CITY/TWP Beverly

Emissions Unit ID: P004

APPLICABLE FEDERAL RULES:

NSPS? Subparts GG, Da NESHAP? Exempt from MACT < 10 tpy formaldehyde PSD? Y OFFSET POLICY?

WHAT IS THE BAT DETERMINATION, AND WHAT IS THE BASIS FOR THE DETERMINATION?
Enter Determination Phase I - Dry Low NOx Burners ; Phase II - Dry Low NOx Burners Controlled with Selective Catalytic Reduction; BACT (see staff determination)

IS THIS SOURCE SUBJECT TO THE AIR TOXICS POLICY? YES

OPTIONAL: WHAT IS THE CAPITAL COST OF CONTROL EQUIPMENT? $Phase II - $3,500,000

TOXIC AIR CONTAMINANTS

Ohio EPA's air toxics policy applies to contaiminants for which the American Conference of Governmental Industrial Hygienists (ACGIH) has a listed threshold limit value.

AIR TOXICS MODELING PERFORMED*? X YES _____ NO

IDENTIFY THE AIR CONTAMINANTS: Ammonia (NH3), Formaldehyde, Sulfuric Acid

NEW SOURCE REVIEW FORM B

PTI Number: 06-06739 Facility ID: 0684000213

FACILITY NAME PSEG Waterford Energy LLC

FACILITY DESCRIPTION Modification of auxiliary boiler (B001) and CITY/TWP Beverly

Emissions Unit ID: P004

SIC CODE 4911 SCC CODE 2-02-002-01 EMISSIONS UNIT ID P002

EMISSIONS UNIT DESCRIPTION GE 7FA Natural Gas Fired Dry Low NOx (DLN) Combustion Turbine

DATE INSTALLED To Be Determined

EMISSIONS: (Click on bubble help for Air Quality Descriptions)

Pollutants	Air Quality Description	Actual Emissions Rate		PTI Allowable	
		Short Term Rate	Tons Per Year	Short Term Rate	Tons Per Year
Particulate Matter	Attainment	Phase I - 18 lb/hr Phase II - 21.0 lb/hr (25.0 lb/hr)	Phase I - 15.3 Phase II - 100.0	Phase I - 18 lb/hr Phase II - 21.0 lb/hr (25.0 lb/hr)	Phase I - 15.3 Phase II - 100.0
PM_{10}					
Sulfur Dioxide	Attainment	Phase I - 12.0 lb/hr Phase II - 12.0 lb/hr (14.0 lb/hr)	Phase I - 10.2 Phase II - 56.6	Phase I - 12.0 lb/hr Phase II - 12.0 lb/hr (14.0 lb/hr)	Phase I - 10.2 Phase II - 56.6
Organic Compounds	Attainment	Phase I - 3.2 lb/hr Phase II - 3.2 lb/hr (6.8 lb/hr)	Phase I - 2.7 Phase II - 31.8*	Phase I - 3.2 lb/hr Phase II - 3.2 lb/hr (6.8 lb/hr)	Phase I - 2.7 Phase II - 31.8*
Nitrogen Oxides	Attainment	Phase I - 9.0 ppmvd at 15% O_2 - 64.0 lb/hr Phase II -3.5 ppmvd at 15% O2 - 25.0 lb/hr (30.0 lb/hr)	Phase I - 54.4 Phase II - 146.9*	Phase I - 9.0 ppmvd at 15% O_2 - 64.0 lb/hr Phase II -3.5 ppmvd at 15% O2 - 25.0 lb/hr (30.0 lb/hr)	Phase I - 54.4 Phase II-146.9*
Carbon Monoxide	Attainment	Phase I - 9.0 ppmvd - 33.0 lb/hr Phase II - 9.0 (15.0) ppmvd - 33.0 lb/hr (69.0 lb/hr)	Phase I - 28.1 Phase II - 366.6*	Phase I - 9.0 ppmvd - 33.0 lb/hr Phase II - 9.0 (15.0) ppmvd - 33.0 lb/hr (69.0 lb/hr)	Phase I - 28.1 Phase II-366.6*
Lead					
Other: Air Toxics	Ammonia (NH3) Formaldehyde Sulfuric Acid	PhII-26.0(30.6)lb/hr PhI - 0.23 lb/hr PhII-0.23(0.26)lb/hr PhI - 0.48 lb/hr PhII-0.48(0.56)lb/hr	123.1 0.20 1.06 0.41 2.3	PhII-26.0(30.6)lb/hr PhI - 0.23 lb/hr PhII-0.23(0.26)lb/hr PhI - 0.48 lb/hr PhII-0.48(0.56)lb/hr	123.1 0.20 1.06 0.41 2.3

