



John R. Kasich, Governor
 Mary Taylor, Lt. Governor
 Craig W. Butler, Director

9/23/2016

Ms. Amy Frazier
 South Field Energy LLC
 31 Milk Street
 Suite 1001
 Boston, MA 02109

RE: FINALAIR POLLUTION PERMIT-TO-INSTALL
 Facility ID: 0215132003
 Permit Number: P0119495
 Permit Type: Initial Installation
 County: Columbiana

Certified Mail

Yes	TOXIC REVIEW
Yes	PSD
No	SYNTHETIC MINOR TO AVOID MAJOR NSR
Yes	CEMS
Yes	MACT/GACT
Yes	NSPS
No	NESHAPS
No	NETTING
No	MAJOR NON-ATTAINMENT
Yes	MODELING SUBMITTED
Yes	MAJOR GHG
No	SYNTHETIC MINOR TO AVOID MAJOR GHG

Dear Permit Holder:

Enclosed please find a final Ohio Environmental Protection Agency (EPA) Air Pollution Permit-to-Install (PTI) which will allow you to install or modify the described emissions unit(s) in a manner indicated in the permit. Because this permit contains several conditions and restrictions, we urge you to read it carefully. Because this permit contains conditions and restrictions, please read it very carefully. In this letter you will find the information on the following topics:

- **How to appeal this permit**
- **How to save money, reduce pollution and reduce energy consumption**
- **How to give us feedback on your permitting experience**
- **How to get an electronic copy of your permit**
- **What should you do if you notice a spill or environmental emergency?**

How to appeal this permit

The issuance of this PTI is a final action of the Director and may be appealed to the Environmental Review Appeals Commission pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. The appeal must be filed with the Commission within thirty (30) days after notice of the Director's action. The appeal must be accompanied by a filing fee of \$70.00, made payable to "Ohio Treasurer Josh Mandel," which the Commission, in its discretion, may reduce if by affidavit you demonstrate that payment of the full amount of the fee would cause extreme hardship. Notice of the filing of the appeal shall be filed with the Director within three (3) days of filing with the Commission. Ohio EPA requests that a copy of the appeal be served upon the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission
 77 South High Street, 17th Floor
 Columbus, OH 43215

How to save money, reduce pollution and reduce energy consumption

The Ohio EPA is encouraging 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 Compliance Assistance and Pollution Prevention at (614) 644-3469. Additionally, all or a portion of the capital expenditures related to installing air pollution control equipment under this permit may be eligible for financing and State tax exemptions through the Ohio Air Quality Development Authority (OAQDA) under Ohio Revised Code Section 3706. For more information, see the OAQDA website: www.ohioairquality.org/clean_air

How to give us feedback on your permitting experience

Please complete a survey at www.epa.ohio.gov/survey.aspx and give us feedback on your permitting experience. We value your opinion.

How to get an electronic copy of your permit

This permit can be accessed electronically via the eBusiness Center: Air Services in Microsoft Word format or in Adobe PDF on the Division of Air Pollution Control (DAPC) Web page, www.epa.ohio.gov/dapc by clicking the "Search for Permits" link under the Permitting topic on the Programs tab.

What should you do if you notice a spill or environmental emergency?

Any spill or environmental emergency which may endanger human health or the environment should be reported to the Emergency Response 24-HOUR EMERGENCY SPILL HOTLINE toll-free at (800) 282-9378. Report non-emergency complaints to the appropriate district office or local air agency.

If you have any questions regarding your permit, please contact Ohio EPA DAPC, Northeast District Office at (330)963-1200 or the Office of Compliance Assistance and Pollution Prevention at (614) 644-3469.

Sincerely,



Michael E. Hopkins, P.E.
Assistant Chief, Permitting Section, DAPC

Cc: U.S. EPA
Ohio EPA-NEDO; Pennsylvania; West Virginia



Division Name Response to Comments

Project: South Field Energy; PSD PTI
Ohio EPA ID #: (P0119495)

Agency Contacts for this Project

Division Contact: Corey Kurjian, DAPC, 330-963-1216, corey.kurjian@epa.ohio.gov Public Involvement
Coordinator: Mike Settles, 614-728-0021, michael.settles@epa.ohio.gov

Ohio EPA held a public hearing and/or comment period on August 18, 2016 regarding PSD PTI P0119495 for South Field Energy. This document summarizes the comments and questions received at (the public hearing and/or during the associated comment period), which ended on August 22, 2016.

Ohio EPA reviewed and considered all comments received during the public comment period. By law, Ohio EPA has authority to consider specific issues related to protection of the environment and public health. Often, public concerns fall outside the scope of that authority. For example, concerns about zoning issues are addressed at the local level. Ohio EPA may respond to those concerns in this document by identifying another government agency with more direct authority over the issue.

In an effort to help you review this document, the questions are grouped by topic and organized in a consistent format.

Permitting Concerns

Comments submitted by Ohio Valley Jobs Alliance (OVJA) in a letter and report by Exponent dated June 21, 2016:

Comment 1: **The Applicant used non-U.S. EPA emission factors for formaldehyde, hexane, and trace metals. The justification provided for use of these non-U.S. EPA emission factors is insufficient. If the corresponding U.S. EPA emission factors had been used, the project's potential to emit (PTE) would have been higher for hazardous air pollutants (HAPs), and the status of the project relative to the major source thresholds for HAPs might have been different.**

Response 1: Ohio EPA accepts emission factors from the California Air Toxics Emission Factors (CATEF) database. The formaldehyde emission factor of 0.00011 lb/MMBtu is from CATEF and represents a control efficiency of approximately 85 percent when compared to the AP-42 uncontrolled factor of 0.00071 lb/MMBtu. An 85 percent control of formaldehyde is a reasonable performance value for the oxidation catalyst system proposed by South Field Energy. The CATEF formaldehyde emission factor has been accepted by Ohio EPA on recent combined cycle power plant permit applications.

The hexane emission factor was obtained from the Ventura County Air Pollution Control District (VCAPCD) and is considered to be a more realistic emission factor for natural gas-fired duct burners and gas-fired boilers. The AP-42 hexane emission factor has an "E" rating (poor rating).

The metals emission factors are specific to ultra-low sulfur diesel (ULSD) fuel and were obtained from the scholarly article “*Survey of Ultra-Trace Metals in Gas Turbine Fuels*” by Rising, Sorurbakhsh and Wu, American Chemical Society Paper, Division of Fuel Chemistry, 2004. The metals emission factors referenced in AP-42 Table 3.1-5 are for distillate oil and not ULSD. In addition, the AP-42 emission factors are “D” rated (below average reliability).

These limits have also been reviewed and accepted by U.S. EPA.

Comment 2: **Potential to emit (PTE) from the project was calculated based on operation of the combined cycle units at an ambient temperature of 59 degrees Fahrenheit (F). This assumption likely underestimates potential emissions, especially for ULSD firing which is likely to occur at lower ambient temperatures.**

Response 2: PTE for the combustion turbines was estimated using worst-case assumptions such as full-load operation of the turbines for 8,760 hours per year at 59F (no downtime); duct burning for 8,760 hours per year for each turbine; and the inclusion of start-up/shutdown events. Federally enforceable emission limitations were established from the PTE which the facility must demonstrate compliance with on a continual basis. These limits have also been reviewed and accepted by U.S. EPA.

Comment 3: **Some of the emission limits proposed as Best Available Control Technology (BACT) or Best Available Technology (BAT) are not as stringent as limits appearing in recent permits for similar equipment in other states.**

- **The proposed carbon monoxide (CO) and volatile organic compounds (VOC) limits for the combined cycle units are less stringent than those in some recent permits and may not represent BACT.**
- **Some recent permits in other states have required selective catalytic reduction (SCR) and/or oxidation catalyst (OC) systems on auxiliary boilers at combined cycle generation facilities. The method used by the applicant to exclude these control options was based, in part, on cost, but did not consider total or incremental cost effectiveness.**
- **The proposed ammonia slip limit on the combined cycle units is not as stringent as limits imposed in some recent permits elsewhere for similar facilities.**

Response 3: BACT limits are based on the BACT justification provided in the permit application, other similarly permitted facilities in Ohio and the RACT/BACT/LAER Clearinghouse RBLC permit data base.

- The permit application for this project provided detail on why a 0.9 ppm CO limit is not appropriate. Such a limit diminishes operating flexibility for this type of facility and can potentially result in greater overall CO emissions from start-up and shutdown emissions. The CO emissions limit of 2.0 parts per million (ppm) provides the facility flexibility to operate at lower minimum loads in overnight hours and potentially avoid start-up and shutdown emissions.
- The VOC emissions limit is consistent with other similar permitted facilities in Ohio. These limits have been reviewed and accepted by U.S. EPA.
- This project is not subject to Lowest Achievable Emission Rate (LAER) for nitrogen oxides (NO_x), and an oxidation catalyst for auxiliary boilers at a combined cycle facility is rare. The emissions limits for the auxiliary boiler are

consistent with other similar permitted facilities in Ohio. These limits have been reviewed and accepted by U.S. EPA.

- Ammonia is not a PSD pollutant subject to PSD BACT requirements. The ammonia slip limit for the combined cycle emissions units is consistent with other similar permitted facilities in Ohio. These limits have been reviewed and accepted by U.S. EPA.

Comment 4: The request for up to 5,000 hours per year of operation for the auxiliary boiler seems inconsistent with the stated needs for the project.

Response 4: The use limit of 5,000 hours provides the facility operational flexibility and such operating limits are not uncommon for similar permitted facilities in Ohio. These limits have been reviewed and accepted by U.S. EPA.

Comments submitted by U.S. EPA in a letter dated June 22, 2016:

Comment 5: Throughout the permit several federal regulations are cited...as applicable regulations, however the permit does not specify which portions of the regulations are applicable to the facility. Guidance provided in White Paper Number 2 for Improved Implementation of the Part 70 Operating Permits Program indicates that where only portions of a referenced document applies, permits must specify the relevant sections. Per the guidance in White Paper 2 and to improve clarity, the permit should be revised to include the applicable portions of the aforementioned subparts.

Response 5: The permit has been revised to include the applicable portions pertaining to the following rules:

- 40 CFR Part 60, Subpart A
- 40 CFR Part 60, Subpart Dc
- 40 CFR Part 60, Subpart IIII
- 40 CFR Part 60, Subpart KKKK
- 40 CFR Part 60, Subpart TTTT
- 40 CFR Part 63, Subpart A
- 40 CFR Part 63, Subpart ZZZZ

Comment 6: The emission limitation for sulfur dioxide (SO₂) for B001 assumes a specific sulfur content in the natural gas used as fuel. The operational restrictions do not restrict the sulfur content in the natural gas to the assumptions used in developing the emission limit. The section of the permit containing the requirements for B001 should also include a limit on the sulfur content allowable in the natural gas being fired at the facility.

Response 6: The permit has been revised to include a sulfur limit (to match the limit for the combustion turbines) of 0.5 grain per 100 standard cubic feet (scf) of natural gas.

Comment 7: Testing conditions throughout the permit...include language that says "If required" testing will be completed for several pollutants. In accordance with 40 C.F.R. 70.6(c)(1), the permit must require monitoring, record keeping and testing sufficient to assure compliance. The permit term, as written, doesn't require compliance testing. The permit should include a regular testing schedule of at least once a month for opacity and once a permit term for the other pollutants.

Response 7: For natural gas firing and/or number 2 fuel oil, the Ohio EPA does not typically include visible emission (VE) language for “inherently clean emissions units”. Since “inherently clean emissions units” is defined as an uncontrolled emissions unit, monthly VE language would still apply to emissions units B001, P001 and P002. The permit has been revised to include monthly VE checks during natural gas firing for emissions units B001, P001 and P002.

The permit has been revised to include once per permit term testing for sulfur dioxide (SO₂), sulfuric acid (H₂SO₄) and carbon dioxide (CO₂) for emissions unit B001. No testing requirements were added for emissions units P003 and P004 since they are factory certified to meet 40 CFR Part 60, Subpart IIII. Because these emissions units are proposed for emergency purposes only, it is not common to require testing.

Comment 8: **Conditions C.1.f)(1)d. and C.4.f)(1)d. discuss how the hourly emissions limitations for SO₂ were developed. The conditions are not methods of determining compliance with the limitation, nor do they account for any sulfur content variability that the facility may experience with its fuel shipments. To improve enforceability and clarify, the permit should include a calculation method which uses the actual sulfur content data collected by the facility.**

Response 8: The maximum allowable fuel content is utilized to demonstrate compliance with the hourly SO₂ emission limitation. As written, the permit requires periodic testing for the sulfur content of natural gas utilized by the facility (see emissions units P001 and P002). The permit also requires test data identifying SO₂ content for each shipment of ULSD. Compliance with the SO₂ limits will be demonstrated through fuel testing requirements contained in the permit.

Comment 9: **Conditions require that the quality of diesel fuel received meets sulfur content specifications and that the permittee or oil supplier determine compliance with these requirements. The conditions do not include a timeframe when a sample must be analyzed; corrective action procedures are implements and record keeping or reporting requirements are followed (if the analysis determines that the diesel fuel received does not meet permit specifications). To improve enforceability and clarity of this condition, the permit should include the following:**

- 1. specify timeframe in which the sample must be analyzed;**
- 2. corrective action procedures;**
- 3. record keeping requirements; and**
- 4. reporting requirements.**

Response 9: The permit has been revised to include the following:

- The permittee will require ULSD suppliers to provide certified test data indicating compliance with the permit sulfur content specifications prior to accepting ULSD delivery (noncompliant ULSD will not be accepted).
- If noncompliant ULSD is mistakenly taken, the permittee will not combust any of the delivered ULSD upon discovery of any deviation from permit terms and conditions, and will require the supplier to remove the ULSD from the tank or provide other corrective action (such as adding cleaner fuel to the tank) to allow the overall tank contents to comply with the permit.
- If the ULSD supplier information is not available, the permittee will take ULSD samples upon delivery and obtain results using the “quick” turnaround option from a certified laboratory.

- The permittee shall report any ULSD deviation within 30 days of receiving noncompliant ULSD.

The permit already requires the permittee to maintain records of the oil supplier's (or permittee's) analyses for sulfur content in parts per million (40 CFR 80.510). The permittee shall perform or require the supplier to perform the analyses for sulfur content in accordance with 40 CFR 80.585.

Comment 10: **Condition C.2.b)(2)j. does not include start-up or shutdown emission limits for PM₁₀/PM_{2.5}, SO₂, or H₂SO₄. Please revise the condition to include start-up and shutdown emission limits for these pollutants if the limitations are different than during normal operations.**

Response 10: The permit includes start-up and shutdown mass emissions for SO₂, H₂SO₄ and PM₁₀/PM_{2.5} that are less than the worst-case values in C.2.b)(2)h. with the exception of PM₁₀/PM_{2.5} for ULSD firing. Section C.2.b.(2)j. of the permit has been revised to include the ULSD maximum emissions for PM₁₀/PM_{2.5} (77.4 lbs/hr).

Comment 11: **Please verify the permit condition citation in Condition C.2d)(7).**

Response 11: Section C.2.d)(7) of the permit includes language from 40 CFR 60.4365 (Subpart KKKK). The Subpart KKKK sulfur limit is replaced with the permitted emission limitation of 0.0014 lb SO₂/MMBtu. The permit has been revised to reference 40 CFR 60.4360 and eliminate the reference to d)(7) in the first sentence.

Comment 12: **Condition C.2.f)(1)l.ii describes the calculation method for SO₂ emissions when burning ULSD. The calculation allows the permittee to calculate emissions based on the average percent sulfur of the ULSD fuel used during the month or 0.0015 percent sulfur. The option to use 0.0015 percent sulfur should be removed, because the variations of sulfur content in the ULSD fuel cannot be taken into account and is not reflective of actual operations at the facility.**

Response 12: The permit has been revised to eliminate the optional use of 0.0015 percent sulfur for the ULSD SO₂ calculation (current calculation is conservative since all distillate oil tests results must be < 0.0015 percent sulfur to be in compliance with the permit).

Comment 13: **Condition C.5.d) regarding monitoring requirements for emissions units P005 and P006 requires the use of a conductivity meter or other equipment to continuously monitor and record total dissolved solids (TDS) concentrations of the cooling water. The conditions do not require establishment of operating parameters or an acceptable operating range. The permit should include the acceptable operating range to indicate to the facility when corrective actions need to be taken. Additionally, corrective actions are not identified in the permit. To improve the enforceability and clarity of this condition, the permit should include the following:**

1. establishment of operating parameters or operating range;
2. identify corrective actions; and
3. timeframe in which corrective actions need to be initiated.

Response 13: The permit has been revised to require the following:

- Within 180 days after commercial operation, the permittee shall conduct testing to develop a correlation between conductivity and TDS. This correlation shall establish an acceptable parameter range for conductivity to meet the TSD

requirement. Results of the test to establish an acceptable parameter range shall be submitted to Ohio EPA no later than 30 days after completion of the test.

- If the conductivity is found to be outside the acceptable parameter range submitted to Ohio EPA in accordance with section f)(2), the permittee shall increase the cooling tower blowdown rate as the primary corrective action to decrease the TDS level in the circulating water to restore the conductivity into an acceptable range within 24 hours or less.
- Corrective actions will be documented in the required quarterly excess emission reports.

Comments submitted by Refinery Maintenance Services, LLC via an email dated 8/19/2016:

Comment 14: How much aqueous ammonia is planned to be stored on site?

Response 14: The facility has proposed to install two 20,000 gallon capacity double-wall aqueous ammonia storage tanks on site.

Comment 15: How much back-up diesel fuel oil is planned to be stored on site?

Response 15: The facility has proposed to install a nominal three million gallon capacity aboveground fixed-roof fuel oil storage tank on site.

Modeling Comments

Comments submitted by Ohio Valley Jobs Alliance (OVJA) in a letter and report by Exponent dated June 21, 2016:

Comment 16: Building configuration information provided in the PTI Application and the Certificate Application are not consistent. As a result, potential building downwash effects in the modeling may have been underestimated.

Response 16: Ohio EPA understands that the main heat recovery steam generators (HRSGs) are 45.5 feet wide, 75 feet long and 125 feet tall. The intermediate steam drum is 68 feet wide but only 0.73 feet thick. This very thin horizontal platform is not anticipated to have a significant impact on wind flows. Ohio EPA also understands that the lengths of the main buildings were conservatively extended to account for the tapering portion of the building as it connects to the HRSG stack. Ohio EPA believes that the modeling submitted for this application adequately and conservatively represent building downwash.

Comment 17: The applicant's modeling excluded emissions from the emergency diesel generator and the emergency diesel water pump when determining the project impact area. This omission may have caused the impact area to be underestimated and, as a result, may have excluded some off-site sources from the cumulative impact analysis.

Response 17: Ohio EPA understands that emergency equipment does not represent the normal operations of a facility, and it is therefore appropriate, when operation times of such sources are adequately limited in the operating permit, to exclude such sources from the majority of modeling applications. These sources are furthermore unlikely to expand the number of offsite sources included in the cumulative impact analysis. This is based on a March, 2011 memo from U.S. EPA entitled "Additional Clarification Regarding

Application of Appendix W Modeling Guidance for the 1-hour NO₂ National Ambient Air Quality Standard”.

Comment 18: The extent of the project significant impact area (SIA) for 24-hour particulate matter equal to or less than 2.5 µm in diameter (PM_{2.5}) is described in an inconsistent manner within the PTI application. As a result, the region that was considered for off-site sources in the cumulative impact analysis for PM_{2.5} may have been insufficient.

Response 18: Ohio EPA contends that the SIA for the 24-hour PM_{2.5} was established in a manner consistent with Ohio EPA guidance. Ohio EPA noted a typographical error in Table F-1 of Appendix F to the application, which presents incorrect values for the SIA. Ohio EPA believes the SIA established and modeled for this standard is sufficient.

Comment 19: The applicant did not conduct a complete cumulative impact modeling for 1-hour nitrogen dioxide (NO₂) even though the project was predicted to have significant 1-hour NO₂ impacts. Therefore, the analysis provided in the PTI application is not adequate to demonstrate compliance with the 1-hour ambient standard for NO₂.

Response 19: The applicant demonstrated that all normal, steady-state operating conditions resulted in maximum 1-hour NO₂ concentrations below the SIL. The facility correctly modeled non-steady state conditions and demonstrated that these rare circumstances would not impact the statistically-based 1-hour NO₂ standard or cause an exceedance of the 1-hour NO₂ standard. This approach has been utilized multiple times in the State of Ohio, and is consistent with U.S. EPA guidance. Ohio EPA references the March, 2011 U.S. EPA Memo, “Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO₂ National Ambient Air Quality Standard”.

Comment 20: The selection of off-site PM_{2.5} sources for the cumulative impact analysis for 24-hour PM_{2.5} was not consistent with applicable regulatory guidance. Two nearby permitted minor sources (Yellow Creek Casting Co. and Wellsville Foundry Inc.) were not considered and were not included in the modeling. The 20D method, which was used by the applicant to determine which major sources should be included in the modeling for PM_{2.5}, was applied incorrectly on a stack-by-stack basis instead of on a facility-wide basis. As a result, some off-site facilities that should have been included in the cumulative impact modeling analysis were excluded in their entirety. In addition, some off-site stacks that should have been included in the cumulative impact analysis were excluded. The applicant excluded consideration of fugitive emissions from off-site sources beyond 10 kilometers (km) from the project using a rationale that is without merit.