( ) Emission rates with duct burner firing - 4000 hrs/yr * includes annual startup and shutdown emissions

NEW SOURCE REVIEW FORM B

PTI Number: 06-06739 Facility ID: 0684000213

FACILITY NAME PSEG Waterford Energy LLC

FACILITY DESCRIPTION Modification of auxiliary boiler (B001) and CITY/TWP Beverly

Emissions Unit ID: P004

APPLICABLE FEDERAL RULES:

NSPS? Subparts GG, Da NESHAP? Exempt from MACT < 10 tpy formaldehyde PSD? Y OFFSET POLICY?

WHAT IS THE BAT DETERMINATION, AND WHAT IS THE BASIS FOR THE DETERMINATION?
Enter Determination Phase I - Dry Low NOx Burners ; Phase II - Dry Low NOx Burners Controlled with Selective Catalytic Reduction; BACT (see staff determination)

IS THIS SOURCE SUBJECT TO THE AIR TOXICS POLICY? YES

OPTIONAL: WHAT IS THE CAPITAL COST OF CONTROL EQUIPMENT? $Phase II - $3,500,000

TOXIC AIR CONTAMINANTS

Ohio EPA's air toxics policy applies to contaiminants for which the American Conference of Governmental Industrial Hygienists (ACGIH) has a listed threshold limit value.

AIR TOXICS MODELING PERFORMED*? X YES _____ NO

IDENTIFY THE AIR CONTAMINANTS: Ammonia (NH3), Formaldehyde, Sulfuric Acid

NEW SC
PTI Num
FACILIT
Emissions Unit ID: P004

FACILITY DESCRIPTION Modification of auxiliary boiler (B001) and combustion turbines (P001, P002 and P003) and installation of a cooling tower (P004).

CITY/TWP Beverly

SIC CODE 4911 SCC CODE 2-02-002-01 EMISSIONS UNIT ID P003

EMISSIONS UNIT DESCRIPTION GE 7FA Natural Gas Fired Dry Low NOx (DLN) Combustion Turbine

DATE INSTALLED To Be Determined

EMISSIONS: (Click on bubble help for Air Quality Descriptions)

Pollutants	Air Quality Description	Actual Emissions Rate		PTI Allowable	
		Short Term Rate	Tons Per Year	Short Term Rate	Tons Per Year
Particulate Matter	Attainment	Phase I - 18 lb/hr Phase II - 21.0 lb/hr (25.0 lb/hr)	Phase I - 15.3 Phase II - 100.0	Phase I - 18 lb/hr Phase II - 21.0 lb/hr (25.0 lb/hr)	Phase I - 15.3 Phase II - 100.0
PM_{10}					
Sulfur Dioxide	Attainment	Phase I - 12.0 lb/hr Phase II - 12.0 lb/hr (14.0 lb/hr)	Phase I - 10.2 Phase II - 56.6	Phase I - 12.0 lb/hr Phase II - 12.0 lb/hr (14.0 lb/hr)	Phase I - 10.2 Phase II - 56.6
Organic Compounds	Attainment	Phase I - 3.2 lb/hr Phase II - 3.2 lb/hr (6.8 lb/hr)	Phase I - 2.7 Phase II - 31.8*	Phase I - 3.2 lb/hr Phase II - 3.2 lb/hr (6.8 lb/hr)	Phase I - 2.7 Phase II - 31.8*
Nitrogen Oxides	Attainment	Phase I - 9.0 ppmvd at 15% O_2 - 64.0 lb/hr Phase II -3.5 ppmvd at 15% O2 - 25.0 lb/hr (30.0 lb/hr)	Phase I - 54.4 Phase II - 146.9*	Phase I - 9.0 ppmvd at 15% O_2 - 64.0 lb/hr Phase II -3.5 ppmvd at 15% O2 - 25.0 lb/hr (30.0 lb/hr)	Phase I - 54.4 Phase II-146.9*
Carbon Monoxide	Attainment	Phase I - 9.0 ppmvd - 33.0 lb/hr Phase II - 9.0 (15.0) ppmvd - 33.0 lb/hr (69.0 lb/hr)	Phase I - 28.1 Phase II - 366.6*	Phase I - 9.0 ppmvd - 33.0 lb/hr Phase II - 9.0 (15.0) ppmvd - 33.0 lb/hr (69.0 lb/hr)	Phase I - 28.1 Phase II-366.6*
Lead					