Response 20: Ohio EPA examined an advanced copy of the cumulative modeling inventory and approved it. Ohio EPA has the discretion to exclude sources which are not likely to interact in a significant manner with any proposed project. For this case, the inclusion of multiple insignificant and distant sources which are both unlikely to interact with the projects emissions and are adequately and conservatively represented by background concentrations.

Comment 21: The OVJA's comments also noted that their review of cumulative impact modeling for PM_{2.5} revealed some issues, including modeling of stack height in excess of GEP stack height for a unit at the W.H. Sammis (850 foot stack modeled vs. 840 foot GEP height), and modeling an inaccurate stack height for Unit 3 at the Cardinal Plant (900 foot stack modeled vs. new 423 foot cooling tower vent).

Response 21: Ohio EPA acknowledges the presence of incorrect stack heights for these facilities in the database provided and will make these corrections. The W.H. Sammis facility is located 12.2 kilometers from the proposed site, and the Cardinal facility is located 43 kilometers distant. It is highly unlikely that the minor differences in the W.H. Sammis stack height would have any influence on modeled impacts at that distance, and the Cardinal facility is located at such a distance that impacts from Cardinal would likely be below what is represented in a conservative background concentration.

Comment 22: **The application did not include an additional impacts analysis for possible impairment to visibility due to the project. This analysis is required by applicable state and federal rules. A Level-I screening analysis that I conducted consistent with U.S. EPA guidance indicates a potential for possible impairment to visibility at nearby Hammond Park located in the Class II area.**

Response 22: Compliance with OAC chapter 3745-17 visibility and opacity requirements address the intent of the PSD plume blight visibility requirements. The Ohio EPA does not require visibility analysis for Class II areas.

Comments submitted by USEPA in a letter dated June 22, 2016:

Comment 23: **Please ensure that the start-up and shut down emissions are accounted for in the emission limits and the air dispersion modeling.**

Response 23: The start-up and shutdown emission limits have been accounted for in the air dispersion modeling.

Comment 24: **Make sure to include the emissions from the emergency diesel generator and the emergency diesel fire pump in your PM_{2.5} modeling analysis.**

Response 24: Consistent with the Air Quality Model Protocol submitted by SFE and approved by Ohio EPA, the emergency engines were not included in the modeling analysis due to the very infrequent expected operating time of this equipment. It is not warranted to include either of these sources in the dispersion modeling.

Ohio EPA understands that the emergency diesel engine generator will normally operate no more than 30 minutes per month for standard readiness testing, plus once per year for approximately 4 hours to conduct an annual load bank test. In the event of a loss of grid power, the engine is expected to operate for a few minutes up to approximately one hour, until either the normal grid power is restored or to provide safe shutdown of the plant.

The emergency diesel fire pump engine will be tested once per week for approximately 15 minutes. In addition, a semiannual flow test and an annual performance test are conducted on the fire pump engine, for about two hours total run time for each test. In the unlikely event of an actual fire at the plant, the engine would operate for as long as needed to support firefighting needs.

Since the National Ambient Air Quality Standards (NAAQS) for PM_{2.5} are based on the 24-hour and annual averaging periods, due to their very limited operating periods, the engines are expected to have a very small air quality impact relative to the standards.

The 24-hour PM_{2.5} standard is a statistical one, based on the 98th percentile value. This makes it highly unlikely that the intermittently operating engines will have an air quality impact relative to the standard.

The model predicted cumulative 24-hour PM_{2.5} impact concentrations, including a conservative background concentration, are well below the corresponding NAAQS (total cumulative impact concentration with background = 27.0 µg/m³ compared to the NAAQS of 35 µg/m³). Therefore, there is substantial margin available to incorporate a small contribution from the engines while still complying with the NAAQS. Explicit modeling of the emergency engines was determined unnecessary by Ohio EPA.



FINAL

**Division of Air Pollution Control
Permit-to-Install
for
South Field Energy LLC**

Facility ID:	0215132003
Permit Number:	P0119495
Permit Type:	Initial Installation
Issued:	9/23/2016
Effective:	9/23/2016



Division of Air Pollution Control
Permit-to-Install
for
South Field Energy LLC

Table of Contents

Authorization	1
A. Standard Terms and Conditions	3
1. Federally Enforceable Standard Terms and Conditions	4
2. Severability Clause	4
3. General Requirements	4
4. Monitoring and Related Record Keeping and Reporting Requirements.....	5
5. Scheduled Maintenance/Malfunction Reporting	6
6. Compliance Requirements	6
7. Best Available Technology	7
8. Air Pollution Nuisance	8
9. Reporting Requirements	8
10. Applicability	8
11. Construction of New Sources(s) and Authorization to Install	8
12. Permit-To-Operate Application	9
13. Construction Compliance Certification	10
14. Public Disclosure	10
15. Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations	10
16. Fees.....	10
17. Permit Transfers	10
18. Risk Management Plans	10
19. Title IV Provisions	10
B. Facility-Wide Terms and Conditions.....	11
C. Emissions Unit Terms and Conditions	13
1. B001, Auxiliary Boiler	14
2. Emissions Unit Group – P001 and P002	29
3. P003, Emergency Generator.....	63
4. P004, Emergency Fire Pump	73
5. Emissions Unit Group – P005 and P006	83



Final Permit-to-Install
South Field Energy LLC
Permit Number: P0119495
Facility ID: 0215132003
Effective Date: 9/23/2016

Authorization

Facility ID: 0215132003
Facility Description: 1150 MW combined-cycle gas turbine (CCGT) facility
Application Number(s): A0054159
Permit Number: P0119495
Permit Description: Permit-to-install for the construction of the South Field Energy facility, a nominal 1,150 megawatt (MW) combined cycle gas turbine (CCGT) facility to be located in Wellsville, Ohio.
Permit Type: Initial Installation
Permit Fee: \$5,025.00
Issue Date: 9/23/2016
Effective Date: 9/23/2016

This document constitutes issuance to:

South Field Energy LLC
43610 Hibbetts Mill Rd
Wellsville, OH 43968

of a Permit-to-Install for the emissions unit(s) identified on the following page.

Ohio Environmental Protection Agency (EPA) District Office or local air agency responsible for processing and administering your permit:

Ohio EPA DAPC, Northeast District Office
2110 East Aurora Road
Twinsburg, OH 44087
(330)963-1200

The above named entity is hereby granted a Permit-to-Install for the emissions unit(s) listed in this section 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 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


Craig W. Butler
Director



Authorization (continued)

Permit Number: P0119495

Permit Description: Permit-to-install for the construction of the South Field Energy facility, a nominal 1,150 megawatt (MW) combined cycle gas turbine (CCGT) facility to be located in Wellsville, Ohio.

Permits for the following Emissions Unit(s) or groups of Emissions Units are in this document as indicated below:

Emissions Unit ID:	B001
Company Equipment ID:	Auxiliary Boiler
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P001
Company Equipment ID:	CTG #1
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P002
Company Equipment ID:	CTG #2
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P003
Company Equipment ID:	Emergency Generator
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P004
Company Equipment ID:	Emergency Fire Pump
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P005
Company Equipment ID:	Wet Cooling Tower #1
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P006
Company Equipment ID:	Wet Cooling Tower #2
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable



Final Permit-to-Install
South Field Energy LLC
Permit Number: P0119495
Facility ID: 0215132003
Effective Date:9/23/2016

A. Standard Terms and Conditions

1. Federally Enforceable Standard Terms and Conditions

- a) All Standard Terms and Conditions are federally enforceable, with the exception of those listed below which are enforceable under State law only:
- (1) Standard Term and Condition A.2.a), Severability Clause
 - (2) Standard Term and Condition A.3.c) through A. 3.e) General Requirements
 - (3) Standard Term and Condition A.6.c) and A. 6.d), Compliance Requirements
 - (4) Standard Term and Condition A.9., Reporting Requirements
 - (5) Standard Term and Condition A.10., Applicability
 - (6) Standard Term and Condition A.11.b) through A.11.e), Construction of New Source(s) and Authorization to Install
 - (7) Standard Term and Condition A.14., Public Disclosure
 - (8) Standard Term and Condition A.15., Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations
 - (9) Standard Term and Condition A.16., Fees
 - (10) Standard Term and Condition A.17., Permit Transfers

2. Severability Clause

- a) 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.
- b) All terms and conditions designated in parts B and C of this permit are federally enforceable as a practical matter, if they 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 and the State and by citizens (to the extent allowed by section 304 of the Act) under the Act. Terms and conditions in parts B and C of this permit shall not be federally enforceable and shall be enforceable under State law only, only if specifically identified in this permit as such.

3. General Requirements

- a) 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 re-issuance, or modification.

- 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, 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 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.

4. Monitoring and Related Record Keeping and Reporting Requirements

- a) Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall maintain records that include the following, where applicable, for any required monitoring under this permit:
 - (1) The date, place (as defined in the permit), and time of sampling or measurements.
 - (2) The date(s) analyses were performed.
 - (3) The company or entity that performed the analyses.
 - (4) The analytical techniques or methods used.
 - (5) The results of such analyses.
 - (6) 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:
 - (1) Reports of any required monitoring and/or recordkeeping of federally enforceable information shall be submitted to the Ohio EPA DAPC, Northeast District Office.

- (2) 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 Ohio EPA DAPC, Northeast District Office. The written reports shall be submitted (i.e., postmarked) quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. See A.15. below if no deviations occurred during the quarter.
 - (3) Written reports, which identify any deviations from the federally enforceable monitoring, recordkeeping, and reporting requirements contained in this permit shall be submitted to the Ohio EPA DAPC, Northeast District Office every six months, 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.
 - (4) This permit is for an emissions unit located at a Title V facility. 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.
- d) The permittee shall report actual emissions pursuant to OAC Chapter 3745-78 for the purpose of collecting Air Pollution Control Fees.

5. 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 Ohio EPA DAPC, Northeast District Office 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).

6. Compliance Requirements

- a) All applications, notifications or reports required by terms and conditions in this permit to be submitted or "reported in writing" are to be submitted to Ohio EPA through the Ohio EPA's eBusiness Center: Air Services web service ("Air Services"). Ohio EPA will accept hard copy submittals on an as-needed basis if the permittee cannot submit the required documents through the Ohio EPA eBusiness Center. In the event of an alternative hard copy submission in lieu of the eBusiness Center, the post-marked date or the date the document is delivered in person will be recognized as the date submitted. Electronic submission of applications, notifications or reports required to be submitted to Ohio EPA fulfills the requirement to submit the required information to the Director, the appropriate Ohio EPA District Office or contracted

local air agency, and/or any other individual or organization specifically identified as an additional recipient identified in this permit unless otherwise specified. Consistent with OAC rule 3745-15-03, the electronic signature date shall constitute the date that the required application, notification or report is considered to be "submitted". Any document requiring signature may be represented by entry of the personal identification number (PIN) by responsible official as part of the electronic submission process or by the scanned attestation document signed by the Authorized Representative that is attached to the electronically submitted written report.

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:
- (1) 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.
 - (2) 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.
 - (3) Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.
 - (4) 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 Ohio EPA DAPC, Northeast District Office 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:
- (1) Dates for achieving the activities, milestones, or compliance required in any schedule of compliance, and dates when such activities, milestones, or compliance were achieved.
 - (2) 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.

7. Best Available Technology

As specified in OAC Rule 3745-31-05, new sources that must employ Best Available Technology (BAT) shall comply with the Applicable Emission Limitations/Control Measures identified as BAT for each subject emissions unit.

8. 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.

9. Reporting Requirements

The permittee shall submit required reports in the following manner:

- a) Reports of any required monitoring and/or recordkeeping of state-only enforceable information shall be submitted to the Ohio EPA DAPC, Northeast District Office.
- 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 Ohio EPA DAPC, Northeast District Office. 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, 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.)

10. 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) not exempt from the requirement to obtain a Permit-to-Install.

11. Construction of New Sources(s) and Authorization to Install

- a) This permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. This permit does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the application and terms and conditions of this permit. 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 this permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Issuance of this permit 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.
- b) If applicable, authorization to install any new emissions unit included in this permit shall terminate within eighteen months of the effective date of the permit if the owner or operator has not undertaken a continuing program of installation or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation. 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 permittee shows good cause for any such extension.

- c) The permittee may notify Ohio EPA of any emissions unit that is permanently shut down (i.e., the emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31) by submitting a certification from the authorized official that identifies the date on which the emissions unit was permanently shut down. Authorization to operate the affected emissions unit shall cease upon the date certified by the authorized official that the emissions unit was permanently shut down. At a minimum, notification of permanent shut down shall be made or confirmed by marking the affected emissions unit(s) as "permanently shut down" in "Air Services" along with the date the emissions unit(s) was permanently removed and/or disabled. Submitting the facility profile update electronically will constitute notifying the Director of the permanent shutdown of the affected emissions unit(s).
- d) The provisions of this permit shall cease to be enforceable for each affected emissions unit after the date on which an emissions unit is permanently shut down (i.e., emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31). All records relating to any permanently shutdown emissions unit, generated while the emissions unit was in operation, must be maintained in accordance with law. All reports required by this permit must be submitted for any period an affected emissions unit operated prior to permanent shut down. At a minimum, the permit requirements must be evaluated as part of the reporting requirements identified in this permit covering the last period the emissions unit operated.

Unless otherwise exempted, no emissions unit certified by the responsible official as being permanently shut down may resume operation without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31 and OAC Chapter 3745-77 if the restarted operation is subject to one or more applicable requirements.

- e) The permittee shall comply with any residual requirements related to this permit, such as the requirement to submit a deviation report, air fee emission report, or other any reporting required by this permit for the period the operating provisions of this permit were enforceable, or as required by regulation or law. All reports shall be submitted in a form and manner prescribed by the Director. All records relating to this permit must be maintained in accordance with law.

12. Permit-To-Operate Application

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 operation of the proposed new or modified source(s) as authorized by this permit would be prohibited by the terms and conditions of an existing Title V permit, a Title V permit modification of such new or modified source(s) pursuant to OAC rule 3745-77-04(D) and OAC rule 3745-77-08(C)(3)(d) must be obtained before operating the source in a manner that would violate the existing Title V permit requirements.

13. Construction Compliance Certification

The applicant shall identify the following dates in the "Air Services" facility profile for each new emissions unit identified in this permit.

- a) Completion of initial installation date shall be entered upon completion of construction and prior to start-up.
- b) Commence operation after installation or latest modification date shall be entered within 90 days after commencing operation of the applicable emissions unit.

14. 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.

15. Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations

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 by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters.

16. 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 any permit-to-install. The permittee shall pay all applicable permit-to-operate fees within thirty days of the issuance of the invoice.

17. Permit Transfers

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The new owner must update and submit the ownership information via the "Owner/Contact Change" functionality in "Air Services" once the transfer is legally completed. The change must be submitted through "Air Services" within thirty days of the ownership transfer date.

18. 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.

19. 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.



Final Permit-to-Install
South Field Energy LLC
Permit Number: P0119495
Facility ID: 0215132003
Effective Date: 9/23/2016

B. Facility-Wide Terms and Conditions

1. All the following facility-wide terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only:
 - a) None.
2. The permittee shall ensure that any emissions unit(s) subject to the Cross State Air Pollution Rule (CSAPR) complies/comply with the requirements of the Ohio Administrative Code (OAC) Chapter 3745-109, which includes submitting timely permit applications.
3. The following emissions unit contained in this permit is subject to 40 CFR Part 60, Subparts A and Dc: B001. The complete NSPS requirements, including the NSPS General Provisions may be accessed via the internet from the electronic Code of Federal Regulations (e-CFR) website www.ecfr.gov or by contacting the Ohio EPA Northeast District Office.
4. The following emissions units contained in this permit are subject to 40 CFR Part 60, Subparts A, KKKK and TTTT: P001 and P002. The complete NSPS requirements, including the NSPS General Provisions may be accessed via the internet from the electronic Code of Federal Regulations (e-CFR) website www.ecfr.gov or by contacting the Ohio EPA Northeast District Office.
5. The following emissions units contained in this permit are subject to 40 CFR Part 60, Subparts A and IIII: P003 and P004. The complete NSPS requirements, including the NSPS General Provisions may be accessed via the internet from the electronic Code of Federal Regulations (e-CFR) website www.ecfr.gov or by contacting the Ohio EPA Northeast District Office.
6. The following emissions units contained in this permit are subject to 40 CFR Part 63, Subparts A and ZZZZ: P003 and P004. The complete MACT requirements, including the MACT General Provisions may be accessed via the internet from the electronic Code of Federal Regulations (e-CFR) website www.ecfr.gov or by contacting the Ohio EPA Northeast District Office.



Final Permit-to-Install
South Field Energy LLC
Permit Number: P0119495
Facility ID: 0215132003
Effective Date: 9/23/2016

C. Emissions Unit Terms and Conditions

1. B001, Auxiliary Boiler

Operations, Property and/or Equipment Description:

99 MMBtu/hr dual fuel [natural gas and ultra-low sulfur diesel (ULSD)-fired] boiler with low-NOx burners and flue gas recirculation

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

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

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) June 30, 2008	See b)(2)a and b)(2)b.
b.	OAC rule 3745-31-05(A)(3)(a)(ii) June 30, 2008	The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the PM _{2.5} , PM ₁₀ , SO ₂ and VOC emissions from this air contaminant source since the potential to emit is less than 10 tons per year. See b)(2)c.
c.	OAC rules 3745-31-10 through 20 (Prevention of Significant Deterioration of Air Quality)	Carbon monoxide (CO) emissions shall not exceed 7.92 pounds per hour (lbs/hr) and 15.39 tons per rolling, 12-month period. Nitrogen oxides (NO _x) emissions shall not exceed 9.9 lbs/hr and 10.65 tons per rolling, 12-month period. Particulate matter emissions less than 10 microns in diameter (PM ₁₀) and particulate matter less than 2.5 microns in diameter (PM _{2.5}) shall not exceed 5.94 lbs/hr and 5.69 tons per rolling, 12-month period. Volatile organic compound (VOC) emissions shall not exceed 0.59 lb/hr and

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		<p>1.49 tons per rolling, 12-month period.</p> <p>Sulfur dioxide (SO₂) emissions shall not exceed 0.15 lb/hr and 0.35 ton per rolling, 12-month period.</p> <p>Sulfuric acid mist (H₂SO₄) emissions shall not exceed 0.011 lb/hr and 0.03 ton per rolling, 12-month period.</p> <p>Carbon dioxide equivalent (CO₂e) emissions shall not exceed 32,171 tons per rolling, 12-month period.</p> <p>Visible particulate emissions from the stack serving this emissions unit shall not exceed 10% opacity as a 6-minute average.</p> <p>See b)(2)d.</p> <p><u>Natural Gas Combustion:</u></p> <p>CO emissions shall not exceed 0.055 pound per million Btu (lb/MMBtu) of actual heat input.</p> <p>NO_x emissions shall not exceed 0.02 lb/MMBtu of actual heat input.</p> <p>PM₁₀/PM_{2.5} shall not exceed 0.008 lb/MMBtu of actual heat input.</p> <p>SO₂ emissions shall not exceed 0.0014 lb/MMBtu of actual heat input.</p> <p>VOC emissions shall not exceed 0.006 lb/MMBtu of actual heat input.</p> <p>H₂SO₄ emissions shall not exceed 1.1E-04 lb/MMBtu of actual heat input.</p> <p>¹CO₂e emissions shall not exceed 120 lb/MMBtu of actual heat input.</p> <p><u>ULSD Combustion:</u></p>

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		<p>CO emissions shall not exceed 0.08 lb/MMBtu of actual heat input.</p> <p>NO_x emissions shall not exceed 0.1 lb/MMBtu of actual heat input.</p> <p>PM₁₀/PM_{2.5} shall not exceed 0.06 lb/MMBtu of actual heat input.</p> <p>SO₂ emissions shall not exceed 0.0015 lb/MMBtu of actual heat input.</p> <p>VOC emissions shall not exceed 0.006 lb/MMBtu of actual heat input.</p> <p>H₂SO₄ emissions shall not exceed 1.1E-04 lb/MMBtu of actual heat input.</p> <p>¹CO₂e emissions shall not exceed 160 lb/MMBtu of actual heat input.</p>
d.	OAC rule 3745-31-05(F)	<p>The sulfur content of the diesel fuel burned in this emissions unit shall not exceed 15 ppm or 0.0015% sulfur, by weight.</p> <p>See b)(2)j through b)(2)l.</p>
e.	OAC rule 3745-17-07(A)	See b)(2)e.
f.	OAC rule 3745-17-10(B)(1)	See b)(2)e.
g.	OAC rule 3745-18-06(D)	When burning No. 2 fuel oil, the emission limitation required by this applicable rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(F).
h.	OAC rule 3745-110-03(K)(16)	Exemption - see b)(2)m.
i.	40 CFR Part 60, Subpart A (40 CFR 60.1 – 40 CFR 60.19)	See b)(2)f.
j.	40 CFR Part 60, Subpart Dc (40 CFR 60.40c – 40 CFR 60.48c)	See b)(2)e, b)(2)g and b)(2)h.
k.	40 CFR Part 63, Subpart JJJJJJ (40 CFR 63.11193 – 63.11236)	The permittee is exempt from the area source MACT requirements pursuant to 40 CFR Part 63.11195(e) of Subpart JJJJJJ as long as this emissions unit complies with the following requirements: gas-fired boiler as defined in 63.11237 which states a boiler that primarily burns gas is still considered a gas-fired boiler

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		even if it also burns oil or other liquid fuel during periods of gas curtailment, gas supply emergencies, or for periodic testing not to exceed 48 hours during any calendar year. See b)(2)i.
I.	40 CFR Part 63, Subpart A (40 CFR 63.1 – 40 CFR 63.16)	See b)(2)n.

¹Rounded factor to account for fuel variation and matches 40 CFR Part 60, Subpart TTTT fuel factors.

(2) Additional Terms and Conditions

- a. Compliance with the requirements of this rule for CO, NO_x, PM₁₀/PM_{2.5}, SO₂ and VOC emissions includes compliance with the requirements of OAC rules 3745-31-10 through 20.
- b. The BAT emission limits apply until U.S. EPA approves Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3)(a)(ii) (the less than ten tons per year BAT exemption) into the Ohio State Implementation Plan (SIP).
- c. These requirements apply once U.S. EPA approves OAC paragraph 3745-31-05(A)(3)(a)(ii) (the less than ten tons per year BAT exemption) as part of the Ohio SIP.
- d. The lb/MMBtu and lb/hr emission limitations are based on the emissions unit's potentials to emit. Therefore, no monitoring, record keeping, and reporting requirements are necessary to ensure ongoing compliance with these emission limitations.
- e. The emission limitation required by this applicable rule is less stringent than the emission limitation established pursuant to OAC rules 3745-31-10 through 20.
- f. 40 CFR Part 60, Subpart A provides applicability provisions, definitions, and other general provisions that are pertinent to emissions units affected by 40 CFR Part 60.
- g. This rule does not establish emission limitations for natural gas-fired or ULSD-fired boilers, but does require record keeping of gas usage and the sulfur content of ULSD confirming that the fuel meets the Subpart Dc requirement of 0.5 weight percent sulfur per 40 CFR 60.48c(g).
- h. 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.

- i. The permittee shall burn only natural gas except during periods of gas curtailment, natural gas supply emergencies, or periodic testing on liquid fuel. Periodic testing of liquid fuel shall not exceed a combined total of 48 hours during any calendar year.
- j. The maximum annual operating hours for this emissions unit shall not exceed 5,000 hours per rolling, 12-month period.
- k. The maximum annual operating hours for this emissions unit shall not exceed 1,440 hours per rolling, 12-month period when burning ULSD fuel.
- l. The quality of the diesel fuel burned in this emissions unit shall meet the following specifications on an “as received” basis:
 - i. a sulfur content which is sufficient to comply with the allowable SO₂ emission limitation of 0.0015 pound SO₂/MMBtu actual heat input; and 15 ppm sulfur or 0.0015% sulfur by weight.

Compliance with the above-mentioned specifications shall be determined by using the analytical results provided by the permittee or oil supplier for each shipment of oil.

The permittee will require ULSD suppliers to provide certified test data indicating compliance with the permit sulfur content specifications prior to accepting ULSD delivery (noncompliant ULSD will not be accepted).

If noncompliant ULSD is mistakenly taken, the permittee will not combust any of the delivered ULSD upon discovery of any deviation from permit terms and conditions, and will require the supplier to remove the ULSD from the tank or provide other corrective action (such as adding cleaner fuel to the tank) to allow the overall tank contents to comply with the permit.

If the ULSD supplier information is not available, the permittee will take ULSD samples upon delivery and obtain results using the “quick” turnaround option from a certified laboratory.

- m. The permittee is exempt from the requirements of OAC rule 3745-110-03(A) through (G) since this permit restricts NO_x emissions from this emissions unit to less than 25 tons per year.
- n. Table 8 to Subpart JJJJJJ of 40 CFR Part 63 – Applicability of General Provisions to Subpart JJJJJJ shows which parts of the General Provisions in 40 CFR 63.1 - 63.16 apply.

c) Operational Restrictions

- (1) The sulfur content of natural gas burned in this emissions unit shall not exceed 0.5 grain per 100 standard cubic feet.

d) Monitoring and/or Recordkeeping Requirements

- (1) For each shipment of ULSD fuel received for burning in this emissions unit, the permittee shall maintain records of the oil supplier's (or permittee's) analyses for sulfur content in parts per million (40 CFR 80.510). The permittee shall perform or require the supplier to perform the analyses for sulfur content in accordance with 40 CFR 80.585.
- (2) For each day during which the permittee burns a fuel other than natural gas or ULSD fuel, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
- (3) The permittee shall maintain monthly records of the following information:
 - a. the operating hours for each month;
 - b. the type of fuel combusted during operation; and
 - c. the rolling, 12-month summation of the monthly operating time, in hours (including each fuel that was combusted).
- (4) See 40 CFR Part 60, Subpart Dc (40 CFR 60.40c-48c).
- (5) When combusting ULSD fuel, the permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
 - a. the color of the emissions;
 - b. whether the emissions are representative of normal operations;
 - c. if the emissions are not representative of normal operations, the cause of the abnormal emissions;
 - d. the total duration of any visible emissions incident; and
 - e. any corrective actions taken to minimize or eliminate the visible emissions.

If visible emissions are present, a visible emissions incident has occurred. The observer does not have to document the exact start and end times for the visible emissions incident under item (d) above or continue the daily check until the incident has ended. The observer may indicate that the visible emissions incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit). With respect to the documentation of corrective actions, the observer may indicate that no corrective actions were taken if the visible emissions were representative of normal operations, or specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.

- (6) When combusting natural gas, the permittee shall perform monthly checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
- a. the color of the emissions;
 - b. whether the emissions are representative of normal operations;
 - c. if the emissions are not representative of normal operations, the cause of the abnormal emissions;
 - d. the total duration of any visible emissions incident; and
 - e. any corrective actions taken to minimize or eliminate the visible emissions.

If visible emissions are present, a visible emissions incident has occurred. The observer does not have to document the exact start and end times for the visible emissions incident under item (d) above or continue the daily check until the incident has ended. The observer may indicate that the visible emissions incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit). With respect to the documentation of corrective actions, the observer may indicate that no corrective actions were taken if the visible emissions were representative of normal operations, or specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.

- (7) The operations log required in d)(5) and d)(6) above shall be maintained on site.

e) Reporting Requirements

- (1) The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas or ULSD fuel was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
- (2) Pursuant to 40 CFR Part 60.7 and 60.48c(a), 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. actual start-up date (within 15 days after such date); and
 - c. the design heat input capacity of the affected facility and identification of fuels to be combusted in the affected facility.
- (3) The permittee shall submit quarterly deviation (excursion) reports that identify the following:
 - a. all exceedances of the rolling, 12-month limitation on the hours of operation for this emissions unit and the limitation on the hours when burning ULSD fuel;

- b. the permittee shall report any ULSD deviation within 30 days of receiving noncompliant ULSD; and
- c. each shipment of ultra low sulfur diesel fuel received for burning in this emissions unit which did not comply with the standards specified in b)(2)l.

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

- (4) See 40 CFR Part 60, Subpart Dc (40 CFR 60.40c-48c).
 - (5) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.
- f) Testing Requirements

- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

CO emissions shall not exceed 0.055 lb/MMBtu of actual heat input (natural gas), 0.08 lb/MMBtu of actual heat input (ULSD), 7.92 lbs/hr and 15.39 tons per rolling, 12-month period.

Applicable Compliance Method:

The lb/MMBtu emission limitations are based on BACT/LAER Precedents for Auxiliary Boilers provided in the permit application. The hourly emission limitation was developed by multiplying the maximum heat input (99 MMBtu/hr) by the worst-case CO emission factor (0.08 lb/MMBtu for ULSD) to determine the hourly emissions.

The annual emission limitation was developed based on the maximum hourly emissions from both natural gas and ULSD (5.45 lbs/hr and 7.92 lbs/hr, respectively) and then calculated in annual pounds for each fuel using maximum total annual operating hours (5,000), assuming the maximum annual operation on ULSD (1,440 hours), with the balance of the hours on natural gas (5,000 hours minus 1,440 hours = 3,560 hours on natural gas) and then dividing the sum of the pounds on each fuel by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the short-term limitation is shown.

Compliance with the short-term emission limitations shall be demonstrated based upon the emission test required in f)(2).

b. Emission Limitation:

NO_x emissions shall not exceed 0.02 lb/MMBtu of actual heat input (natural gas), 0.1 lb/MMBtu of actual heat input (ULSD), 9.90 lbs/hr and 10.65 tons per rolling, 12-month period.

Applicable Compliance Method:

The lb/MMBtu emission limitations are based on BACT/LAER Precedents for Auxiliary Boilers provided in the permit application. The hourly emission limitation was developed by multiplying the maximum heat input (99 MMBtu/hr) by the worst-case NO_x emission factor (0.1 lb/MMBtu for ULSD) to determine the hourly emissions.

The annual emission limitation was developed based on the maximum hourly emissions from both natural gas and ULSD (1.98 lbs/hr and 9.90 lbs/hr, respectively) and then calculated in annual pounds for each fuel using maximum total annual operating hours (5,000), assuming the maximum annual operation on ULSD (1,440 hours), with the balance of the hours on natural gas (5,000 hours minus 1,440 hours = 3,560 hours on natural gas) and then dividing the sum of the pounds on each fuel by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the hourly limitation is shown.

Compliance with the short-term emission limitations shall be demonstrated based upon the emission test required in f)(2).

c. Emission Limitation:

PM₁₀/PM_{2.5} shall not exceed 0.008 lb/MMBtu of actual heat input (natural gas), 0.06 lb/MMBtu of actual heat input (ULSD), 5.94 lbs/hr and 5.69 tons per rolling, 12-month period.

Applicable Compliance Method:

The lb/MMBtu emission limitations are based on BACT/LAER Precedents for Auxiliary Boilers provided in the permit application. The hourly emission limitation was developed by multiplying the maximum heat input (99 MMBtu/hr) by the worst-case PM₁₀/PM_{2.5} emission factor (0.06 lb/MMBtu for ULSD) to determine the hourly emissions.

The annual emission limitation was developed based on the maximum hourly emissions from both natural gas and ULSD (0.79 lb/hr and 5.94 lbs/hr, respectively) and then calculated in annual pounds for each fuel using maximum total annual operating hours (5,000), assuming the maximum annual operation on ULSD (1,440 hours), with the balance of the hours on natural gas (5,000 hours minus 1,440 hours = 3,560 hours on natural gas) and then dividing the sum of the pounds on each fuel by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the hourly limitation is shown.

Compliance with the short-term emission limitations shall be demonstrated based upon the emission test required in f)(2).

d. Emission Limitation:

SO₂ emissions shall not exceed 0.0014 lb/MMBtu of actual heat input (natural gas), 0.0015 lb/MMBtu of actual heat input (ULSD), 0.15 lb/hr and 0.35 ton per rolling, 12-month period.

Applicable Compliance Method:

The lb/MMBtu emission limitations are based on BACT/LAER Precedents for Auxiliary Boilers provided in the permit application. The hourly emission limitation was developed by multiplying the maximum heat input (99 MMBtu/hr) by the worst-case SO₂ emission factor (0.0015 lb/MMBtu for ULSD per AP-42, Table 3.4-1) to determine the hourly emissions.

The annual emission limitation was developed based on the maximum hourly emissions from both natural gas and ULSD (0.14 lb/hr and 0.15 lb/hr, respectively) and then calculated in annual pounds for each fuel using maximum total annual operating hours (5,000), assuming the maximum annual operation on ULSD (1,440 hours), with the balance of the hours on natural gas (5,000 hours minus 1,440 hours = 3,560 hours on natural gas) and then dividing the sum of the pounds on each fuel by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the hourly limitation is shown.

If required, the permittee shall demonstrate compliance with the lb/MMBtu and hourly emission limitation using Methods 1 thru 4 and 6C of 40 CFR Part 60, Appendix A. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

e. Emission Limitation:

VOC emissions shall not exceed 0.006 lb/MMBtu of actual heat input for both natural gas and ULSD, 0.59 lb/hr and 1.49 tons per rolling, 12-month period.

Applicable Compliance Method:

The lb/MMBtu emission limitations are based on BACT/LAER Precedents for Auxiliary Boilers provided in the permit application. The hourly emission limitation was developed by multiplying the maximum heat input (99 MMBtu/hr) by the VOC emission factor (0.006 lb/MMBtu) to determine the hourly emissions.

The annual emission limitation was developed by multiplying the hourly emission limitation (0.59 lb/hr) by the maximum annual operating hours (5,000 hrs/yr) and dividing by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the annual operating hours limitation is shown.

Compliance with the short-term emission limitations shall be demonstrated based upon the emission test required in f)(2).

f. Emission Limitation:

H₂SO₄ emissions shall not exceed 1.1E-04 lb/MMBtu of actual heat input for both natural gas and ULSD, 0.011 lb/hr and 0.03 ton per rolling, 12-month period.

Applicable Compliance Method:

The lb/MMBtu emission limitations are based on BACT/LAER Precedents for Auxiliary Boilers provided in the permit application. The hourly emission limitation was developed by multiplying the maximum heat input (99 MMBtu/hr) by the H₂SO₄ emission factor (1.1E-04 lb/MMBtu) to determine the hourly emissions.

The annual emission limitation was developed by multiplying the hourly emission limitation (0.011 lb/hr) by the maximum annual operating hours (5,000 hrs/yr) and dividing by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the annual operating hours limitation is shown.

If required, the permittee shall demonstrate compliance with the lb/MMBtu and lb/hr emissions limitations using Methods 1 thru 4 and 8 of 40 CFR Part 60, Appendix A.

g. Emission Limitation:

CO₂e emissions shall not exceed 120 lb/MMBtu when burning natural gas and 160 lb/MMBtu when burning ULSD of actual heat input, 32,171 tons per rolling, 12-month period.

Applicable Compliance Method:

The lb/MMBtu emission limitations are based on BACT/LAER Precedents for Auxiliary Boilers provided in the permit application and corrected in subsequent permit comments. The annual emission limitation was established to reflect the potential to emit for this emissions unit by calculating the sum of the calculated emissions based on the maximum total annual operating hours (5,000), assuming the maximum annual operation on ULSD (1,440 hours), with the balance of the hours on natural gas (5,000 hours minus 1,440 hours = 3,560 hours on gas). The natural gas emissions are the product of the maximum natural gas firing rate (99 MMBtu/hr) multiplied by the AP-42 emission factors for CO₂, N₂O, and CH₄ from Table 1.4-2 dated 7/98 (120,000 lb/mmscf, 0.64 lb/mmscf, and 2.3 lb/mmscf, respectively), multiplied by the global warming potentials for CO₂, N₂O, and CH₄ (1, 298, and 25, respectively from Table A-1 to Subpart A of 40 CFR Part 98). Divide by the average heating value used for AP-42 emission factors in Table 1.4-2 dated 7/98 (1,020 Btu/scf), multiply by the annual hours on natural gas (3,560 hrs/yr) and divide by 2,000 pounds per ton.

$$\begin{aligned} & \left(99 \frac{\text{mmBtu}}{\text{hr}}\right) \times \left[\left(120,000 \frac{\text{lb}}{\text{mmscf}} \times (1)\right) + \left(0.64 \frac{\text{lb}}{\text{mmscf}} (298)\right) \right. \\ & \quad \left. + \left(2.3 \frac{\text{lb}}{\text{mmscf}} (25)\right) \right] \times \left(\frac{\text{mmscf}}{1020 \text{mmBtu}}\right) \left(3,560 \frac{\text{hrs}}{\text{yr}}\right) \times \left(\frac{\text{ton}}{2,000 \text{lb}}\right) \\ & = 20,775 \frac{\text{tons}}{\text{yr}} \end{aligned}$$

The ULSD emissions are the product of the maximum ULSD firing rate (99 MMBtu/hr) multiplied by the AP-42 emission factors for CO₂, N₂O, and CH₄ from Tables 1.3-12, 1.3-8 and 1.3-3 respectively dated 7/98 (22,300 lb/Mgal, 0.26 lb/Mgal, and 0.216 lb/Mgal, respectively), multiplied by the global warming potentials for CO₂, N₂O, and CH₄ (1, 298, and 25, respectively from Table A-1 to Subpart A of 40 CFR Part 98). Divide by the average heating value used for AP-42 emission factors in Section 1.3 dated 7/98 (140 MMBtu/Mgal), multiply by the maximum annual hours of operation on ULSD (1,440 hrs/yr) and divide by 2,000 pounds per ton.

$$\begin{aligned} & \left(99 \frac{\text{mmBtu}}{\text{hr}}\right) \times \left[\left(22,300 \frac{\text{lb}}{\text{Mgal}} \times (1)\right) + \left(0.26 \frac{\text{lb}}{\text{Mgal}} (298)\right) \right. \\ & \quad \left. + \left(0.216 \frac{\text{lb}}{\text{Mgal}} (25)\right) \right] \times \left(\frac{\text{Mgal}}{140 \text{mmBtu}}\right) \left(1,440 \frac{\text{hrs}}{\text{yr}}\right) \times \left(\frac{\text{ton}}{2,000 \text{lb}}\right) \\ & = 11,396 \frac{\text{tons}}{\text{yr}} \end{aligned}$$

$$\text{Total} \frac{\text{tons}}{\text{year}} = 20,775 + 11,396 = 32,171 \frac{\text{tons}}{\text{yr}}$$

Since the CO₂e emissions are estimated to consist of more than 99% CO₂, compliance with this emission limitation shall be determined by comparing the actual annual auxiliary boiler CO₂ emissions to the following annual standard:

$$\begin{aligned} & \left(99 \frac{\text{mmBtu}}{\text{hr}}\right) \times \left[\left(3560 \text{ hours on gas}\right) \left(117.65 \frac{\text{lb}}{\text{MMBtu}}\right) \right. \\ & \quad \left. + \left(1440 \text{ hours on ULSD}\right) \left(159.29 \frac{\text{lb}}{\text{MMBtu}}\right) \right] / \left(2000 \frac{\text{lb}}{\text{ton}}\right) \\ & = 32,086 \frac{\text{tons}}{\text{yr}} \end{aligned}$$

If required, the permittee shall conduct emissions testing using Methods 1, 2, 3A and 4 of 40 CFR Part 60, Appendix A to determine the lb/scf CO₂ emission rate. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

h. Emission Limitation:

Visible particulate emissions from the stack serving this emissions unit shall not exceed 10% opacity as a 6-minute average.

Applicable Compliance Method:

If required, compliance with the stack visible particulate emission limitation shall be demonstrated through visible emission observations performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

i. Emission Limitation:

The sulfur content of the ULSD fuel burned in this emissions unit shall not exceed 15 ppm or 0.0015% sulfur, by weight.

Applicable Compliance Method:

Compliance shall be demonstrated based upon the record keeping requirements specified in d)(1).

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

a. The emission testing shall be conducted within 60 days after achieving the maximum production rate at which the emissions unit will be operated, but not later than 180 days after initial startup of the emissions unit.

b. The emission testing shall be conducted to demonstrate compliance with the following emission limitations:

i. CO emissions in lb/hr and lb/MMBtu;

ii. NO_x emissions in lb/hr and lb/MMBtu;

iii. VOC emissions in lb/hr and lb/MMBtu;

iv. PM₁₀/PM_{2.5} emissions in lb/hr and lb/MMBtu;

v. SO₂ emissions in lb/hr and lb/MMBtu;

vi. H₂SO₄ emissions in lb/hr and lb/MMBtu; and

vii. for CO₂ emissions in lb/MMBtu.

c. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s):

for CO, Methods 1 thru 4 and 10 of 40 CFR Part 60, Appendix A;

for NO_x, Methods 1 thru 4 and 7E of 40 CFR Part 60, Appendix A;

for VOC, Methods 1 through 4 and 18, 25 or 25A, as appropriate, of 40 CFR Part 60, Appendix A. Use of Method 18, 25 or 25A is to be selected based on the results of pre-survey stack sampling and U.S. EPA guidance documents;

for SO₂, 40 CFR 60.4415;

for H₂SO₄, Methods 1 thru 4 and 8 of 40 CFR Part 60, Appendix A;

for CO₂, Methods 1, 2, 3A, and 4 of 40 CFR Part 60, Appendix A, mass balance calculations using ASTM D1945-03 (Standard Test Method for Analysis of Natural Gas by Gas Chromatography) and/or ASTM D1826-94 (Standard Test Method for Calorific Value of Gases in Natural Gas Range by Continuous Recording Calorimeter); and

for PM₁₀/PM_{2.5}, Methods 201 or 201A and 202 of 40 CFR Part 51, Appendix M.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

- d. The test(s) shall be conducted under those representative conditions that challenge to the fullest extent possible a facility's ability to meet the applicable emissions limits and/or control requirements, unless otherwise specified or approved by the Ohio EPA Northeast District Office. Although this generally consists of operating the emissions unit at its maximum material input/production rates and results in the highest emission rate of the tested pollutant, there may be circumstances where a lower emissions loading is deemed the most challenging control scenario. Failure to test under these conditions is justification for not accepting the test results as a demonstration of compliance.
- 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 Northeast 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 Northeast District Office's refusal to accept the results of the emission test(s).
- f. Personnel from the Ohio EPA Northeast 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 emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Ohio EPA Northeast District Office within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written



Final Permit-to-Install
South Field Energy LLC
Permit Number: P0119495
Facility ID: 0215132003
Effective Date: 9/23/2016

report, where warranted, with prior approval from the Ohio EPA Northeast District Office.

- g) Miscellaneous Requirements
 - (1) None.

2. Emissions Unit Group – P001 and P002

Operations, Property and/or Equipment Description:

EU ID	Operations, Property and/or Equipment Description
P001	Combined cycle combustion turbine (3,131 MMBtu/hr heat input turbine at ISO conditions, natural gas firing with evaporative cooler on and 800 MMBtu/hr maximum heat input natural gas-fired duct burner) with dry low NOx combustors, selective catalytic reduction (SCR), catalytic oxidizer, and wet injection for ULSD firing. Heat input for ULSD firing at ISO conditions, with evaporative cooler on is 3,173 MMBtu/hr.
P002	Combined cycle combustion turbine (3,131 MMBtu/hr heat input turbine at ISO conditions, natural gas firing with evaporative cooler on and 800 MMBtu/hr maximum heat input natural gas-fired duct burner) with dry low NOx combustors, selective catalytic reduction (SCR), catalytic oxidizer, and wet injection for ULSD firing. Heat input for ULSD firing at ISO conditions, with evaporative cooler on is 3,173 MMBtu/hr.

- a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.
 - (1) d)(16), d)(17), d)(18), and d)(19) and e)(8).
- b) Applicable Emissions Limitations and/or Control Requirements
 - (1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) and ORC 3704.03(T)	See b)(2)a and b)(2)b.
b.	OAC rules 3745-31-10 through 20 (Prevention of Significant Deterioration of Air Quality)	<p>Visible particulate emissions from the stack serving this emissions unit shall not exceed 10% opacity as a 6-minute average.</p> <p>Facility heat rate shall not exceed 7,165 Btu/net kW-hr energy output (at full load ISO conditions, natural gas firing, without duct firing).</p> <p><u>Natural Gas:</u></p> <p>CO₂e emissions shall not exceed 481,301 lbs/hr (maximum under any condition with duct firing).</p>

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		<p><u>ULSD:</u></p> <p>CO₂e emissions shall not exceed 546,182 lbs/hr.</p> <p>See b)(2)c through b)(2)k and b)(2)s through b)(2)u.</p>
c.	OAC rule 3745-31-05(F)	<p>The sulfur content of the diesel fuel burned in this emissions unit shall not exceed 15 ppm or 0.0015% sulfur, by weight.</p> <p>See b)(2)f and b)(2)g.</p>
d.	OAC rule 3745-17-07(A)	See b)(2)l.
e.	OAC rule 3745-17-11(B)(4)	See b)(2)l.
f.	OAC rule 3745-18-06(A)	See b)(2)m.
g.	OAC rule 3745-110-03(K)(18)	Exemption from NO _x RACT requirements
h.	OAC rule 3745-114-01	See d)(16), d)(17), d)(18), d)(19) and e)(8).
i.	40 CFR Part 60, Subpart A (40 CFR 60.1 – 40 CFR 60.19)	See b)(2)o.
j.	<p>40 CFR Part 60, Subpart KKKK (40 CFR 60.4300 – 60.4420)</p> <p>[In accordance with 40 CFR 60.4305(a), this emissions unit is a stationary combustion turbine with a heat input at peak load greater than 10 MMBtu/hr with a heat recovery steam generator/duct burners subject to the emissions limitations/control measures specified in this section.]</p>	See b)(2)l and b)(2)p.
k.	40 CFR Part 60, Subpart TTTT (40 CFR 60.5508 – 60.5580)	<p>CO₂ emissions shall not exceed 450 kg per megawatt-hour (MWh) of gross energy output (1,000 lb CO₂/MWh) or</p> <p>CO₂ emissions shall not exceed 470 kg per MWh of net energy output (1,030 lb CO₂/MWh)</p> <p>See b)(2)o., b)(2)q., d)(20) and e)(4).</p>
l.	40 CFR Part 60, Subpart A (40 CFR 60.1 – 60.19)	Table 3 to Subpart TTTT of 40 CFR Part 60 – Applicability of General Provisions to Subpart TTTT shows which parts of the

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		General Provisions in 40 CFR 60.1 - 60.19 apply.
m.	40 CFR Part 63, Subpart YYYY (40 CFR 63.6080 – 63.6175)	See b)(2)r.
n.	40 CFR Part 63, Subpart JJJJJ (40 CFR 63.11193 – 63.11236)	See b)(2)s.

(2) Additional Terms and Conditions

- a. All requirements specified in this Section of the permit for Emissions Unit Group P001 and P002 apply to each combined cycle combustion turbine (P001 and P002) unless a combined requirement is otherwise specified.
- b. Compliance with the requirements of this rule for CO, SO₂, NO_x, PM₁₀, PM_{2.5} and VOC includes compliance with the requirements of OAC rules 3745-31-10 through 20.
- c. The emissions from this emissions unit shall utilize dry low NO_x combustors, selective catalytic reduction (SCR), and wet injection for ULSD firing at all times during which the emissions unit is in operation.
- d. The PM₁₀/PM_{2.5} emission limitations include both filterable and condensable particulate emissions.
- e. The sulfur content of natural gas burned in this emissions unit shall not exceed 0.5 grain per 100 standard cubic feet.
- f. The maximum annual operating hours for this emissions unit shall not exceed 1,440 hours per rolling, 12-month period when burning ULSD fuel.
- g. The quality of the diesel fuel burned in this emissions unit shall meet the following specifications on an “as received” basis:
 - i. a sulfur content which is sufficient to comply with the allowable sulfur dioxide emission limitation of 0.0015 pound sulfur dioxide/MMBtu actual heat input; and 15 ppm sulfur or 0.0015% sulfur by weight.

Compliance with the above-mentioned specifications shall be determined by using the analytical results provided by the permittee or oil supplier for each shipment of oil.

The permittee will require ULSD suppliers to provide certified test data indicating compliance with the permit sulfur content specifications prior to accepting ULSD delivery (noncompliant ULSD will not be accepted).

If noncompliant ULSD is mistakenly taken, the permittee will not combust any of the delivered ULSD upon discovery of any deviation from permit terms and

conditions, and will require the supplier to remove the ULSD from the tank or provide other corrective action (such as adding cleaner fuel to the tank) to allow the overall tank contents to comply with the permit.

If the ULSD supplier information is not available, the permittee will take ULSD samples upon delivery and obtain results using the “quick” turnaround option from a certified laboratory.

- h. The permittee shall comply with the following emissions limitations per turbine:

Allowable Emissions				
Pollutant	Operating Mode^a	Emission Rate^{b,e}	Emission rate, lb/hr^b	Emission rate, tons per rolling, 12-month period^f
CO	CT with DB	2.0 ^c	18.57	-
	CT only	2.0 ^c	15.17	-
	ULSD	2.0 ^c	16.15	
	All operating modes, including startup periods	-	-	108.1
NO _x	CT with DB	2.0 ^c	30.51	-
	CT only	2.0 ^c	24.92	-
	ULSD	5.0 ^c	66.32	
	All operating modes, including startup periods			151.3
SO ₂	CT with DB	1.4E-03 ^d	5.64	-
	CT only	1.4E-03 ^d	4.61	
	ULSD	1.5E-03 ^d	5.19	
	All operating modes, including startup periods			23.5
PM ₁₀ /PM _{2.5}	CT with DB	6.9E-03 ^d	25.0	-

Allowable Emissions				
Pollutant	Operating Mode ^a	Emission Rate ^{b,e}	Emission rate, lb/hr ^b	Emission rate, tons per rolling, 12-month period ^f
	CT only	7.7E-03 ^d	16.16	
	ULSD	1.9E-02 ^d	55.4	
	All operating modes, including startup periods			128.9
VOC	CT with DB	2.0 ^c	10.64	-
	CT only	1.0 ^c	4.35	-
	ULSD	2.0 ^c	9.25	
	All operating modes, including startup periods	-	-	50.6
H ₂ SO ₄	CT with DB	1.7E-03 ^d	6.96	-
	CT only	1.7E-03 ^d	5.65	-
	ULSD	1.9E-03 ^d	6.35	
	All operating modes, including startup periods	-	-	29.0
CO ₂ e	All operating modes, including startup periods	-	-	2,045,634.5
<p>a. CT = combustion turbine; DB = duct burner</p> <p>b. Limitation does not apply during periods of startup and shutdown.</p> <p>c. Parts per million by volume dry (ppmvd) at 15% oxygen.</p>				

Allowable Emissions				
Pollutant	Operating Mode ^a	Emission Rate ^{b,e}	Emission rate, lb/hr ^b	Emission rate, tons per rolling, 12-month period ^f
<p>d. Pounds per million Btu of heat input.</p> <p>e. Emissions limitations are based on an hourly average.</p> <p>f. Potential annual emissions from the proposed facility were estimated using the following worst-case assumptions:</p> <ul style="list-style-type: none"> • Full-load operation of the combustion turbine generators (CTGs) for 8,760 hours per year (at 59°F ambient temperature), assuming • 1,440 hours per year firing ULSD; • Duct burning for 8,760 hours per year during steady-state operation of each CTG; and • Incorporation of start-up/shutdown events, based on a representative scenario that reflects maximum emissions. 				

i. To ensure enforceability of the rolling, 12-month emissions limitations during the first 12 calendar months of operation following the initial emissions compliance testing and CEMS certification, the permittee shall not exceed the emission levels specified in the following table (per turbine):

Month(s)	Maximum Allowable Cumulative Emissions (Tons)					
	CO	NO _x	PM ₁₀ /PM _{2.5}	VOC	SO ₂	H ₂ SO ₄
1	18.0	25.2	21.5	8.4	3.9	4.8
1-2	36.0	50.4	43.0	16.9	7.8	9.7
1-3	54.0	75.6	64.5	25.3	11.7	14.5
1-4	72.0	100.8	86.0	33.7	15.6	19.3
1-5	90.0	126.0	107.5	42.1	19.5	24.2
1-6	108.1	151.3	128.9	50.6	23.5	29.0
1-7	108.1	151.3	128.9	50.6	23.5	29.0
1-8	108.1	151.3	128.9	50.6	23.5	29.0

Month(s)	Maximum Allowable Cumulative Emissions (Tons)					
	CO	NO _x	PM ₁₀ /PM _{2.5}	VOC	SO ₂	H ₂ SO ₄
1-9	108.1	151.3	128.9	50.6	23.5	29.0
1-10	108.1	151.3	128.9	50.6	23.5	29.0
1-11	108.1	151.3	128.9	50.6	23.5	29.0
1-12	108.1	151.3	128.9	50.6	23.5	29.0

After the first 12 calendar months of operation following the initial emissions compliance testing and CEMS certification, compliance with the annual emissions limitations shall be based upon a rolling, 12-month summation of the monthly emissions.

- j. The permittee shall comply with the following requirements during periods of startup and shutdown:

Pollutant	Natural Gas		ULSD	
	Start-up (lb/hr)	Shutdown (lb/hr)	Start-up (lb/hr)	Shutdown (lb/hr)
NO _x	231.4	26.5	181.3	85.4
CO	158.3	160.1	356.6	132.3
VOC	21.4	55.2	109.0	41.3
PM ₁₀ /PM _{2.5}	Mass limits from C.2.b).2 h apply		77.4	77.4

*Represents worst-case hourly emissions as normal start-up and shutdown events will be completed in less than one hour with steady-state emissions balancing out each hour.

**Since cold, warm, and hot starts all have a comparable duration of 20-45 minutes, the worst-case type of start for each pollutant has been utilized to determine a single lb/hr emissions limitation for start-up along with a single emissions limitation for shutdown.

***The emissions data presented does not imply that all start-up events will be completed in one hour. However, the lb/hr emissions limitations for start-up and shutdown are intended to apply to each hour of any start-up or shutdown even if the start-up or shutdown persists longer than one hour due to unusual circumstances.

****The identified pollutants are those that have start-up emissions that are not “self-correcting” on an annual basis for both natural gas and ULSD firing. “Self-correcting” is defined as the emissions for each start-up and shutdown sequence that are less than the corresponding steady-state emission rate, accounting for minimum downtime between shutdowns and start-ups.

- k. The design net plant base heat rate shall not exceed 7,165 Btu/kW-hr HHV (ISO conditions without duct firing).
- l. The emission limitation required by this applicable rule is less stringent than the emission limitation established pursuant to OAC rules 3745-31-10 through 20.
- m. The emission limitation specified by this rule is less stringent than the emission limitation established by OAC rule 3745-31-05(F).
- n. 40 CFR Part 60, Subpart A provides applicability provisions, definitions, and other general provisions that are pertinent to emissions units affected by 40 CFR Part 60.
- o. This emissions unit is subject to the applicable provisions of Subparts KKKK and TTTT 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.
- p. The permittee shall comply with the applicable restrictions required under 40 CFR Part 60, Subpart KKKK, including the following sections:

60.4333	General Compliance Requirements
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- q. The permittee shall comply with the applicable restrictions required under 40 CFR Part 60, Subpart TTTT, including the following sections:

60.5525	General Compliance Requirements
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- r. This emissions unit is not subject to the requirements of 40 CFR Part 63, Subpart YYYY, since it is not located at a major source of HAP emissions.
- s. The duct burner is exempt from the requirements of this rule per 40 CFR Part 63, Subpart UUUUU due to combusting only natural gas.
- t. Each continuous NO_x monitoring system shall be certified to meet the requirements of 40 CFR Part 60, Appendix B, Performance Specification 2. At least 45 days before commencing certification testing of the continuous NO_x monitoring system(s), the permittee shall develop and maintain a written quality

assurance/quality control plan designed to ensure continuous valid and representative readings of NO_x emissions from the continuous monitor(s), in units of the applicable standard(s). Except as allowed below, the plan shall follow the requirements 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 monitoring system must be kept on site and available for inspection during regular office hours.

The plan shall include the requirement to conduct relative accuracy test audits for the continuous NO_x monitoring system in accordance with the frequencies required pursuant to 40 CFR Part 60 and 40 CFR Part 75; or may follow relative accuracy test audit frequency requirements for monitoring systems subject to 40 CFR 75, Appendix B, in lieu of frequencies required in 40 CFR Part 60. In either case, results shall be recorded and reported in units of the applicable standard(s) in accordance with 40 CFR Part 60.

The plan shall include the requirement to conduct quarterly cylinder gas audits or relative accuracy audits pursuant to 40 CFR Part 60, and linearity checks pursuant to 40 CFR Part 75; however, linearity checks completed pursuant to 40 CFR Part 75, Appendix B, may be substituted for the quarterly cylinder gas or relative accuracy audits required per 40 CFR Part 60.

- u. Each continuous carbon monoxide (CO) monitoring system shall be certified to meet the requirements of 40 CFR Part 60, Appendix B, Performance Specifications 4 or 4a. At least 45 days before commencing certification testing of the continuous CO monitoring system(s), the permittee shall develop and maintain a written quality assurance/quality control plan designed to ensure continuous valid and representative readings of CO emissions from the continuous monitor(s), in units of the applicable standard(s). The fuel flow monitors/meters shall be maintained as required in Part 75, Appendix D. Except as allowed below, 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 monitoring system must be kept on site and available for inspection during regular office hours.

The plan shall include the requirement to conduct relative accuracy test audits for the continuous CO monitoring system in accordance with the frequencies required for monitoring systems subject to 40 CFR 60, or may follow relative accuracy test audit frequency requirements for monitoring systems subject to 40 CFR 75, Appendix B. In either case, results shall be recorded and reported in units of the applicable standard(s) in accordance with 40 CFR Part 60.

The plan shall include the requirement to conduct quarterly cylinder gas audits or relative accuracy audits as required in 40 CFR Part 60; however, the quarterly cylinder gas audit and relative accuracy audit frequency requirements may be adjusted to coincide with linearity checks completed for continuous emissions monitoring systems subject to 40 CFR Part 75, Appendix B requirements.

- v. The continuous emission monitoring system consists of all the equipment used to acquire data to provide a record of emissions and includes the sample extraction

and transport hardware, sample conditioning hardware, analyzers, and data recording/processing hardware and software.

c) Operational Restrictions

- (1) The permittee shall only burn pipeline quality natural gas as fuel in each duct burner.
- (2) The permittee shall burn only natural gas and/or ULSD fuel in each combustion turbine.

d) Monitoring and/or Recordkeeping Requirements

- (1) For each shipment of ULSD fuel received for burning in this emissions unit, the permittee shall maintain records of the oil supplier's (or permittee's) analyses for sulfur content in parts per million (40 CFR 80.510). The permittee shall perform or require the supplier to perform the analyses for sulfur content in accordance with 40 CFR 80.585.
- (2) For each day during which the permittee burns a fuel other than natural gas or ULSD fuel, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
- (3) The permittee shall maintain monthly records of the following information:
 - a. the operating hours for each month;
 - b. the type of fuel combusted during operation; and
 - c. the rolling, 12-month summation of the monthly operating time, in hours (including each fuel that was combusted).
- (4) When combusting ULSD fuel, the permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
 - a. the color of the emissions;
 - b. whether the emissions are representative of normal operations;
 - c. if the emissions are not representative of normal operations, the cause of the abnormal emissions;
 - d. the total duration of any visible emissions incident; and
 - e. any corrective actions taken to minimize or eliminate the visible emissions.

If visible emissions are present, a visible emissions incident has occurred. The observer does not have to document the exact start and end times for the visible emissions incident under item (d) above or continue the daily check until the incident has ended. The observer may indicate that the visible emissions incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit).

With respect to the documentation of corrective actions, the observer may indicate that no corrective actions were taken if the visible emissions were representative of normal operations, or specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.

- (5) When combusting natural gas, the permittee shall perform monthly checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
- a. the color of the emissions;
 - b. whether the emissions are representative of normal operations;
 - c. if the emissions are not representative of normal operations, the cause of the abnormal emissions;
 - d. the total duration of any visible emissions incident; and
 - e. any corrective actions taken to minimize or eliminate the visible emissions.

If visible emissions are present, a visible emissions incident has occurred. The observer does not have to document the exact start and end times for the visible emissions incident under item (d) above or continue the daily check until the incident has ended. The observer may indicate that the visible emissions incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit). With respect to the documentation of corrective actions, the observer may indicate that no corrective actions were taken if the visible emissions were representative of normal operations, or specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.

- (6) The operations log required in d)(4) and d)(5) above shall be maintained on site.
- (7) For purposes of demonstrating compliance with the natural gas sulfur concentration restriction of 0.5 grain/100 scf, the permittee shall sample and analyze the natural gas burned in this emissions unit monthly to determine the sulfur content using the appropriate ASTM or Gas Processors Association standards. Fuel supplier data may be used to comply with this requirement, provided that it is demonstrated to be representative of the fuel received for burning at this emissions unit.
- (8) The permittee may elect not to monitor the total sulfur content of the fuel combusted in the turbine as specified in 40 CFR 60.4360 , if the fuel is demonstrated not to exceed potential sulfur emissions of 1.4E-03 lb SO₂/MMBtu. The permittee shall use one of the following sources of information to make the required demonstration:
- a. the fuel quality characteristics in a current, valid purchase contract, tariff sheet or transportation contract for the fuel, specifying that the maximum total sulfur

content for natural gas is 0.5 grain of sulfur or less per 100 standard cubic feet, has potential sulfur emissions of less than less than 1.4E-03 lb SO₂/MMBtu heat input;

- b. representative fuel sampling data which show that the sulfur content of the fuel does not exceed 1.4E-03 lb SO₂/MMBtu heat input. At a minimum, the amount of fuel sampling data specified in section 2.3.1.4 or 2.3.2.4 of Appendix D to Part 75 of this chapter is required; or
 - c. one of the custom sulfur monitoring schedules outlined in 40 CFR 60.4370(c) may be used to comply with the 1.4E-03 lb SO₂/MMBtu standard.
- (9) The permittee shall maintain monthly records of the following information:
- a. the CO, NO_x, PM₁₀/PM_{2.5}, SO₂, VOC and H₂SO₄ emission rate for each month of operations; and
 - b. beginning after the first 12 calendar months of operation following the initial emissions compliance testing and CEMS certification, the rolling, 12-month summation of the CO, NO_x, PM₁₀/PM_{2.5}, SO₂, VOC and H₂SO₄ emissions.

Also, during the first 12 calendar months of operation following the initial emissions compliance testing and CEMS certification, the permittee shall record the cumulative CO, NO_x, PM₁₀/PM_{2.5}, SO₂, VOC and H₂SO₄ emissions for each calendar month.

- (10) The permittee shall maintain monthly records of the following information for this emissions unit for purposes of calculating rolling, 12-month emissions:
- a. date, time, and duration of each startup and shutdown period;
 - b. the hours of operation of the combustion turbine;
 - c. the hours of operation of the duct burner;
 - d. the total duration of all startup periods in hours per rolling, 12-month period;
 - e. the total duration of all shutdown periods in hours per rolling, 12-month period;
 - f. the total duration of steady-state operation without duct burner firing in hours per rolling, 12-month period; and
 - g. the total duration of steady-state operation with duct burner firing in hours per rolling, 12-month period.
- (11) 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. The Ohio EPA, Central Office shall approve the proposed sampling site and certify that the continuous NO_x monitoring system meets the requirements of Performance Specifications 2; and the U.S. EPA shall certify that the continuous NO_x monitoring system meets the requirements under 40 CFR Part 75, which may be approved through

the recommendation for certification by Ohio EPA to U.S. EPA. Once received, the letter(s)/document(s) of certification under Part 60 and certification or recommendation for certification under Part 75 shall be maintain on-site and made available to the Director (the Ohio EPA Northeast District Office) upon request.

- (12) 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(s). The continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60 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:

- a. emissions of NO_x in parts per million for each cycle time of the analyzer, with no resolution less than one data point per minute required;
- b. emissions of NO_x in pounds per hour and in units of the applicable standard(s) in the appropriate averaging period;
- c. results of quarterly cylinder gas audits or linearity checks;
- d. results of daily zero/span calibration checks and the magnitude of manual calibration adjustments;
- e. results of required relative accuracy test audit(s), including results in units of the applicable standard(s);
- f. hours of operation of the emissions unit, continuous NO_x monitoring system, and control equipment;
- g. the date, time, and hours of operation of the emissions unit without the control equipment and/or the continuous NO_x monitoring system;
- h. malfunction of the control equipment and/or the continuous NO_x monitoring system; and
- i. the reason (if known) and the corrective actions taken (if any) for each such event in (g) and (h).

All valid data points generated and recorded by the continuous emission monitoring and data acquisition and handling system shall be used in the calculation of the pollutant concentration and/or emission rate over the appropriate averaging period.

- (13) Prior to the installation of the continuous carbon monoxide (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 or 4a (as appropriate). The Ohio EPA, Central Office shall approve the proposed sampling site and certify that the continuous CO monitoring system meets the requirements of Performance Specifications 4 or 4a. Once received, the letter(s)/document(s) of certification shall be maintained on-site and shall be made available to the Director (the Ohio EPA Northeast District Office) upon request.

- (14) The permittee shall operate and maintain equipment to continuously monitor and record CO emissions from this emissions unit in units of the applicable standard(s). The continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.

The permittee shall maintain records of all data obtained by the continuous CO monitoring system including, but not limited to:

- a. emissions of CO in parts per million for each cycle time of the analyzer, with no resolution less than one data point per minute required;
- b. emissions of CO in pounds per hour and in units of the applicable standard(s) in the appropriate averaging period;
- c. results of quarterly cylinder gas audits;
- d. results of daily zero/span calibration checks and the magnitude of manual calibration adjustments;
- e. results of required relative accuracy test audit(s), including results in units of the applicable standard(s);
- f. hours of operation of the emissions unit, continuous CO monitoring system, and control equipment;
- g. the date, time, and hours of operation of the emissions unit without the control equipment and/or the continuous CO monitoring system;
- h. the date, time, and hours of operation of the emissions unit during any malfunction of the control equipment and/or the continuous CO monitoring system; and
- i. the reason (if known) and the corrective actions taken (if any) for each such event in (g) and (h).

All valid data points generated and recorded by the continuous emission monitoring and data acquisition and handling system shall be used in the calculation of the pollutant concentration and/or emission rate over the appropriate averaging period.

- (15) The permittee shall calculate and record the monthly CO₂ emissions from P001 and P002 using data from the continuous fuel flow monitor using the procedures set forth in 40 CFR Part 75, Appendix G. From this data, the permittee shall calculate the CO₂ emissions from P001 and P002 per rolling, 12-month period.
- (16) The Permit to Install application for these emissions units, P001 and P002, was evaluated based on the actual materials and the design parameters of the emissions unit's(s) exhaust system, as specified by the permittee. The "Toxic Air Contaminant Statute", ORC 3704.03(F), was applied to this/these emissions unit(s) for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant(s) emitted at over one ton per year using an air dispersion model such as SCREEN3, AERMOD, or ISCST3, or other

Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled "Review of New Sources of Air Toxic Emissions, Option A", as follows:

- a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):
 - i. Threshold Limit Value (TLV) from the American Conference of Governmental Industrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices"; or
 - ii. Short Term Exposure Limit (STEL) or the ceiling value from the American Conference of Governmental Industrial Hygienists (ACGIH) "Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices"; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.
- b. The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).
- c. This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., "X = 24" hours per day and "Y = 7" days per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

$$\text{TLV}/10 \times 8/X \times 5/Y = 4 \text{ TLV}/XY = \text{MAGLC}$$

- d. The following summarizes the results of dispersion modeling for the "worst case" toxic contaminant(s):

Toxic Contaminant: H₂SO₄

TLV (mg/m³): 0.2 mg/m³

Hourly Emission Rate for Maximum Hourly Impact (lbs/hr): 6.10

Predicted 1-Hour Maximum Ground-Level Concentration (µg/m³): 1.51

MAGLC (µg/m³): 4.76

The permittee has demonstrated that emissions of H₂SO₄, from emissions unit(s) P001 and P002, is calculated to be less than eighty percent of the MAGLC; any new raw material or processing agent shall not be applied without evaluating each component

toxic air contaminant in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F).

- (17) Prior to making any physical changes to or changes in the method of operation of the emissions unit(s), that could impact the parameters or values that were used in the predicted 1-hour maximum ground-level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, 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 new toxic air contaminant with a lower TLV than the lowest TLV previously modeled;
 - b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last) application; and
 - c. physical changes to the emissions unit(s) or its/their exhaust parameters (e.g., increased/ decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Toxic Air Contaminant Statute" 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 solely due to a non-restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), has been documented. If the change(s) meet(s) the definition of a "modification", the permittee shall apply for and obtain a final permit-to-install (PTI) prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

- (18) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F):
- a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);
 - b. the MAGLC for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F);
 - c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F),

initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and

d. the documentation of the initial evaluation of compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.

(19) The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. The record shall include the date and reason(s) for the change and if the change would increase the ground-level concentration.

(20) See 40 CFR Part 60, Subpart KKKK (40 CFR 60.4360, 60.365(b), and 60.4375).

(21) The permittee shall comply with the applicable restrictions required under 40 CFR Part 60, Subpart TTTT, including the following sections:

60.5535	Monitor and Collect Data to Demonstrate Compliance
60.5540	Demonstrate Compliance with CO ₂ Emissions and Determine Excess Emissions
60.5550	Notification Requirements
60.5560 and 60.5565	Record Keeping Requirements

e) Reporting Requirements

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

(2) Pursuant to 40 CFR Part 60.7 and 60.48c(a), 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. actual start-up date (within 15 days after such date); and
- c. the design heat input capacity of the affected facility and identification of fuels to be combusted in the affected facility.

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



- a. all exceedances of the rolling, 12-month limitation on the hours of operation for this emissions unit and the limitation on the hours when burning ULSD fuel;
- b. each shipment of ULSD fuel received for burning in this emissions unit which did not comply with the standards specified in b)(2)g;
- c. the permittee shall report any ULSD deviation within 30 days of receiving noncompliant ULSD; and any monthly record showing an exceedance of the allowable sulfur content of natural gas, 0.5 grain per 100 standard cubic feet.

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

- (4) The permittee shall comply with the applicable restrictions required under 40 CFR Part 60, Subpart TTTT, including the following sections:

60.5555	Required Reports
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- (5) The permittee shall comply with the following quarterly reporting requirements for the emissions unit and its continuous NO_x monitoring system:

- a. Pursuant to the monitoring, record keeping, and reporting requirements for continuous monitoring systems contained in 40 CFR 60.7 and 60.13(h) and the requirements established in this permit, the permittee shall submit reports within 30 days following the end of each calendar quarter to the Ohio EPA Northeast District Office, documenting all instances of NO_x emissions in excess of any applicable limit specified in this permit, 40 CFR Part 60, 40 CFR Parts 75 and 76, OAC Chapters 3745-14 and 3745-23, and any other applicable rules or regulations. The report shall document the date, commencement and completion times, duration, and magnitude of each exceedance, as well as the reason (if known) and the corrective actions taken (if any) for each exceedance. Excess emissions shall be reported in units of the applicable standard(s).
- b. These quarterly reports shall be submitted by January 30, April 30, July 30, and October 30 of each year and shall include the following:
 - i. the facility name and address;
 - ii. the manufacturer and model number of the continuous NO_x and other associated monitors;
 - iii. a description of any change in the equipment that comprises the CEMS, including any change to the hardware, changes to the software that may affect CEMS readings, and/or changes in the location of the CEMS sample probe;
 - iv. the EER*, i.e., a summary of any exceedances during the calendar quarter, as specified above;

- v. the total NO_x emissions for the calendar quarter (tons);
- vi. the total operating time (hours) of the emissions unit;
- vii. the total operating time of the continuous NO_x monitoring system while the emissions unit was in operation;
- viii. results and date of quarterly cylinder gas audits or linearity checks;
- ix. unless previously submitted, results and date of the relative accuracy test audit(s), including results in units of the applicable standard(s), (during appropriate quarter(s));
- x. unless previously submitted, the results of any relative accuracy test audit showing the continuous NO_x monitor out-of-control and the compliant results following any corrective actions;
- xi. the date, time, and duration of any/each malfunction** of the continuous NO_x monitoring system, emissions unit, and/or control equipment;
- xii. the date, time, and duration of any downtime** of the continuous NO_x monitoring system and/or control equipment while the emissions unit was in operation; and
- xiii. the reason (if known) and the corrective actions taken (if any) for each event in (b)(xi) and (xii).

Each report shall address the operations conducted and data obtained during the previous calendar quarter. Data substitution procedures from 40 CFR 75 are not to be used for showing compliance with the short term OAC 3745-31-05(A)(3) rule-based or NSPS-based limitation(s) in this permit.

* where no excess emissions have occurred or the continuous monitoring system(s) has/have not been inoperative, repaired, or adjusted during the calendar quarter, such information shall be documented in the EER quarterly report

** each downtime and malfunction event shall be reported regardless if there is an exceedance of any applicable limit

- (6) The permittee shall comply with the following quarterly reporting requirements for the emissions unit and its continuous CO monitoring system:
 - a. Pursuant to the monitoring, record keeping, and reporting requirements for continuous monitoring systems contained in 40 CFR 60.7 and 60.13(h) and the requirements established in this permit, the permittee shall submit reports within 30 days following the end of each calendar quarter to the Ohio EPA Northeast District Office, documenting all instances of CO emissions in excess of any applicable limit specified in this permit, 40 CFR Part 60, OAC Chapter 3745-21, and any other applicable rules or regulations. The report shall document the date, commencement and completion times, duration, and magnitude of each exceedance, as well as, the reason (if known) and the corrective actions taken (if

any) for each exceedance. Excess emissions shall be reported in units of the applicable standard(s).

- b. These quarterly reports shall be submitted by January 30, April 30, July 30, and October 30 of each year and shall include the following:
- i. the facility name and address;
 - ii. the manufacturer and model number of the continuous CO and other associated monitors;
 - iii. a description of any change in the equipment that comprises the continuous emission monitoring system (CEMS), including any change to the hardware, changes to the software that may affect CEMS readings, and/or changes in the location of the CEMS sample probe;
 - iv. the excess emissions report (EER)*, i.e., a summary of any exceedances during the calendar quarter, as specified above;
 - v. the total CO emissions for the calendar quarter (tons);
 - vi. the total operating time (hours) of the emissions unit;
 - vii. the total operating time of the continuous CO monitoring system while the emissions unit was in operation;
 - viii. results and dates of quarterly cylinder gas audits;
 - ix. unless previously submitted, results and dates of the relative accuracy test audit(s), including results in units of the applicable standard(s), (during appropriate quarter(s));
 - x. unless previously submitted, the results of any relative accuracy test audit showing the continuous CO monitor out-of-control and the compliant results following any corrective actions;
 - xi. the date, time, and duration of any/each malfunction** of the continuous CO monitoring system, emissions unit, and/or control equipment;
 - xii. the date, time, and duration of any downtime** of the continuous CO monitoring system and/or control equipment while the emissions unit was in operation; and
 - xiii. the reason (if known) and the corrective actions taken (if any) for each event in (b)(xi) and (xii).

Each report shall address the operations conducted and data obtained during the previous calendar quarter. Data substitution procedures from 40 CFR 75 are not to be used for showing compliance with the short term OAC 3745-31-05(A)(3) rule-based or NSPS-based limitation(s) in this permit.

* where no excess emissions have occurred or the continuous monitoring system(s) has/have not been inoperative, repaired, or adjusted during the calendar quarter, such information shall be documented in the EER quarterly report

** each downtime and malfunction event shall be reported regardless if there is an exceedance of any applicable limit

- (7) The permittee shall collect, record and maintain measurements, data, records and reports required per 40 CFR Part 75; and shall submit certification, recertification, notifications, applications, monitoring plans, petitions for alternative monitoring systems, electronic quarterly reports and any other pertinent record and/or report to the Administrator (U.S. EPA), as required by this Part.
- (8) The permittee shall submit annual reports that include any changes to any parameter or value used in the dispersion model used to demonstrate compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), through the predicted 1 hour maximum concentration. The report should include:
 - a. the original model input;
 - b. the updated model input;
 - c. the reason for the change(s) to the input parameter(s);
 - d. a summary of the results of the updated modeling, including the input changes; and
 - e. a statement that the model results indicate that the 1-hour maximum ground-level concentration is less than 80% of the MAGLC.

If no changes to the emissions, emissions unit(s), or the exhaust stack have been made during the reporting period, then the report shall include a statement to that effect.

- (9) See 40 CFR Part 60, Subpart KKKK (40 CFR 60.4300 – 60.4420).

f) Testing Requirements

- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

- a. Emission Limitation:

Visible particulate emissions from the stack serving this emissions unit shall not exceed 10% opacity as a 6-minute average.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance based upon an emission test performed in accordance with the methods and procedures specified in 40

CFR Part 60, Appendix A, Method 9. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

b. Emission Limitation:

CO emissions from this emissions unit shall not exceed 2.0 ppmvd at 15% oxygen as an hourly average and 15.17 lbs/hr when firing natural gas and the duct burner is not in operation; 2.0 ppmvd at 15% oxygen as an hourly average and 18.57 lbs/hr when firing natural gas and the duct burner is in operation; and 2.0 ppmvd at 15% oxygen as an hourly average and 16.15 lbs/hr when firing ULSD fuel.

Applicable Compliance Method:

These emission limitations are based on manufacturer's data. Ongoing compliance with the CO emission limitations shall be demonstrated through the data collected as required in the Monitoring and Record keeping Section of this permit and through demonstration of compliance with the quality assurance/quality control plan, which shall meet the requirements of 40 CFR Part 60.

The permittee shall demonstrate compliance using Methods 1 thru 4 and 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. See f)(2).

c. Emission Limitation:

CO emissions from this emissions unit shall not exceed 158.3 lbs/hr during startup and 160.1 lbs/hr during shutdown when firing natural gas; and 356.6 lbs/hr during startup and 132.3 lbs/hr during shutdown when firing ULSD fuel.

Applicable Compliance Method:

These emission limitations are based on manufacturer's data. Ongoing compliance with the CO emission limitations shall be demonstrated through the data collected as required in the Monitoring and Record keeping Section of this permit and through demonstration of compliance with the quality assurance/quality control plan, which shall meet the requirements of 40 CFR Part 60.

The permittee shall demonstrate compliance using Methods 1 thru 4 and 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. See f)(2).

d. Emission Limitation:

CO emissions from this emissions unit shall not exceed 108.1 tons per rolling, 12-month period.

Applicable Compliance Method:

Compliance shall be based upon record keeping as specified in d)(9) and shall be demonstrated through the use of CEMs as specified in d)(14).

The monthly CO emissions shall be added to the total CO emissions from the previous eleven months to determine the rolling, 12-month summation of CO emissions.

e. Emission Limitation:

NO_x emissions from this emissions unit shall not exceed 2.0 ppmvd at 15% oxygen as an hourly average and 24.92 lbs/hr when firing natural gas and the duct burner is not in operation; 2.0 ppmvd at 15% oxygen as an hourly average and 30.51 lbs/hr when firing natural gas and the duct burner is in operation; and 5.0 ppmvd at 15% oxygen as an hourly average and 66.32 lbs/hr when firing ULSD fuel.

Applicable Compliance Method:

These emission limitations are based on manufacturer's data. Ongoing compliance with the NO_x emission limitations shall be demonstrated through the data collected as required in the Monitoring and Record keeping Section of this permit and through demonstration of compliance with the quality assurance/quality control plan, which shall meet the requirements of 40 CFR Part 60.

The permittee shall demonstrate compliance using Methods 1 thru 4 and 7E of 40 CFR Part 60, Appendix A, and the procedures specified in 40 CFR 60.4400. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA. See f)(2).

f. Emission Limitation:

NO_x emissions from this emissions unit shall not exceed 231.4 lbs/hr during startup and 26.5 lbs/hr during shutdown when firing natural gas; and 181.3 lbs/hr during startup and 85.4 lbs/hr during shutdown when firing ULSD fuel.

Applicable Compliance Method:

These emissions limitations are based on manufacturer's data. Ongoing compliance with the NO_x emission limitations shall be demonstrated through the data collected as required in the Monitoring and Record keeping Section of this permit and through demonstration of compliance with the quality assurance/quality control plan, which shall meet the requirements of 40 CFR Part 60.

The permittee shall demonstrate compliance using Methods 1 thru 4 and 7E of 40 CFR Part 60, Appendix A, and the procedures specified in 40 CFR 60.4400.

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA. See f)(2).

g. Emission Limitation:

NO_x emissions from this emissions unit shall not exceed 151.3 tons per rolling, 12-month period.

Applicable Compliance Method:

Compliance shall be based upon record keeping as specified in d)(9) and shall be demonstrated through the use of CEMs as specified in d)(12).

The monthly NO_x emissions shall be added to the total NO_x emissions from the previous eleven months to determine the rolling, 12-month summation of NO_x emissions.

h. Emission Limitation:

VOC emissions from this emissions unit shall not exceed 1.0 ppmvd at 15% oxygen as an hourly average and 4.35 lbs/hr when firing natural gas and the duct burner is not in operation; 2.0 ppmvd at 15% oxygen as an hourly average and 10.64 lbs/hr when firing natural gas and the duct burner is in operation; and 2.0 ppmvd at 15% oxygen as an hourly average and 9.25 lbs/hr when firing ULSD fuel.

Applicable Compliance Method:

These emission limitations are based on manufacturer's data. The permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Methods 1 through 4 and 18, 25 or 25A, as appropriate, of 40 CFR Part 60, Appendix A. Use of Method 18, 25 or 25A is to be selected based on the results of pre-survey stack sampling and U.S. EPA guidance documents. Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA. See f)(2).

i. Emission Limitation:

VOC emissions from this emissions unit shall not exceed 21.4 lbs/hr during startup and 55.2 lbs/hr during shutdown when firing natural gas; and 109.0 lbs/hr during startup and 41.3 lbs/hr during shutdown when firing ULSD fuel.

Applicable Compliance Method:

These emission limitations are based on manufacturer's data. The permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Methods 1 through 4 and 18, 25 or 25A, as appropriate, of 40 CFR Part 60, Appendix A. Use of Method 18, 25 or 25A is to be selected based on the results of pre-survey stack sampling and U.S. EPA guidance documents. Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA.

j. Emission Limitation:

VOC emissions from this emissions unit shall not exceed 50.6 tons per rolling, 12-month period.

Applicable Compliance Method:

Compliance shall be based upon record keeping as specified in d)(9) and shall be demonstrated through a summation of the VOC emissions from the burning of natural gas and ULSD fuel as follows:

- i. The VOC emissions for each emissions unit from the burning of natural gas shall be determined by multiplying the operating hours while burning natural gas for the month, by the average emission rate (lbs VOC/hour) derived from the emission tests conducted in accordance with Section f)(2), and dividing by 2,000 lbs/ton.
- ii. The VOC emissions for each emissions unit from the burning of ULSD fuel shall be determined by multiplying the operating hours while burning ULSD fuel for the month, by the average emission rate (lbs VOC/hour) derived from the emission tests conducted in accordance with f)(2), and dividing by 2,000 lbs/ton.
- iii. The monthly VOC emissions shall be added to the total VOC emissions from the previous 11 months to determine the rolling, 12-month summation of VOC emissions, using the operating hour data from d)(9) and the average emission rates derived from the emission tests conducted in accordance with f)(2).

k. Emission Limitation:

SO₂ emissions from this emissions unit shall not exceed 1.4E-03 lb/MMBtu and 4.61 lbs/hr when firing natural gas and the duct burner is not in operation; 1.4E-03 lb/MMBtu and 5.64 lbs/hr when firing natural gas and the duct burner is in operation; and 1.5E-03 lb/MMBtu and 5.19 lbs/hr when firing ULSD fuel.

Applicable Compliance Method:

For pipeline quality natural gas having a maximum sulfur content of 0.5 grain per 100 standard cubic feet according to the following calculation: multiply the maximum sulfur content of natural gas (0.5 grain S/100 scf) by the molecular weight of SO₂ (64.07 lb SO₂/lb-mole), divide by the molecular weight of sulfur (32.06 lb S/lb-mole), divide by (7,000 grains/lb), divide by the expected heating value (HHV) for pipeline natural gas (1028 Btu/scf), and multiply by (10⁶ Btu/MMBtu).

For ULSD fuel having a maximum sulfur content of 15 ppm, fuel sampling analysis for fuel oil as determined in d)(1).

When firing natural gas, compliance with the lb/hr emission limitation shall be based upon multiplying 1.4E-03 lb/MMBtu by the maximum heat input capacity (with and without the use of the duct burner) of this emissions unit.

When firing ULSD fuel, compliance with the lb/hr emission limitation shall be based upon the fuel analysis and record keeping requirements specified in d)(1) and shall be determined by multiplying the SO₂ emissions in lb(s) SO₂/MMBtu by the maximum heat input capacity of this emissions unit. The permittee shall demonstrate compliance with the hourly emission limitation when burning ULSD fuel through emission tests performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 4 and 6. Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA.

I. Emission Limitation:

SO₂ emissions from this emissions unit shall not exceed 23.5 tons per rolling, 12-month period.

Applicable Compliance Method:

Compliance shall be based upon record keeping as specified in d)(9) and shall be demonstrated through a summation of the SO₂ emissions from the burning of natural gas and ULSD fuel as follows:

- i. The monthly SO₂ emissions for each emissions unit from the burning of natural gas shall be determined by multiplying 1.4E-03 lb SO₂/MMBtu by the actual heat input for these emissions units (MMBtu/month) and then dividing by 2,000 lbs/ton.
- ii. The monthly SO₂ emissions for each emissions unit from the burning of ULSD fuel shall be determined by multiplying by the average percent sulfur of the ULSD fuel used during the month by the factor of 2 lbs of SO₂ per lb of sulfur, divided by the average heat content of the fuel burned during the period, by the actual heat input while burning ULSD fuel oil in these emissions units (MMBtu/hr), and then dividing by 2,000 lbs/ton.
- iii. The monthly SO₂ emissions shall be added to the total SO₂ emissions from the previous eleven months to determine the rolling, 12-month summation of SO₂ emissions, using 1.4E-03 lb SO₂/MMBtu and fuel sampling analysis for ULSD fuel as determined in d)(1).

m. Emission Limitation:

PM₁₀ and PM_{2.5} emissions from this emissions unit shall not exceed 7.7E-03 lb/MMBtu as an hourly average and 16.16 lbs/hr when firing natural gas and the duct burner is not in operation; 6.9E-03 lb/MMBtu as an hourly average and 25.0 lbs/hr when firing natural gas and the duct burner is in operation; and 1.9E-02 lb/MMBtu as an hourly average and 55.4 lbs/hr when firing ULSD fuel.

Applicable Compliance Method:

These emission limitations are based on manufacturer's data. The permittee shall demonstrate compliance with these emission limitations using Methods 201A and 202 of 40 CFR Part 51, Appendix M. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA. See f)(2).

n. Emission Limitation:

PM₁₀ and PM_{2.5} emissions from this emissions unit shall not exceed 128.9 tons per rolling, 12-month period.

Applicable Compliance Method:

Compliance shall be based upon record keeping as specified in d)(9) and shall be demonstrated through a summation of the PM₁₀ and PM_{2.5} emissions from the burning of natural gas and ULSD fuel as follows:

- i. The PM₁₀ and PM_{2.5} emissions for each emissions unit from the burning of natural gas shall be determined by multiplying the total fuel use (MMBtu) while burning natural gas for the month, by the average emission rate (lbs PM₁₀ and PM_{2.5}/MMBtu) derived from the emission tests conducted in accordance with f)(2), and dividing by 2,000 lbs/ton.
- ii. The PM₁₀ and PM_{2.5} emissions for each emissions unit from the burning of ULSD fuel shall be determined by multiplying the total fuel use (MMBtu) while burning ULSD fuel for the month, by the average emission rate (lbs PM₁₀ and PM_{2.5}/MMBtu) derived from the emission tests conducted in accordance with f)(2), and dividing by 2,000 lbs/ton.
- iii. The monthly PM₁₀ and PM_{2.5} emissions shall be added to the total PM₁₀ and PM_{2.5} emissions from the previous 11 months to determine the rolling, 12-month summation of PM₁₀ and PM_{2.5} emissions, using the total fuel use (MMBtu) data from the Part 75 certified fuel flow meters and the average emission rates derived from the emission tests conducted in accordance with f)(2).

o. Emission Limitation:

H₂SO₄ emissions from this emissions unit shall not exceed 1.7E-03 lb/MMBtu as an hourly average and 5.65 lbs/hr when firing natural gas and the duct burner is not in operation; 1.7E-03 lb/MMBtu as an hourly average and 6.96 lbs/hr when firing natural gas and the duct burner is in operation; and 1.9E-03 lb/MMBtu as an hourly average and 6.35 lbs/hr when firing ULSD fuel.

Applicable Compliance Method:

These emission limitations are based on manufacturer's data. The permittee shall demonstrate compliance using Methods 1 thru 4 and 8 of 40 CFR Part 60,

Appendix A. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA. See f)(2).

p. Emission Limitation:

H₂SO₄ emissions from this emissions unit shall not exceed 29.0 tons per rolling, 12-month period.

Applicable Compliance Method:

Compliance shall be based upon record keeping as specified in d)(9) and shall be determined through a summation of the H₂SO₄ emissions from the burning of natural gas and ULSD fuel as follows:

- i. The H₂SO₄ emissions for each emissions unit from the burning of natural gas shall be determined by multiplying the fuel use in MMBtu while burning natural gas for the month, by the average emission rate (lbs H₂SO₄/MMBtu) derived from the emission tests conducted in accordance with f)(2), and dividing by 2,000 lbs/ton.
- ii. The H₂SO₄ emissions for each emissions unit from the burning of ULSD fuel shall be determined by multiplying the fuel use in MMBtu while burning ULSD fuel for the month, by the average emission rate (lbs H₂SO₄/MMBtu) derived from the emission tests conducted in accordance with f)(2), and dividing by 2,000 lbs/ton.
- iii. The monthly H₂SO₄ emissions shall be added to the total H₂SO₄ emissions from the previous 11 months to determine the rolling, 12-month summation of H₂SO₄ emissions, using the fuel use data from the Part 75 certified fuel flow meters and the average emission rates derived from the emission tests conducted in accordance with f)(2).

q. Emission Limitation:

CO₂e emissions shall not exceed 481,301 lbs/hr when firing natural gas (maximum under any condition with duct firing).

CO₂e emissions shall not exceed 546,182 lbs/hr when firing ULSD fuel.

CO₂e emissions shall not exceed 2,045,634.5 tons per rolling, 12-month period during all operating modes, including startup and shutdown periods.

Applicable Compliance Method:

Compliance with the maximum hourly emission limitation is based on the following calculation:

Natural Gas (Manufacturer's data GE Case #1):

CO₂: (4,045.31 MMBtu/hr)(118.857 lb/MMBtu^a) = 480,813 lbs/hr

$$\text{CH}_4: (4,045.31 \text{ MMBtu/hr})(2.2\text{E-}03 \text{ lb/MMBtu}^b) = 8.9 \text{ lbs/hr}$$

$$\text{N}_2\text{O}: (4,045.31 \text{ MMBtu/hr})(2.2\text{E-}04 \text{ lb/MMBtu}^c) = 0.89 \text{ lb/hr}$$

where:

“a” is the emission factor from USEPA 40 CFR Part 75;

“b” is the emission factor from USEPA 40 CFR Part 98; and

“c” is the emission factor from USEPA 40 CFR Part 98.

The hourly emission limitation is based on the sum of the following manufacturer’s data GE Case #1 (480,813 lbs/hr CO₂, 8.90 lbs/hr CH₄, and 0.89 lbs/hr N₂O) multiplied by the associated global warming potential for each pollutant (CO₂=1, CH₄=25, N₂O=298 from Table A-1 of 40 CFR 98).

$$\left[\left(480,813 \frac{\text{lbs}}{\text{hr}} \right) (1) + \left(8.90 \frac{\text{lbs}}{\text{hr}} \right) (25) + \left(0.89 \frac{\text{lbs}}{\text{hr}} \right) (298) \right] = 481,301 \text{ lbs/hr}$$

ULSD Fuel (Manufacturer’s data GE Case #20):

$$\text{CO}_2: (3,354 \text{ MMBtu/hr})(162.286 \text{ lb/MMBtu}^a) = 544,307.24 \text{ lbs/hr}$$

$$\text{CH}_4: (3,354 \text{ MMBtu/hr})(6.61\text{E-}03 \text{ lb/MMBtu}^b) = 22.17 \text{ lbs/hr}$$

$$\text{N}_2\text{O}: (3,354 \text{ MMBtu/hr})(1.32\text{E-}03 \text{ lb/MMBtu}^c) = 4.43 \text{ lbs/hr}$$

where:

“a” is the emission factor from USEPA 40 CFR Part 75;

“b” is the emission factor from USEPA 40 CFR Part 98; and

“c” is the emission factor from USEPA 40 CFR Part 98.

The hourly emission limitation is based on the sum of the following manufacturer’s data GE Case #20 (544,307.24 lbs/hr CO₂, 22.17 lbs/hr CH₄, and 4.43 lbs/hr N₂O) multiplied by the associated global warming potential for each pollutant (CO₂=1, CH₄=25, N₂O=298 from Table A-1 of 40 CFR 98).

$$\left[\left(544,307.24 \frac{\text{lbs}}{\text{hr}} \right) (1) + \left(22.17 \frac{\text{lbs}}{\text{hr}} \right) (25) + \left(4.43 \frac{\text{lbs}}{\text{hr}} \right) (298) \right] = 546,182 \text{ lbs/hr}$$

Compliance with the annual emission limitation is based on the following calculation:

Natural Gas (Manufacturer’s data GE Case #7):

$$\text{CO}_2: [(3,843.42 \text{ MMBtu/hr})(118.857 \text{ lb/MMBtu}^a)(7,320 \text{ hours/yr})]/(2,000 \text{ lbs/ton}) = 1,671,952 \text{ tpy}$$

$$\text{CH}_4: [(3,843.42 \text{ MMBtu/hr})(2.2\text{E-}03 \text{ lb/MMBtu}^b)(7,320 \text{ hours/yr})]/(2,000 \text{ lbs/ton}) = 31.0 \text{ tpy}$$

$$\text{N}_2\text{O}: [(3,843.42 \text{ MMBtu/hr})(2.2\text{E-}04 \text{ lb/MMBtu}^c)(7,320 \text{ hours/yr})]/(2,000 \text{ lbs/ton}) = 3.10 \text{ tpy}$$

where:

“a” is the emission factor from USEPA 40 CFR Part 75;

“b” is the emission factor from USEPA 40 CFR Part 98; and

“c” is the emission factor from USEPA 40 CFR Part 98.

The annual emission calculation for natural gas is based on the sum of the following manufacturer’s data GE Case #7 (1,671,952 tpy CO₂, 31.0 tpy CH₄, and 3.10 tpy N₂O) multiplied by the associated global warming potential for each pollutant (CO₂=1, CH₄=25, N₂O=298 from Table A-1 of 40 CFR 98).

$$\left[\left(1,671,952 \frac{\text{tons}}{\text{yr}} \right) (1) + \left(31.0 \frac{\text{tons}}{\text{yr}} \right) (25) + \left(3.10 \frac{\text{tons}}{\text{yr}} \right) (298) \right] = 1,673,651 \text{ tons/yr}$$

ULSD Fuel (Manufacturer’s data GE Case #24):

$$\text{CO}_2: [(3,172.6 \text{ MMBtu/hr})(162.286 \text{ lb/MMBtu}^a)(1,440 \text{ hours/yr})]/(2,000 \text{ lbs/ton}) = 370,705 \text{ tpy}$$

$$\text{CH}_4: [(3,172.6 \text{ MMBtu/hr})(6.61\text{E-}03 \text{ lb/MMBtu}^b)(1,440 \text{ hours/yr})]/(2,000 \text{ lbs/ton}) = 15.11 \text{ tpy}$$

$$\text{N}_2\text{O}: [(3,172.6 \text{ MMBtu/hr})(1.32\text{E-}03 \text{ lb/MMBtu}^c)(1,440 \text{ hours/yr})]/(2,000 \text{ lbs/ton}) = 3.02 \text{ tpy}$$

where:

“a” is the emission factor from USEPA 40 CFR Part 75;

“b” is the emission factor from USEPA 40 CFR Part 98; and

“c” is the emission factor from USEPA 40 CFR Part 98.

The annual emission limitation is based on the sum of the following manufacturer’s data GE Case #24 (370,705 tpy CO₂, 15.11 tpy CH₄, and 3.02 tpy N₂O) multiplied by the associated global warming potential for each pollutant (CO₂=1, CH₄=25, N₂O=298 from Table A-1 of 40 CFR 98).

$$\left[\left(370,705 \frac{\text{tons}}{\text{yr}} \right) (1) + \left(15.11 \frac{\text{tons}}{\text{yr}} \right) (25) + \left(3.02 \frac{\text{tons}}{\text{yr}} \right) (298) \right] = 371,983 \text{ tons/yr}$$

Total CO_{2e}: (Natural Gas 1,673,651 tpy) + (ULSD 371,983 tpy) = 2,045,634 tpy CO_{2e} per CTG.

r. Emission Limitation:

CO₂ emissions shall not exceed 450 kg per megawatt-hour (MWh) of gross energy output (1,000 lb CO₂/MWh) or

CO₂ emissions shall not exceed 470 kg per MWh of net energy output (1,030 lb CO₂/MWh).

Applicable Compliance Method:

Compliance with the above emissions limitations shall be determined in accordance with the following:

60.5540	Demonstrating Compliance with the CO ₂ Emissions Standard
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(2) The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

- a. The emission testing shall be conducted within 60 days after achieving the maximum production rate at which the emissions unit will be operated, but not later than 180 days after initial startup of the emissions unit.
- b. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate(s) for CO, NO_x, SO₂, PM₁₀, PM_{2.5}, VOC and H₂SO₄, in the appropriate averaging period(s).

The emission testing shall include startup and shutdown for CO, NO_x, and VOC emissions while burning both natural gas and ULSD.

The emission testing shall also be conducted to determine a site-specific emission factor for CO₂, in lb/MMBtu.

- c. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s):

for CO, Methods 1 thru 4 and 10 of 40 CFR Part 60, Appendix A;

for NO_x, Methods 1 thru 4 and 7E of 40 CFR Part 60, Appendix A, and the procedures specified in 40 CFR 60.4400;

for PM₁₀ and PM_{2.5}, Methods 201A and 202 of 40 CFR Part 51, Appendix M;

for SO₂, 40 CFR 60.4415;

for VOC, Methods 1 through 4 and 18, 25 or 25A, as appropriate, of 40 CFR Part 60, Appendix A. Use of Method 18, 25 or 25A is to be selected based on the results of pre-survey stack sampling and U.S. EPA guidance documents;

for H₂SO₄, Methods 1 thru 4 and 8 of 40 CFR Part 60, Appendix A; and

for CO₂, Methods 1, 2, 3A, and 4 of 40 CFR Part 60, Appendix A, mass balance calculations using ASTM D1945-03 (Standard Test Method for Analysis of Natural Gas by Gas Chromatography) and/or ASTM D1826-94 (Standard Test Method for Calorific Value of Gases in Natural Gas Range by Continuous Recording Calorimeter).

Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

- d. The test(s) shall be conducted under those representative conditions that challenge to the fullest extent possible a facility's ability to meet the applicable emissions limits and/or control requirements, unless otherwise specified or approved by the Ohio EPA Northeast District Office. Although this generally consists of operating the emissions unit at its maximum material input/production rates and results in the highest emission rate of the tested pollutant, there may be circumstances where a lower emissions loading is deemed the most challenging control scenario. Failure to test under these conditions is justification for not accepting the test results as a demonstration of compliance.
 - 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 Northeast 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 Northeast District Office's refusal to accept the results of the emission test(s).
 - f. Personnel from the Ohio EPA Northeast 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 emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Ohio EPA Northeast 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 Northeast District Office.
- (3) Within 60 days of achieving the maximum production rate at which the emissions unit(s) will be operated, but not later than 180 days after initial startup, the permittee shall conduct certification tests of the continuous NO_x emission monitoring system, in units of the applicable standard(s), to demonstrate compliance with 40 CFR Part 60, Appendix B, Performance Specification 2 relative accuracy requirements; ORC section 3704.03(I); and 40 CFR Part 75.

The permittee shall certify that the fuel flow monitor/meter meets 40 CFR Part 75 certification requirements prior to the performance specification test and shall demonstrate how the pound per hour emissions of NO_x will be calculated stoichiometrically from the fuel flow rate.

Personnel from the Ohio EPA Central Office and the Ohio EPA Northeast District Office shall be notified 45 days prior to initiation of the applicable tests and shall be permitted to examine equipment and witness the certification tests. Two copies of the test results shall be submitted to Ohio EPA, one copy to the Ohio EPA Northeast District Office and one copy to Ohio EPA Central Office, and pursuant to OAC rule 3745-15-04, within 30 days after the test is completed.

Certification, or recommendation for certification by Ohio EPA to U.S. EPA, of the continuous NO_x monitoring system shall be granted upon determination by the Ohio EPA, Central Office that the system meets the requirements of 40 CFR Part 60, Appendix B, Performance Specification 2 relative accuracy requirements; ORC section 3704.03(I); and 40 CFR Part 75.

Ongoing compliance with the NO_x emissions limitations contained in this permit, 40 CFR Parts 60 and 75, and any other applicable standard(s) shall be demonstrated through the data collected as required in the Monitoring and Record keeping Section of this permit and through demonstration of compliance with the quality assurance/quality control plan, which shall meet the testing and recertification requirements of 40 CFR Part 60 and 40 CFR Part 75.

- (4) Within 60 days of achieving the maximum production rate at which the emissions unit(s) will be operated, but not later than 180 days after initial startup, the permittee shall conduct certification tests of the continuous CO monitoring system in units of the applicable standard(s), to demonstrate compliance with 40 CFR Part 60, Appendix B, Performance Specification 4 or 4a (as appropriate) relative accuracy requirements; and ORC section 3704.03(I).

The permittee shall certify that the fuel flow monitor/meter is calibrated prior to the performance specification test and shall demonstrate how the pound per hour emissions of CO will be calculated stoichiometrically from the fuel flow rate.

Personnel from the Ohio EPA Central Office and the Ohio EPA Northeast District Office shall be notified 30 days prior to initiation of the applicable tests and shall be permitted to examine equipment and witness the certification tests. Two copies of the test results shall be submitted to Ohio EPA, one copy to the Ohio EPA Northeast District Office and one copy to Ohio EPA Central Office, and pursuant to OAC rule 3745-15-04, within 30 days after the test is completed.

Certification of the continuous CO monitoring system shall be granted upon determination by the Ohio EPA Central Office that the system meets the requirements of 40 CFR Part 60, Appendix B, Performance Specification 4 or 4a (as appropriate) relative accuracy requirements; and ORC section 3704.03(I).

Ongoing compliance with the CO emission limitations contained in this permit, 40 CFR Part 60, and any other applicable standard(s) shall be demonstrated through the data



collected as required in the Monitoring and Record keeping Section of this permit and through demonstration of compliance with the quality assurance/quality control plan, which shall meet the requirements of 40 CFR Part 60.

g) Miscellaneous Requirements

- (1) None.

3. P003, Emergency Generator

Operations, Property and/or Equipment Description:

2,000 kW electric, 2,198 kW mechanical (2,947 hp) emergency diesel generator

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

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

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) June 30, 2008	See b)(2)a and b)(2)b.
b.	OAC rule 3745-31-05(A)(3)(a)(ii) June 30, 2008	The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the PM _{2.5} , PM ₁₀ , NO _x , CO, SO ₂ , or VOC emissions from this air contaminant source since the potential to emit is less than 10 tons per year. See b)(2)c.
c.	OAC rules 3745-31-10 through 20 (Prevention of Significant Deterioration of Air Quality)	Carbon monoxide (CO) emissions shall not exceed 3.5 g/kW-hr, 16.96 pounds per hour (lbs/hr), and 4.24 tons per rolling, 12-month period. Nitrogen oxides (NO _x) emissions shall not exceed 5.61 g/kW-hr, 27.18 lbs/hr, and 6.80 tons per rolling, 12-month period. Particulate matter emissions less than 10 microns in diameter (PM ₁₀) and particulate matter less than 2.5 microns in diameter (PM _{2.5}) shall not exceed 0.20 g/kW-hr, 0.97 lb/hr, and 0.24 ton per rolling, 12-month period. Volatile organic compound (VOC) emissions shall not exceed 0.79 g/kW-hr,

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		<p>3.84 lbs/hr, and 0.96 ton per rolling, 12-month period.</p> <p>Sulfur dioxide (SO₂) emissions shall not exceed 0.03 pound per hour (lb/hr) and 0.01 ton per rolling, 12-month period.</p> <p>Sulfuric acid mist (H₂SO₄) emissions shall not exceed 1.32E-04 g/kW-hr, 6.4 E-04 lb/hr and 1.6E-04 ton per rolling, 12-month period.</p> <p>Carbon dioxide equivalent (CO₂e) emissions shall not exceed 858.0 tons per rolling, 12-month period.</p> <p>See b)(2)d.</p>
d.	OAC rule 3745-31-05(F)	See b)(2)e.
e.	OAC rule 3745-17-07(A)	Visible particulate emissions from the stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.
f.	OAC rule 3745-17-11(B)(5)(a)	See b)(2)f.
g.	OAC rule 3745-18-06(G)	Less stringent than 40 CFR Part 60, Subpart IIII.
h.	OAC rule 3745-110-03(K)(16) and (K)(19)	Exemptions. See b)(2)g.
i.	40 CFR Part 60, Subpart A (40 CFR 60.1 - 60.19)	Table 8 to Subpart IIII of 40 CFR Part 60 – Applicability of General Provisions to Subpart IIII shows which parts of the General Provisions in 40 CFR 60.1 - 60.19 apply.
j.	<p>40 CFR Part 60, Subpart IIII (40 CFR 60.4200 – 60.4219)</p> <p>[In accordance with 40 CFR 60.4200(a)(2), this emissions unit is a compression ignition emergency stationary internal combustion engine (CI ICE) for which construction commenced after July 11, 2005 subject to the emissions limitation/control measures specified in this section.]</p>	<p>Non-methane hydrocarbon (NMHC) + NO_x emissions shall not exceed 6.4 g/kW-hr.</p> <p>CO emissions shall not exceed 3.5 g/kW-hr.</p> <p>PM emissions shall not exceed 0.20 g/kW-hr.</p> <p>Exhaust opacity shall not exceed: 20 percent during acceleration mode; 15 percent during lugging mode; and 50 percent during the peaks in either the</p>

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		acceleration or lugging modes. See b)(2)h. [60.4205(b) and 60.4207(b)]
k.	40 CFR Part 63, Subpart ZZZZ (40 CFR 63.6580 - 63.6675) [In accordance with 40 CFR 63.6590(c)(1), this emissions unit is a new stationary internal combustion engine (RICE) located at an area source of HAP emissions subject to the emissions limitation/control measures specified in this section.]	See b)(2)i. [63.6580, 63.6585 and 63.6590(c)(1)]
l.	40 CFR Part 63, Subpart A (40 CFR 63.1 – 40 CFR 63.16)	See b)(2)j.

(2) Additional Terms and Conditions

- a. Compliance with the requirements of this rule for CO, NO_x, PM₁₀/PM_{2.5}, SO₂ and VOC emissions includes compliance with the requirements of OAC rules 3745-31-10 through 20.
- b. The BAT emission limits apply until U.S. EPA approves Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3)(a)(ii) (the less than ten tons per year BAT exemption) into the Ohio State Implementation Plan (SIP).
- c. These requirements apply once U.S. EPA approves OAC paragraph 3745-31-05(A)(3)(a)(ii) (the less than ten tons per year BAT exemption) as part of the Ohio SIP.
- d. All particulate emissions are assumed to be less than 2.5 microns in diameter. The PM₁₀/PM_{2.5} emission limitations include both filterable and condensable particulate emissions.
- e. The maximum annual operating hours for this emissions unit shall not exceed 500 hours, based upon a rolling, 12-month summation of the operating hours.
- f. The emission limitation required by this applicable rule is less stringent than the emission limitation established by OAC rules 3745-31-10 through 20.
- g. The requirements of this rule do not apply, since:
 - i. NO_x emissions are restricted to less than 25 tons per year; and
 - ii. the emissions unit is subject to a BACT limitation for NO_x.



- h. The permittee shall only combust ULSD fuel in this emissions unit meeting the following standards:
 - i. 15 ppm maximum sulfur content; and
 - ii. a minimum cetane index of 40 or a maximum aromatic content of 35 volume percent.
- i. The permittee shall comply with the applicable restrictions required under 40 CFR Part 60, Subpart IIII, including the following sections:

60.4218	General Provisions
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- j. Table 8 to Subpart ZZZZ of 40 CFR Part 63 – Applicability of General Provisions to Subpart ZZZZ shows which parts of the General Provisions in 40 CFR 63.1 - 63.16 apply.

c) Operational Restrictions

- (1) The permittee shall comply with the applicable restrictions required under 40 CFR Part 60, Subpart IIII, including the following sections:

60.4206	Duration of Standards
60.4207(b)	Fuel Requirements

d) Monitoring and/or Recordkeeping Requirements

- (1) The permittee shall maintain monthly records of the following information:
 - a. the operating hours for each month; and
 - b. beginning after the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, the rolling, 12-month summation of the operating hours.

Also, during the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, the permittee shall record the cumulative operating hours for each calendar month.

- (2) For each shipment of ULSD fuel received for burning in this emissions unit, the permittee shall maintain records of the oil supplier's (or permittee's) analyses for sulfur content in parts per million (40 CFR 80.510). The permittee shall perform or require the supplier to perform the analyses for sulfur content in accordance with 40 CFR 80.585.

- (3) The permittee shall also maintain documentation of supplier verification that the ULSD fuel as purchased has a minimum cetane index of 40 or a maximum aromatic content of 35 volume percent.
- (4) The permittee shall comply with the applicable restrictions required under 40 CFR Part 60, Subpart IIII, including the following sections:

60.4209	Monitoring
60.4214	Notification, recordkeeping, reporting

e) Reporting Requirements

- (1) The permittee shall submit quarterly deviation (excursion) reports that identify the following:
 - a. each shipment of ULSD fuel received for burning in this emissions unit that did not comply with the standards specified in b)(2)h; and
 - b. all exceedances of the rolling, 12-month limitation on the hours of operation for this emissions unit.

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

- (2) The permittee shall comply with the applicable restrictions required under 40 CFR Part 60, Subpart IIII, including the following sections:

60.4214	Notification, recordkeeping, reporting
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- (3) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.

f) Testing Requirements

- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:
 - a. Emission Limitation:
 CO emissions shall not exceed 3.5 g/kW-hr, 16.96 lbs/hr, and 4.24 tons per rolling, 12-month period.

Applicable Compliance Method:

The g/kW-hr limitation is based on the Tier 2 emission standards under 40 CFR 89.112(a), Subpart B, Table 1. The hourly emission limitation was developed by multiplying the maximum operating load (2,198 kW) by the CO emission factor supplied by the manufacturer (3.5 g/kW-hr) and dividing by (454 g/lb) to determine the hourly emissions.

If required, the permittee shall demonstrate compliance with the g/kW-hr limitation and hourly emission limitation using Methods 1 thru 4 and 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.

The annual emission limitation was developed by multiplying the hourly emission limitation (16.96 lbs/hr) by the maximum annual operating hours (500 hrs/yr) and dividing by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the hourly limitation and operating hours restriction is shown.

b. Emission Limitation:

NO_x emissions shall not exceed 5.61 g/kW-hr, 27.18 lbs/hr, and 6.80 tons per rolling, 12-month period.

Applicable Compliance Method:

The g/kW-hr limitation is based on the combined NO_x + NMHC emission limitation specified by the Tier 2 standard in 40 CFR 89.112(a) Table 1 (6.4 g/kW-hr) multiplied by the Tier 1 emission limitation for NO_x in Table 1 (9.2 g/kW-hr) divided by the sum of the Tier 1 emission limitations for NO_x and HC in Table 1 (9.2 g/kW-hr + 1.3 g/kW-hr). The hourly emission limitation was developed by multiplying the maximum operating load (2,198 kW mechanical) by the NO_x g/kW-hr emission limitation (5.61 g/kW-hr) divided by (454 g/lb) to determine the hourly emissions.

If required, the permittee shall demonstrate compliance with the g/kW-hr limitation and hourly emission limitation using Methods 1 thru 4 and 7E of 40 CFR Part 60, Appendix A. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

The annual emission limitation was developed by multiplying the hourly emission limitation (27.18 lbs/hr) by the maximum annual operating hours (500 hrs/yr) and dividing by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the hourly limitation and operating hours restriction is shown.

c. Emission Limitation:

PM₁₀/PM_{2.5} emissions shall not exceed 0.20 g/kW-hr, 0.97 lb/hr, and 0.24 ton per rolling, 12-month period.

Applicable Compliance Method:

The g/kW-hr limitation is based on manufacturer's emissions data. The hourly emission limitation was developed by multiplying the maximum operating load (2,198 kW mechanical) by the PM₁₀/PM_{2.5} emission factor supplied by the manufacturer (0.20 g/kW-hr) divided by (454 g/lb) to determine the hourly emissions.

If required, the permittee shall demonstrate compliance with the g/kW-hr limitation and hourly emission limitation using Methods 201 or 201A and 202 of 40 CFR Part 51, Appendix M. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

The annual emission limitation was developed by multiplying the hourly emission limitation (0.97 lb/hr) by the maximum annual operating hours (500 hrs/yr) and dividing by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the hourly limitation and operating hours restriction is shown.

d. Emission Limitation:

SO₂ emissions shall not exceed 0.03 lb/hr and 0.01 ton per rolling, 12-month period.

Applicable Compliance Method:

The hourly emission limitation is based on dividing the AP-42 emission factor for SO₂ from AP-42 Table 3.4-1 dated 10/96 when burning diesel fuel with a maximum sulfur content of 15 ppmw (0.0015 lb/MMBtu) multiplied by the maximum power rating (19.32 MMBtu/hr).

If required, the permittee shall demonstrate compliance with the hourly emission limitation using Methods 1 thru 4 and 6C of 40 CFR Part 60, Appendix A. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

The annual emission limitation was developed by multiplying the hourly emission limitation (0.03 lb/hr) by the maximum annual operating hours (500 hrs/yr) and dividing by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the hourly limitation and operating hours restriction is shown.

e. Emission Limitation:

VOC emissions shall not exceed 0.79 g/kW-hr, 3.84 lbs/hr, and 0.96 ton per rolling, 12-month period.

Applicable Compliance Method:

The g/kW-hr limitation is based on the combined NO_x + NMHC emission limitation specified by the Tier 2 standard in 40 CFR 89.112(a) Table 1 (6.4

g/kW-hr) multiplied by the Tier 1 emission limitation for NMHC in Table 1 (1.3 g/kW-hr) divided by the sum of the Tier 1 emission limitations for NO_x and HC in Table 1 (9.2 g/kW-hr + 1.3 g/kW-hr). The hourly emission limitation was developed by multiplying the maximum operating load (2,198 kW mechanical) by the VOC emission factor supplied by the manufacturer (0.79 g/kW-hr) divided by (454 g/lb) to determine the hourly emissions.

If required, the permittee shall demonstrate compliance with the g/kW-hr limitation and hourly emission limitation using Methods 1 through 4 and 18, 25 or 25A, as appropriate, of 40 CFR Part 60, Appendix A. Use of Method 18, 25 or 25A is to be selected based on the results of pre-survey stack sampling and U.S. EPA guidance documents. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

The annual emission limitation was developed by multiplying the hourly emission limitation (3.84 lbs/hr) by the maximum annual operating hours (500 hrs/yr) and dividing by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the hourly limitation and operating hours restriction is shown.

f. Emission Limitation:

H₂SO₄ emissions shall not exceed 1.32E-04 g/kW-hr, 6.4E-04 lb/hr and 1.6E-04 ton per rolling, 12-month period.

Applicable Compliance Method:

The g/kW-hr emission is based on the sulfuric acid mist emission factor from page 276 of Toxic Air Pollution Emission Factors, EPA 450/2-90-011 (8.9 ng/J x %sulfur in fuel = 8.9(0.0015) = 0.01335 ng/J). The H₂SO₄ emission factor (0.01335 ng/J) was converted to g/kW-hr by multiplying by (1055.1 J/Btu), multiplying by (7000 Btu/hp-hr), multiplying by (g/10⁹ ng), and multiplying by (1.341 hp/kW) = 1.32E-04 g/kW-hr.

The pound per hour emissions limitation was developed by multiplying the g/kW-hr allowable H₂SO₄ emission limitation (1.32E-04 g/kW-hr) by the maximum operating load (2,198 kW mechanical) and dividing by 454 grams per pound to determine the hourly emissions (6.4E-04 lb/hr).

If required, the permittee shall demonstrate compliance with the g/kW-hr and lb/hr emission limitation using Methods 1 thru 4 and 8 of 40 CFR Part 60, Appendix A. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

The annual emission limitation was developed by multiplying the hourly allowable H₂SO₄ emission limitation (6.4E-04 lb/hr) by the maximum annual hours of operation (500 hours), and then dividing by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the hourly limitation and operating hours restriction is shown.

g. Emission Limitation:

CO₂e emissions shall not exceed 858.0 tons per rolling, 12-month period.

Applicable Compliance Method:

This emissions limitation was established to reflect the potential to emit for this emissions unit by calculating the sum of the maximum capacity (2,947 hp) by the emission factors for CO₂, N₂O, and CH₄, multiplied by the global warming potentials for CO₂, N₂O, and CH₄ (1, 298, and 25, respectively from Table A-1 to Subpart A of 40 CFR 98). Multiply the sum by the maximum annual hours of operation (500 hrs/yr) and divide by 2,000 pounds per ton. The CO₂ emission factor was obtained from AP-42 Table 3.4-1 dated 10/96 (1.16 lb/hp-hr). The N₂O emission factor was obtained from 40 Table C-2 to Subpart C of 40 CFR 98 (0.6 g/MMBtu). The CH₄ emission factor was obtained from AP-42 Table 3.4-1 dated 10/96 (7.05E-04 lb TOC/hp-hr x 0.09 lb CH₄/lb TOC = 6.34E-05 lb CH₄/hp-hr).

$$(2,947 \text{ hp}) \times \left[\left(1.16 \frac{\text{lb}}{\text{hp-hr}} (1) \right) + \left(\left(0.6 \frac{\text{g}}{\text{mmBtu}} \right) \left(7000 \frac{\text{Btu}}{\text{hp-hr}} \right) \left(\frac{\text{mmBtu}}{1E06\text{Btu}} \right) \left(\frac{\text{lb}}{454\text{g}} \right) (298) \right) + \left(6.34E-05 \frac{\text{lb}}{\text{hp-hr}} \right) (25) \right] \times \left(500 \frac{\text{hrs}}{\text{hr}} \right) \times \left(\frac{\text{ton}}{2,000\text{lb}} \right) = 858.0 \text{ tons/yr}$$

Since the CO₂e emissions are estimated to consist of more than 99% CO₂, compliance with this emission limitation will be assumed provided that the lb/hp-hr CO₂ emission rate does not exceed 1.16 lb/hp-hr. If required, the permittee shall conduct emissions testing using Methods 1, 2, 3A and 4 of 40 CFR Part 60, Appendix A to determine the lb/hp-hr CO₂ emission rate. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

h. Emission Limitation:

The permittee shall only combust ULSD fuel in this emissions unit meeting the following standard: 15 ppm maximum sulfur content.

Applicable Compliance Method:

Compliance shall be demonstrated based upon the record keeping requirements specified in d)(2).

i. Emission Limitation:

The permittee shall only combust ULSD fuel in this emissions unit meeting the following standard: a minimum cetane index of 40 or a maximum aromatic content of 35 volume percent.



Applicable Compliance Method:

Compliance shall be demonstrated based upon the record keeping requirements specified in d)(2) and d)(3).

j. Emission Limitation:

Visible particulate emissions from the stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance based upon an emission test performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

k. Emission Limitation:

NMHC + NO_x emissions shall not exceed 6.4 g/kW-hr.

CO emissions shall not exceed 3.5 g/kW-hr.

PM emissions shall not exceed 0.20 g/kW-hr.

Exhaust opacity shall not exceed:

20 percent during acceleration mode;

15 percent during lugging mode; and

50 percent during the peaks in either the acceleration or lugging modes.

Applicable Compliance Method:

According to 40 CFR 60.4211(c), the permittee shall demonstrate compliance with these emission limitations by purchasing an engine certified to the emission standards in 40 CFR 60.4205(b) for the same model year and maximum engine power. The engine must be installed and configured according to the manufacturer's emission-related specifications, except as permitted in 40 CFR 60.4211(g). The permittee shall maintain documentation of certification to the emission standards in 40 CFR 60.4205.

g) Miscellaneous Requirements

(1) None.

4. P004, Emergency Fire Pump

Operations, Property and/or Equipment Description:

311 hp (232.1 kW mechanical) emergency fire pump

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

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

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) June 30, 2008	See b)(2)a and b)(2)b.
b.	OAC rule 3745-31-05(A)(3)(a)(ii) June 30, 2008	The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the PM _{2.5} , PM ₁₀ , NO _x , CO, SO ₂ , or VOC emissions from this air contaminant source since the potential to emit is less than 10 tons per year. See b)(2)c.
c.	OAC rules 3745-31-10 through 20 (Prevention of Significant Deterioration of Air Quality)	Carbon monoxide (CO) emissions shall not exceed 3.5 g/kW-hr, 1.79 pounds per hour (lbs/hr), and 0.45 ton per rolling, 12-month period. Nitrogen oxides (NO _x) emissions shall not exceed 3.5 g/kW-hr, 1.79 lbs/hr, and 0.45 ton per rolling, 12-month period. Particulate matter emissions less than 10 microns in diameter (PM ₁₀) and particulate matter less than 2.5 microns in diameter (PM _{2.5}) shall not exceed 0.20 g/kW-hr, 0.10 lb/hr, and 0.03 ton per rolling, 12-month period. Volatile organic compound (VOC) emissions shall not exceed 0.5 g/kW-hr,

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		<p>0.25 lb/hr, and 0.06 ton per rolling, 12-month period.</p> <p>Sulfur dioxide (SO₂) emissions shall not exceed 0.004 lb/hr and 1.0E-03 ton per rolling, 12-month period.</p> <p>Sulfuric acid mist (H₂SO₄) emissions shall not exceed 1.32E-04 g/kW-hr, 6.7E-05 lb/hr and 1.7E-05 ton per rolling, 12-month period.</p> <p>Carbon dioxide equivalent (CO₂e) emissions shall not exceed 90.0 tons per rolling, 12-month period.</p> <p>See b)(2)d.</p>
d.	OAC rule 3745-31-05(F)	See b)(2)e.
e.	OAC rule 3745-17-07(A)	Visible particulate emissions from the stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.
f.	OAC rule 3745-17-11(B)(5)(a)	See b)(2)f.
g.	OAC rule 3745-110-03(K)(16) and (K)(19)	Exemption. See b)(2)g.
h.	40 CFR Part 60, Subpart A (40 CFR 60.1 - 60.19)	Table 8 to Subpart IIII of 40 CFR Part 60 – Applicability of General Provisions to Subpart IIII shows which parts of the General Provisions in 40 CFR 60.1 - 60.19 apply.
i.	<p>40 CFR Part 60, Subpart IIII (40 CFR 60.4200 – 60.4219)</p> <p>[In accordance with 40 CFR 60.4200(a)(2), this emissions unit is a compression ignition stationary internal combustion fire pump engine for which construction commenced after July 11, 2005 subject to the emissions limitation/control measures specified in this section.]</p>	<p>Non-methane hydrocarbon (NMHC) + NO_x emissions shall not exceed 4.0 g/kW-hr.</p> <p>CO emissions shall not exceed 3.5 g/kW-hr.</p> <p>PM emissions shall not exceed 0.20 g/kW-hr.</p> <p>See b)(2)h.</p> <p>[60.4205(c) and 60.4207(b)]</p>
j.	40 CFR Part 63, Subpart ZZZZ (40 CFR 63.6580 - 63.6675)	<p>See b)(2)i.</p> <p>[63.6580, 63.6585 and 63.6590(c)(1),</p>

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
	[In accordance with 40 CFR 63.6590(c)(1), this emissions unit is a new stationary reciprocating internal combustion engine (RICE) located at an area source of HAP emissions subject to the emissions limitation/control measures specified in this section.]	
k.	40 CFR Part 63, Subpart A (40 CFR 63.1 - 63.16)	Table 8 to Subpart ZZZZ of 40 CFR Part 63 – Applicability of General Provisions to Subpart ZZZZ shows which parts of the General Provisions in 40 CFR 63.1 - 63.16 apply.

(2) Additional Terms and Conditions

- a. Compliance with the requirements of this rule for CO, NO_x, PM₁₀/PM_{2.5}, SO₂ and VOC emissions includes compliance with the requirements of OAC rules 3745-31-10 through 20.
- b. The BAT emission limits apply until U.S. EPA approves Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3)(a)(ii) (the less than ten tons per year BAT exemption) into the Ohio State Implementation Plan (SIP).
- c. These requirements apply once U.S. EPA approves OAC paragraph 3745-31-05(A)(3)(a)(ii) (the less than ten tons per year BAT exemption) as part of the Ohio SIP.
- d. All particulate emissions are assumed to be less than 2.5 microns in diameter. The PM₁₀/PM_{2.5} emission limitations include both filterable and condensable particulate emissions.
- e. The maximum annual operating hours for this emissions unit shall not exceed 500 hours, based upon a rolling, 12-month summation of the operating hours.
- f. The emission limitation required by this applicable rule is less stringent than the emission limitation established by OAC rules 3745-31-10 through 20.
- g. The requirements of this rule do not apply since:
 - i. NO_x emissions are restricted to less than 25 tons per year; and
 - ii. the emissions unit is subject to a BACT limitation for NO_x.
- h. The permittee shall only combust ULSD fuel in this emissions unit meeting the following standards:

- i. 15 ppm maximum sulfur content; and
- ii. a minimum cetane index of 40 or a maximum aromatic content of 35 volume percent.

Compliance with the above-mentioned specifications shall be determined by using the analytical results provided by the permittee or oil supplier for each shipment of oil.

The permittee will require ULSD suppliers to provide certified test data indicating compliance with the permit sulfur content specifications prior to accepting ULSD delivery (noncompliant ULSD will not be accepted).

If noncompliant ULSD is mistakenly taken, the permittee will not combust any of the delivered ULSD upon discovery of any deviation from permit terms and conditions, and will require the supplier to remove the ULSD from the tank or provide other corrective action (such as adding cleaner fuel to the tank) to allow the overall tank contents to comply with the permit.

If the ULSD supplier information is not available, the permittee will take ULSD samples upon delivery and obtain results using the “quick” turnaround option from a certified laboratory.

- i. The permittee shall comply with the applicable restrictions required under 40 CFR Part 60, Subpart IIII, including the following sections:

60.4218	General Provisions
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c) Operational Restrictions

- (1) The permittee shall comply with the applicable restrictions required under 40 CFR Part 60, Subpart IIII, including the following sections:

60.4206	Duration of Standards
60.4207(b)	Fuel Requirements

d) Monitoring and/or Recordkeeping Requirements

- (1) The permittee shall maintain monthly records of the following information:
 - a. the operating hours for each month; and
 - b. beginning after the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, the rolling, 12-month summation of the operating hours.

Also, during the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, the permittee shall record the cumulative operating hours for each calendar month.

- (2) For each shipment of ULSD fuel received for burning in this emissions unit, the permittee shall maintain records of the oil supplier's (or permittee's) analyses for sulfur content in parts per million (40 CFR 80.510). The permittee shall perform or require the supplier to perform the analyses for sulfur content in accordance with 40 CFR 80.585.
- (3) The permittee shall also maintain documentation of supplier verification that the ULSD fuel as purchased has a minimum cetane index of 40 or a maximum aromatic content of 35 volume percent.
- (4) The permittee shall comply with the applicable restrictions required under 40 CFR Part 60, Subpart IIII, including the following sections:

60.4209	Monitoring
60.4214	Notification, recordkeeping, reporting

e) Reporting Requirements

- (1) The permittee shall submit quarterly deviation (excursion) reports that identify the following:
 - a. each shipment of ULSD fuel received for burning in this emissions unit that did not comply with the standards specified in b)(2)h;
 - b. the permittee shall report any ULSD deviation within 30 days of receiving noncompliant ULSD; and
 - c. all exceedances of the rolling, 12-month limitation on the hours of operation for this emissions unit.

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

- (2) The permittee shall comply with the applicable restrictions required under 40 CFR Part 60, Subpart IIII, including the following sections:

60.4214	Notification, recordkeeping, reporting
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- (3) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.

f) Testing Requirements

(1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

CO emissions shall not exceed 3.5 g/kW-hr, 1.79 lbs/hr, and 0.45 ton per rolling, 12-month period.

Applicable Compliance Method:

The g/kW-hr limitation is based on the standard specified in Table 4 to 40 CFR Part 60, Subpart IIII. The hourly emission limitation was developed by multiplying the maximum operating load (232.1 kW mechanical) by the g/kW-hr CO emission limitation (3.5 g/kW-hr), and then dividing by (454 g/lb) to determine the hourly emissions.

If required, the permittee shall demonstrate compliance with the g/kW-hr limitation and hourly emission limitation using Methods 1 thru 4 and 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.

The annual emission limitation was developed by multiplying the hourly emission limitation (1.79 lbs/hr) by the maximum annual operating hours (500 hrs/yr) and dividing by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the hourly limitation and operating hours restriction is shown.

b. Emission Limitation:

NO_x emissions shall not exceed 3.5 g/kW-hr, 1.79 lbs/hr, and 0.45 ton per rolling, 12-month period.

Applicable Compliance Method:

The g/kW-hr limitation is based on the combined NO_x + NMHC emission limitation specified by the Table 4 to 40 CFR Part 60, Subpart IIII (4.0 g/kW-hr) multiplied by the Tier 1 emission limitation for NO_x in Table 1 to 40 CFR 89.112(a) (9.2 g/kW-hr) divided by the sum of the Tier 1 emission limitations for NO_x and HC in Table 1 to 40 CFR 89.112(a) (9.2 g/kW-hr + 1.3 g/kW-hr). The hourly emission limitation was developed by multiplying the maximum operating load (232.1 kW mechanical) by the g/kW-hr NO_x emission limitation (3.5 g/kW-hr), and then dividing by (454 g/lb) to determine the hourly emissions.

If required, the permittee shall demonstrate compliance with the g/kW-hr limitation and hourly emission limitation using Methods 1 thru 4 and 7E of 40 CFR Part 60, Appendix A. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

The annual emission limitation was developed by multiplying the hourly emission limitation (1.79 lbs/hr) by the maximum annual operating hours (500 hrs/yr) and dividing by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the hourly limitation and operating hours restriction is shown.

c. Emission Limitation:

PM₁₀/PM_{2.5} emissions shall not exceed 0.20 g/kW-hr, 0.10 lb/hr, and 0.03 ton per rolling, 12-month period.

Applicable Compliance Method:

The g/kW-hr limitation is based on manufacturer's emissions data. The hourly emission limitation was developed by multiplying the maximum operating load (232.1 kW mechanical) by the PM₁₀/PM_{2.5} emission factor supplied by the manufacturer (0.20 g/kW-hr), and then dividing by (454 g/lb) to determine the hourly emissions.

If required, the permittee shall demonstrate compliance with the g/kW-hr limitation and hourly emission limitation using Methods 201 or 201A and 202 of 40 CFR Part 51, Appendix M. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

The annual emission limitation was developed by multiplying the hourly emission limitation (0.10 lb/hr) by the maximum annual operating hours (500 hrs/yr) and dividing by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the hourly limitation is shown.

d. Emission Limitation:

SO₂ emissions shall not exceed 0.004 lb/hr and 1.0E-03 ton per rolling, 12-month period.

Applicable Compliance Method:

The hourly emission limitation is based on multiplying the AP-42 emission factor for SO₂ from AP-42 Table 3.4-1 dated 10/96 when burning diesel fuel with a maximum sulfur content of 15 ppmw (0.0015 lb/MMBtu) by the maximum heat input capacity of 2.64 MMBtu/hr.

If required, the permittee shall demonstrate compliance with the hourly emission limitation using Methods 1 thru 4 and 6C of 40 CFR Part 60, Appendix A. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

The annual emission limitation was developed by multiplying the hourly emission limitation (0.004 lb/hr) by the maximum annual operating hours (500 hrs/yr) and dividing by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the hourly limitation is shown.

e. Emission Limitation:

VOC emissions shall not exceed 0.5 g/kW-hr, 0.25 lb/hr, and 0.06 ton/yr as a rolling, 12-month summation of the monthly emissions.

Applicable Compliance Method:

The g/kW-hr limitation is based on the combined NO_x + NMHC emission limitation specified by the Table 4 to 40 CFR Part 60, Subpart IIII (4.0 g/kW-hr) multiplied by the Tier 1 emission limitation for NMHC in Table 1 to 40 CFR 89.112(a) (1.3 g/kW-hr) divided by the sum of the Tier 1 emission limitations for NO_x and HC in Table 1 to 40 CFR 89.112(a) (9.2 g/kW-hr + 1.3 g/kW-hr). The hourly emission limitation was developed by multiplying the maximum operating load (232.1 kW mechanical) by the g/kW-hr VOC emission limitation (0.5 g/kW-hr) divided by (454 g/lb) to determine the hourly emissions.

If required, the permittee shall demonstrate compliance with the g/kW-hr limitation and hourly emission limitation using Methods 1 through 4 and 18, 25 or 25A, as appropriate, of 40 CFR Part 60, Appendix A. Use of Method 18, 25 or 25A is to be selected based on the results of pre-survey stack sampling and U.S. EPA guidance documents. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

The annual emission limitation was developed by multiplying the hourly emission limitation (0.25 lb/hr) by the maximum annual operating hours (500 hrs/yr) and dividing by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the hourly limitation is shown.

f. Emission Limitation:

H₂SO₄ emissions shall not exceed 1.32E-04 g/kW-hr, 6.7E-05 lb/hr and 1.7E-05 ton per rolling, 12-month period.

Applicable Compliance Method:

The g/kW-hr emission is based on the sulfuric acid mist emission factor from page 276 of Toxic Air Pollution Emission Factors, EPA 450/2-90-011 (8.9 ng/J x %sulfur in fuel = 8.9(0.0015) = 0.01335 ng/J). The H₂SO₄ emission factor (0.01335 ng/J) was converted to g/kW-hr by multiplying by (1055.1 J/Btu), multiplying by (7000 Btu/hp-hr), multiplying by (g/10⁹ ng), and multiplying by (1.341 hp/kW) = 1.32E-04 g/kW-hr.

The pound per hour emission limitation was developed by multiplying the g/kW-hr allowable H₂SO₄ emission limitation (1.32E-04 g/kW-hr) by the maximum operating load (232.1 kW mechanical), and then dividing by 454 grams per pound to determine the hourly emissions (6.7E-05 lb/hr).

If required, the permittee shall demonstrate compliance with the g/kW-hr and lb/hr emission limitation using Methods 1 thru 4 and 8 of 40 CFR Part 60,

Appendix A. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

The ton per year emission limitation was developed by multiplying the hourly allowable H₂SO₄ emission limitation (6.7E-05 lb/hr) by the maximum annual hours of operation (500 hours), and then dividing by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the hourly limitation and operating hours restriction is shown.

g. Emission Limitation:

CO₂e emissions shall not exceed 90.0 tons per rolling, 12-month period.

Applicable Compliance Method:

This emission limitation was established to reflect the potential to emit for this emissions unit by calculating the sum of the maximum capacity (311 hp) by the emission factors for CO₂, N₂O, and CH₄, multiplied by the global warming potentials for CO₂, N₂O, and CH₄ (1, 298, and 25, respectively from Table A-1 to Subpart of 40 CFR 98). Multiply the sum by the maximum annual hours of operation (500 hrs/yr) and divide by 2,000 pounds per ton. The CO₂ emission factor was obtained from AP-42 Table 3.3-1 dated 10/96 (1.15 lb/hp-hr). The N₂O emission factor was obtained from Table C-2 to Subpart C of 40 CFR 98 (0.6 g/MMBtu). The CH₄ emission factor was obtained from AP-42 Table 3.3-1 dated 10/96 (2.47E-03 lb TOC/hp-hr (0.09 lb CH₄/lb TOC)= 2.223E-04 lb CH₄/hp-hr, this table did not include an estimate of how much methane comprises the TOC emission factor, so the value of 9% from AP-42 Table 3.4-1 dated 10/96 was used).

$$(311 \text{ hp}) \times \left[\left(1.15 \frac{\text{lb}}{\text{hp-hr}} (1) \right) + \left(\left(0.6 \frac{\text{g}}{\text{mmBtu}} \right) \left(7000 \frac{\text{Btu}}{\text{hp-hr}} \right) \left(\frac{\text{mmBtu}}{1E06 \text{ Btu}} \right) \left(\frac{\text{lb}}{454 \text{ g}} \right) (298) \right) + \left(2.223E-04 \frac{\text{lb}}{\text{hp-hr}} \right) (25) \right] \times \left(500 \frac{\text{hrs}}{\text{hr}} \right) \times \left(\frac{\text{ton}}{2,000 \text{ lb}} \right) = 90.0 \text{ tons/yr}$$

Since the CO₂e emissions are estimated to consist of more than 99% CO₂, compliance with this emission limitation will be assumed provided that the lb/hp-hr CO₂ emission rate does not exceed 1.15 lb/hp-hr. If required, the permittee shall conduct emissions testing using Methods 1, 2, 3A and 4 of 40 CFR Part 60, Appendix A to determine the lb/hp-hr CO₂ emission rate. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

h. Emission Limitation:

The permittee shall only combust ULSD fuel in this emissions unit meeting the following standard: 15 ppm maximum sulfur content.

Applicable Compliance Method:

Compliance shall be demonstrated based upon the record keeping requirements specified in d)(2).

i. Emission Limitation:

The permittee shall only combust ULSD fuel in this emissions unit meeting the following standard: a minimum cetane index of 40 or a maximum aromatic content of 35 volume percent.

Applicable Compliance Method:

Compliance shall be demonstrated based upon the record keeping requirements specified in d)(2) and d)(3).

j. Emission Limitation:

Visible particulate emissions from the stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance based upon an emission test performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

k. Emission Limitation:

NMHC + NO_x emissions shall not exceed 4.0 g/kW-hr (3.0 g/hp-hr).

CO emissions shall not exceed 3.5 g/kW-hr (2.6 g/hp-hr).

PM emissions shall not exceed 0.20 g/kW-hr (0.15 g/hp-hr).

Applicable Compliance Method:

According to 40 CFR 60.4211(c), the permittee shall demonstrate compliance with these emission limitations by purchasing an engine certified to the emission standards in 40 CFR 60.4205(c) for the same model year and maximum engine power. The engine must be installed and configured according to the manufacturer's emission-related specifications, except as permitted in 40 CFR 60.4211(g).

g) Miscellaneous Requirements

(1) None.

5. Emissions Unit Group – P005 and P006

EU ID	Operations, Property and/or Equipment Description
P005	8-Cell Wet Cooling Tower equipped with a high efficiency drift eliminator.
P006	8-Cell Wet Cooling Tower equipped with a high efficiency drift eliminator.

- a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.
- (1) None.
- b) Applicable Emissions Limitations and/or Control Requirements
- (1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) June 30, 2008	See b)(2)a through b)(2)c.
b.	OAC rule 3745-31-05(A)(3)(a)(ii) June 30, 2008	The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the PM _{2.5} or PM ₁₀ emissions from this air contaminant source since the potential to emit is less than 10 tons per year. See b)(2)d.
c.	OAC rules 3745-31-10 through 20 (Prevention of Significant Deterioration of Air Quality)	Particulate matter emissions less than 10 microns in diameter (PM ₁₀) shall not exceed 1.33 pounds per hour (lbs/hr) and 5.85 tons per rolling, 12-month period. Particulate matter emissions less than 2.5 microns in diameter (PM _{2.5}) shall not exceed 0.534 lb/hr and 2.34 tons per rolling, 12-month period. The permittee shall install a drift eliminator with a maximum drift rate of 0.0005% on this emissions unit. Visible particulate emissions shall not exceed 10% opacity as a 6-minute average. The presence of condensed

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		water vapor shall not be deemed a violation for failure of stack emissions meeting this visible emission limitation. See c)(1).
d.	OAC rule 3745-17-07(A)(1)	See b)(2)e.
e.	OAC rule 3745-17-11(B)	See b)(2)e.

(2) Additional Terms and Conditions

- a. All requirements specified in this Section of the permit for Emissions Unit Group P005 and P006 apply to each Wet Cooling Tower (P005 and P006) unless a combined requirement is otherwise specified.
- b. Compliance with the requirements of this rule for PM₁₀ and PM_{2.5} emissions includes compliance with the requirements of OAC rules 3745-31-10 through 20.
- c. The BAT emission limits apply until U.S. EPA approves Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3)(a)(ii) (the less than ten tons per year BAT exemption) into the Ohio State Implementation Plan (SIP).
- d. These requirements apply once U.S. EPA approves OAC paragraph 3745-31-05(A)(3)(a)(ii) (the less than ten tons per year BAT exemption) as part of the Ohio SIP.
- e. The emission limitation required by this applicable rule is less stringent than the emission limitation established pursuant to OAC rules 3745-31-10 through 20.

c) Operational Restrictions

- (1) The permittee shall maintain the total dissolved solids (TDS) concentration of the cooling water less than or equal to 4,500 milligrams per liter (mg/l).

d) Monitoring and/or Recordkeeping Requirements

- (1) The permittee shall properly install, operate and maintain a conductivity meter or other equipment to continuously monitor and record the TDS concentration of the cooling tower water. The monitoring devices shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.
- (2) Since the TDS data measured by the conductivity meter or other equipment is based on a correlation between conductivity and TDS, an exceedance measured by the conductivity meter or equivalent is not a violation of the TDS operational restriction, but rather serves as an indicator to initiate corrective action by the permittee to reduce the TDS concentration.

- (3) If the conductivity is found to be outside the acceptable parameter range submitted to Ohio EPA in accordance with section f)(2), the permittee shall increase the cooling tower blowdown rate as the primary corrective action to decrease the TDS level in the circulating water to restore the conductivity into an acceptable range within 24 hours or less.

e) Reporting Requirements

- (1) The permittee shall submit quarterly deviation (excursion) reports that identify all hourly TDS readings in excess of 4,500 mg/l. The reports shall identify corrective action taken to reduce the TDS concentration.

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit

- (2) Prior to startup, the permittee shall submit written documentation provided by the vendor/manufacturer of the maximum drift rate of 0.0005% for the drift eliminator and the premise, basis and justification for the drift rate.
- (3) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.

f) Testing Requirements

- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

PM₁₀ emissions shall not exceed 1.33 lbs/hr and 5.85 tons per rolling, 12-month period.

Applicable Compliance Method:

The lb/hr PM₁₀ emission limitation is based on multiplying the maximum re-circulating water flow rate (118,441 gal/min) by the maximum TDS concentration (4,500 mg/l) multiplied by 3.785 l/gal multiplied by the decimal fraction drift rate per flow (0.0005/100) divided by [(1000 mg/g)(60 sec/min)(453.6 g/lb)/(3600 sec/hr)].

The annual emission limitation is based on multiplying the hourly emission limitation (1.33 lbs/hr) by the maximum annual hours of operation (8,760 hrs/yr) and dividing by (2,000 lbs/ton).

Compliance with the hourly and annual emission limitation will be assumed provided that the TDS concentration recorded in d) remains below 4,500 mg/l.

b. Emission Limitation:

PM_{2.5} emissions shall not exceed 0.534 lb/hr and 2.34 tons per rolling, 12-month period.

Applicable Compliance Method:

Per permit application, PM_{2.5} is 40% of PM₁₀ as calculated above. The permittee calculated the PM₁₀ fraction using AWMA Abstract No. 216, Session No. AM-1b, Orlando, 2001.

The annual emission limitation is based on multiplying the hourly emission limitation (0.534 lb/hr) by the maximum annual hours of operation (8,760 hrs/yr) and dividing by (2,000 lbs/ton).

Compliance with the hourly and annual emissions limitation will be assumed provided that the TDS concentration recorded in d) remains below 4,500 mg/l.

c. Emission Limitation:

The permittee shall install a drift eliminator with a maximum drift rate of 0.0005% on this emissions unit.

Applicable Compliance Method:

Manufacturer's emissions data shall be used to demonstrate compliance with this limitation.

Within 90 days of startup, the permittee shall submit to Ohio EPA's Northeast District Office written documentation provided by the vendor/manufacturer of the maximum drift rate of 0.0005% for the drift eliminator and the premise, basis and justification for the drift rate.

d. Emission Limitation:

The permittee shall maintain the TDS concentration of the cooling water less than or equal to 4,500 mg/l.

Applicable Compliance Method:

Compliance shall be demonstrated based upon the monitoring and record keeping requirements specified in d)(1) and d)(2).

If required, compliance shall be demonstrated using test procedures that conform to regulation 40 CFR Part 136, "Test Procedures for the Analysis of Pollutants". Alternative U.S. EPA-approved test methods may be used with prior written approval from the Ohio EPA.

e. Emission Limitation:

Visible particulate emissions shall not exceed 10% opacity as a 6-minute average. The presence of condensed water vapor shall not be deemed a violation for failure of stack emissions meeting this visible emission limitation.

Applicable Compliance Method:

If required, compliance with the stack visible particulate emission limitation shall be demonstrated through visible emission observations performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

- (2) Within 180 days after commercial operation, the permittee shall conduct testing to develop a correlation between conductivity and TDS. This correlation shall establish an acceptable parameter range for conductivity to meet the TSD requirement. Results of the test to establish an acceptable parameter range shall be submitted to Ohio EPA no later than 30 days after completion of the test.

g) Miscellaneous Requirements

- (1) None.