NEW SOURCE REVIEW FORM B

PTI Number: 06-06739 Facility ID: 0684000213

FACILITY NAME PSEG Waterford Energy LLC

FACILITY DESCRIPTION Modification of auxiliary boiler (B001) and CITY/TWP Beverly

Emissions Unit ID: P004

Other: Air Toxics	Ammonia (NH3) Formaldehyde Sulfuric Acid	PhII-26.0(30.6)lb/hr PhI - 0.23 lb/hr PhII-0.23(0.26)lb/hr PhI - 0.48 lb/hr PhII-0.48(0.56)lb/hr	123.1 0.20 1.06 0.41 2.3	PhII-26.0(30.6)lb/hr PhI - 0.23 lb/hr PhII-0.23(0.26)lb/hr PhI - 0.48 lb/hr PhII-0.48(0.56)lb/hr	123.1 0.20 1.06 0.41 2.3

( ) Emission rates with duct burner firing - 4000 hrs/yr * includes annual startup and shutdown emissions

APPLICABLE FEDERAL RULES:

NSPS? Subparts GG, Da NESHAP? Exempt from MACT < 10 tpy formaldehyde PSD? Y OFFSET POLICY?

WHAT IS THE BAT DETERMINATION, AND WHAT IS THE BASIS FOR THE DETERMINATION?

Enter Determination Phase I - Dry Low NOx Burners ; Phase II - Dry Low NOx Burners Controlled with Selective Catalytic Reduction; BACT (see staff determination)

IS THIS SOURCE SUBJECT TO THE AIR TOXICS POLICY? YES

OPTIONAL: WHAT IS THE CAPITAL COST OF CONTROL EQUIPMENT? $Phase II - $3,500,000

TOXIC AIR CONTAMINANTS

Ohio EPA's air toxics policy applies to contaiminants for which the American Conference of Governmental Industrial Hygienists (ACGIH) has a listed threshold limit value.

AIR TOXICS MODELING PERFORMED*? X YES _____ NO

IDENTIFY THE AIR CONTAMINANTS: Ammonia (NH3), Formaldehyde, Sulfuric Acid

NEW SOURCE REVIEW FORM B

PTI Number: 06-06739 Facility ID: 0684000213

FACILITY NAME PSEG Waterford Energy LLC

FACILITY DESCRIPTION Modification of auxiliary boiler (B001) and CITY/TWP Beverly

Emissions Unit ID: P004

SIC CODE 4911 SCC CODE 3-85-001-01 EMISSIONS UNIT ID P004

EMISSIONS UNIT DESCRIPTION Cooling Tower (Phase II)

DATE INSTALLED 9/2001

EMISSIONS: (Click on bubble help for Air Quality Descriptions)

Pollutants	Air Quality Description	Actual Emissions Rate		PTI Allowable	
		Short Term Rate	Tons Per Year	Short Term Rate	Tons Per Year
Particulate Matter	Attainment	1.59	7.0	1.59	7.0
PM_{10}					
Sulfur Dioxide					
Organic Compounds					
Nitrogen Oxides					
Carbon Monoxide					
Lead					
Other: Air Toxics					

APPLICABLE FEDERAL RULES:

NSPS? NESHAP? PSD? Y OFFSET POLICY?

WHAT IS THE BAT DETERMINATION, AND WHAT IS THE BASIS FOR THE DETERMINATION?
Enter Determination High Efficiency Drift Eliminators

IS THIS SOURCE SUBJECT TO THE AIR TOXICS POLICY? NO

OPTIONAL: WHAT IS THE CAPITAL COST OF CONTROL EQUIPMENT? $ NA

TOXIC AIR CONTAMINANTS

Ohio EPA's air toxics policy applies to contaiminants for which the American Conference of Governmental Industrial Hygienists (ACGIH) has a listed threshold limit value.

AIR TOXICS MODELING PERFORMED*? YES X NO

IDENTIFY THE AIR CONTAMINANTS: