Initial [signature]

STATE OF GEORGIA
COUNTY OF FULTON

AFFIDAVIT OF JONATHAN BANDZUL IN SUPPORT OF CLAIM THAT INFORMATION IS PROTECTED UNDER GEORGIA LAW FROM DISCLOSURE TO THE PUBLIC

PERSONALLY APPEARED before the undersigned officer, authorized to administer oaths, JONATHAN BANDZUL, Affiant who, first being duly sworn, testifies as follows:

1. My name is JONATHAN BANDZUL. I am of the age of majority and am competent in all respects to give this Affidavit. My testimony herein is based on personal knowledge and upon documents maintained in the files of Georgia Power Company's ("Georgia Power" or "Company") Corporate Office.

2. Georgia Power Company is a corporation headquartered in Atlanta, Georgia and is authorized to transact business in the State of Georgia. I am the Air Manager for Georgia Power, with primary responsibility for managing permitting, reporting, compliance guidance, and strategy services for Georgia Power facilities and business units. In my role as Air Manager, I am authorized to provide this Affidavit on behalf of Georgia Power.

3. On March 5, 2025, Georgia Power Company will submit a "Redacted Copy" and a "Protected Copy" to the Air Protection Branch of the Georgia Environmental Protection Division ("EPD") of a PSD permit application (referred to hereinafter as the "Submittal") associated with the construction of four combined-cycle combustion turbines ("CCs") and associated equipment at Georgia Power's Plant Bowen. The Submittal will be provided in compliance with EPD's Procedures for Submitting Information Pursuant to a Claim that Information in the Submittal is Protected Under Georgia Law from Disclosure to the Public. I affirmatively declare that information contained in the Submittal to EPD is protected under the Georgia Open Records Act, O.C.G.A. § 50-18-70, *et seq.*, from disclosure to the public and that the Redacted Copy is submitted to EPD as is, and that the Protected Copy is submitted to EPD with the expectation and understanding that information contained therein is subject to the claim Georgia Power declares in this affidavit that such information is protected under Georgia law from disclosure to the public. Support for this declaration, including citation to the specific provisions of Georgia law, is included below.

4. The Georgia Open Records Act provides in pertinent part that –

> (a) Public disclosure shall not be required for records that are:
>
> (34) Any trade secrets obtained from a person or business entity that are required by law, regulation, bid, or request for proposal to be submitted to an agency. An entity submitting records containing trade secrets that wishes to keep such records confidential under this paragraph shall submit and attach to the records an affidavit affirmatively declaring that specific information in the records constitute trade secrets pursuant to Article 27 of Chapter 1 of Title 10.
>
> O.C.G.A. § 50-18-72(a)(34).

Initial

5. The Georgia Trade Secrets Act, O.C.G.A. § 10-1-760, *et seq*., provides that a

> (4) 'Trade secret' means information, without regard to form, including, but not limited to, technical or nontechnical data, a formula, a pattern, a compilation, a program, a device, a method, a technique, a drawing, a process, financial data, financial plans, product plans, or a list of actual or potential customers or suppliers which is not commonly known by or available to the public and which information:
>
> (A) Derives economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use; and
>
> (B) Is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.
>
> O.C.G.A. § 10-1-761(4).

6. The Submittal is required to be provided to EPD to comply with 391-3-1-.03(1) of the Georgia Rules for Air Quality Control.

7. On behalf of Georgia Power Company, I affirmatively declare that identifying information about the CCs contained in the Submittal constitutes a Trade Secret pursuant to the Georgia Trade Secrets Act as shown herein.

8. The vendor name, capacity, and commercial operation dates of the CCs that are the subject of the Submittal constitute a Trade Secret because this is proprietary commercial information that is being considered in a competitive bidding process authorized and overseen by the Georgia Public Service Commission ("Commission"). Disclosure of this information could harm the Company's ability to compete in this solicitation and disrupt the Commission-authorized bidding process, which is intended to ensure that the optimal portfolio of capacity resources is identified to serve the Company's customers. The Trade Secret is not commonly known and not readily ascertainable by reasonable means by persons not involved with the confidential bidding process. Georgia Power has made reasonable efforts to maintain the secrecy of this Trade Secret, which efforts include, but are not limited to, limiting and controlling employee access to such information and prohibiting public disclosure of such information. Only select Georgia Power and Southern Company personnel are granted access to the Trade Secret information and those personnel receive access only on a "need to know" basis. Georgia Power submits this affidavit in furtherance of its ongoing and continual efforts to maintain the secrecy of the Trade Secret.

9. Under Georgia Code § 12-9-19 and Georgia Rule for Air Quality Control 391-3-1-.08, "reports on the nature and amounts of stationary source emissions obtained by the division shall be available for public inspection." The Trade Secret does not include any such reports and does not contain the kind of information that EPD procedures indicate cannot be claimed or treated as protected. All information necessary to determine the "nature and amounts" of emissions from the CCs is contained in Georgia Power's publicly available "Redacted Copy" of the Submittal.

Initial

10. Georgia Power Company understands that receipt by EPD of this Affidavit and the Submittal does not mean that EPD agrees or has made a determination that the information identified in this Affidavit is protected under the Georgia Open Records Act from disclosure to the public. However, for claims made in this Affidavit that information in the Submittal constitute a Trade Secret pursuant to the Georgia Trade Secrets Act, I understand that Section 50-18-72(a)(34) of the Georgia Open Records Act prescribes a procedure for producing such information in response to a request under that Act.

FURTHER Affiant saith not.

Jonathan Bandzul
Air Manager
Georgia Power Company
241 Ralph McGill Boulevard, N.E.
Bin # 10221
Atlanta, Georgia 30308-3374

Subscribed and sworn to before me this 24th day of February, 2025.

-Latricia M. Curtis Wray
[NAME of Notary Public]

My Commission expires:

LATRICIA MONIQUE CURTIS WRAY
COMMISSION EXPIRES
NOTARY PUBLIC
APRIL 18, 2027
DOUGLAS COUNTY, GEORGIA

Georgia EPD Online System (GEOS) for Permitting, Compliance & Facility Information

Title V/SIP Application Redacted Information Report

Redacted Sequence	Form Section	Section ID	Field Name	Redacted Information

Attachment: PROTECTED COPY -- VOLUME I -- PSD Application Plant Bowen Units 7-10.pdf

Instructions:

Print or Download the "Redacted Information Report" and populate with the claimed protected information (in the "Redacted Information" column) or cite an Attachment name and **MAIL** it to the Division in Paper form according to the EPS's Procedures for Submitting Information Pursuant to a Claim that Information in the Submittal is Protected Under Georgia Law from Law from Disclosure to the Public.

1. The redacted Report can be downloaded and filled out and then PRINTED.
2. The Affidavit in Support of Claim[s] that Information is Protected under Georgia Law from Disclosure to the Public should be PRINTED.
3. The entire Public version of the application should be PRINTED. This can only be done AFTER it has been submitted. Open each form view in pdf and print.
4. Do not include electronic versions of the Redact Report or any Privileged information in the uploaded Attachments.
Please mail the report to:
Georgia Environment Protection Division
Air Protection Branch
4244 International Parkway Suite 120
Atlanta GA 30354

State of Georgia
Department of Natural Resources
Environmental Protection Division
Air Protection Branch

Stationary Source Permitting Program
4244 International Parkway, Suite 120
Atlanta, Georgia 30354
404/363-7000
Fax: 404/363-7100

EXPEDITED PERMITTING PROGRAM – APPLICATION FOR ENTRY TO PROGRAM FOR AIR PERMITS

EPD Use Only

Date Received: ____________ Application No. ____________

To be eligible for expedited review, this application form must be accompanied by the complete permit application for the type of air permit being requested.

1. Contact Information

Facility Name: Bowen Steam-Electric Generating Plant
AIRS No. (if known): 04-13-015 -0011
Contact Person: Jon Bandzul Title: Air Manager
Telephone No.: (404) 851-7056 Alternate Phone No.: (404) 506-3458
Email Address: JBANDZUL@southernco.com

If EPD is unable to contact me, please contact the alternate contact person:

Contact Person: Pilar Johansson Title: Senior Engineer
Telephone No.: (470) 612-0288 Alternate Phone No.: ____________
Email Address: PJOHANSS@southernco.com

On Page 2 of this form, please check the appropriate box for which type of air permit you are requesting expedited review.

I have read the Expedited Review Program Standard Operating Procedures and accept all of the terms and conditions within. I have participated in the required pre-application meeting with EPD. I understand that it is my responsibility to ensure an application of the highest quality is submitted and to address any requests for additional information by the deadline specified. I understand that submittal of this request form is not a guarantee that expedited review will be granted.

Signature: [signature] Date: 2/28/2025

2. **Applying For Which Type of Permit: (Please Check Appropriate Box)**

Expedited Review Fees for Air Permits	
Permit Type – Please Check One	**Expedited Review Fee*** **as of January 1, 2025**
☐ Generic Permit: Concrete Batch Plant – Minor Source	$2,500
☐ Generic Permit: Concrete Batch Plant – Synthetic Minor Source	$3,750
☐ Generic Permit: Hot Mix Asphalt Plant – Synthetic Minor Source	$5,000
☐ Minor Source SIP Permit (or Amendment)	$7,500
☐ Permit-by-Rule	$7,500
☐ Title V 502(b)(10) Permit Amendment	$10,000
☐ Synthetic Minor SIP Permit (or Amendment)	$10,000
☐ Major Source SIP Permit **not** subject to Prevention of Significant Deterioration (PSD) or 112(g)	$15,000
☐ Title V Minor Modification with or without Construction	$10,000
☐ Title V Significant Modification with or without Construction (Not subject to PSD or 112(g))	$15,000
☐ Major Source SIP Permit subject to 112(g) but **not** subject to PSD	$37,500
☐ PSD Permit (or Amendment) **not** subject to NAAQS and/or PSD Increment Modeling	$37,500
☐ PSD Permit (or Amendment) subject to NAAQS and/or PSD Increment Modeling but **not** subject to Modeling for $PM_{2.5}$, NO_2, or SO_2	$50,000
☐ PSD Permit (or Amendment) subject to NAAQS and/or PSD Increment Modeling for $PM_{2.5}$, NO_2, or SO_2	$62,500
☒ PSD Permit (or Amendment) subject to NAAQS and/or PSD Increment Modeling for $PM_{2.5}$, NO_2, or SO_2 and also impacting a Class I Area	$75,000
* Do not send fee payment with this form. Upon acceptance of application for the expedited permit program, EPD will notify you and an invoice will appear on GECO. Fees must be paid via check to "Georgia Department of Natural Resources" within ten (10) business days of acceptance.	

3. **Comments.**

Georgia Power requests that EPD hold a public hearing on the draft permit for the Project to ensure public participation.

This section is optional. Applicants may use this field to include specific comments or requests for EPD consideration. For example, the applicant may use this field to request a public hearing or to remind EPD of review time needs and/or expectations that may differ from the time frames in the procedures.

Georgia Power

Environmental Affairs
241 Ralph McGill Boulevard NE
BIN 10221
Atlanta, Georgia 30308

March 5, 2025

Georgia Environmental Protection Division
Attn: Mr. Steve Allison
Air Protection Branch
Stationary Source Permitting Program
4244 International Parkway, Suite 120
Atlanta, Georgia 30354

Re: Bowen Steam-Electric Generating Plant, Title V Permit No. 4911-015-0011-V-05-0
Prevention of Significant Deterioration Permit Application and Request for Expedited Review
Combined-Cycle Units 7, 8, 9, and 10 and Associated Equipment

Dear Mr. Allison,

On July 29, 2022, the Georgia Public Service Commission (PSC) issued its Final Order on Georgia Power Company's (GPC) 2022 Integrated Resource Plan (2022 IRP). The PSC's Order identified capacity needs in the 2029-2031 timeframe. In the enclosed application, GPC is seeking a Prevention of Significant Deterioration (PSD) permit to construct new resources to meet the capacity needs identified in the 2022 IRP. The new proposed company-owned resources are subject to Commission Rules in Ga. Comp. R & Regs. 515-3-4 including RFP requirements, and also require PSC approval and certification.

Specifically, this application seeks approval from Georgia Environmental Protection Division (EPD) to construct up to four (4) combined-cycle (CC) electric generating units and associated equipment at the Bowen Steam-Electric Generating Plant (Plant Bowen) in Bartow County ("the Project"). As discussed during our pre-application meeting on December 18, 2024, the Project is subject to PSD permitting requirements for emissions of nitrogen oxides (NO_X), sulfur dioxide (SO_2), carbon monoxide (CO), volatile organic compounds (VOC), particular matter (PM), particulate matter with an aerodynamic diameter less than 10 microns (PM_{10}), particulate matter with an aerodynamic diameter less than 10 microns ($PM_{2.5}$), sulfuric acid mist (SAM or H_2SO_4), and greenhouse gases (GHG). As such, we submit that the enclosed application and supporting information demonstrate that, with application of the Best Available Control Technology (BACT), the Project: (1) will not cause or contribute to a violation of any primary or secondary National Ambient Air Quality Standard (NAAQS) or Class I or II PSD increment; (2) will not impair visibility in any Class II area; (3) will not adversely impact any Air Quality Related Value (AQRV) in any Class I area; and (4) will not exceed any Acceptable Ambient Concentration (AAC) under the Toxic Impact Assessment Guideline developed by EPD to safeguard public health, safety and welfare.

As indicated in the affidavit accompanying the enclosed application, certain information in the application constitutes a trade secret protected under Georgia law from disclosure to the public. Should any of the company-owned resources referenced in the attached permit application receive PSC approval and certification, any information no longer required to be maintained as confidential will be included in the PSC's certification order.

Per your request, we are providing three (3) hard copies of the application with this information redacted and three (3) hard copies that should be protected pursuant to the claims made in the affidavit. Additionally, we have enclosed a thumb drive that contains electronic files associated with the application, including the electronic attachments submitted along with the GEOS application to revise Plant Bowen's Title V permit.

We request that EPD accept this application for expedited review and would appreciate EPD's efforts to issue a PSD permit before October 2025. To support your team's effort, we will provide you with a proposed draft revision to the Plant Bowen Title V permit for consideration in the coming weeks.

If you have any questions concerning the enclosed application, or if there is anything that we can do to support EPD's expedited review of the application, please do not hesitate to contact me at (404) 851-7056 or JBANDZUL@southernco.com.

Sincerely,

Jon Bandzul
Air Manager

enc/

Georgia Power

Bowen Steam - Electric Generating Plant Combined - Cycle Units 7, 8, 9, and 10

Prevention of Significant Deterioration Permit Application
Volume I - Construction Permit Application

SUBMITTED TO

Georgia Environmental Protection Division Air Protection Branch

Stationary Source Permitting Program
4244 International Parkway, Suite 120
Atlanta, Georgia 30354

March 2025

Georgia Power Bowen Steam-Electric Generating Plant
Combined-Cycle Units 7, 8, 9, and 10

Prevention of Significant Deterioration Permit Application
Volume I - Construction Permit Application

Submitted to:

Georgia Environmental Protection Division
Air Protection Branch
Stationary Source Permitting Program
4244 International Parkway, Suite 120
Atlanta, Georgia 30354

March 2025

Redacted information contained in this Submittal is subject to the claim or claims by JONATHAN BANDZUL declared in the attached affidavit that such redacted information is protected under Georgia law from disclosure to the public

Georgia Power

Table of Contents

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List of Attachments

1. Introduction

On July 29, 2022, the Georgia Public Service Commission (PSC) issued its Final Order on Georgia Power Company's (GPC) 2022 Integrated Resource Plan (2022 IRP). The PSC's Order identified capacity needs in the 2029-2031 timeframe. GPC is seeking approval from the Georgia Environmental Protection Division (EPD) to construct and operate up to four (4) combined-cycle (CC) electric generating units at the Bowen Steam-Electric Generating Plant in Bartow County (the "Project") to meet the capacity needs identified in the 2022 IRP.[1] The proposed CC units will be designated as Plant Bowen Combined-Cycle Units 7, 8, 9, and 10 and will generate a total of approximately REDACTED MW gross (REDACTED MW net) when firing natural gas and approximately REDACTED MW gross (REDACTED MW net) when firing distillate oil at winter conditions of 40°F and 75% relative humidity.

This Introduction, and the other components of this document and its appendices and attachments, constitute the application for an air permit authorizing construction and operation of the Project under Ga. Comp. R & Regs. Rule 391-3-1-.03. This application and supporting analyses address the applicable permitting requirements for the Project and demonstrate the Project will comply with all applicable state and federal air quality regulations.

1.1 Facility and Project location

Plant Bowen is located at 317 Covered Bridge Road, Cartersville, Bartow County, Georgia, approximately 40 miles north of the city of Atlanta. A facility location map is provided in Figure 1-1. The location of the proposed CC units is provided in Figure 1-2. A plot plan is provided in Attachment B. The topography surrounding the facility, as indicated in the topographic map in Figure 1-3, is characterized by mostly flat areas with occasional gently rolling hills. The geographical coordinates for the Plant are:

- Universal Transverse Mercator (UTM) Easting: 691,900 meters;
- Universal Transverse Mercator (UTM) Northing: 3,778,000 meters;
- UTM Zone: 16;
- North American Datum (NAD): 1983;
- Elevation Above Mean Sea Level (AMSL): Approximately 700 feet AMSL.

Plant Bowen currently operates under Permit No. 4911-015-0011-V-05-0, effective January 13, 2025. The existing facility has four (4) steam generating units, two (2) startup boilers, and coal, ash, and material handling systems. Bowen Units 1-4 primarily burn coal and are equipped with flue gas desulfurization (FGD) scrubbers, selective catalytic reduction (SCR), electrostatic precipitators (ESP), and sorbent injection systems for control of air emissions.

[1] The new proposed self-build resources are subject to Commission Rules in Ga. Comp. R & Regs. 515-3-4 including RFP requirements, and also require PSC approval and certification.

Figure 1-1: Location of Plant Bowen (Aerial)

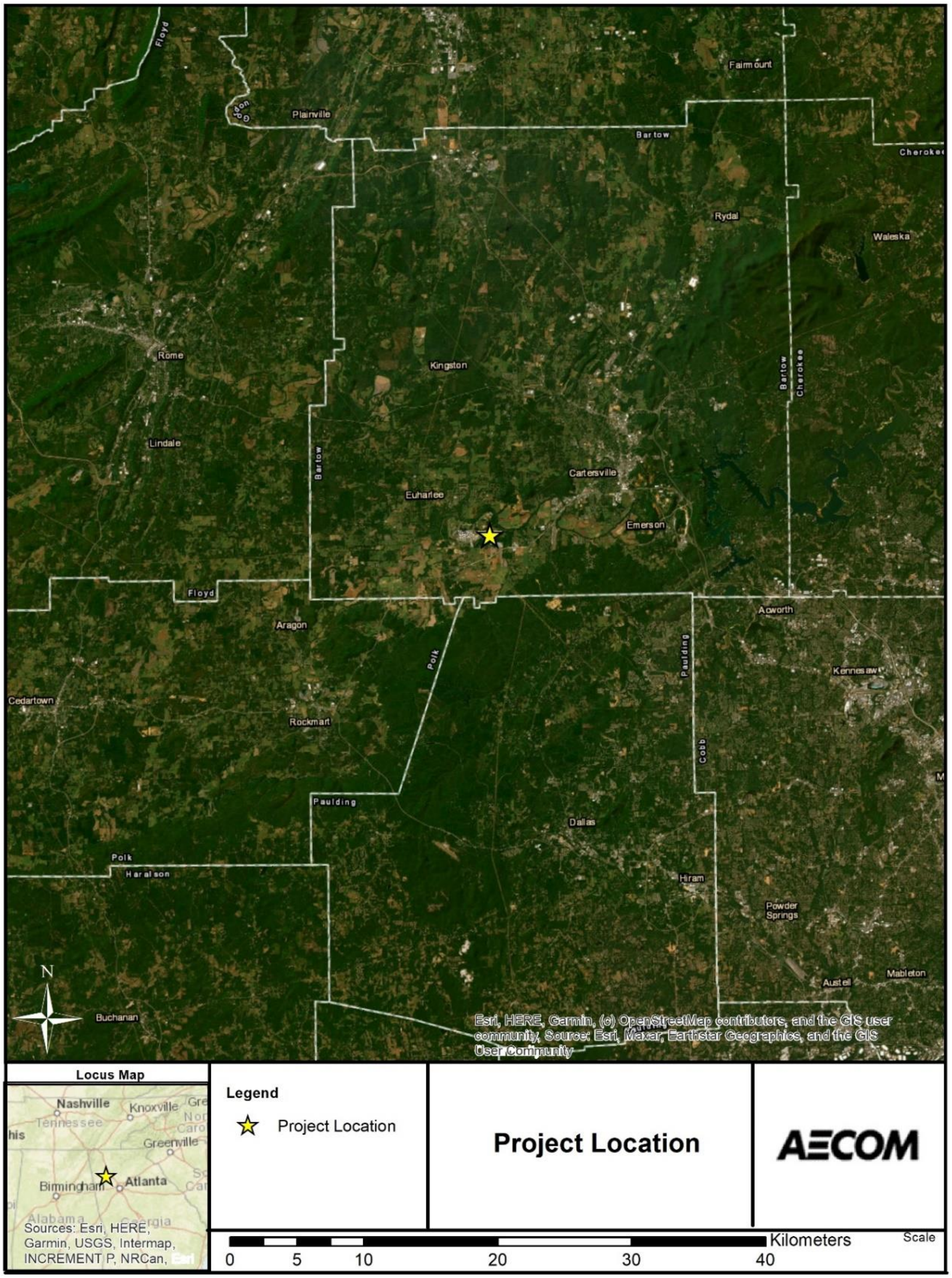


Figure 1-2: Location of Project (Aerial, zoom)

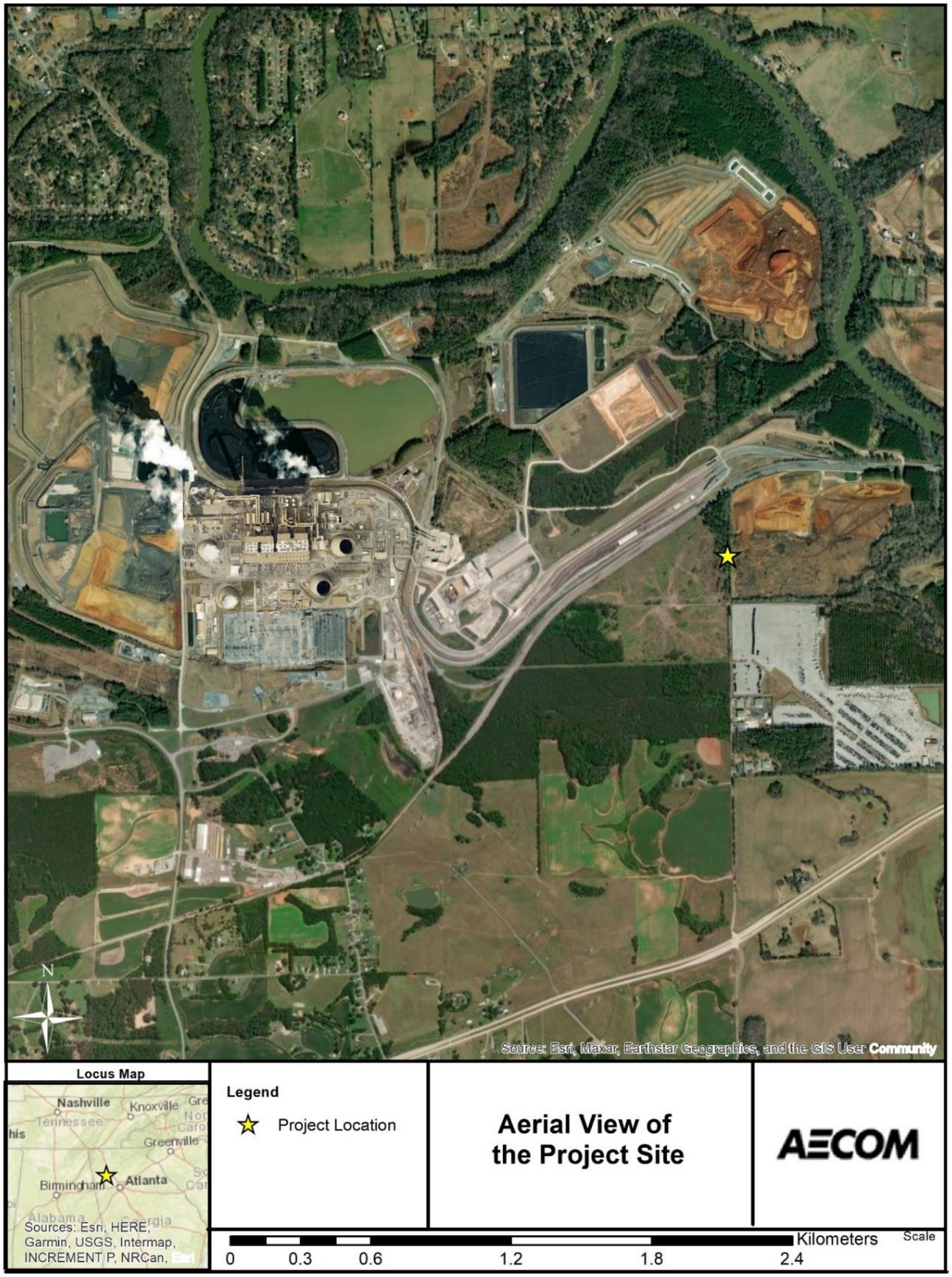
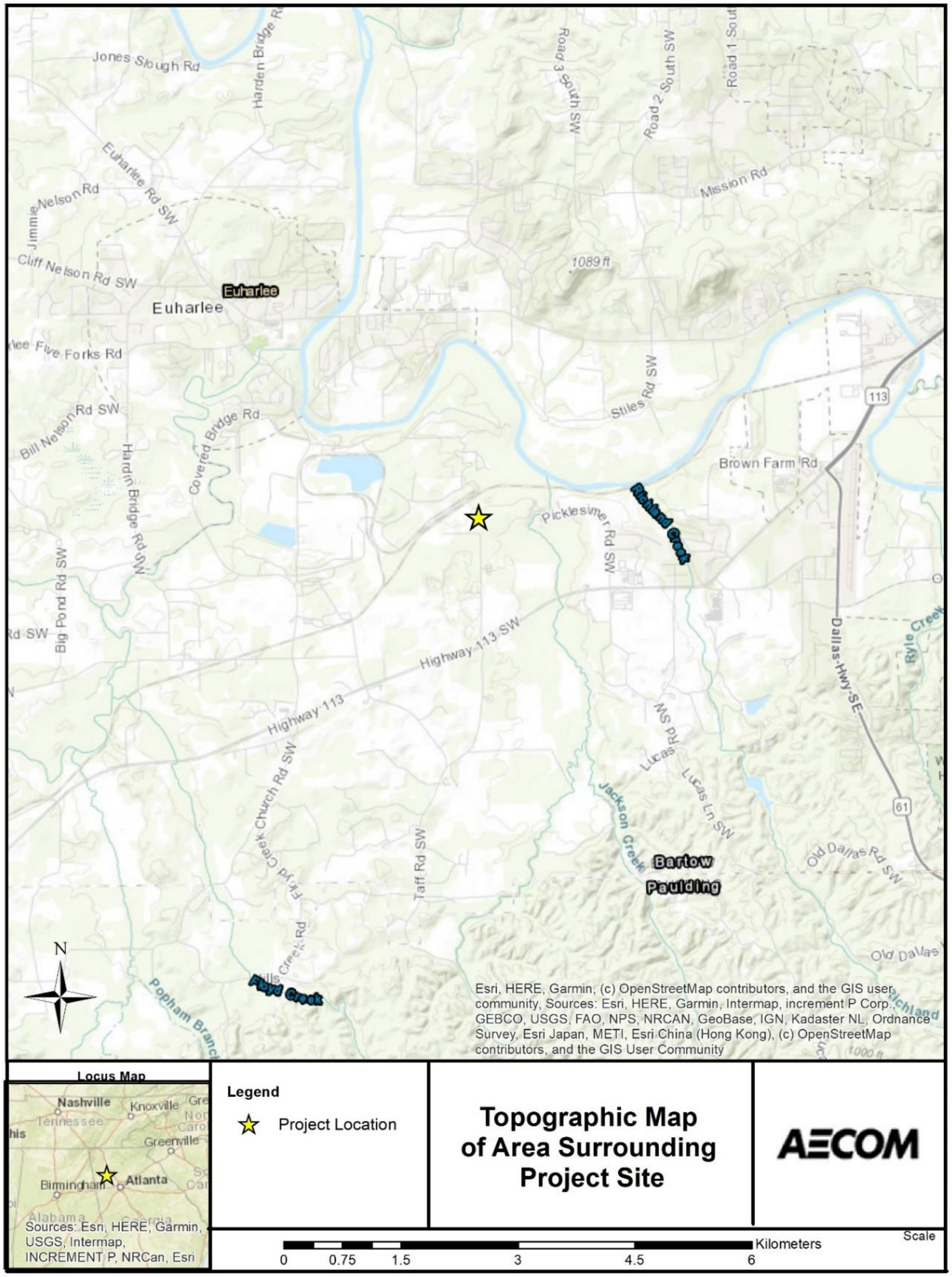


Figure 1-3: Location of Project (Topography)


Jones Slough Rd
Harden Bridge Rd
Road 3 South SW
Road 2 South SW
Road 1 South
Euharlee Rd SW
Nelson Rd
Mission Rd
Cliff Nelson Rd SW
1089 ft
Euharlee
Euharlee
Five Forks Rd
Stiles Rd SW
Bill Nelson Rd SW
Covered Bridge Rd
Hardin Bridge Rd SW
113
Brown Farm Rd
Picklesimer Rd SW
Richland Creek
Big Pond Rd SW
Highway 113 SW
Highway 113
Dallas Hwy SE
Ryle Creek
Lucas Rd SW
Lucas Ln SW
Jackson Creek
Fik-yd Creek Church Rd SW
Taff Rd SW
Bartow
Paulding
Old Dallas Rd SW
61
Old Dallas
Floyd Creek
Popham Branch
N
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
Locus Map
Nashville
Knoxville
Tennessee
Greenville
Birmingham
Atlanta
Alabama
Georgia
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri
Legend
Project Location
Topographic Map of Area Surrounding Project Site
AECOM
0 0.75 1.5 3 4.5 6 Kilometers
Scale

Plant Bowen also operates other smaller sources of air emissions, such as cooling towers and emergency generators, listed as Insignificant Activities in Attachment B of the facility's operating permit.

The facility is classified under the Standard Industrial Classification (SIC) code system as Electric Services, 4911 and classified under the North American Industrial Classification Systems (NAICS) as Fossil Fuel Electric Power Generation, 221112. Based on the facility's current and future potential emissions, Plant Bowen is a "major stationary source" with respect to the Prevention of Significant Deterioration (PSD) permitting program because it is in one of the 28 major source categories listed in 40 CFR 52.21(b)(1)(iii) and referenced in Ga. Comp. R & Regs. 391-3-1-.02(7)(2) and has the potential to emit more than 100 tons per year of at least one regulated new source review (NSR) pollutant.

1.2 Permitting and Regulatory Requirements

Since the Project is located at an existing major stationary source, the Project must be evaluated to determine whether it constitutes a major modification under PSD regulations. A major modification is defined as a physical change or change in the method of operation at a major source that results in a significant emissions increase, and a significant net emissions increase, of a regulated NSR pollutant that is greater than the PSD significant emission rate (SER). Table 1-1 lists the PSD SERs and the expected annual emission increases resulting from the Project. As indicated in the table, the Project is expected to be a major modification for emissions of nitrogen oxides (NO_X), sulfur dioxide (SO_2), carbon monoxide (CO), volatile organic compounds (VOC), particular matter (PM), particulate matter with an aerodynamic diameter less than 10 microns (PM_{10}), particulate matter with an aerodynamic diameter less than 10 microns ($PM_{2.5}$), sulfuric acid mist (SAM or H_2SO_4), and greenhouse gases (GHG). PSD applicability emissions calculations are summarized in Appendix C, Tables C-1 and C-2. Tables C-3 through C-19 provide the supporting detailed emissions calculations for the Project.

Table 1-1: Project Emissions Increases

Pollutant	Potential Emissions Increases (tons/year)	PSD Significant Emission Rate (tons/year)	Subject to PSD Review (Y/N)
NOx	929.0	40	Y
SO_2	157.2	40	Y
VOC	649.6	40	Y
CO	1,047.8	100	Y
PM (TSP)	279.2	25	Y
PM_{10}	519.4	15	Y
$PM_{2.5}$ Total	517.4	10	Y
CO_2e	12,388,934	75,000	Y
Lead	0.16	0.6	N

Pollutant	Potential Emissions Increases (tons/year)	PSD Significant Emission Rate (tons/year)	Subject to PSD Review (Y/N)
Sulfuric Acid Mist	240.4	7	Y

1.3 Application Organization

This application contains two volumes of information. Volume I, which is organized as listed below, describes the emissions increases associated with the Project, reviews the state and federal rules that are applicable, or potentially applicable, to the Project and its proposed sources of emissions, and provides the best available control technology (BACT) determination required for each pollutant subject to PSD review. Application forms and other important information related to this volume are included in its appendices. Volume II of this application contains the air quality analysis required of PSD applicants, and related information, and is organized as described in that volume.

- **Confidentiality Affidavit/Title V Application Redacted Information Report from GEOS** contains the required documentation for the submission of a permit application containing confidential information.
- **Expedited Permitting Form** contains the required document for requesting entry into the expedited review program.
- **Section 1.0 Introduction** contains the facility description, Project summary, Project location, and permitting/regulatory review summary.
- **Section 2.0 Proposed Project Description** provides a detailed description of the Project and related processes.
- **Section 3.0 Emissions Calculation Methodology** contains a summary of the emissions from the Project. This section also covers the emissions calculation methodologies employed to determine Project emissions.
- **Section 4.0 Regulatory Review** provides a summary of the state and federal regulatory applicability analysis for the Project.
- **Section 5.0 BACT Analysis** presents the Best Available Control Technology (BACT) determination for the Project.
- **Attachment A Application Forms**
- **Attachment B Plot Plan**
- **Attachment C Emissions Calculations**
- **Attachment D Compliance Assurance Monitoring (CAM) Forms**
- **Attachment E Best Available Control Technology Search Results**

2. Project Description

2.1 Combined-Cycle Units

The Project includes up to four (4) combined-cycle electric generating units, arranged in a 1-on-1 configuration, each of which includes an advanced-class dual-fuel combustion turbine (CT) generator, heat recovery steam generator (HRSG) with natural gas-fired duct burner, and steam turbine (ST) generator. The proposed CC units will be based on the REDACTED CT technology and generate a total of approximately REDACTED MW gross (REDACTED MW net) when firing natural gas and approximately REDACTED MW gross (REDACTED MW net) when firing distillate oil at winter conditions.

2.1.1 Combustion Turbines

The CT is the main component of each proposed CC unit and consists of three major sections: a high-efficiency compressor, a combustor, and a high-efficiency turbine to generate power with the associated generator.

In the compressor section, ambient air is drawn through a filter. Once filtered, evaporative cooling is used to cool the air and increase power output when ambient temperatures are sufficiently high. The air is then compressed and directed to the combustor section.

In the combustor, a mixture of fuel and air is introduced and combusted. The CT will be capable of firing either pipeline quality natural gas or distillate oil. When firing natural gas, dry low-NO_X (DLN) combustors will reduce NO_X formation. Water injection will be used when firing distillate oil to minimize peak flame temperature and reduce NO_X formation. Exhaust gases, at high temperature and pressure, are then directed to the turbine section to generate power.

In the turbine, the exhaust gases expand and rotate the turbine blades, which are coupled to a shaft. The rotating shaft drives the compressor and the generator, which generates electricity.

2.1.2 Heat Recovery Steam Generators

The exhaust gases exiting the CT will be ducted to a horizontal, natural circulation, three-pressure level HRSG where high, intermediate, and low-pressure steam will be produced and used in the ST to generate additional electricity. Each HRSG will be equipped with natural gas-fired duct burners which can be used to provide additional steam generating capacity only when the CT is firing natural gas. SCR and oxidation catalyst systems will be installed in each HRSG to reduce emissions of NO_X, CO, and VOC.

2.1.3 Steam Turbines

Each proposed CC unit will include a reheat condensing ST designed for variable pressure operation. The ST consists of a combined high-pressure-intermediate-pressure turbine and a low-pressure turbine to generate power with the associated generator. The high-pressure portion of each ST receives high-pressure super-heated steam from its associated HRSG and exhausts to the reheat section where it is combined with excess intermediate pressure steam from the HRSG. The HRSG increases the temperature of the steam and returns the steam to the intermediate-pressure section of the ST, which expands to the low-pressure section. The low-pressure ST also receives excess low-pressure superheated steam from the HRSG, exhausting all steam to a water-cooled condenser.

2.2 Cooling Towers

Each proposed CC unit will be served by a 10-cell wet mechanical induced draft cooling tower that will provide cooling water to be used in the condensers for the ST generator exhaust as well as various process heat exchangers. The design circulating water flow rate for each cooling tower is 125,000 gallons per minute (gpm). Each cooling tower will be equipped with high-efficiency drift eliminators that will reduce droplet drift from each tower to 0.0005% of the tower circulating water flow rate.

2.3 Fuel Gas Heaters

The Project will include a fuel gas heater for each proposed CC unit to heat the incoming natural gas above its dew point when necessary to prevent freezing of the gas regulating valves. Each fuel gas heater will be of the water-bath type and have a maximum heat input of approximately 8.61 MMBtu/hr. The heaters will exclusively fire natural gas and be equipped with ultra-low NO_X burners to minimize NO_X emissions.

2.4 Distillate Oil Storage Tanks

Each proposed CC unit will be served by an aluminum vertical fixed-roof storage tank, for a total of up to four (4) tanks, for onsite storage of distillate oil to provide reliability and resiliency benefits to the electric system. Each tank will be approximately 90 feet in diameter and have a working capacity of 2.3 million gallons. Emissions of VOC from the tanks will be minimized by equipping each tank with submerged filling to reduce working losses. Each tank roof and shell will be fully insulated to reduce breathing losses.

2.5 Emergency Generators and Fire Water Pump Engines

The Project will include up to four (4) 1,500 kW emergency generators and (2) 350 hp fire water pump engines associated with the proposed CC units. The Project will also include up to two (2) 500 kW emergency generators associated with support buildings. Each emergency generator will be compression ignition, certified to Tier 2 emissions standards, and be operated no more than 200 hours per year, including up to 100 hours per year for maintenance and readiness testing, 50 hours of which may be used in non-emergency situations. The fire water pump engines will also be compression ignition, certified to Tier 3 emission standards, and be operated for less than 500 hours per year, including up to 100 hours per year for maintenance and readiness testing, 50 hours of which may be used in non-emergency situations. All emergency generators and fire water pump engines will exclusively use ultra-low sulfur diesel (ULSD) as fuel.

3. Emissions Summary

In each section below, the methods used to calculate emissions are discussed, followed by a summary of the emission estimates for the specific sources, and for each mode of operation of the proposed CC units. Detailed emissions calculations for each emission source are provided in Appendix C.

The Project emissions are projected based upon the following sources of air emissions:

- Four (4) advanced class dual-fuel CC units;
- Four (4) multi-cell mechanical draft cooling towers;
- Four (4) fuel gas heaters;
- Four (4) fixed roof distillate oil storage tanks;
- Four (4) emergency generators rated approximately 1,500 kW;
- Two (2) emergency generators rated approximately 500 kW; and
- Two (2) fire water pump engines rated approximately 350 bhp.

The methodologies used to determine potential emissions from the Project are based on emissions and performance information provided by vendors, proposed BACT emission limits, emission limitations specified by the applicable standards, emission factors documented in EPA's "Compilation of Air Pollution Emission Factors, AP-42" (AP-42), and procedures developed by the Electric Power Research Institute (EPRI)[2].

3.1 Combined-Cycle Units

The main source of emissions for the Project are the proposed CC units. Emissions rates and flue gas characteristics for each CC unit vary as a function of type of fuel combusted, operating load, and ambient temperature. Data was derived for multiple ambient temperatures and load scenarios to determine the maximum hourly rate for each pollutant. Maximum hourly emissions while combusting natural gas and distillate oil are presented in Table 3-1 and Table 3-2, respectively. Hourly emissions presented in the tables do not reflect emissions that occur during startup or shutdown, while annual emissions, as described below, do include startup and shutdown.

The hourly emission rates used for potential annual emissions calculations are based on operating at 100% normal full load at 59°F (with use of evaporative coolers and supplemental firing). Table 3-1 presents the potential annual emissions for each proposed CC unit, and for all four proposed CC units combined, when firing natural gas only (8,760 hours per year). Table 3-2 presents the potential annual emissions for each proposed CC unit, and for all four proposed CC units combined, when both natural gas (7,560 hours per year) and distillate oil (1,200 hours per year) are used.

[2] Estimating Total Sulfuric Acid Emissions from Stationary Power Plants: 2018 Update. EPRI, Palo Alto, CA: 2018. 3002012398.

Additional emissions information at various loads, ambient temperatures, and operating conditions (e.g., evaporative cooling, startup, and shutdown) are provided in Appendix C, Tables C-4 to C-7 and C-14 to C-21.

Table 3-1: Proposed CC Units: Hourly and Annual Emissions, Natural Gas-Fired Only

Pollutant	Maximum Hourly Emissions Per CC Normal Operations (lb/hr/CC) (1)(2)	Potential Annual Emissions Per CC Including SU/SD (tons/year/CC) (1)(3)	Potential Annual Emissions Four (4) CCs Including SU/SD (tons/year) (1)(3)
NO_X	42.1	184.0	736.1
CO	25.7	204.6	818.4
VOC	14.7	119.0	476.0
SO_2	8.2	35.7	142.9
Sulfuric Acid Mist	12.5	54.7	218.8
TSP(4)	10.6	46.4	185.4
PM_{10} Total	23.1	101.1	404.2
$PM_{2.5}$ Total	23.1	101.1	404.2
GHG (CO_2e)(5)	630,060	2,751,377	11,005,508
Lead	0.0026	0.0114	0.046

(1) See Appendix C for detailed calculations.

(2) Maximum hourly emissions (lbs per hr) are based on natural gas firing at 100% load at 20°F with supplemental firing.

(3) Annual emissions (tons per year) are based on operating 8,760 hours per year on natural gas based on 100% normal full load at 59°F with use of evaporative coolers and supplemental firing and include emissions from startup and shutdown.

(4) Total Suspended Particulate (TSP) is filterable PM emissions only. PM_{10} and $PM_{2.5}$ includes both filterable and condensable PM emissions.

(5) CO_2e is the equivalent number of tons of CO_2 emissions with the same global warming potential as one ton of another greenhouse gas. CO_2e includes CO_2 emissions, CH_4 emissions as CO_2e, and N_2O emissions as CO_2e.

Table 3-2: Proposed CC Units: Hourly and Annual Emissions, with Distillate Oil Backup

Pollutant	Natural Gas Maximum Hourly Emissions Per CC Normal Operations (lb/hr/CC) (1)(2)	Distillate Oil Maximum Hourly Emissions Per CC Normal Operations (lb/hr/CC) (1)(3)	All Fuels Potential Annual Emissions Per CC Including SU/SD (tons/year/CC) (1)(4)	All Fuels Potential Annual Emissions Four (4) CCs Including SU/SD (tons/year) (1)(4)
NO_X	42.1	75.1	228.9	915.7
CO	25.7	18.3	257.4	1,029.6
VOC	14.7	10.5	161.6	646.4
SO_2	8.2	5.9	39.2	157.0
Sulfuric Acid Mist	12.5	9.0	60.1	240.4
TSP(5)	10.6	38.0	69.0	275.9
PM_{10} Total	23.1	47.0	129.1	516.3
$PM_{2.5}$ Total	23.1	47.0	129.1	516.3
GHG (CO_2e)(6)	630,060	570,244	3,092,534	12,370,136
Lead	0.0026	0.049	0.041	0.163

(1) See Appendix C for detailed calculations.

(2) Maximum hourly emissions (lbs per hr) are based on natural gas firing at 100% load at 20°F.

(3) Maximum hourly emissions (lbs per hr) are based on distillate oil firing at 100% load at 0°F, except TSP/PM_{10}/$PM_{2.5}$ which is at 100% load and at 65°F.

(4) Annual emissions (tons per year) are based on operating 7,560 hours per year on natural gas and 1,200 hours per year on distillate oil based on 100% normal full load at 59°F with use of evaporative coolers (and supplemental firing for natural gas operations) and include emissions from startup and shutdown.

(5) TSP is filterable PM emissions only. PM_{10} and $PM_{2.5}$ includes both filterable and condensable PM emissions.

(6) CO_2e is the equivalent number of tons of CO_2 emissions with the same global warming potential as one ton of another greenhouse gas. CO_2e includes CO_2 emissions, CH_4 emissions as CO_2e, and N_2O emissions as CO_2e.

Table 3-3 presents estimates of hazardous air pollutants (HAP) emissions for the proposed CC units under both an all natural gas operating scenario and a natural gas with distillate oil backup operating scenario. Maximum hourly emission rates are based on the maximum heat inputs for the proposed CC units. Potential annual emissions are based on the maximum hourly emission rates under both operating scenarios: 8,760 hours per year on natural gas and 7,560 hours per year on natural gas/1,200 hours on distillate oil. AP-42 emission factors were used to calculate the HAP emissions except for formaldehyde, which was calculated based on the applicable standard in 40 CFR Part 63, Subpart YYYY. Use of emissions factors from AP-42 is appropriate for the Project as they have proven to be conservative and overstate HAP emissions.

Table 3-3: Combined Cycle: Annual Potential Hazardous Air Pollutant (HAP) Emissions

Pollutant	Natural Gas Potential Annual HAP Emissions Four (4) CCs 8,760 hours (tons/year) (1)	Potential Annual Emissions Four (4) CCs 7,560 hr/yr gas and 1,200 hr/yr oil operations (tons/year) (1) (2)	All Fuels Potential Annual HAP Emissions Four (4) CCs (tons/year) (1) (2)
Arsenic	1.83E-02	1.08E-01	1.08E-01
Beryllium	1.10E-03	3.55E-03	3.55E-03
Cadmium	1.00E-01	1.27E-01	1.27E-01
Chromium (total)	1.28E-01	2.03E-01	2.03E-01
Cobalt	7.67E-03	6.62E-03	7.67E-03
Lead	4.56E-02	1.57E-01	1.57E-01
Manganese	3.47E-02	6.67E+00	6.67E+00
Mercury	2.37E-02	3.06E-02	3.06E-02
Nickel	1.92E-01	2.04E-01	2.04E-01
Selenium	2.19E-03	2.10E+00	2.10E+00
1,3-Butadiene	4.00E-02	1.69E-01	1.69E-01
1,1,1-Tetrachloroethane	--	1.40E-02	1.40E-02
Acetaldehyde	3.72E+00	3.21E+00	3.72E+00
Acrolein	5.95E-01	5.14E-01	5.95E-01
Benzene	1.12E+00	1.43E+00	1.43E+00
Ethylbenzene	2.98E+00	2.57E+00	2.98E+00
Formaldehyde	2.19E+01	2.11E+01	2.19E+01
Naphthalene	1.21E-01	3.99E-01	3.99E-01
Polycyclic Aromatic Hydrocarbons (PAHs)	2.05E-01	5.13E-01	5.13E-01
Propylene Oxide	2.70E+00	2.32E+00	2.70E+00
Toluene	1.21E+01	1.08E+01	1.21E+01
Xylene	5.95E+00	5.14E+00	5.95E+00
Total	5.2E+01	5.78E+01	6.21 E+01

(1) See Appendix C for detailed calculations.

(2) Potential Annual emissions (tons per year) are based on the maximum emitting operating scenario for each pollutant. The operating scenarios considered are either maximum of operating 8,760 hours on natural gas per year or 7,560 hours per year on natural gas and 1,200 hours per year on distillate oil based on 100% normal full load at 59 degrees F and supplemental firing for natural gas operations and distillate oil operations.

3.2 Ancillary Equipment

Emissions from other equipment associated with the Project are described in the following sections. Emissions of criteria pollutants and total HAPs from this equipment are presented in Table 3-4 and detailed emissions calculations are provided in Appendix C, Tables C-9 to C-14 and C-17 to C-20.

3.2.1 Cooling Towers

Four 10-cell wet mechanical draft cooling towers will provide cooling water to the steam turbine condensers. Particulate matter emissions from the cooling towers will be controlled by high efficiency drift eliminators which will limit drift to 0.0005% of the recirculated water rate. Potential annual emissions of criteria pollutants from the cooling towers are presented in Table 3-4 and detailed emissions calculations are presented in Appendix C, Table C-12. TSP emissions are based on AP-42 Section 13.4, Wet Cooling Towers, Table 13.4-1. These calculations use an estimated maximum total dissolved solids (TDS) content of 400 ppmw[3] and the design circulating water flow rate for each cooling tower of 125,000 gallons per minute (gpm). PM_{10} and $PM_{2.5}$ fractions are calculated based on the methodology presented in the paper entitled "Calculating Realistic PM_{10} Emissions from Cooling Towers", Reisman and Frisbie, Environmental Progress, 2002, vol. 21, no2, pp. 127-130.

3.2.2 Fuel Gas Heaters

The Project will also include four natural gas-fired fuel gas heaters to support the proposed CC units, each with a heat input rating of 8.61 MMBtu/hr. Potential annual emissions of criteria pollutants from the natural gas-fired fuel gas heaters are also presented in Table 3-4 and detailed emissions calculations are presented in Appendix C, Tables C-8, C-15, and C-18 to C-20. Emissions of NO_X and $PM_{10}/PM_{2.5}$ are calculated using vendor emission data. CO and VOC are calculated using vendor emission data. SO_2 emissions are calculated assuming a sulfur content of 0.50 grains per 100 standard cubic feet and a 100% conversion rate of fuel sulfur to SO_2. GHG emissions are calculated using the emission factors from Tables C-1 and C-2 to Subpart C of Part 98, Title 40, and the global warming potentials from Table A-1 to Subpart A of Part 98, Title 40. HAP/TAP emissions were calculated using the emission factors contained in AP-42 Section 1.4, Natural Gas Combustion, Tables 1.4-2, 1.4-3, and 1.4-4.

3.2.3 Distillate Oil Storage Tanks

Four (4) 2.3-million-gallon ultra-low sulfur distillate oil fuel storage tanks will be installed to provide fuel for the proposed CC units. Each tank will be approximately 90 feet in diameter and have a working capacity of 2.3 million gallons. Potential annual emissions of criteria pollutants from the fuel storage tanks are also presented in Table 3-4 and detailed emissions calculations are presented in Appendix C, Table C-13 and C-18 to C-20. VOC and HAP emissions are calculated based on the maximum working capacities/physical characteristics for each tank using BREEZE's TankESP software.

3.2.4 Emergency Generators and Fire Water Pump Engines

The Project will include up to four (4) 1,500 kW emergency generators and (2) 350 hp fire water pump engines associated with the proposed CC units and up to two (2) 500 kW emergency generators associated

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[3] Based on GPC's experience with the TDS content of the existing cooling towers for Bowen Units 1-4.

with support buildings. Potential annual emissions of criteria pollutants from the emergency generators and fire water pump engines are presented in Table 3-4 and detailed emissions calculations are presented in Appendix C, Tables C-9 to C-11 and C-16 to C-20.

Each emergency generator will be certified to Tier 2 emissions standards (NSPS Subpart IIII). NO_X, CO, PM, and total organic compound (TOC) emissions from the emergency generators are based on these standards. Each fire pump will be certified to Tier 3 emission standards (Table 4 to Subpart IIII of Part 60, Title 40). Consistent with industry practice, the NMHC+NO_X Tier 3 standard is assumed to be 95% NO_X and 5% NMHC (TOC). NO_X, CO, TOC, and PM emissions from the fire pumps are based on these standards. Emission factors for PM_{10} and $PM_{2.5}$ are based on speciation profile provided in AP-42 Section 3.4, Large Stationary Diesel and All Stationary Dual-fuel Engines, Table 3.4-2, adjusted to conform to the Tier 2 and Tier 3 PM standards, as applicable.

SO_2 emissions are calculated using the emission factor from USEPA AP-42, Section 3.4, Table 3.4-1, and assumes 100% conversion of fuel sulfur to SO_2. GHG emissions are calculated using the emission factors from Tables C-1 and C-2 to Subpart C of Part 98, Title 40, and the global warming potentials from Table A-1 to Subpart A of Part 98, Title 40. HAP/TAP emissions were calculated using the emission factors contained in the following Tables:

- AP-42 Table 3.4-3, Speciated Organic Compound Emission Factors for Large Uncontrolled Stationary Diesel Engines (for the emergency generators);
- AP-42 Table 3.4-4, PAH Emission Factors for Large Uncontrolled Stationary Diesel Engines (for the emergency generators);
- AP-42 Table 3.3-2, Speciated Organic Compound Emission Factors for Uncontrolled Diesel Engines (for the fire pump engines); and
- AP-42 Table 3.1-5, Emission Factors for HAPs from Distillate Oil-Fired Stationary Gas Turbines (for both emergency generators and fire pump engines. No factors for metals are provided for Diesel Engines in AP-42).

Table 3-4: Annual Potential Criteria Pollutant and HAP Emissions from Associated Equipment

Pollutant	CC Support Emergency Generators Emissions (tpy)	Admin Bldg. Emergency Generators Emissions (tpy)	Emergency Fire Water Pump Engines Emissions (tpy)	Diesel Fuel Storage Tanks Emissions (tpy)	Natural Gas-Fired Fuel Gas Heaters Emissions (tpy)	Cooling Towers Emissions (tpy)
NO_X	8.94	1.49	1.16	--	1.65	--
CO	5.14	0.86	1.00	--	11.16	--
VOC	0.47	0.08	1.16	1.29	1.51	--
SO_2	0.011	0.002	0.002	--	0.21	--
TSP	0.29	0.05	0.058	--	0.72	2.19
PM_{10}	0.27	0.05	0.053	--	0.72	1.09
$PM_{2.5}$	0.26	0.04	0.052	--	0.72	0.0043
Lead	7.1E-05	1.2E-05	1.4E-05	--	7.4E-05	--
GHG (CO_2e)	825.8	137.6	169.3	--	17,665	--
HAPs	1.23E-02	2.05E-03	4.9E-3	1.74E-01	0.28	--

3.3 Total Project Emissions

Table 3-5 provides the Project annual criteria pollutant potential-to-emit based on the maximum emitting scenario for the proposed CC units presented in Table 3-2 and the potential-to-emit for associated equipment presented in Table 3-4. Table 3-6 provides the Project annual HAP potential to emit.

Table 3-5: Annual Potential Criteria Pollutant and HAP Emissions from Associated Equipment

	Annual Emission Rates (tons/yr)									
	TSP[1]	PM_{10}[1]	$PM_{2.5}$[1]	NO_x	CO	VOC	SO_2	H_2SO_4	Lead	CO_2e[2]
Combined-Cycle Unit 7, natural gas 7,560 hours/year	46.4	101.1	101.1	184.0	189.2	110.2	35.7	54.70	0.011	2,751,377
Combined-Cycle Unit 8, natural gas 7,560 hours/year	46.4	101.1	101.1	184.0	189.2	110.2	35.7	54.70	0.011	2,751,377
Combined-Cycle Unit 9, natural gas 7,560 hours/year	46.4	101.1	101.1	184.0	189.2	110.2	35.7	54.70	0.011	2,751,377
Combined-Cycle Unit 10, natural gas 7,560 hours/year	46.4	101.1	101.1	184.0	189.2	110.2	35.7	54.70	0.011	2,751,377
Combined-Cycle Unit 7, distillate oil 1,200 hours/year	22.6	28.0	28.0	44.9	68.2	51.4	3.5	5.40	0.029	341,157
Combined-Cycle Unit 8, distillate oil 1,200 hours/year	22.6	28.0	28.0	44.9	68.2	51.4	3.5	5.40	0.029	341,157
Combined-Cycle Unit 9, distillate oil 1,200 hours/year	22.6	28.0	28.0	44.9	68.2	51.4	3.5	5.40	0.029	341,157
Combined-Cycle Unit 10, distillate oil 1,200 hours/year	22.6	28.0	28.0	44.9	68.2	51.4	3.5	5.40	0.029	341,157
4, 1,500 kW Emergency Generators	0.29	0.29	0.29	8.9	5.1	0.5	0.011	--	7.07E-05	826
2, 500 kW Emergency Generators	0.05	0.05	0.04	1.5	0.86	0.08	0.002	--	1.18E-05	138
2 350 hp Fire Water Pump Engines	0.06	0.06	0.06	1.2	1.0	1.2	0.002	--	1.45E-05	169
4 Gas Heaters	0.72	0.72	0.72	1.6	11.2	1.5	0.212	--	7.40E-05	17,665
4 10-cell Cooling Towers	2.2	2.0	0.02	--	--	--	--	--	--	--
4 Distillate Oil Storage Tanks	--	--	--	--	--	1.10	--	--	--	--
Facility Total Emissions	**279.2**	**519.4**	**517.4**	**929.0**	**1,047.8**	**649.6**	**157.2**	**240.4**	**0.16**	**12,388,934**
PSD Significant Emission Rate (ton/yr)	25	15	10	40	100	40	40	7	0.6	75,000
Subject to PSD Review?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	No	**Yes**

(1) TSP is filterable PM emissions only. PM_{10} and $PM_{2.5}$ includes both filterable and condensable PM emissions.

(2) CO_2e is the number of tons of CO_2 emissions with the same global warming potential as one ton of another greenhouse gas. CO_2e includes CO_2 emissions, CH_4 emissions as CO_2e, and N_2O emissions as CO_2e.

Table 3-6: Annual Project Potential to Emit of HAP

Emission Source	HAP PTE (tpy)
Combined-Cycle Units 7-10	62.1
Other Associated Equipment	0.47
Combined HAP	62.6
Largest Single HAP	21.9 (Formaldehyde)

4. Regulatory Review

This section identifies the state and federal air quality rules and regulations that govern construction and operation of the proposed Project. Specifically, the following were reviewed:

- Georgia Rules for Air Quality Control, including:
  - Emissions Limitations and Standards;
  - Prevention of Significant Deterioration of Air Quality;
  - Chemical Accident Prevention Provisions;
  - Compliance Assurance Monitoring;
  - Cross State Air Pollution Rule NOx and SO_2 Trading Programs;
  - Title V Operating Permits; and
  - Acid Rain
- Federal emissions standards, including:
  - New Source Performance Standards (NSPS)
  - National Emission Standards for Hazardous Air Pollutants (NESHAP)

Many of the state and federal rules and regulations listed above and discussed in the following sections are incorporated by reference into the Georgia Rules for Air Quality Control (Ga. Comp. R. & Regs. Chapter 391-3-1) or adopted as part of Georgia's State Implementation Plan (SIP) approved by EPA (40 CFR Part 52, Subpart L).

Unless discussed below, no other state or federal emission limitations or standards are potentially applicable to the proposed Project.

4.1 Georgia Rules for Air Quality Control

Ga. Comp. R. & Regs. Rule 391-3-1-.03(1) requires that any person, prior to beginning the construction or modification of any facility which may result in an increase in air pollution, obtain a permit for the construction or modification of such facility from the Director upon a determination by the Director that the facility can reasonably be expected to comply with all the provisions of the Georgia Air Quality Act and the rules and regulations promulgated thereunder.

The proposed CC units, cooling towers, fuel gas heaters, distillate oil storage tanks, emergency generators, and fire water pump engines are potentially subject to one or more of the following state emission limitations and standards:

- 391-3-1.02(2)(b) – Visible Emissions
- 391-3-1.02(2)(d) – Fuel-Burning Equipment
- 391-3-1.02(2)(g) – Sulfur Dioxide
- 391-3-1.02(2)(n) – Fugitive Dust
- 391-3-1.02(2)(bb) – Petroleum Liquid Storage
- 391-3-1.02(2)(nn) – VOC Emissions from External Floating Roof Tanks
- 391-3-1.02(2)(tt) – VOC Emissions from Major Sources

- 391-3-1.02(2)(yy) – Emissions of NOx from Major Sources
- 391-3-1.02(2)(mmm) – NOx Emissions from Stationary Gas Turbines and Stationary Engines used to Generate Electricity
- 391-3-1.02(2)(nnn) – NOx Emissions from Large Stationary Gas Turbines
- 391-3-1.02(2)(rrr) – NOx Emissions From Small Fuel-Burning Equipment

Additionally, one or more of proposed sources associated with the Project are potentially subject to the following federal regulations adopted as part of the SIP or incorporated by reference into the Georgia Rules for Air Quality Control:

- 391-3-1.02(7) – Prevention of Significant Deterioration of Air Quality
- 391-3-1.02(10) – Chemical Accident Prevention Provisions
- 391-3-1.02(11) – Compliance Assurance Monitoring
- 391-3-1.02(12) – Cross State Air Pollution Rule NO_X Annual Trading Program
- 391-3-1.02(13) – Cross State Air Pollution Rule SO_2 Annual Trading Program
- 391-3-1.02(14) – Cross State Air Pollution Rule Ozone Season Trading Program
- 391-3-1.03(10) – Title V Operating Permits
- 391-3-1.13 – Acid Rain

4.1.1 391-3-1-.02(2)(b) Visible Emissions

Rule (b) limits the opacity of visible emissions from a source to less than 40% if the source is subject to some other emission limitation, other than a more stringent visible emissions limitation, in Ga. Comp. R. & Regs. Rule 391-3-1-.02(2). This standard applies to direct sources of emissions such as stationary structures, equipment, machinery, stacks, flues, pipes, exhausts, vents, tubes, chimneys, or similar structures.

Only the emergency generators and fire water pump engines are subject to Rule (b). Rule (b) does not apply to the cooling towers and distillate oil tanks because neither is subject to some other emission limitation in Ga. Comp. R. & Regs. Rule 391-3-1-.02(2). Additionally, as discussed below, the proposed CC units and fuel gas heaters are subject to a more stringent opacity standard in Rule 391-3-1-.02(2)(d)3.

The emergency generators and fire water pump engines are subject to Rules (g) or (mmm) as well as NSPS Subpart IIII. It is expected that the opacity of visible emissions from these sources will be less than 40% because these engines will be certified to meet the "smoke" opacity standards in 40 CFR 1039.105 as part of Tier 2 or 3 certification, as applicable.

4.1.2 391-3-1-.02(2)(d) Fuel-Burning Equipment

Rule(d) limits visible emissions, PM emissions, and NOx emissions from fuel-burning equipment.[4] The standards are based on construction date, maximum heat input capacity, and type of fuel(s) combusted.

[4] Fuel-burning equipment means *equipment the primary purpose of which is the production of thermal energy from the combustion of any fuel. Such equipment is generally that used for but not limited to, heating water, generating or super heating*

The emergency generators and fire water pump engines are not subject to Rule (d) because these engines will not produce thermal energy to furnish process heat indirectly (i.e., are not fuel-burning equipment). However, thermal energy from the proposed CC units and fuel gas heaters are used to generate steam or heat water, making them subject to Rule (d).

Rule (d) limits visible emissions from the proposed CC units and fuel gas heaters to less than 20% except for one six-minute period per hour of not more than 27% opacity. Allowable PM and NOx emissions for the proposed CC units and fuel gas heaters vary but are subsumed by the more stringent BACT limits proposed in Section 5 of this application.[5]

4.1.3 391-3-1-.02(2)(g) Sulfur Dioxide

Rule (g) limits SO_2 emissions from fuel-burning sources based on heat input capacity. This rule applies to all fuel burning sources, not just fuel-burning equipment subject to Rule (d).

For fuel-burning sources below 100 MMBtu/hr such as the proposed fuel gas heaters, emergency generators, and fire water pump engines, fuel sulfur content is limited to 2.5%, by weight. For those fuel-burning sources above 100 MMBtu/hr such as the combustion turbines and duct burners in the proposed CC units, fuel sulfur content is limited to 3.0%, by weight. In addition to the fuel sulfur content limit, allowable SO_2 emissions from the proposed CC units are 0.8 lb/MMBtu when firing distillate (liquid) oil in the combustion turbines.

The Rule (g) fuel sulfur content limits and SO_2 emission limitation will be subsumed by the more stringent BACT limits proposed in Section 5 of this application. Additionally, BACT will subsume the SO_2 emission limitation in the applicable NSPS for the proposed CC units discussed below. Similarly, the emergency generators and fire water pump engines will be subject to a more stringent fuel sulfur limit in NSPS Subpart IIII (0.0015% by weight) which has been proposed as BACT. GPC will comply with Rule (g) by using pipeline quality natural gas and distillate oil only.

4.1.4 391-3-1-.02(2)(n) Fugitive Dust

The fugitive dust rule applies to any operation, process, handling, transportation, or storage facility which has the potential to produce airborne dust. GPC will employ appropriate control methods and take precautions to limit fugitive dust emissions from the Project so as not to exceed 20% opacity.

4.1.5 391-3-1-.02(2)(bb) Petroleum Liquid Storage

Rule (bb) applies to fixed roof storage vessels with capacities exceeding 40,000 gallons which store petroleum liquids with true vapor pressure greater than 1.52 psia. Because distillate oil has a maximum true vapor pressure less than 1.52 psia (0.01 psia), Rule (bb) will not apply to the proposed distillate oil storage tanks.

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steam, heating air as in warm air furnaces, furnishing process heat indirectly, through transfer by fluids or transmissions through process vessel walls. See Ga. Comp. R. & Regs. Rule 391-3-1-.01(cc).

[5] Ga. Comp. R. & Regs. Rule 391-3-1-.02(2)(d)2.(iii) and (d)4.(iii) limit PM and NO_X emission from the proposed CC units to 0.1 lb/MMBtu and 0.2 lb/MMBtu, respectively, while (d)2.(i) limits PM emissions from the proposed fuel gas heaters to 0.5 lb/MMBtu.

4.1.6 391-3-1-.02(2)(nn) VOC Emissions from External Floating Roof Tanks

Rule (nn) establishes requirements for external floating roof tanks storing petroleum liquids with capacities exceeding 40,000 gallons. Because the proposed distillate oil storage tanks will be fixed roof tanks, Rule (nn) will not apply.

4.1.7 391-3-1-.02(2)(tt) VOC Emissions from Major Sources

Rule (tt) requires major sources of VOC emissions in counties originally designated nonattainment for the 1-hour ozone and 1997 8-hour ozone NAAQS to apply Reasonably Available Control Technology (RACT) to reduce VOC emissions from sources not covered by a Control Technique Guideline (i.e., non-CTG sources). All proposed sources associated with the Project are subject to VOC BACT, which should satisfy Rule (tt).

4.1.8 391-3-1-.02(2)(uu) Visibility Protection

This rule requires EPD to provide written notice of a permit application for a proposed major source or a major modification to an existing major stationary source that may have an impact on visibility in a Class I area. The notification must be provided to the federal land manager (FLM) and the federal official charged with direct responsibility for management of any land within any such area. A Class I analysis, along with all FLM correspondence, is provided in Volume II of this application.

4.1.9 391-3-1-.02(2)(vv) Volatile Organic Liquid Handling and Storage

Rule (vv) prohibits sources subject to other state VOC requirements and located in the former 20-county Atlanta ozone nonattainment area from transferring volatile organic liquids into storage tanks greater than 4,000 gallons unless the tank is equipped with submerged fill pipes. No other state VOC requirements apply to the proposed distillate oil storage tanks, so Rule (vv) is not applicable. However, submerged filling is proposed as BACT in Section 5 of this application.

4.1.10 391-3-1-.02(2)(yy) Emissions of NOx from Major Sources

Similar to Rule (tt), Rule (yy) regulates NOx emissions from major sources in the metro Atlanta area. However, this rule does not apply to sources subject to Rules (jjj), (lll), (mmm), or (nnn) or individual equipment with *de minimis* emissions (potential emissions of NOx emissions less than 1 tpy).

The proposed CC units are subject to Rule (nnn) and the proposed emergency generators are subject to Rule (mmm). Additionally, the proposed fuel gas heaters and fire water pump engines will each have *de minimis* emissions of NOx. Therefore, Rule (yy) is not applicable to any source associated with the Project.

4.1.11 391-3-1-.02(2)(lll) NOx Emissions from Fuel-Burning Equipment

Rule (lll) sets NOx limits for fuel-burning equipment with heat input capacities between 10 and 250 MMBtu/hr located in a 45-county area in and around metro Atlanta. It applies between May 1 through September 30 of each year and provides that NOx emissions must not exceed 30 ppm at 3% oxygen on a dry basis.

None of the proposed fuel-burning equipment associated with the Project is subject to this rule. The proposed fuel gas heaters will each have a heat input capacity less than 10 MMBtu/hr. Additionally, duct burners associated with a combined cycle gas turbine are exempt from this rule under 391-3-1-.02(2)(lll)6.(ii).

4.1.12 391-3-1-.02(2)(mmm) NOx Emissions from Stationary Gas Turbines and Stationary Engines used to Generate Electricity

Rule (mmm) establishes ozone season NOx emission limits on stationary gas turbines and stationary engines with nameplate output capacities between 100 kWe and 25 MWe used for electricity generation and located in certain counties.

This rule is not applicable to the proposed CC units because they are too large. Additionally, the fire water pump engine will be exempt from the provisions of this rule because it will not be used to generate electricity. However, this rule will apply to the emergency generator, which will not be operated more than 200 hours per year to comply.

4.1.13 391-3-1-.02(2)(nnn) NOx Emissions from Large Stationary Gas Turbines

Rule (nnn) establishes ozone-season NOx emissions limits for large stationary gas turbines located in specified counties in the metro Atlanta area and requires each of the proposed CC units to emit no more than 6 ppm NOx, corrected to 15% oxygen, on a 30-operating day rolling average during the period May 1 through September 30 of each year. Each of the proposed CC units will include an SCR system that will reduce NOx emissions to 2 ppm at 15% oxygen when firing natural gas and to 5 ppm at 15% oxygen when firing oil. Therefore, the proposed CC units will satisfy the requirements of Rule (nnn).

4.1.14 391-3-1-.02(2)(rrr) NOx Emissions from Small Fuel-Burning Equipment

Rule (rrr) regulates NOx emissions from small fuel-burning equipment in the metro Atlanta area and requires that small fuel-burning equipment be fired only with natural gas, propane, or LPG, and requires a tune-up of equipment to be performed annually. This rule applies to individual fuel-burning equipment with a maximum design heat input capacity of less than 10 MMBtu/hr and potential emissions of NOx equal to or greater than one ton per year. As shown in Appendix C, Table C-9, the proposed fuel gas heaters will each have potential NOx emissions less than one ton per year and thus will not be subject to this rule.

4.1.15 391-3-1-.02(7) Prevention of Significant Deterioration of Air Quality

Georgia has adopted a regulatory program for PSD permits in Ga. Comp. R. & Regs. 391-3-1-.02(7) which the EPA has approved as part of Georgia's SIP. Accordingly, Georgia EPD issues PSD permits for new major sources and major modification pursuant to the requirements of Georgia's regulations.

The PSD review requirements apply to any new or modified source which belongs to one of 28 specific source categories having potential emissions of 100 tons per year or more of any regulated pollutant, or all other sources having potential emissions of 250 tons per year or more of any regulated pollutant (a "major stationary source"); or a modification of a major stationary source which results in a significant net emission increase of any regulated pollutant (a "major modification").

The PSD regulations require that any major stationary source or major modification meet the following requirements:

- Application of BACT for each regulated pollutant that would increase by a significant amount as a result of the Project.
- Analysis of the source's ambient air impact.
- Analysis of existing ambient air quality.
- Analysis of the impact on soils, vegetation, and visibility.
- Analysis of the impact on Class I areas.
- Public notification of the proposed plant in a newspaper of general circulation.

This Volume I of the application includes a discussion of PSD applicability in Section 1 and a BACT analysis in Section 5. All other analyses are provided in Volume II of the application.

4.1.16 391-3-1-.02(10) Chemical Accident Prevention Provisions

Chemical Accident Prevention Provisions are codified in 40 CFR Part 68 and incorporated by reference into Ga. Comp. R & Regs. 391-3-1-.02(10). Plant Bowen is currently subject to the chemical accident prevention provisions because anhydrous ammonia, used in the existing SCR systems, is stored onsite above the threshold quantity. The proposed CC units will also utilize SCR as NOx control, which will increase the quantity of anhydrous ammonia stored onsite.

Facilities subject to 40 CFR Part 68 are required to submit and maintain a Risk Management Plan (RMP) pursuant to Subpart G. Plant Bowen has a current RMP on file (Facility ID 100000175268). Changes resulting from the Project are expected to require resubmittal of the RMP. GPC will resubmit the RMP within six months of the changes, which are expected to require a revised process hazard analysis (PHA) and offsite consequence analysis (OCA), as required by 40 CFR 68.190(b)(5) and (6). GPC will continue to comply with the requirements.

4.1.17 391-3-1-.02(11) Compliance Assurance Monitoring

Compliance Assurance Monitoring (CAM) is codified in 40 CFR Part 64 and incorporated by reference into Ga. Comp. R & Regs. 391-3-1-.02(11). Under CAM, facilities are required to prepare and submit monitoring plans (i.e., CAM plans) for certain emission units that use a control device to achieve compliance with an emission limit and whose pre-controlled emissions levels exceed the major source thresholds under the Title V permitting program. However, CAM does not apply to the following types of emissions limits or standards:

- established after November 15, 1990 pursuant to section 111 or 112 of the Act;
- establishing stratospheric ozone protection requirements under title VI of the Act;
- establishing Acid Rain Program requirements pursuant to sections 404, 405, 406, 407(a), 407(b), or 410 of the Act;
- that applies solely under an emissions trading program approved by the Administrator under the Act;
- for which a part 70 or 71 permit specifies a continuous compliance determination method, as defined in 64.1.

The proposed CC units will be subject to CAM for the NO_X BACT limit proposed in Section 5 of this application. Rule (nnn) and the applicable NSPS each require the proposed CC units to be equipped with a NOx CEMS to monitor compliance. GPC is proposing to utilize the NO_X CEMS as a CAM indicator to provide reasonable assurance of continuous compliance.

The proposed CC units will also be subject to CAM for the proposed CO and VOC BACT emissions limits. For CO and VOC, GPC is proposing to monitor the concentrations of CO and O_2 using CEMS with the use of CO as a surrogate for VOC as CAM. This approach provides a direct measurement for the CO emission limit, as well as indirect assurance that VOC emissions are within their permitted limitation, because the formation and removal of these two pollutants are related.

The required CAM forms are provided in Appendix D.

4.1.18 391-3-1-.02(12), (13), and (14) Cross State Air Pollution Rule NOx Annual, SO_2 Annual, and Ozone Season Trading Programs

The Cross-State Air Pollution Rule (CSAPR) requires states to address interstate transport of NOx and SO_2 emissions that affect downwind states' ability to attain and maintain the ozone and $PM_{2.5}$ NAAQS. CSAPR requirements include compliance with annual NOx, seasonal NOx (May 1 through September 30), and annual SO_2 emission allowance programs and are codified at 40 CFR 97 and Ga. Comp. R & Regs. 391-3-1-.02(12) through Ga. Comp. R & Regs. 391-3-1-.02(14)

The proposed CC units will be subject to this rule. GPC will hold sufficient allowances to cover NOx and SO_2 emissions and will comply with the monitoring, recordkeeping, and reporting requirements set forth by CSAPR, including the installation, certification, operation, and maintenance of CEMS and fuel flow meters for the proposed CC units.

4.1.19 391-3-1-.03(1) and (2) Construction and Operation (SIP) Permit

SIP permitting requirements apply to facilities performing construction and modification activities that are not exempt under Ga. Comp. R & Regs. 391-3-1-.03(6). The Project will involve construction activities to install the proposed CC units, cooling towers, fuel gas heaters, emergency generators, and fire water pump engines. As discussed in Section 4.2, PSD permitting is required for multiple pollutants. Therefore, a construction permit application is necessary, and the appropriate forms are included in Appendix A.

4.1.20 391-3-1-.03(10) Title V Operating Permits

Plant Bowen is an existing Title V source and operates under Permit No. 4911-015-0011-V-04-0 and its subsequent amendments. This application requests a significant modification with construction (PSD) to the plant's Title V permit and contains copies of the electronic attachments to the GEOS application in Appendix A.

4.1.21 391-3-1-.13 Acid Rain

The Acid Rain regulations set a cap on SO_2 emissions from power plants by allocating a fixed number of allowances to units subject to the program. At the end of each year, a unit must surrender allowances in an amount equal to the number of tons of SO_2 emitted. Unused allowances may be sold to offset the cost of compliance or saved, i.e., banked, for future use. Initial allowance allocations were received in 1995 when Phase I of the program began. When Phase II began in 2000, the number of allowances available was reduced to limit SO_2 emissions to 50% below 1980 levels by 2010. The regulations also set emission rate limitations on NOx emissions from coal units, which can be met by individual units or by a group of units under an averaging plan.

The proposed CC units are subject to the Acid Rain regulations for permits, sulfur dioxide, and monitoring in 40 CFR Parts 72, 73, and 75, respectively. An Acid Rain permit application must be submitted 24 months before the units commence commercial operation and include the deadline for monitoring certification. The Acid Rain permit application is provided in Appendix A and is submitted in a separate GEOS application.

GPC will operate in compliance with applicable provisions of the Title IV Acid Rain rules as adopted by reference in Ga. Comp. R & Regs. 391-3-1-.13. GPC will meet the applicable Acid Rain requirements that become effective after the issuance of the Acid Rain permit and will include the new units in its Title IV Acid Rain monitoring plan, as required under 40 CFR Part 72.

4.2 New Source Performance Standards (40 CFR Part 60)

In additional to the General Provisions provided in 40 CFR Part 60, Subpart A, the NSPS subparts potentially applicable to the Project include:

- Standards of Performance for Fossil-Fuel-Fired Steam Generators (Subpart D)
- Standards of Performance for Electric Utility Steam Generating Units (Subpart Da)
- Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units (Subpart Db)
- Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units (Subpart Dc)
- Volatile Organic Liquid Storage Vessels (Including Petroleum Liquids Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After October 4, 2023 (Subpart Kc)
- Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (Subpart IIII)
- Standards of Performance for Stationary Combustion Turbines (Subpart KKKK)
- Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units (Subpart TTTT)
- Standards for Greenhouse Gas Emissions from New, Modified, and Reconstructed Fossil Fuel-Fired Electric Utility Generating Units (Subpart TTTTa)

Unless discussed below, no other NSPS are potentially applicable to the proposed Project.

4.2.1 40 CFR 60 Subpart A – General Provisions

All affected sources which are subject to a NSPS under 40 CFR Part 60 are subject to the general provisions of 40 CFR Part 60 Subpart A, unless those provisions are specifically excluded by an applicable source-specific NSPS. The general provisions contain initial notification, performance testing, monitoring, and recordkeeping requirements for the subparts, as applicable.

4.2.2 40 CFR 60 Subpart D – Standards of Performance for Fossil-Fuel-Fired Steam Generators

NSPS Subpart D applies to fossil fuel-fired steam generating units with heat input capacities greater than 250 MMBtu/hr that were constructed or modified after August 17, 1971. The proposed CC units and fuel gas heaters are not subject to NSPS Subpart D because (1) the combustion turbines and fuel gas heaters do not meet the definition of "fossil-fuel-fired steam generation unit" and (2) the duct burners are regulated under another NSPS.[6]

4.2.3 40 CFR 60 Subpart Da – Standards of Performance for Electric Utility Steam Generating Units

NSPS Subpart Da applies to fossil-fired electric utility steam generating units with heat input capacities greater than 250 MMBtu/hr that have been constructed, modified, or reconstructed after September 18, 1978. The proposed CC units and fuel gas heaters are not subject to NSPS Subpart Da because the proposed combustion turbines and fuel gas heaters are not part of the affected facility subject to this standard and the duct burners are regulated under another NSPS.

4.2.4 40 CFR 60 Subpart Db – Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units

NSPS Subpart Db applies to steam generating units with heat input capacities greater than 100 MMBtu/hr that have been constructed, modified, or reconstructed after June 19, 1984. The proposed CC units and fuel gas heaters are not subject to NSPS Subpart Db because (1) the combustion turbines and duct burners are regulated under another NSPS and (2) the fuel gas heaters each have a heat input capacity less than 100 MMBtu/hr.

4.2.5 40 CFR 60 Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

NSPS Subpart Dc applies to steam generating units with maximum heat input capacities between 10 and 100 MMBtu/hr that have been constructed, modified, or reconstructed after June 9, 1989. The proposed CC units and fuel gas heaters are also not subject to NSPS Subpart Dc because (1) the combustion turbines and duct burners are regulated under another NSPS and (2) the fuel gas heaters have a heat input capacity less than 10 MMBtu/hr.

4.2.6 40 CFR 60 Subpart Kc – Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After October 4, 2023

NSPS Subpart Kc applies to storage vessels with a capacity greater than 20,000 gallons that are used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced

[6] The proposed CC units are exempt from D-series NSPS since the emissions from the combustion turbines and duct burners are regulated under NSPS Subpart KKKK. See exemptions at 40 CFR 60.40(e), 60.40a(e)(1), 60.40b(i), and 60.40c(e). EPA has proposed to maintain these exemptions in NSPS Subpart KKKKa. *See* footnote 7.

after July 23, 1984. The proposed Project will have storage tanks for the distillate oil that will be used for the proposed CC units, emergency generators, and fire water pump engines.

Pursuant to 40 CFR 60.110c(b)(8), the requirements of NSPS Kc do not apply to storage vessels of any size storing a liquid with a maximum true vapor pressure less than 0.25 psia. The maximum true vapor pressure of distillate oil will be much less than 0.25 psia (~0.01 psia). Therefore, the proposed distillate oil storage tanks associated with the Project will not be subject to the requirements of this subpart.

4.2.7 40 CFR 60 Subpart IIII – Standards of Performance for Stationary Combustion Turbines

NSPS Subpart III is applicable to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE). A CI engine, or diesel engine, is a type of engine in which the fuel injected into the combustion chamber is ignited by heat resulting from the compression of gases inside the cylinder.

The emergency generators and fire water pump engines will be subject to the emission standards in this subpart. GPC will comply with the emission standards by purchasing engines certified by the manufacturer to the emission standards in 40 CFR 60.4202, as applicable, for the same model year and maximum engine power. The emergency generators will be subject to Tier 2 standards and the fire water pump engines will be subject to Tier 3 standards under Subpart IIII and 40 CFR Part 1039. GPC will comply with all applicable Subpart IIII monitoring, recordkeeping, and reporting requirements. Because the engines will be designated and operated as emergency engines, they will only be operated in emergency circumstances and for a maximum of 100 hours per year for maintenance and readiness testing, 50 hours of which may be used in non-emergency situations.

4.2.8 40 CFR 60 Subpart KKKK – Standards of Performance for Stationary Combustion Turbines

NSPS Subpart KKKK establishes NO_X and SO_2 emission standards for stationary combustion turbines that commence construction, modification, or reconstruction after February 18, 2005, and have a heat input at peak load equal to or greater than 10 MMBtu/hr, on a higher heating value (HHV) basis. The proposed CC units will be subject to this rule.[7]

The proposed CC units will be subject to NO_X emission standards of 15 ppm, corrected to 15% O_2, or 0.43 lb/MWh, when firing natural gas; 42 ppm, corrected to 15% O_2, or 1.3 lb/MWh, when firing distillate oil; and 96 ppm, corrected to 15% O_2, or 4.7 lb/MWh, when firing either fuel, based on a 30-operating day rolling average. The provisions of 40 CFR 60.4380(b)(3) describe how the applicable standard is determined when multiple standards apply during an operating hour and 30-day operating period.

[7] EPA recently proposed new standards of performance for stationary combustion turbines, which will be contained in NSPS Subpart KKKKa. 89 Fed. Reg. 101306 (December 13, 2024). If finalized, the proposed CC units will be subject to new standards because construction will commence after publication of the proposal. In NSPS Subpart KKKKa, EPA proposes to maintain the same SO_2 emission standards but to lower the applicable NO_X standards to 3 ppm while firing natural gas and 5 ppm while firing distillate oil. EPA also proposed changing the form of the NO_X standard to an equivalent heat input-based standard (lb/MMBtu) and reducing the averaging period for CC units to a 4-hour rolling average. However, compliance with the output-based standards (lb/MWh) may still be demonstrated on a 30-operating day rolling average.

The proposed CC units will also be subject to an SO_2 emission standard of 0.9 lb/MWh, or a fuel sulfur limit equivalent to 0.06 lb SO_2/MMBtu heat input.

GPC will comply with the NO_X and SO_2 standards in NSPS Subpart KKKK by equipping the proposed CC units with combustion controls, e.g., DLN and water injection, and SCR and by exclusive use of natural gas or distillate oil as fuel.

4.2.9 40 CFR 60 Subpart TTTTa – Standards of Performance for Greenhouse Gas Emissions for Modified Coal-fired Steam Electric Generating Units and New Construction and Reconstruction Stationary Combustion Turbine Electric Generating Units

NSPS Subpart TTTTa establishes GHG emission standards for stationary combustion turbines that commence construction or reconstruction after May 23, 2023, have a base load rating greater than 250 MMBtu/hr, and serve a generator capable of selling more than 25 MW of electricity to a utility power distribution system. Under this subpart, one of three CO_2 standards may apply depending on capacity factors (net generation) during both the previous 12 operating months and 36 calendar months (3-year rolling). When the capacity factors are more than 20% but less than or equal to 40%, a sliding-scale emission standard of 1,170 to 1,560 lb/MWh-gross applies. If the capacity factors are more than 40%, a sliding-scale emission standard of 800 to 1,250 lb/MWh-gross applies before 2032, after which the standard is lowered to as low as 100 lb/MWh-gross.[8] However, when the capacity factors are 20% or less, all that is required is combustion of low-emitting fuels such as natural gas and distillate oil.

The standards in NSPS Subpart TTTTa have been challenged by a coalition of 25 states, including Georgia, in the United States Court of Appeals for the District of Columbia (D.C. Circuit).[9] In addition, President Trump signed an Executive Order on January 20, 2025, entitled “Unleashing American Energy,” that requires all agencies to review all regulations that burden domestic energy production, which applies to Subpart TTTTa due to the burdens that would be imposed by the requirement to install and operate a carbon capture system on all new baseload combustion turbines. If Subpart TTTTa is vacated or repealed, the applicable NSPS will be Subpart TTTT, which imposes a CO_2 emission standard of 1,000 lb/MWh-gross.

4.3 National Emission Standards for Hazardous Air Pollutants (40 CFR Part 63)

The facility is currently classified as an existing major source of HAPs (having potential emissions greater than 25 tpy of total HAP and/or 10 tpy of individual HAP), and the emission units constructed as part of the Project will be subject to the provisions of several subparts of 40 CFR Part 63. Georgia EPD has incorporated these rules by reference under Ga. Comp. R & Regs. 391-3-1-.02(9). An analysis of the applicability of each of the potentially applicable subparts is provided below. In addition to the General

[8] The lower standard that applies after 2032 is based on use of carbon capture and storage (CCS) as BSER. GPC has determined CCS to be technically infeasible within the BACT context since capture cannot reasonably be installed on the proposed CC units and transportation infrastructure (e.g., CO_2 pipelines) for storage is not available. However, CCS remains a promising technology and economic support, such as funding and incentives included in the IIJA and the IRA, are expected to be instrumental in moving this technology further along the development spectrum.

[9] *West Virginia v. EPA*, No. 24-1120.

Provisions provided in 40 CFR Part 63, Subpart A, the NESHAP subparts potentially applicable to the Project include:

- National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines (Subpart YYYY)
- National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (Subpart ZZZZ)
- National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters (Subpart DDDDD)

Unless discussed below, no other NESHAP are potentially applicable to the proposed Project.

4.3.1 40 CFR 63 Subpart A – General Provisions

All affected sources which are subject to a NESHAP under 40 CFR Part 63 are subject to the general provisions of Subpart A unless those provisions are specifically excluded by an applicable source-specific NESHAP. In most cases, a NESHAP promulgated after March 1994 includes a table that cross-references the general provisions, showing which general provisions sections are relevant to it.

4.3.2 40 CFR 63 Subpart YYYY – National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines

This subpart applies to stationary combustion turbines located at major sources of HAP. The proposed CC units will be subject to this rule. The proposed CC units will be subject to a formaldehyde emission limit of 91 ppbvd, corrected to 15% O_2, and other associated requirements, including an initial notification and annual testing. GPC will comply with the requirements of this subpart by equipping the proposed CC units with oxidation catalysts.

4.3.3 40 CFR 63 Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

This subpart establishes emission limitations and work practice standards for stationary reciprocating internal combustion engines (RICE) located at both major and area sources of HAP emissions. The emergency generators and fire water pump engines will be subject to RICE MACT. Because the emergency generators are new stationary emergency stationary RICE with a site rating of more than 500 hp and will be located at a major source, only initial notification under 40 CFR 63.6645(f) is required according to 40 CFR 63.6590(b)(1)(i). According to 40 CFR 63.6590(c)(6), the fire water pump engines will comply with the requirements of this subpart by complying with NSPS Subpart IIII. No initial notification is required for the fire water pump engines.

4.3.4 40 CFR 63 Subpart DDDDD – National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters

This subpart establishes emission limitations and work practice standards for industrial, commercial, and institutional boilers and process heaters located at major sources of HAP. "Process heaters" are defined in 40 CFR 63.7575 as *"…an enclosed device using controlled flame, and the unit's primary purpose is to transfer heat indirectly to a process material (liquid, gas, or solid) or to a heat transfer material (e.g., glycol* *or a mixture of glycol and water) for use in a process unit, instead of generating steam. Process heaters are devices in which the combustion gases do not come into direct contact with process materials."*

The proposed fuel gas heaters are considered "process heaters" for purposes of this subpart. The proposed fuel gas heaters are part of the "designed to burn gas 1 subcategory" and have a heat input rating of less than 10 MMBtu/hr. Therefore, pursuant to 40 CFR 63.7500(e), the proposed fuel gas heaters are not subject to the emission limits in Tables 1 and 2 or 11 through 13, or the operating limits in Table 4. However, the proposed fuel gas heaters are subject to the work practice standard outlined in Table 3, which requires a biennial tune-up every two years unless the unit has a continuous oxygen trim system, in which case tune-ups can be conducted every five years.

5. Control Technology Review

5.1 Technical Approach

5.1.1 Overview

PSD regulations require BACT for each new major source or major modification at an existing major source. As described in Section 3 of this application, the potential emissions increases associated with the Project trigger PSD review for PM, PM_{10}, $PM_{2.5}$, NO_X, CO, VOC, SO_2, H_2SO_4, and GHG.

Federal PSD regulations, as incorporated by reference in Georgia Rule 391-3-1-.02(7), define BACT as:

> *"…an emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under the Act which would be emitted from any proposed major stationary source or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant. In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 40 CFR part 60, 61, or 63. If the Administrator determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard, or combination thereof, may be prescribed instead to satisfy the requirement for the application of best available control technology. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice or operation, and shall provide for compliance by means which achieve equivalent results."*

The BACT determinations summarized below are conducted in accordance with EPD and EPA guidance, including Georgia EPD's PSD permit application guidance[10] and EPA's NSR workshop manual.'[11]

[10] Georgia EPD, *PSD Permit Application Guidance Document* (revised February 2017). Available at https://epd.georgia.gov/air-protection-branch-technical-guidance-0/types-air-quality-permits/prevention-significant

[11] U.S. EPA, *Draft New Source Review Workshop Manual* (October 1990). Available at https://www.epa.gov/sites/default/files/2015-07/documents/1990wman.pdf.

5.2 Combined Cycle BACT Review

5.2.1 Nitrogen Oxides

5.2.1.1 *Formation*

NO_X emissions from the proposed CC units generally consist of two components: oxidation of atmospheric nitrogen in the combustion air (thermal NO_X and prompt NO_X) and conversion of fuel bound nitrogen (fuel NO_X). Most NO_X emissions initially form as nitric oxide (NO) when generated by the combustion processes. NO emissions are then further oxidized "in-stack" and in the atmosphere to the more stable NO_2 molecule.

Thermal NO_X results from the oxidation of atmospheric nitrogen during high temperature combustion and its formation is primarily a function of combustion temperature, residence time, and air/fuel ratio.

Prompt NO_X is formed near the combustion flame front in the oxidation of intermediate combustion products. Prompt NO_X comprises a small portion of total NO_X in conventional near stoichiometric combustors but increases during fuel-lean conditions. Prompt NO_X, therefore, is an important consideration with respect to low-NO_X combustors that use lean fuel mixtures. Prompt NO_X levels may also become significant with ultra-low-NO_X burners.

Fuel NO_X occurs when non-elemental nitrogen contained in the fuel is oxidized. Unlike thermal NO_X, fuel NO_X formation is less dependent on combustion variables such as temperature or residence time. Currently, there are pre-combustion fuel treatment technologies or combustion controls available to reduce fuel NO_X emissions. For this reason, certain NO_X emissions standards contain an allowance for fuel-bound nitrogen (FBN) as part of the emissions limit.[12]

NO_X emissions from combustion sources fired with distillate oil are typically higher than from those fired with natural gas due to higher combustion flame temperatures and FBN. Natural gas may contain molecular nitrogen (N_2); however, the molecular nitrogen found in natural gas does not contribute significantly to fuel NO_X formation. Natural gas generally contains a negligible amount of fuel-bound nitrogen.

5.2.1.2 *Step 1 – Identify Control Options for Evaluation*

To identify potentially available control options for NO_X emissions from the proposed CC units, GPC reviewed the following resources:

- NO_X BACT determinations for large (>25 MW) natural gas-fired and distillate oil-fired CC units permitted in the last 10 years (i.e., since 2014) contained in RBLC;
- Permits and associated applications, if available, for large (>25 MW) CC units not found in RBLC but:

[12] For example, see NSPS Subpart GG, 40 CFR 60.332(a)(1) through (4).

- Listed as commencing commercial operation within the last five years (i.e., since 2019) in EPA's National Electric Energy Data System (NEEDS) database (11 additional facilities);[13]
- Listed as planned and under construction in EIA's Annual Electric Power Industry Report, Form EIA-860 (three additional facilities);[14]

- New and proposed federal and state emissions standards; and
- Interviews with original equipment manufacturers (OEMs) and owner/operators of similar large, advanced class CC units.

The results of the RBLC searches for natural gas-fired CC units are provided in Appendix E, Table E-1, while summaries of our reviews of the permits issued to the facilities identified in both NEEDS and EIA-860 are provided in Appendix E, Table E-2. Similarly, the results for distillate oil-fired CC units are provided in Appendix E, Tables E-3 and E-4.

Potentially available control options to reduce NO_X emissions from the proposed CC units include combustion controls, such as dry low-NO_X (DLN) combustors and water or steam injection, and post-combustion add-on controls, such as selective noncatalytic reduction (SNCR), nonselective catalytic reduction (NSCR), and selective catalytic reduction (SCR).[15] Each is discussed in the following sections.

Water or Steam Injection

Water or steam injection was determined by EPA to be the best technology to reduce NO_X emissions from stationary CT units when the national emissions standards for this source category were first established in 1977.[16] This control option involves the injection of water or steam into the combustor to decrease peak combustion temperature. The injected water or steam acts as a heat sink by diluting the combustion gas and absorbing heat needed to vaporize water. In doing so, peak flame temperature, combustion zone residence time, free oxygen, and thermal NO_X are all reduced.

Dry Low NOx Combustors

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[13] Available at https://www.epa.gov/system/files/documents/2024-08/needs-rev-06-06-2024.xlsx. The following facilities without RBLC entries were identified in NEEDS as having commenced commercial operation within the last five years: AES Huntington Beach, Alamitos Energy Center, Bridgeport Energy, LLC, Big Bend Station, Mankato Energy Center, R D Morrow Sr Generating Plant, Asheville Combined Cycle Plant, Cricket Valley Energy, Birdsboro Power LLC, Hickory Run Energy Station, and West Riverside Energy Center.

[14] Available at https://www.eia.gov/electricity/data/eia860/xls/eia8602023.zip. The following facilities without RBLC entries were identified in EIA-860 as planned and under construction: Magnolia Power, Shady Hills Combined Cycle Facility, and Trumbull Energy Center.

[15] GPC notes that multipollutant catalytic post-combustion add-on controls, such as EM_X™ (second-generation $SCONO_X$ absorber technology) and METEOR™ have been used to reduce emissions of NO_X, CO, and VOC from combined cycle technology. However, as described elsewhere in this BACT analysis, separate catalytic controls for NO_x and CO/VOC are identified as the top control option and proposed as BACT making evaluation of multipollutant catalysts unnecessary. Additionally, having separate catalytic systems allows GPC flexibility to replace the catalysts at different frequencies to optimize ongoing maintenance costs and emissions performance.

[16] 42 Fed. Reg. at 53782 and 53785 (Oct. 3, 1977).

Combustion controls that utilize combustor design and/or operational features to reduce NO_X emissions without injecting an inert diluent (water or steam) are generically referred to as “dry” low-NO_X (DLN) measures. Design features of DLN combustors are vendor-specific, but generally seek to reduce thermal NO_X formation by controlling peak combustion temperature, combustion zone residence time, and combustion zone free oxygen concentration. Designs include staged combustion and pre-mixing air and fuel prior to injection into the combustion zone. DLN measures produce a lean, pre-mixed flame that burns at a lower temperature with less excess oxygen than conventional combustors.[17]

Selective Noncatalytic Reduction

SNCR involves the gas phase reaction of NO_X with ammonia or urea injected into the exhaust gas stream in the absence of a catalyst to yield nitrogen and water vapor. Ammonia or urea must be injected into the exhaust gas stream at a location specifically chosen to achieve the optimum reaction temperature and residence time. The overall reaction schemes for both ammonia and urea systems can be expressed as follows:

$$CO(NH_2)_2 + 2\ NO + \tfrac{1}{2}O_2 = 2N_2 + CO_2 + 2\ H_2O \qquad (1)$$

$$4\ NH_3 + 6NO = 5N_2 + 6\ H_2O \qquad (2)$$

Typical removal efficiencies for SNCR range from 30 percent to 50 percent and higher when coupled with combustion controls.[18] An important consideration for SNCR is operating temperature range. The temperature range required for this control option to be effective is approximately 1,600 to 2,000°F.[19] Operation at temperatures below this range results in ammonia slip. Operation at temperatures above this range results in oxidation of ammonia, forming additional NO_X emissions. Therefore, the SNCR injection system must be located such that operating temperatures are within the identified range.

Nonselective Catalytic Reduction

NSCR simultaneously reduces NO_X, CO, and VOC to water, carbon dioxide, and nitrogen over a catalyst without injection of a reagent such as ammonia. The conversion occurs in two sequential steps, with the reactions for CO and VOC occurring first since they more readily react with oxygen than with NO_X. However, to ensure NO_X reduction in the second step, this control option must be applied to exhaust gas streams with low oxygen content (less than 0.5% O_2).

Selective Catalytic Reduction

[17] Currently, pre-mixing distillate oil and air is not an available control option. As such, water/steam injection is typically employed as a combustion control to control NO_X emissions during oil-firing.

[18] U.S. EPA, Clean Air Technology Center, Air Pollution Control Technology Fact Sheet: Selective Non-Catalytic Reduction (SNCR), EPA-452/F-03-031. Available at https://www3.epa.gov/ttncatc1/dir1/fsncr.pdf.

[19] *Id.*

SCR is a post-combustion control which involves the gas phase reaction of NO_X with ammonia or urea injected into the exhaust gas stream in the presence of a catalyst to yield nitrogen and water vapor. The SCR process converts NO_X to nitrogen and water vapor by the following chemical reactions:

$4\ NO + 4\ NH_3 + O2 \rightarrow 4\ N_2 + 6\ H_2O$ (1)

$6\ NO + 4\ NH_3 \rightarrow 5\ N_2 + 6\ H_2O$ (2)

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

$6\ NO_2 + 8\ NH_3 \rightarrow 7\ N_2 + 12\ H_2O$ (4)

$NO + NO_2 + 2\ NH_3 \rightarrow 2\ N_2 + 3\ H_2O$ (5)

A catalyst is required to lower the activation energy at which NOx decomposition occurs. Technical factors that must be considered with this control option include increased turbine backpressure, thermal considerations for structures and materials including shock/stress during startup, catalyst masking/blinding, reported catalyst failure due to “crumbling,” design of the ammonia injection system, and ammonia slip.

SCR is capable of NO_X reduction efficiencies in the range of 70 to 90%. For most SCR catalyst configurations, the optimum operating temperature of the system is between 480 and 800°F.[20]

5.2.1.3 *Step 2 – Eliminate Technically Infeasible Control Options*

Use of Water/Steam Injection and DLN Combustors

Use of DLN combustors and water injection is inherent to the Project and technically feasible.

Selective Non-catalytic Reduction

SNCR is not a technically feasible control option for NO_X emissions from the proposed CC units since it has not been demonstrated in practice and is not both an available *and* applicable control option. GPC is unaware of any case in which SNCR has been installed and operated successfully on the type of source under review; in the utility industry, this control option is typically applied to electric steam generating units (i.e., boilers). For utility boilers, ammonia may be injected into the furnace where temperatures remain high enough for the NO_X reduction reaction to occur (between 1,600 and 2,000°F). The temperature of the exhaust gas from the proposed CC units is too low for SNCR to be effective, and it would not be practical or reasonable to further heat the exhaust gas so that this control option may be applied. Therefore, SNCR is not applicable to the proposed CC units. Accordingly, SNCR is not technically feasible.

Nonselective Catalytic Reduction

[20] U.S. EPA, Clean Air Technology Center, Air Pollution Control Technology Fact Sheet: Selective Catalytic Reduction (SNCR), EPA-452/F-03-032. Available at https://www3.epa.gov/ttncatc1/dir1/fscr.pdf.

NSCR is also not a technically feasible control option for NO_X emissions from the proposed CC units since it has not been demonstrated in practice and is not both an available *and* applicable control option. GPC is unaware of any case in which NSCR has been installed and operated successfully on the type of source under review; this control option is commonly applied to nonroad and stationary rich-burn spark-ignition internal combustion engines (SI ICE). For rich-burn SI ICE, air-to-fuel ratio controllers are used to maintain the low levels of excess oxygen necessary (less than 0.5%) for NSCR to be an effective. The oxygen content of the exhaust gas from proposed CC units will typically be 10-12%. Therefore, NSCR is not applicable to the proposed CC units. Accordingly, NSCR is not technically feasible.

Selective Catalytic Reduction

The use of SCR is included in the Project because it is necessary to comply with Georgia Rule (nnn), which is specific to the county (Bartow) in which GPC is proposing to construct and operate the proposed CC units. This emission standard will limit NO_X emissions from the proposed CC units to less than 6 ppmvd, corrected to 15% O_2, based on a 30-operating day rolling average.

5.2.1.4 *Step 3 – Rank Remaining Control Options*

No ranking of control options is required as all available and technically feasible control options for NO_X emissions from the proposed CC units are included in the Project.

5.2.1.5 *Step 4 – Evaluate Remaining Control Options*

The top control options are being proposed for NO_X emissions from the proposed CC units. Therefore, no further evaluation of the energy, environmental, and economic impacts of the control options is required. However, consideration of those impacts could result in a different BACT determination for other sources or projects in areas not subject to Georgia Rule (nnn) or a similar standard that requires use of SCR.

5.2.1.6 *Step 5 – Select BACT*

Under NSPS Subpart KKKK, new, large combustion turbines such as the proposed CC units are subject to NO_X emission standards of 15 ppmvd while firing natural gas, 42 ppmvd while firing distillate oil, and 96 ppmvd when operating at part-load while firing either fuel.[21,22] Additionally, as discussed above, the proposed CC units will also be subject Georgia Rule (nnn), which will limit NO_X emissions from the proposed CC units to less than 6 ppmvd, corrected to 15% O_2, based on a 30-operating day rolling average while firing either fuel.

Based on our review, NO_X BACT for the proposed CC units should be based on use of DLN combustors, water injection, and SCR. In addition to the information provided in Appendix E, Tables E-1 through E-4, Figure 5-1 and Figure 5-2 provide a graphical representation of the RBLC, NEEDS, and EIA-860 search results for gas-fired and distillate oil-fired CC units, respectively.

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[21] Except as otherwise noted, all numerical emissions standards and limits referred to in this BACT analysis in terms of parts per million by volume dry (ppmvd) are corrected to 15% O_2.

[22] The proposed NSPS Subpart KKKKa may lower the standards for new, large, non-peaking combustion turbines to 3 ppmvd while firing gas and 5 ppmvd while firing distillate oil.

Figure 5-1: NOx BACT Search Results for Natural Gas-Fired CC Units

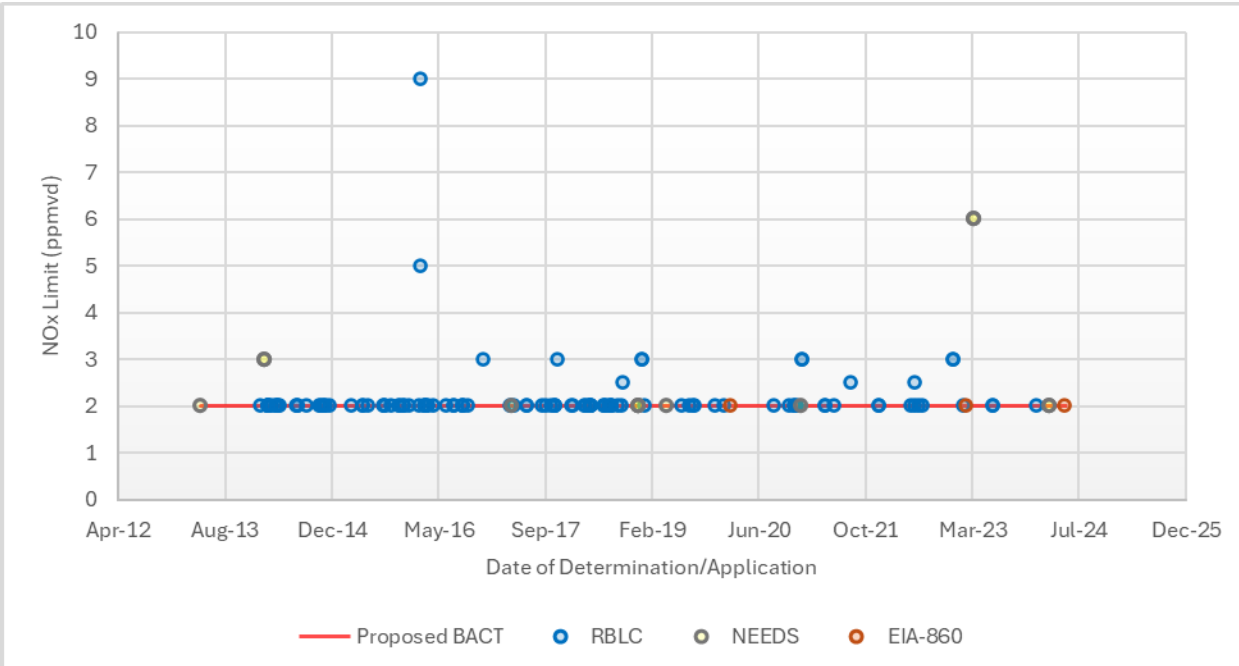
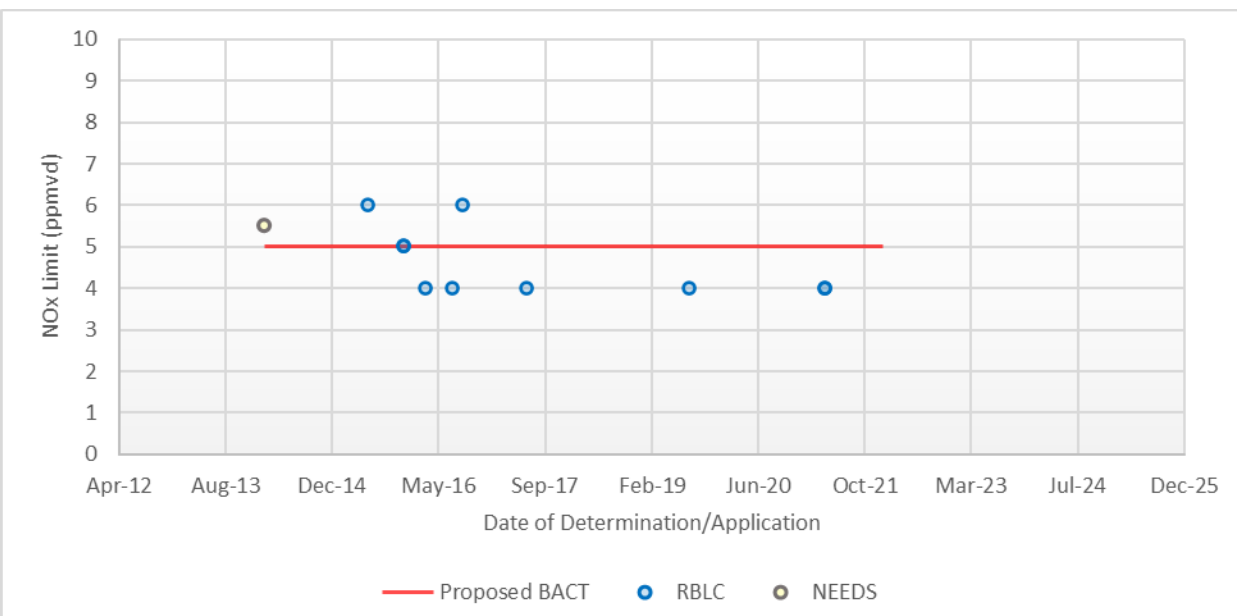


Figure 5-2: NOx BACT Search Results for Distillate Oil-Fired CC Units



These results indicate that NO_X emission limits for CC units with similar controls range from 2 to 96 ppmvd while firing natural gas and from 4 to 96 ppmvd while firing distillate oil (only emission limits up to 10 ppmvd are shown). GPC proposes the following as NO_X BACT for each of the proposed CC units:

- 2.0 ppmvd NO_X or less when firing natural gas, based on a 4-hour rolling average, excluding periods of startup, shutdown, or fuel switching,
- 5.0 ppmvd NO_X or less when firing distillate oil, based on a 4-hour rolling average, excluding periods of startup, shutdown, or fuel switching, and
- 228.9 tons NO_X or less during any 12-month consecutive period, including periods of startup, shutdown, and fuel switching.

For natural gas, GPC is proposing the level of control equivalent to the most stringent emission limit achieved in practice. This level of control is the same as Plant Barry Unit 8 (AL-0328) and Jackson Energy Center (JEC) Units 1 and 2 (IL-0130), which are the most similar CC units in commercial operation in the U.S., except that those units are gas-fired only and are not capable of firing distillate oil as a backup fuel.[23]

RBLC listed five facilities that have CC units for which permits were issued with an emission limit of 4 ppmvd when firing distillate oil: Killingly Energy Center (CT-0161), Sewaren Generating Station (NJ-0081), Middlesex Energy Center (NJ-0085), Cogen Tech Lingen Venture LP (NJ-0088), and Renovo Energy Center (PA-0334). Notably, only one of these five facilities, Sewaren Unit 7, has been constructed.[24] Sewaren Unit 7 is a second-generation General Electric (GE) H-class unit (GE 7HA.02) and has approximately 30% lower NO_X emissions in the CT exhaust (and inlet to the SCR) compared to the proposed CC units, due to their lower firing temperature. To account for this significant difference between Sewaren Unit 7 and the Project, GPC is proposing 5 ppmvd as NO_X BACT when firing distillate oil, which is a level of control consistent with proposed NSPS Subpart KKKKa.

Compliance with the NO_X BACT emission limits will be determined by CEMS. Similar to other CC units permitted by EPD, GPC is proposing short-term emissions limits that exclude emissions during certain periods of operation, coupled with a mass cap that includes all valid emissions measured. For purposes of the proposed short-term NO_X BACT emission limits above, the following definitions apply:

> *Startup* means the period of time from when the combustion turbine is first fired to when the load has been achieved at which it has been demonstrated by a CEMS or during compliance testing that the emission limits can be met during steady-state operations (i.e., the minimum emissions compliance load or MECL), not to exceed 288 minutes for a cold startup, 212 minutes for a warm startup, and 131 minutes for a hot startup while firing natural gas and 315 minutes for a cold

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[23] Unit 1 at PowerSouth Cooperative's Charles R. Lowman Power Plant is also similar to the proposed CC units and in commercial operation, but was not subject to PSD. Other similar units may be in commercial operation but operate in a different configuration (e.g., 2-on-1 or 3-on-1 combined-cycle configuration). Several permits have been issued to construct similar 1-on-1 CC units, but these projects were either canceled (Chickahominy Power (VA-0332)) or the applicant ultimately installed a different CT technology (e.g., Long Ridge Energy Station (OH-0375) and NTE Ohio (OH-0363)).

[24] Both Middlesex Energy Center and Renovo Energy Center were issued permits for, but never constructed, CC units based on the GE 7HA.02 and Siemens SGCT-8000H CT technologies, while those at Killingly Energy Center and Cogen Tech Lingen Venture LP would have been based on the Mitsubishi 501GAC and GE 7FA.05 CT technologies. NO_X emissions in the CT exhaust (and inlet to the SCR) for all these CT technologies are at least 30% lower compared to the proposed CC units.

startup, 232 minutes for a warm startup, and 145 minutes for a hot startup while firing distillate oil.

Cold startup means a startup to combined-cycle operation following a complete shutdown lasting more than 72 hours.

Warm startup means a startup to combined-cycle operation following a complete shutdown lasting 8 hours or more, but less than or equal to 72 hours.

Hot startup means a startup to combined-cycle operation following a complete shutdown lasting less than 8 hours.

Shutdown means the period of time from MECL to when firing of fuel has ceased, not to exceed 60 minutes.

Fuel switching means the period of time needed to change fuels during load operation without a complete shutdown, not to exceed 80 minutes.

In determining the 4-hour rolling average NO_X emissions rate, one-hour average emissions will be based on at least 30 minutes of normal operation (i.e., after startup and before shutdown) to ensure partial operating hours contain at least one valid measurement based on operation during a full quadrant of an hour. Rolling averages restart upon each startup.

5.2.2 Sulfur Dioxide

5.2.2.1 *Formation*

Emissions of SO_2 occur as a result of the oxidation of sulfur-containing compounds in the fuel during the combustion process. SO_2 emissions associated with combustion of natural gas and distillate oil are typically very low due to the low concentration of sulfur compounds in the fuel.

5.2.2.2 *Step 1 – Identify Control Options for Evaluation*

GPC reviewed SO_2 BACT determinations found in RBLC for large (>25 MW) natural gas-fired and distillate oil-fired CC units permitted since 2014, and permits and associated applications, if available, for other CC units not found in RBLC but identified in NEEDS as having commenced commercial operation in 2019 and after or listed as planned and under construction in EIA-860. The results of these searches are summarized in Appendix E, Tables E-5 through E-8. Based on this review, no add-on controls were identified. All these listings describe the use of natural gas or other fuel with inherently low sulfur content as BACT. Some of these listings also identify efficient combustion or good combustion practices as BACT.

Flue gas desulfurization (FGD) is a post-combustion add-on control option that has been used to control SO_2 emissions from certain combustion sources that fire high sulfur-content fuels, including coal-fired and residual oil-fired boilers. However, when emission standards for combustion turbines were initially proposed under the NSPS program, EPA concluded that use of FGD on these units would be unreasonable based on cost.[25] Instead, low sulfur fuels were chosen as the basis for the standards. Similarly, the use of low sulfur fuel is the basis of the SO_2 emission standard in NSPS Subpart KKKK.[26] EPA has proposed to maintain these standards without changes in proposed NSPS Subpart KKKKa.[27] Notably, in the NSPS Subpart KKKKa proposal, EPA refers to FGD as "not an applicable alternative for the control of SO_2 emissions" and does not reference the unreasonable cost of control. Accordingly, use of fuels with inherently low sulfur content is the only potentially available control option for SO_2 emissions from the proposed CC units.

5.2.2.3 *Step 2 – Eliminate Technically Infeasible Control Options*

Use of fuels with inherently low sulfur content, such as natural gas and distillate oil, is inherent to the Project and technically feasible.

5.2.2.4 *Step 3 – Rank Remaining Control Options*

No ranking of control options is required, as use of fuels with inherently low sulfur content is the only available and technically feasible control option for SO_2 emissions from the proposed CC units.

5.2.2.5 *Step 4 – Evaluate Remaining Control Options*

The top control option is being proposed for SO_2 emissions from the proposed CC units. Therefore, no further evaluation of the impacts of the control options is required.

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[25] 42 Fed. Reg. at 53782, 53785 (October 3, 1977).

[26] 70 Fed. Reg. at 8314, 8320 (February 18, 2005).

[27] 89 Fed. Reg. at 101306, 101342 (December 13, 2024). In the NSPS Subpart KKKKa proposal,

5.2.2.6 *Step 5 – Select BACT*

Based on our review, SO_2 BACT for the proposed CC units should be based on the use of fuels with inherently low sulfur content. Therefore, GPC proposes the exclusive use of natural gas that meets the definition of pipeline quality natural gas as defined in 40 CFR 72.2 and distillate oil with a sulfur content less than 15 ppm, by weight, as SO_2 BACT for the proposed CC units. The sulfur content of each fuel will be verified periodically through documentation provided by the supplier.

5.2.3 Carbon Monoxide

5.2.3.1 *Formation*

CO emissions from the proposed CC units may be generated during combustion as a result of incomplete conversion of carbon-containing compounds to CO_2 and water. CO emission rates are principally influenced by equipment operating conditions; elevated CO emissions may be the result of low combustion temperature, insufficient combustor residence time, and/or low operating loads.

5.2.3.2 *Step 1 – Identify Control Options for Evaluation*

GPC reviewed CO BACT determinations found in RBLC for large (>25 MW) natural gas-fired and distillate oil-fired CC units permitted since 2014, and permits and associated applications, if available, for other CC units not found in RBLC but identified in NEEDS as having commenced commercial operation in 2019 and after or listed as planned and under construction in EIA-860. The results of these searches are summarized in Appendix E, Tables E-9 through E-12.[28]

Potentially available control options to reduce CO emissions from the proposed CC units include combustion controls, good combustion practices, and post-combustion add-on controls such as an oxidation catalyst. Each is discussed in the following sections.

Combustion Controls and Good Operating Practices

As noted above, CO emissions may result from incomplete combustion. Proper equipment design, proper operation, and optimization of the combustion air systems (e.g., compressor inlet guide vane control) to achieve good combustion efficiency will minimize CO emissions from the proposed CC units.

Oxidation Catalyst

An oxidation catalyst is a passive control option that uses excess air to convert CO emissions to CO_2 in the presence of catalyst without the injection of a reagent. An oxidation catalyst is a passive control option that uses excess air to convert CO emissions to CO_2 in the presence of catalyst without injection of a reagent. Technical considerations for employing this add-on control option include reactor design, operating temperature, back pressure of the system and its impact on performance, and catalyst life. Oxidation catalysts operate effectively in a relatively narrow temperature range typically between 600 to 800°F.

5.2.3.3 *Step 2 – Eliminate Technically Infeasible Control Options*

Use of combustion controls and good operating practices is inherent to the Project and technically feasible. The use of an oxidation catalyst is also included in the Project because it is necessary to comply with CT MACT (40 CFR 63 Subpart YYYY).

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[28] Many CC units have different CO (and VOC) emission limits applicable to periods of time when the duct burner(s) are in-service and are listed separately, as applicable.

5.2.3.4 *Step 3 – Rank Remaining Control Options*

No ranking of control options is required, as all available and technically feasible control options for CO emissions from the proposed CC units are included in the Project.

5.2.3.5 *Step 4 – Evaluate Remaining Control Options*

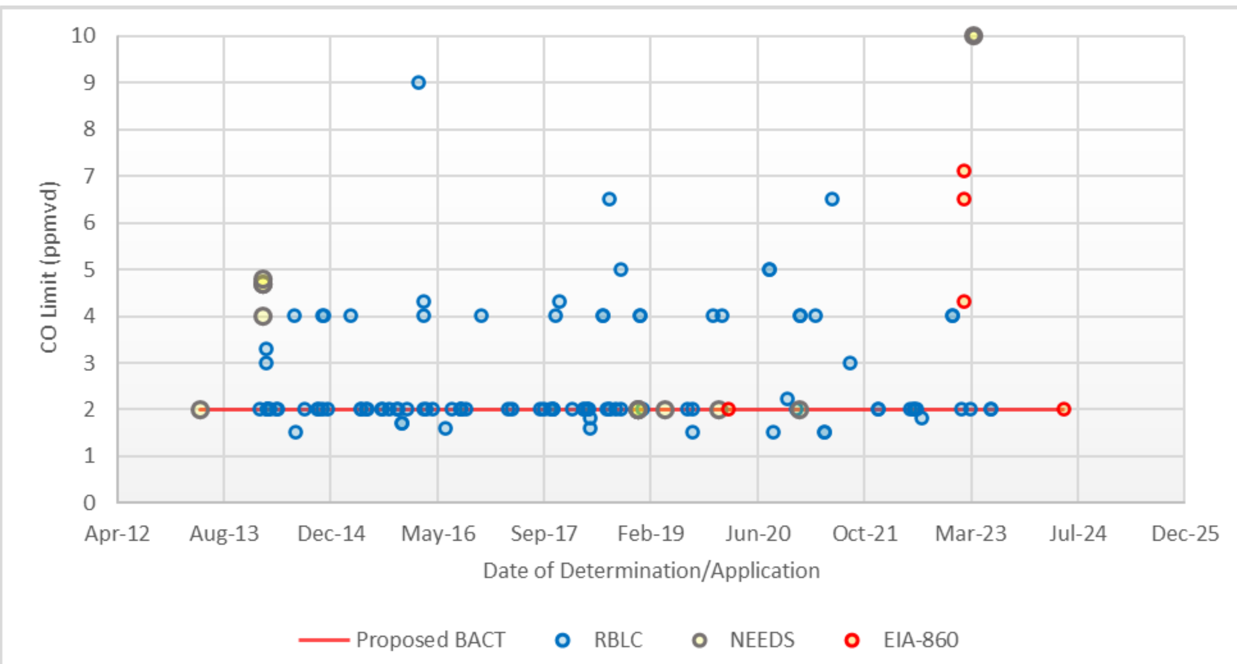
The top control options are being proposed for CO emissions from the proposed CC units. Therefore, no further evaluation of the energy, environmental, and economic impacts of the control options is required. However, consideration of those impacts could result in a different BACT determination for other sources or projects not subject to the CT MACT or a similar standard that requires use of oxidation catalyst.

5.2.3.6 *Step 5 – Select BACT*

Based on our review, CO BACT for the proposed CC units should be based on use of clean fuels, good combustion practices, and an oxidation catalyst. In addition to the information provided in Appendix E, Tables E-9 through E-12,

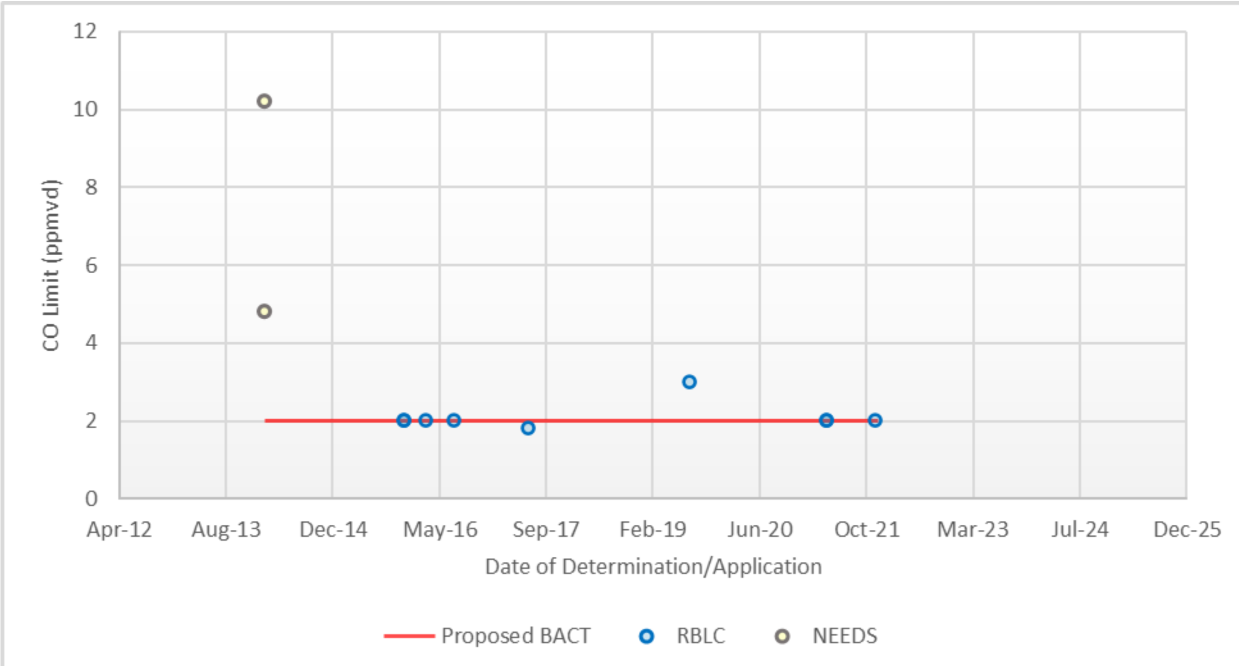
Figure 5-3 and Figure 5-4 provide a graphical representation of the RBLC, NEEDS, and EIA-860 search results for natural gas-fired and distillate oil-fired CC units, respectively.

Figure 5-3: CO BACT Search Results for Natural Gas-Fired CC Units



These results indicate CO emission limits for CC units with similar controls vary considerably and are as low as 0.9 ppmvd while firing natural gas and as low as 1.8 ppmvd while firing distillate oil (only emission limits up to 10 ppmvd are shown). In many cases, the level of control depends on fuel, load, and whether duct burners are in-service (to account for supplemental firing in the HRSG). For both fuels, most emissions limits are 2 ppmvd.

Figure 5-4: CO BACT Search Results for Distillate Oil-Fired CC Units



GPC proposes the following as CO BACT for each of the proposed CC units:

- 2.0 ppmvd CO or less when firing natural gas or distillate oil based on a 24-hour rolling average, excluding periods of startup, shutdown, or fuel switching, and
- 257.4 tons CO or less during any 12-month consecutive period, including periods of startup, shutdown, and fuel switching.

For both gas and distillate oil, GPC is proposing 2 ppm as CO BACT, a level of control consistent with the majority of CO emission limits found for CC units. This level of control is also the same as Plant Barry Unit 8 (AL-0328) and JEC Units 1 and 2 (IL-0130), and therefore reflects the most stringent emission limit achieved in practice for similar CC units in commercial operation in the US. In most cases, permits issued to CC units with CO emissions limits that are more stringent than 2 ppmvd are associated with projects that were cancelled and never built, including Palmdale Energy Project (CA-1251), Killingly Energy Center (CT-0161), Chickahominy Power (VA-0332), ESC Tioga County Power (PA-0333), Renovo Energy Center (PA-0334), and Nemadji Trail Energy Center (WI-0300). In all but one of these cases (Chickahominy), the applicant proposed to construct a previous generation CT with inherently lower CO emissions in the CT exhaust (and inlet to the oxidation catalyst) relative to the proposed CC units. In the case of Chickahominy, while the CT technology would have been similar were it constructed, the applicant did not propose supplemental firing, i.e., duct burners, in the HRSG. Since an oxidation catalyst is a passive control that does not include injection of a reagent or other means to actively control emissions, CO BACT for the proposed CC units is necessarily higher to account for these differences.

Compliance with the CO BACT emission limit will be determined by CEMS. Of the two most similar CC units that have achieved a level of control of 2 ppmvd in practice, only JEC Units 1 and 2 use CO CEMS for compliance. GPC notes that JEC's permit includes alternate CO limits that apply during low load operations, which are not included in the RBLC information.[29] As discussed above, CO emissions performance is highly sensitive to combustion temperature, which can be impacted by many factors, including operating load and ramp rate (i.e., the rate at which operating load changes). JEC's alternate CO limits effectively allow emissions in excess of 2 ppmvd as long as the equivalent average mass emission rate (i.e., lb/hr) does not increase. GPC agrees that it is important for CO BACT to account for temporary peaks in emissions that may occur during periods of operation at low load and sudden changes in load. However, instead of layering in additional emissions limitations, GPC proposes that compliance with CO BACT be demonstrated on a 24-hour rolling average.

Similar to other CC units permitted by EPD, GPC is proposing short-term emission limits that exclude emissions during certain periods of operation, coupled with a mass cap that includes all valid emissions measured. For purposes of the proposed short-term CO BACT emission limits above, the following definitions apply:

> *Startup* means the period of time from when the combustion turbine is first fired to when the load has been achieved at which it has been demonstrated by a CEMS or during compliance testing, that the emission limits can be met during steady-state operations (i.e., the minimum emissions compliance load or MECL), not to exceed 288 minutes for a cold startup, 212 minutes for a warm startup, and 131 minutes for a hot startup while firing natural gas and 315 minutes for a cold startup, 232 minutes for a warm startup, and 145 minutes for a hot startup while firing distillate oil.
>
> *Cold startup* means a startup to combined-cycle operation following a complete shutdown lasting more than 72 hours.
>
> *Warm startup* means a startup to combined-cycle operation following a complete shutdown lasting 8 hours or more, but less than or equal to 72 hours.
>
> *Hot startup* means a startup to combined-cycle operation following a complete shutdown lasting less than 8 hours.
>
> *Shutdown* means the period of time from MECL to when firing of fuel has ceased, not to exceed 60 minutes.
>
> *Fuel switching* means the period of time needed to change fuels during load operation without a complete shutdown, not to exceed 80 minutes.

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[29] Jackson Energy Center, I.D. No.: 197035ABD, Application No. 17040013, dated April 4, 2017, Construction Permit – PSD Approval, dated December 31, 2018. *See* Section 2.1.2.c.i for CO BACT and Section 2.1.6.a.iii for the alternate limits during periods of low load operation. GPC notes that the permit does not restrict or limit the amount of time JEC Units 1 and 2 may operate under the alternate limits.

In determining the 24-hour rolling average CO emissions rate, one-hour average emissions will be based on at least 30 minutes of normal operation (i.e., after startup and before shutdown) to ensure partial operating hours contain at least one valid measurement based on operation during a full quadrant of an hour. Rolling averages restart upon each startup.

5.2.4 Volatile Organic Compounds

5.2.4.1 *Formation*

VOC emissions from the proposed CC units are influenced by the same factors that impact CO emissions discussed above.

5.2.4.2 *Step 1 – Identify Control Options for Evaluation*

GPC reviewed VOC BACT determinations found in RBLC for large (>25 MW) natural gas-fired and distillate oil-fired CC units permitted since 2014, and permits and associated applications, if available, for other CC units not found in RBLC but identified in NEEDS as having commenced commercial operation in 2019 and after or listed as planned and under construction in EIA-860. The results of these searches are summarized in Appendix E, Tables E-13 through E-16.[30]

Potentially available control options for VOC emissions from the proposed CC units are the same as those discussed above for CO—combustion controls, good combustion practices, and post-combustion add-on controls, such as an oxidation catalyst.

Combustion Controls and Good Operating Practices

Like CO, VOC emissions may result from incomplete combustion. Proper equipment design, proper operation, and optimization of the combustion air systems to achieve good combustion efficiency will minimize VOC emissions from the proposed CC units.

Oxidation Catalyst

An oxidation catalyst uses excess air to convert organic compounds to CO_2 in the presence of catalyst without the use of a reagent. Technical considerations for employing this add-on control option are the same as those discussed above for CO.

5.2.4.3 *Step 2 – Eliminate Technically Infeasible Control Options*

Use of combustion controls and good operating practices is inherent to the Project and technically feasible. The use of an oxidation catalyst is also included in the Project because it is necessary to comply with CT MACT.

5.2.4.4 *Step 3 – Rank Remaining Control Options*

No ranking of control options is required as all available and technically feasible control options for VOC emissions from the proposed CC units are included in the Project.

5.2.4.5 *Step 4 – Evaluate Remaining Control Options*

The top control options are being proposed for VOC emissions from the proposed CT units. Therefore, no further evaluation of the energy, environmental, and economic impacts of the control options is required. However, consideration of those impacts could result in a different BACT determination for other sources

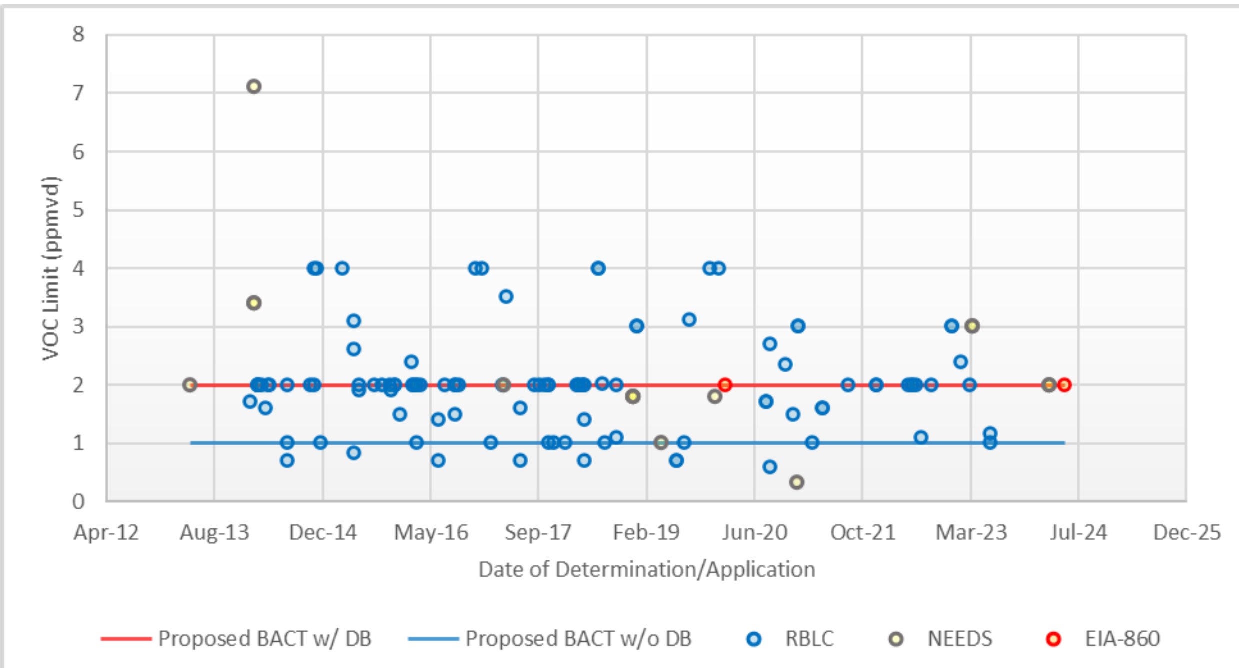
[30] *See* footnote 28.

or projects not subject to the CT MACT standards or a similar standard that requires use of an oxidation catalyst

5.2.4.6 *Step 5 – Select BACT*

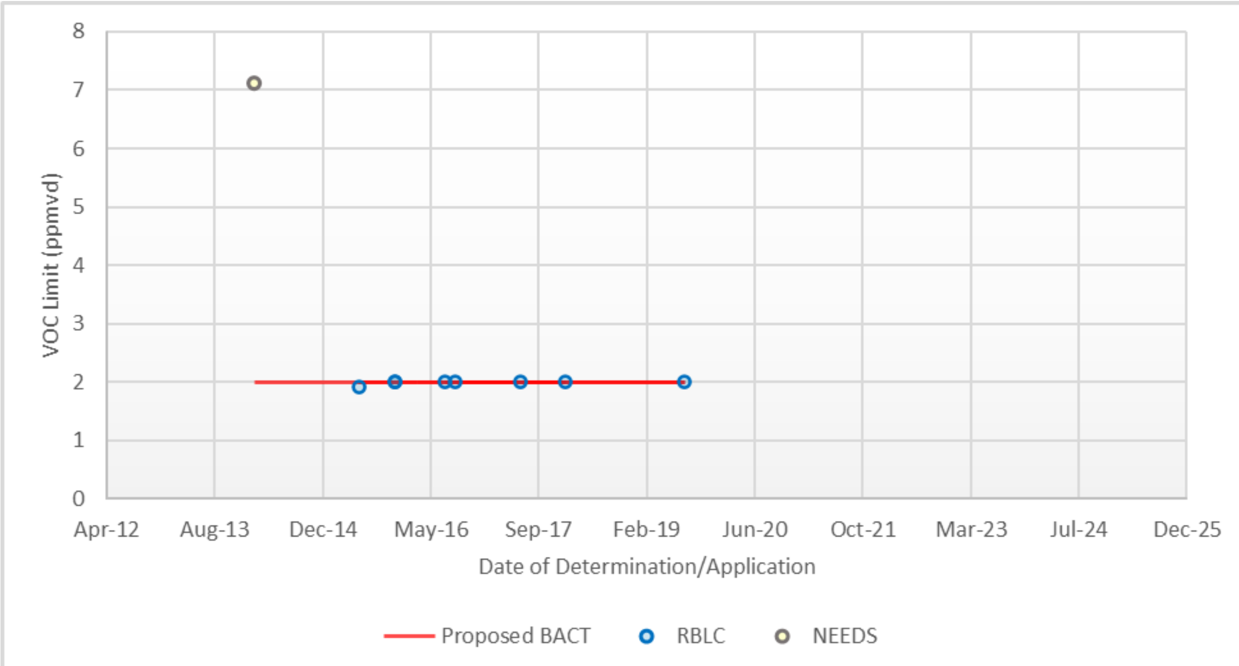
Based on our review, VOC BACT for the proposed CC units should be based on use of clean fuels, good combustion practices, and an oxidation catalyst. In addition to the information provided in Appendix E, Tables E-13 through E-16, Figure 5-5 and Figure 5-6 provide a graphical representation of the RBLC, NEEDS, and EIA-860 search results for natural gas-fired and distillate oil-fired CC units, respectively.

Figure 5-5: VOC BACT Search Results for Natural Gas-Fired CC Units



These results indicate VOC emission limits for CC units with similar controls vary considerably and are as low as 0.33 ppmvd (as propane) while firing natural gas and as low as 1.9 ppmvd while firing distillate oil (only emission limits up to 8 ppmvd are shown). In many cases, the level of control depends on how VOC is measured (e.g., 0.33 ppvmd as propane is equivalent to 1 ppmvd as methane), fuel, load, and whether duct burners are in-service (to account for supplemental firing in the HRSG). However, like CO emission limits, most VOC emissions limits for CC units are 2 ppmvd for both fuels (and for gas when duct burners are in-service).

Figure 5-6: VOC BACT Search Results for Distillate Oil-Fired CC Units



GPC proposes the following as VOC BACT for each of the proposed CC units:

- 1.0 ppmvd VOC or less, as methane, when firing natural gas <u>without</u> the duct burners in-service, based on the average of a 3-run stack test using EPA Reference Method 25A.
- 2.0 ppmvd VOC or less, as methane, when firing natural gas <u>with</u> duct burners in-service or when firing distillate oil, based on the average of a 3-run stack test using EPA Reference Method 25A.

For gas when the duct burners are not in-service, GPC is proposing 1 ppmvd, as methane, as VOC BACT, a level of control consistent with the majority of VOC emission limits found for CC units and the same as JEC Units 1 and 2 (IL-0130). Similar to CO, permits issued to CC units with VOC emissions limits that are more stringent than 1 ppmvd are associated with projects that were cancelled and never built, including Killingly Energy Center (CT-0161), Rolling Hills Generating, LLC (OH-0365), C4GT, LLC (VA-0328), Chickahominy Power (VA-0332), and Nemadji Trail Energy Center (WI-0300). Other facilities, such as West Deptford Energy Station (NJ-0082) and Greensville Power Station (VA-0325), are based on a smaller or previous generation of CT technology with inherently lower emissions. And, Birdsboro Power (NEEDS), which appears to have the most stringent VOC limit at 0.33 ppmvd as propane, is equivalent to the proposed VOC BACT when converted to an as-methane basis.

For gas when the duct burners are in-service, and for distillate oil, GPC is proposing 2 ppmvd, as methane, as VOC BACT, which is also consistent with majority of VOC emission limits found for CC units and the same as Plant Barry Unit 8 (AL-0328) and JEC Units 1 and 2 (IL-0130).

GPC proposes to conduct a stack test after initial startup followed by subsequent stack tests every five years. Compliance with the VOC BACT emission limits for the proposed CC units will be assured as long as the CO emissions are in compliance with the corresponding CO BACT emission limits.

5.2.5 Particulate Matter

5.2.5.1 *Formation*

PM emissions from the proposed CC units include both filterable and condensable particles.[31] Filterable PM is formed from impurities contained in fuels, dust in the ambient air, and from incomplete combustion, while condensable PM is primarily attributable to high molecular weight VOC (unburned hydrocarbons) and the conversion of fuel sulfur to sulfates when catalyst-based add-on controls are used.

5.2.5.2 *Step 1 – Identify Control Options for Evaluation*

For PM, GPC also reviewed BACT determinations found in RBLC for large (>25 MW) natural gas-fired and distillate oil-fired CC units permitted since 2014, and permits and associated applications, if available, for other CC units not found in RBLC but identified in NEEDS or EIA-860. The results of these searches are summarized in Appendix E, Tables E-17 through E-20. Based on this review, no add-on control options were identified. Instead, many facilities listed some variation of use of fuels with inherently low sulfur content and good combustion practices as BACT. Generally, conventional add-on controls, such as baghouses and electrostatic precipitators, often applied to solid fuel boilers, have not been applied to combustion turbines.[32] With the BACT context, these emission controls have no *practical potential* to reduce emissions from the proposed CC units because the use of clean fuels inherently results in a low level of PM emissions. For example, the outlet performance specification of a typical baghouse or electrostatic precipitator is 0.01 gr/dscf.[33] Based on information provided in Appendix C of the application, the total concentration of PM emissions, including condensables, from the proposed CC units is expected to range from approximately 0.002 to 0.004 gr/dscf, depending on the fuel being utilized, which is nearly an order of magnitude lower than what these control options typically achieve. Accordingly, these controls need not be listed in Step 1 of the BACT analysis. However, even if listed in Step 1, these control options would be eliminated as technically infeasible in Step 2 for essentially the same reason—they have no real potential to reduce PM emissions from the proposed CC units.[34] Therefore, only the use of fuels with inherently low sulfur content and good combustion practices are considered further.

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[31] For the purposes of BACT, emission limits for PM include only filterable PM, while emission limits for PM_{10} and $PM_{2.5}$ include both filterable and condensable fractions. In this BACT analysis, when GPC uses the term "PM," it is meant to include both PM_{10} and $PM_{2.5}$ unless otherwise noted.

[32] When EPA originally proposed national standards for CT units in NSPS Subpart GG, EPA stated that "particulate emissions from stationary gas turbines are minimal" and noted that add-on controls for PM are not typically installed on CT units and are cost prohibitive. 44 Fed. Reg. at 52792 and 52798 (Sept. 10, 1979); EPA, *Standards Support and Envtl. Impact Statement Volume 1: Proposed Standards of Performance for Stationary Gas Turbines*, at 8-6 (Sept. 1977). Additionally, when EPA proposed to update the standards in NSPS Subpart KKKK, EPA declined to establish standards for PM because "…[PM] emissions are negligible with natural gas firing due to the low sulfur content of natural gas. Emissions of PM are only marginally significant with distillate oil firing because of the lower ash content…" 70 Fed. Reg. at 8314 and 8321 (Feb. 18, 2005). At the time, EPA also noted that no CT units permitted since 2003 utilized add-on controls.

[33] *See* North Carolina Division of Air Quality, Application Review for Siemens Energy test facility at Duke LCTS, Application No. 5500082.17A, at 31 (June 20, 2018).

[34] *See*, for example, Washington County Power, LLC, Application No. TV-547905, Volume I – Construction Permit Application, Section 5.7 (February 25, 2021), and related PSD Preliminary Determination (September 10, 2021). Available at https://epd.georgia.gov/document/document/tv-547905-narrative-revised/download.

5.2.5.3 *Step 2 – Eliminate Technically Infeasible Control Options*

Use of fuels with inherently low sulfur content and good combustion practices are inherent to the Project and technically feasible.

5.2.5.4 *Step 3 – Rank Remaining Control Options*

No ranking of control options is required as all available and technically feasible control options for PM emissions from the proposed CC units are included in the Project.

5.2.5.5 *Step 4 – Evaluate Remaining Control Options*

The top control options are being proposed for PM emissions from the proposed CC units. Therefore, no further evaluation of the impacts of the PM control options is required.

5.2.5.6 *Step 5 – Select BACT*

Based on our review, PM BACT for the proposed CC units should be based on use of fuels with inherently low sulfur content and good combustion practices. GPC proposes the following as PM BACT for each of the proposed CC units:

- Total PM, containing filterable and condensable PM, equal to or less than 0.0045 lb/MMBtu, when firing natural gas, based on the average of a 3-run stack test using EPA Reference Methods 5 and 202; and

- Total PM, containing filterable and condensable PM, equal to or less than 0.0135 lb/MMBtu, when firing distillate oil, based on the average of a 3-run stack test using EPA Reference Methods 5 and 202.

The proposed PM BACT reflects approximately 0.002 lb/MMBtu filterable PM when firing gas, 0.01 lb/MMBtu when firing distillate oil, and full conversion of the sulfur in fuel to inorganic sulfate-based condensables. In establishing BACT, full conversion of sulfur to sulfates is appropriate since vendors do not offer guarantees to limit sulfur conversion to SO_3 in the CT and HRSG and there are sufficient amounts of moisture and ammonia in the exhaust to complete sulfate formation, even at extremely low levels of ammonia slip (<0.3 ppmvd).

In addition to the information provided in Appendix E, Tables E-17 through E-20, Figure 5-7 and Figure 5-8 provide a graphical representation of the RBLC, NEEDS, and EIA-860 search results for natural gas-fired and distillate oil-fired CC units, respectively.

These results indicate total PM emission limits for CC units with similar controls are as low as 0.0024 lb/MMBtu while firing natural gas and as low as 0.0122 lb/MMBtu while firing distillate oil.

Figure 5-7: PM BACT Search Results for Natural Gas-Fired CC Units

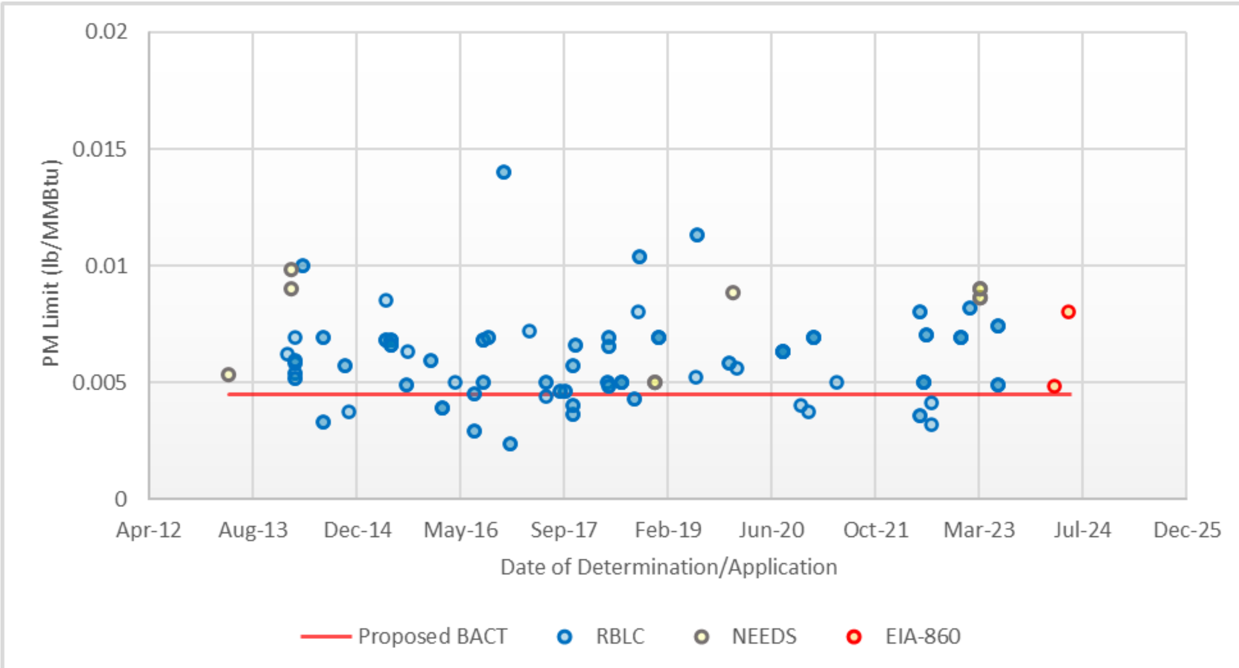
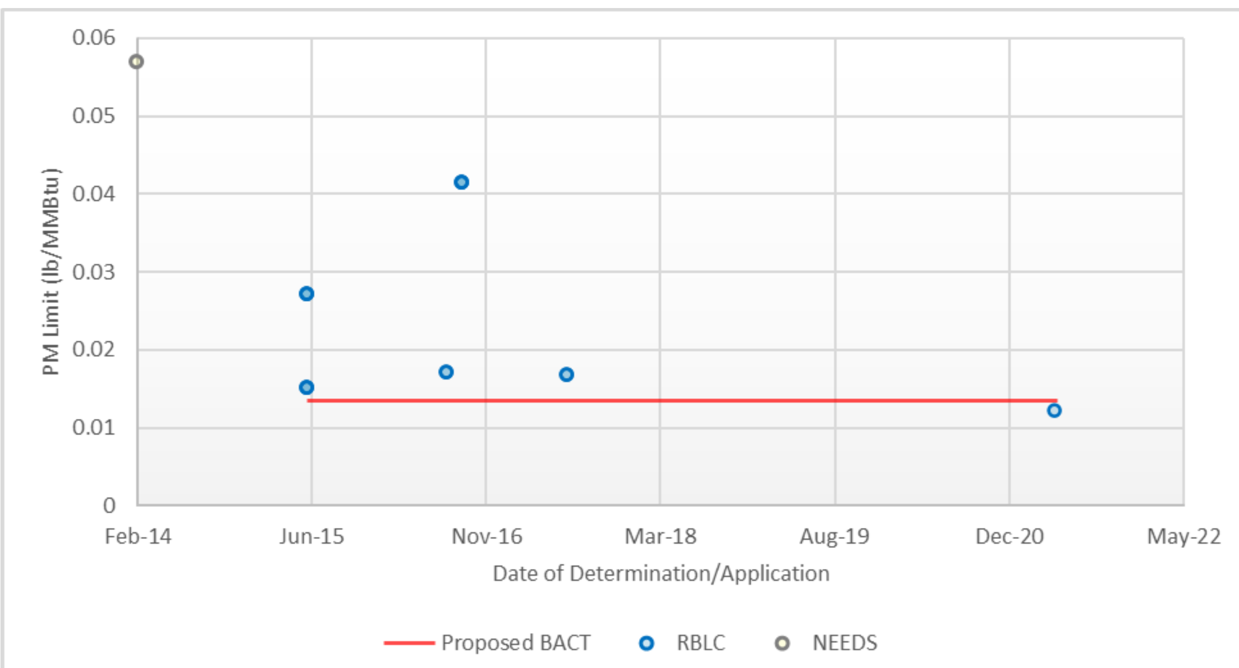


Figure 5-8: PM BACT Search Results for Distillate Oil-Fired CC Units



However, after additional research, GPC notes that many of the PM emissions limits found for CC units that are lower than the proposed BACT: (1) are not total PM, but filterable only and do not include condensables, such as JEC (IL-0130), Lincoln Energy Center (IL-0133), and Thomas Township Energy (MI-

0442); (2) are not total PM, but are total PM_{10} and $PM_{2.5}$ and use EPA Method 201A to measure filterable particle size fractions with a cyclone, such as Long Ridge Energy Generation (OH-0375); or (3) are based on different assumptions that impact estimation of inorganic condensable PM from fuel sulfur content, such as Panda Stonewall (VA-0335).[35]

Since the PM BACT is based on use of clean fuels with inherently low sulfur content, GPC proposes to conduct a one-time stack test after initial startup to confirm emission performance.

[35] For Panda Stonewall, the maximum sulfur content of the natural gas allowed to be fired in the CC units is 0.1 grains per 100 standard cubic feet. Permit available at https://energy.virginia.gov/renewable-energy/documents/RetirementFossilFuels/StonewallPermit.pdf.

5.2.6 Sulfuric Acid Mist

5.2.6.1 *Formation*

Sulfuric acid mist (SAM), or H_2SO_4, emissions from the proposed CC units occur as a result of oxidation of SO_2 to SO_3 as high temperature exhaust gas passes across the surfaces of the SCR and oxidation catalyst. The SO_3 then hydrates to form H_2SO_4 in the presence of water vapor.

5.2.6.2 *Step 1 – Identify Control Options for Evaluation*

For SAM, GPC also reviewed BACT determinations found in RBLC for large (>25 MW) natural gas-fired and distillate oil-fired CC units permitted since 2014, and permits and associated applications, if available, for other CC units not found in RBLC but identified in NEEDS or EIA-860. The results of these searches are summarized in Appendix E, Tables E-21 through E-22. Based on this review, no add-on control options were identified. Instead, many facilities listed some variation of use of fuels with inherently low sulfur content and good combustion practices as BACT.

The only potentially available control option for SAM emissions from the proposed CC units is use of fuels with inherently low sulfur content. Similar to PM, conventional add-on controls for SAM often applied to solid fuel boilers, such as such as baghouses with sorbent injection and scrubbers, have never been applied to combustion turbines because the use of fuels inherently low sulfur content results in a low level of emissions (approximately 0.2 ppmvd in the exhaust gas).

5.2.6.3 *Step 2 – Eliminate Technically Infeasible Control Options*

Use of fuels with low sulfur content is inherent to the Project and technically feasible.

5.2.6.4 *Step 3 – Rank Remaining Control Options*

No ranking of control options is required, as use of fuels with inherently low sulfur content is the only available and technically feasible control option for SAM emissions from the proposed CC units.

5.2.6.5 *Step 4 – Evaluate Remaining Control Options*

The top control option is being proposed for SAM emissions from the proposed CC units. Therefore, no further evaluation of the impacts of the control options is required.

5.2.6.6 *Step 5 – Select BACT*

Based on our review, SAM BACT for the proposed CC units should be based on use of fuels with inherently low sulfur content. Therefore, GPC proposes the exclusive use of natural gas that meets the definition of pipeline quality natural gas as defined in 40 CFR 72.2 and distillate oil with a sulfur content less than 15 ppm, by weight, as SAM BACT for the proposed CC units. The sulfur content of each fuel will be verified periodically through documentation provided by the supplier.

5.2.7 Greenhouse Gases – Carbon Dioxide (CO_2)

5.2.7.1 *Formation*

GHG emissions that result from combustion include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O).[36] Carbon dioxide is a necessary product of combustion from fuels containing carbon. For example, the theoretical combustion equation for CH_4, the primary component of natural gas, is:

$$CH_4 + 2\ O_2 \rightarrow CO_2 + 2\ H_2O$$

Consequently, CO_2 emissions are an essential and intended product of the chemical reaction between the fuel and the oxygen necessary to produce heat and are not a byproduct caused by impurities in the fuel or by incomplete combustion.

5.2.7.2 *Step 1 – Identify Control Options for Evaluation*

As with the other BACT reviews above, GPC reviewed CO_2 BACT determinations found in RBLC for large (>25 MW) natural gas-fired and distillate oil-fired CC units permitted since 2014, and also reviewed permits and associated applications, if available, for other CC units not found in RBLC but identified in NEEDS and EIA-860. Based on these search results, no add-on control options were identified in RBLC or in any permit or application. However, many facilities listed inherently lower-emitting processes and practices as BACT, including some variation of use of clean or lower-emitting fuels, efficient design, and good combustion practices as BACT for CO_2 emissions. These results are summarized in Appendix E, Tables E-23 and E-24.

GPC also considered relevant federal and state emission standards and relied on Southern Company's experience as a leader in low-carbon technology research and innovation to identify additional potential control options for CO_2 emissions from the proposed CC units. EPA's 2023 proposed GHG emissions standards identified co-firing low GHG-hydrogen as a potential control option,[37] although this control option was not included in the final regulations adopted in Subpart TTTTa.[38] EPA's final emission GHG standards in Subpart TTTTa, which are potentially applicable to the Project, identify carbon capture and storage (CCS) as a potential control option. No additional control options were identified based on Southern Company's low-carbon technology research activities.

This analysis assesses each of the control options identified above in further detail below. This BACT analysis does not consider processes or designs that would fundamentally redefine the proposed source, such as solar, battery energy storage systems (BESS), or BESS plus solar.[39] Nonetheless, more solar and

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[36] Comparatively very small emissions of CH_4 and N_2O can occur when, for example, some small fraction of the methane in natural gas is not combusted and when nitrogen in combustion (ambient) air reacts with oxygen in the flame zone, respectively.

[37] 88 Fed. Reg. at 33284 (May 23, 2023).

[38] 40 CFR Part 60, Subpart TTTTa.

[39] *See* U.S. EPA, *In re: City of Palmdale (Palmdale Hybrid Power Project)*, PSD Appeal No. 11-07, at 727 (Sept. 17, 2012) (citing EPA Region 9, Responses to Public Comments on the Proposed Prevention of Significant Deterioration Permit for the Palmdale Hybrid Power Project, at 3 (Oct. 2011); Memorandum from Stephen Page, Director, Office of Air Quality, Planning, and Standards, U.S. EPA, to Paul Plath, re: *Best Available Control Technology Requirements for Proposed Coal-Fired Power Plant*

energy storage resource procurement and customer programs have been proposed to the Georgia Public Service Commission (PSC) as part of GPC's comprehensive plan to address Georgia's rapidly growing energy needs. This is in addition to over 4,000 MW of renewable resources currently delivering energy to customers today, 480 MW of renewable projects already under contract or development, and 3,700 MW of additional renewable resources already approved by the PSC through 2030.

Use of Clean/Lower-Emitting Fuels

RBLC and permit review identifies clean fuels as a control option. In addition, EPA identified the use of fuels such as natural gas and distillate oil as an available control option in both the 2015 and 2024 111 GHG Rules. These fuels are referred to variously as "clean fuels" in Subpart TTTT and as "lower-emitting fuels" in Subpart TTTTa.

Efficient Design

The RBLC identified efficient design as a control option for combined units.

Good Combustion, Operating, and Maintenance Practices

Good combustion, operating, and maintenance practices is identified as control options in the RBLC.

Use of Low-GHG Hydrogen

In its 2023 proposed GHG emissions standards, EPA proposed co-firing 30% low-GHG hydrogen by 2032 as BSER for both intermediate load and baseload CT units, with an increase to 96% low-GHG hydrogen by 2038 for baseload units. Low-GHG hydrogen requires the production of hydrogen through use of a low CO_2 emission technology, such as a renewable energy-powered process or a fossil fuel-powered process paired with CCS. Notably, co-firing low-GHG hydrogen was not included in the final standards due to significant uncertainties related to the availability and cost-effectiveness of this control option.[40] Co-firing low-GHG hydrogen is nonetheless evaluated as a potential control option in this BACT analysis based on its inclusion in the proposal.

Carbon Capture and Storage

While EPA removed co-firing low-GHG hydrogen from the final rules in Subpart TTTTa, it did base the final standards for some CT units, in part, on CCS. Therefore, CCS is evaluated as a potential control option in this BACT analysis. CCS requires the integration of a variety of processes and equipment to separate and capture CO_2 from the exhaust stream, compress and transport the CO_2 to a suitable geologic storage location, and pump the CO_2 deep underground. Notably, EPA's determination in Subpart TTTTa that CCS

Projects (Dec. 13, 2005); *In re Prairie State Generating Company*, 13 E.A.D. 1, 23 (EAB 2006); US EPA *PSD and Title V Permitting Guidance for Greenhouse Gases* (March 2011).

[40] 89 Fed. Reg. at 39939 (May 9, 2024).

is BSER for some combustion turbines is the subject of litigation currently underway in the U.S. Circuit Court of Appeals for the D.C. Circuit.[41]

Based on the discussion above, the following potential control options for CO_2 emissions from the proposed CC units were considered as part of this BACT analysis:

- Use of clean/low-emitting fuels (natural gas and distillate oil);
- Efficient design;
- Good combustion, operating, and maintenance practices;
- Use of low-GHG hydrogen as a fuel; and
- Carbon capture and storage (CCS).

The technical feasibility of each of these control options is discussed in the following section.

5.2.7.3 *Step 2 – Eliminate Technically Infeasible Control Options*

Use of Clean Fuels

Use of clean/low-emitting fuels (natural gas and distillate oil) is inherent to the Project. Accordingly, use of clean/lower emitting fuels, is available, applicable to the Project, and thus technically feasible.

Use of Efficient Design

Use of efficient design is inherent to the Project. Combined-cycle units are highly efficient thermal units since these units operate based on a combination of two thermodynamic cycles: the Brayton and the Rankine cycles. A CT operates on the Brayton cycle, and the HRSG and steam turbine operate on the Rankine cycle. The combination of the two thermodynamic cycles allows for the high efficiency associated with CC units.

The CT technology that will be used for the Project represents the next evolution in efficiency advancements over previous designs. Among other things, the advancements associated with the proposed CT units include higher pressure ratios, increased firing temperatures, and advanced thermal barrier coatings. These design elements make the CT technology among the most efficient available. The proposed CT units will also be equipped with evaporative cooling, which reduces the power required to compress the inlet air before it is used in combustion, thus increasing overall efficiency during certain operating conditions, especially on hot days. Additionally, the proposed CT units will be equipped with sophisticated instrumentation to control all aspects of operation, including fuel flow rate and burner operations, to achieve high efficiency and low emissions.

Waste heat recovery in the HRSG also represents efficient design. These heat exchangers are designed to capture thermal energy from CT exhaust gases and duct burners, using this heat to convert water into

[41] *West Virginia v. EPA*, No. 24-1120.

steam to drive a steam turbine, and increase power generation and overall efficiency. One aspect of the HRSG design to maximize waste heat recovery is the use of insulation on all gas path surfaces exposed to ambient air. Insulation minimizes heat loss to the ambient air, thereby improving the overall efficiency of the HRSG. Insulation is applied to the HRSG panels that make up the shell of the unit, to the high-temperature steam and water lines, and typically to the bottom portion of the stack.

Based on the above, use of efficient design is available, applicable to the Project, and thus technically feasible.

Use of Good Combustion, Operating, and Maintenance Practices

Good combustion, operating, and maintenance practices is inherent to the Project. As the proposed CT units are operated, they will inevitably experience performance degradation and efficiency loss over time. As a preventative measure, the proposed CT units will be equipped with a high efficiency filtration system for the inlet air which reduces contaminants that cause compressor fouling, one of the primary causes of efficiency loss. To address the compressor fouling that does occur, the proposed CT units will be equipped with a water wash system to clean the compressors while on- or off-line.

The proposed CT units will also be maintained following a maintenance program recommended by the original equipment manufacturer (OEM). Maintenance programs are important for efficiency as well as long-term reliability and are based on a schedule determined by the number of hours of operation and/or turbine starts. Such programs commonly include three basic maintenance levels: combustion inspections, hot gas path inspections, and major overhauls. Combustion inspections are the most frequent of the maintenance cycles and include combustor tuning to maintain highly efficient, low-emissions operation. Hot gas path inspections and major inspections occur on manufacturer-prescribed schedules and involve inspection and possible replacement of internal parts, including compressor or turbine blades, to restore as much lost performance as possible.

HRSG maintenance is also important. HRSGs are made up of tubes within the shell of the unit that are used to generate steam from the heat in the CT exhaust gas. To maximize heat transfer, the tubes and their extended surfaces need to be cleaned regularly. Although filtration of the inlet air to the CT reduces contaminants thereby minimizing fouling of the tubes, cleaning of the tubes is also performed during periodic outages. By minimizing fouling, the heat transfer efficiency of the HRSG tubes is maximized.

Based on the above, use of good combustion, maintenance, and operating practices is available, applicable to the Project, and thus technically feasible.

Use of Low-GHG Hydrogen

Hydrogen co-firing is a promising, but still emerging, technology. However, for purposes of a BACT determination, low-GHG hydrogen is not technically feasible because it is neither “available” nor “applicable” as defined by EPA.

With respect to availability, low-GHG hydrogen is not commercially available, since it is not produced in sufficient quantities in the U.S. and cannot be obtained through any known commercial channels in the vicinity of the Project. While the 2021 Infrastructure Investment and Jobs Act (IIJA) and the 2022 Inflation Reduction Act (IRA) provide funding opportunities and tax credits aimed at driving down the cost of production, processing, delivery, and storage of low-GHG hydrogen, these incentives are not projected to make low-GHG hydrogen commercially available. Other incentives, including California's Low Carbon Fuel Standard (LCFS) program, which makes credits available for use of hydrogen made with "clean electricity" as a low carbon transportation fuel in fuel cell vehicles, actually divert what little low-GHG hydrogen is currently produced for use in niche markets. The US Department of Energy (DOE) recently announced $7 billion in funding to launch seven Regional Clean Hydrogen Hubs (H2Hubs) across the nation, none of which will be located in Georgia or in the southeastern US.[42] Additionally, the US Treasury has only recently released rules on how to qualify for the low-GHG hydrogen production tax credits available under Section 45V of the Internal Revenue Code (IRC), causing uncertainty for project development.[43] GPC is unaware of any plans to build out the significant infrastructure necessary to make low-GHG hydrogen a commercially available control option. Even if sufficient supply were available, there are insufficient pipelines to transport low-GHG hydrogen to customers since pipeline gas quality specifications, in particular higher heating value (HHV), prevent blending the volumes of hydrogen that would be required into the existing natural gas infrastructure.[44] Thus, low-GHG hydrogen is not an available control option, and therefore cannot be an applicable control option for the CC units.

Due in part to its lack of availability, hydrogen co-firing remains an emerging technology that has not been demonstrated in practice. Hydrogen can only be co-fired with natural gas because turbine manufacturers have indicated that hydrogen cannot be co-fired with distillate oil. To date, there have been a handful of known test burns of hydrogen blended with natural gas in CCs, including at one of the units at our McDonough-Atkinson Steam-Electric Generating Plant (Plant McDonough). However, most, if not all, of these test burns were conducted for short periods of time using temporary blending systems.[45] Moreover, the test burns that have been conducted have used hydrogen that would not qualify as low-GHG hydrogen and therefore did not result in any meaningful reduction in overall GHG emissions. Since these test burns were only temporary in nature and did not use low-GHG hydrogen, the tests do not indicate that this control option is available and applicable. According to EPA guidance, applicants need not consider "technologies which have not yet been applied to (or permitted for) full scale operations."[46] Since

[42] https://www.energy.gov/oced/regional-clean-hydrogen-hubs-selections-award-negotiations.

[43] 90 Fed. Reg. 2224 (January 10, 2025).

[44] The pipeline specification is 980 Btu/scf HHV. See Transcontinental Gas Pipe Line Company, LLC, FERC Gas Tariff, Fifth Revised Volume No. 1, Part IV - General Terms and Conditions, Section 3 – Quality, 3(b). For example, blending 30% low-GHG hydrogen with natural gas results in a heating value of approximately 810 Btu/scf. However, the pipeline specification applies to the gas offered at the point of delivery (e.g., just upstream of the point of injection), making direct injection of hydrogen impossible.

[45] For example, the short-term test burn at Plant McDonough was conducted at a maximum of approximately 20% hydrogen co-firing by volume for less than a full hour. The test was conducted on a single train of a 2-on-1 combined-cycle unit and required significant on-site oversight and involvement by the OEM.

[46] U.S. EPA, *Draft New Source Review Workshop Manual*, at B.11 (Oct. 1990).

hydrogen co-firing has not been demonstrated in practice, it does not constitute a demonstrated and applicable control technology for the proposed CC units. Accordingly, low-GHG hydrogen is not technically feasible.

Carbon Capture and Storage

CCS is an integrated suite of technologies with the potential to work together to capture (separate and purify) CO_2 from stationary source emissions, compress and transport it to a suitable location, and then pump it into deep underground geologic formations for permanent storage. To date, CCS has not been demonstrated at full scale in practice on a combustion turbine. For CCS to be technically feasible, each individual step in the process—capture and compression, transportation, and storage—must be technically feasible. The integrated suite of components must also be technically feasible in the sense that components have been demonstrated to work together without interfering with the essential operation of the units.[47] Accordingly, any potential barriers to the successful integration of these components must be considered in determining whether CCS is technically feasible.

Capture and Compression

There are two CCS systems currently installed and operational at commercial power plants in North America: the Boundary Dam project in Saskatchewan, Canada, and the Petra Nova project in Texas. However, both of these projects are coal-fired steam units, both are comparatively small, and both have experienced significant technical and operational hurdles that have prevented continuous successful operation, as would be required for a typical power plant. Boundary Dam is a 110 MW coal-fired unit that was designed for but has proven incapable of capturing up to 90 percent of its CO_2 emissions using an amine solvent. While Boundary Dam has captured over six million metric tons of CO_2 since carbon capture operations began in 2014, this represents less than 63% percent of the one million tons per year goal, or a carbon capture rate of only 57%.[48] Furthermore, it has experienced ongoing equipment issues that have negatively impacted the unit's ability to consistently capture CO_2. Similarly, the Petra Nova project was designed to capture 90 percent of the CO_2 emissions of a 240 MW slip stream from a 610 MW coal-fired unit (approximately 35 percent of the unit's total CO_2 emissions) to be used for enhanced oil recovery. In its three years of operation, Petra Nova missed its carbon capture target by about 17 percent relative to what developers had expected and the project was discontinued in 2020 due to lack of economic viability, although Petra Nova recently restarted in the latter half of 2023. During the prior period of system operation, Petra Nova experienced outages on 367 days, with the CCS facility accounting for more than one-fourth of those outage days.[49] Additionally, the Petra Nova capture system was powered by a separate

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[47] U.S. EPA, *PSD and Title V Permitting Guidance for Greenhouse Gases*, at 35-36 (March 2011).

[48] https://ieefa.org/resources/carbon-capture-boundary-dam-3-still-underperforming-failure.

[49] https://www.reuters.com/article/business/environment/problems-plagued-us-co2-capture-project-before-shutdown-document-idUSKCN2523K7/

gas-fired combustion turbine, and the CO_2 emissions from the turbine were not captured, which materially reduced the actual net emissions reductions from the project.

Both the Boundary Dam and Petra Nova projects demonstrate the need for continued research efforts to not only reduce both capital and operational costs for CCS, but also to improve component design to maintain equipment reliability and performance, which are critical when facilities are required to consistently meet regulatory emission limits and when reliability of power generation must be considered.

In addition to the types of carbon capture technology employed at Boundary Dam and Petra Nova and being examined in FEED studies, there are other carbon capture technologies that are under development, such as polymeric membranes, combination solvent/membranes, and solid sorbents. Polymeric membranes have shown potential for carbon capture from coal-fired flue gas streams but are challenged by the lower CO_2 partial pressures/concentrations from CC units. Combination solvent/membrane systems are not yet ready for demonstration. Solid sorbents are likewise developing technologies but also not yet demonstrated at relevant scale.

While there has been significant progress made in the development of carbon capture systems for coal-fired steam electric generating units, carbon capture technology has not been adequately demonstrated at scale for simple- or combined-cycle combustion turbines. In CTs, whether in simple- or combined-cycle configurations, a significant portion of the air drawn into the compressor is not used for combustion, but for cooling various internal components, including the combustor and turbine blades. This, coupled with the combustion of clean, or lower-emitting fuels such as natural gas or distillate oil, results in a dilute gas stream with inherently low concentrations of CO_2, making CO_2 separation, i.e., capture, more difficult compared to other combustion streams. For this reason alone, CCS was recently determined to be technically infeasible as BACT for a proposed, highly efficient CC unit, even when CCS was planned for other processes with high purity CO_2 gas streams at the same stationary source.[50]

Technology testing at the National Carbon Capture Center (NCCC) and the Technology Centre Mongstad (TCM) (located in Mongstad, Norway), focused primarily on use of amine solvents, has been valuable to evaluate carbon capture technologies and move them through development to prepare for future potential demonstration.[51] Several technologies that have been tested at those facilities are now in the

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[50] Wabash Valley Resources (RBLD Id. IN-0371) plans to redevelop an existing coal gasification plant in West Terre Haute, Indiana (formerly the Duke Energy Wabash River Station) to make hydrogen for sale or use as feedstock in the production of anhydrous ammonia fertilizer. https://www.energy.gov/sites/default/files/2021-09/h2-shot-summit-panel2-gasification-doe-fecm.pdf. The developers plan to produce blue hydrogen by incorporating CCS downstream of the sweet gas water shift reaction, which would create a gas stream with high concentrations of CO_2 by reacting CO in the sweet gas with steam. The developers also plan to integrate a natural gas-fired CC unit to provide power and steam to the ammonia plant. The Indiana Department of Environmental Management (IDEM) found that CCS for the proposed CC unit was not technically feasible because it could not be reasonably installed and operated on the source under consideration. *See* Addendum to the Technical Support Document (ATSD) for Permit No. 167-45208-00091, dated January 11, 2024, Appendix B, CO_2e BACT Analysis – 2,292 MMBtu/hr IGCC CT.

[51] Southern Company, parent company to Georgia Power Company, manages and operates the National Carbon Capture Center (NCCC) located in Wilsonville, Alabama. The NCCC team leads world-class research of next-generation carbon capture

Front-End Engineering Design (FEED) stage, which refines the expected costs of those options. Nevertheless, a technology must be adequately demonstrated at a scale beyond the NCCC or TCM to identify and address operational issues before being considered commercially available. Many of these projects are now advancing and have been selected for follow-on pilot and demonstration projects,[52] but commercial application of these projects will remain unproven for years. Georgia Power is aware of a permit been issued for CCS to the CC units located at CPV Basin Ranch Holding, Inc. in Ward, Texas, but this CCS system has not yet been constructed.[53] The permit narrative makes clear that CCS was not determined to be BACT based on a top-down analysis and that CCS was not required by any other regulatory requirement—rather, the decision to install CCS was voluntary and intended by the applicant "to advance the technology for future development and commercialization as it relates to the power generation industry."

Southern Company recently participated in two DOE-funded FEED studies for retrofitting CO_2 capture on a CC unit, excluding the CO_2 transportation pipelines and storage facilities that would be required to permanently sequester the CO_2 underground. The first FEED study used Mississippi Power's Plant Daniel Unit 4 combined-cycle facility as the host site to study a retrofit of Linde-BASF's post-combustion capture technology with a target of 90 percent CO_2 capture. The project team developed the retrofit design to a level of detail sufficient to support an Association for the Advancement of Cost Engineering (AACE) Class 3 cost estimate with an associated project schedule, including detailed design, procurement, construction, commissioning, and startup, estimated at roughly five years. The Plant Daniel FEED study took approximately 2 years to complete before concluding in 2022. The final project report is publicly available through the DOE's Office of Science and Technical Information (OSTI).[54]

The second FEED study project used Alabama Power's Plant Barry Unit 6 combined-cycle facility as the host site to apply a retrofit of Linde-BASF's post-combustion technology with a target of 95 percent CO_2 capture. This retrofit design included more complex integration of the carbon capture system with a CC unit, including exhaust gas recirculation (EGR), which recycles a portion of the exhaust gas from the heat recovery steam generator (HRSG) to the inlet of the combustion turbine, thus increasing the exhaust gas CO_2 concentration and decreasing the volume of gas to be treated in the CO_2 capture process. Both of these improvements should decrease the size of CO_2 capture equipment and improve efficiency of CO_2

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technologies with approximately 150 highly specialized engineers, operations, maintenance, and support staff, and construction personnel taking projects through onboarding, design, scale-up, testing, data analysis, final evaluation, and demobilization. NCCC shares knowledge with developers and test facilities as technology is scaled up following testing at the NCCC.

[52] For example, a permit authorizing the installation of CCS was issued to a DOE-funded demonstration project at the Baytown Energy Center in Baytown, Texas. A permit for CCS was also issued to the Quail Run Energy Facility in Odessa Texas, but there is no evidence this project is being funded or moving forward.

[53] The permit does not identify CCS as BACT for the facility.

[54] Front End Engineering Design of Linde-BASF Advanced Post-Combustion CO_2 Capture Technology at a

Southern Company Natural Gas-Fired Power Plant, U.S. Department of Energy, Office of Fossil Energy and Carbon Management (FECM), National Energy Technology Laboratory, DE-FE0031847. Available at https://www.osti.gov/servlets/purl/1890156/.

capture. Similar to the Plant Daniel project, the project team developed a cost estimate and schedule and completed the work in March 2024. The final report was released through OSTI October 15, 2024.[55]

Participating in these FEED studies has provided significant insight into the technical and logistical aspects of integrating CO_2 capture on a CC unit. Equally as important, these FEED studies have revealed and highlighted areas where more detailed work and experience is needed to understand the operating, maintenance, and reliability impacts of a CC unit with CCS on the electric grid, particularly with respect to non-steady state operating conditions. As recognized by Congress through the IIJA and subsequent DOE FOAs, the next step in application of CCS on combustion turbines should include execution of demonstration projects to further define the operating flexibility and reliability of these units.

To date, none of the CCS projects identified at combined-cycle units have yet progressed to a complete detailed design or full deployment and thus cannot be the basis of a BACT determination for the Project.

Storage

Once captured, CO_2 must be stored underground in suitable geological formations, but not all regions of the U.S. have the required geology. The features of the Valley and Ridge Physiographic Province located in the northernmost areas of Alabama and Georgia are not known to be conducive to carbon storage. GPC is performing boring projects to better understand the geologic formations in Georgia and assess the viability of safe and permanent storage of CO_2, but this work is ongoing and exploratory in nature. Developers, such as Carbon America, also intend to further explore Georgia's geology and its potential for CO_2 storage.[56] Based on Southern Company's knowledge of geologic investigations across the southeastern U.S., certain areas in southern Alabama remain the closest locations with potentially feasible sites for carbon storage for the Project. However, as explained below, pipeline access to these areas is not available or even under development.

Transportation

Unless captured CO_2 is used or stored at the capture site, it must be compressed and transported to a location with adequate geology for storage. Therefore, transportation of CO_2 via pipeline to a storage location is an essential component of CCS where storage or an available use of the CO_2 is not available at the site. Only a few pipelines are currently used to carry CO_2 in the U.S., primarily linking natural sources of CO_2 sources to oil fields for use in enhanced oil recovery (EOR). However, a national CO_2 pipeline

[55] Retrofittable Advanced Combined Cycle Integration for Flexible Decarbonized Generation. Available at https://www.osti.gov/servlets/purl/2377996.

[56] Carbon America's *Project Antheia* is one of 23 projects being funded by the 2021 Infrastructure Investment and Jobs Act, in support of the Carbon Storage Assurance Facility Enterprise (CarbonSAFE) Initiative and selected for Phase III carbon storage validation and testing. https://www.energy.gov/fecm/project-selections-foa-2711-carbon-storage-validation-and-testing-round-3.

network does not exist, which makes this critical step in the CCS process unavailable in many areas of the country. The only announced proposed CO_2 pipelines under development for CCS have been in the Midwest U.S., spanning the states of Illinois, Iowa, Minnesota, Nebraska, North Dakota, and South Dakota. However, the majority of these projects have been cancelled or delayed.[57] There are no existing or planned networks in Georgia. So, while CO_2 transportation via pipeline has been physically demonstrated, CO_2 transportation infrastructure is not commercially available for the Project.

Since carbon capture is not applicable due to the lack of a sufficient commercial scale demonstration, storage is not available at the Project site, and transportation of CO_2 to offsite locations is not available, CCS is not technically feasible for the Project.[58,59]

As EPA states in its GHG BACT Guidance, "CCS may be eliminated from a BACT analysis in Step 2 if it can be shown that there are significant differences pertinent to the successful operation for each of these three main components from what has already been applied to a differing source type. … Furthermore, CCS may be eliminated from a BACT analysis in Step 2 if the three components working together are deemed technically infeasible for the proposed source, taking into account the integration of the CCS components with the base facility and site-specific considerations." The above analysis is consistent with this guidance—CCS has only been applied at commercial scale to coal-fired units, not gas-fired turbines, and the difference in the nature of the exhaust stream of a combustion turbine compared to a coal-fired unit presents significant unresolved challenges that make the application of CCS to this project technically infeasible.

5.2.7.4 *Step 3 – Rank Remaining Control Options*

Use of clean/low-emitting fuels, efficient design, and good combustion, operating, and maintenance practices are the only available and technically feasible control options for CO_2 emissions from the proposed CC units and are all inherent to the Project. As such, all of these available technologies are applicable and no ranking of the three control options is required.

5.2.7.5 *Step 4 – Evaluate Remaining Control Options*

The top control option is proposed for emissions of CO_2 from the proposed CC units. Therefore, no further evaluation of the CO_2 control options is required. Although technical infeasibility of CCS for control of CO_2 from CCs has been thoroughly evaluated as established herein, and therefore an analysis of cost-effectiveness is unnecessary, GPC recognizes that some recent GHG applications for combined-cycle units

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[57] https://www.rabobank.com/knowledge/d011434507-the-long-haul-to-long-haul-carbon-dioxide-pipeline-development-in-the-us.

[58] While CCS is considered technically infeasible, 5 acres for each proposed CC unit have been reserved for capture and compression should this technology become available for utility-scale deployment in the future.

[59] For purposes of this BACT analysis, consideration of CCS also includes partial CCS as a potential control alternative. However, GPC's analysis determined that partial CCS presents the same challenges as full CCS with respect to availability and applicability under Step 2. Therefore, since full CCS was determined to be infeasible in Step 2, the same conclusions were reached for partial CCS as well. Accordingly, this analysis does not expressly include additional details on the evaluation of partial CCS as a potential control option.

have included an economic analysis of CCS, and GPC has reviewed the results of those evaluations. In the analyses of which GPC is aware that have been conducted for other facilities, the average cost of removal per ton of CO_2 calculated for CCS in combined-cycle configurations has exceeded $100 per ton removed, which has been deemed cost-ineffective in all cases.

5.2.7.6 *Step 5 – Select BACT*

Based on our review, CO_2 BACT for the proposed CC units should be based on use of clean/low-emitting fuels, efficient design, and good combustion, operating, and maintenance practices. The search results for the combination of these control options, summarized in Appendix E, Tables E-23 and E-24, indicate that the most common form of CO_2 emissions limit for the type of source under consideration is a 12-month rolling average emission rate on a lb CO_2/MWh-gross basis. Based on GPC's review of the search results and the potentially applicable regulations in Subpart TTTTa:

- The level of control for all CC units of a similar configuration, i.e., 1-on-1, without regard to CT technology, operating mode, or fuel, ranges from 726 to 1,384 lb CO_2/MWh-gross with an average emission limit of approximately 900 lb CO_2/MWh-gross.
- Emission limits for 1-on-1 CC units that are greater than 1,000 lb CO_2/MWh-gross apply only while burning oil or while operating at low loads.[60]
- Emissions limits for 1-on-1 CC units that are less than 800 lb CO_2/MWh-gross are based on operating at full load without use of duct burners while burning natural gas only.[61] Otherwise, these units are subject to the Subpart TTTT emission limit of 1,000 lb CO_2/MWh-gross.
- Emission limits for all dual-fuel 1-on-1 CC units range from 850 and 1,384 lb CO_2/MWh-gross when separate limits apply depending on the fuel being burned.[62] However, when a single limit applies without regard to the fuel burned, the range for dual-fuel 1-on-1 CC units narrows to between 888 and 1,000 lb CO_2/MWh-gross, where the upper bound is the emission limit in Subpart TTTT.[63]
- The potentially applicable regulations in Subpart TTTTa establish a "sliding-scale" emission standard which, for large CTs, ranges from 800 to 1,067 lb CO_2/MWh-gross depending on how much distillate oil was used in the previous 12 operating months

[60] CPV Three Rivers (IL-0129) and Nemadji Trail Energy (WI-0300) have emission limits of 1,384 and 1,180 lb CO_2/MWh-gross, respectively, when burning oil. JEC Units 1 and 2 (IL-0130) have an emission limit of 1,190 lb CO_2/MWh-gross when operating at low loads.

[61] *See*, for example, Maple Creek Energy (IN-0365) and Long Ridge Energy (OH-0375). The practice of setting this type of emission limit for purposes of BACT appears to be common in Ohio. *See* also NTE Ohio (OH-0363), Clean Energy Future Lordstown (OH-0366), and Guernsey Power Station (OH-0374).

[62] Dual-fuel 1-on-1 CC units include CPV Three Rivers Energy Center (IL-0129), Middlesex Energy Center (NJ-0085), and Nemadji Trail Energy Center (WI-0300). Please refer to footnote 60.

[63] While CPV, Nemadji, and Middlesex are dual-fuel units, only Middlesex has single limit that includes emissions from burning both natural gas and distillate oil. The Middlesex limit of 888 lb CO_2/MWh-gross includes 720 hours per year of operation on oil.

Based on the above, GPC proposes the following as CO_2 BACT:

- 905 lb CO_2e/MWh-gross based on a 12-operating month rolling average, determined in accordance with the monitoring, recordkeeping, and reporting requirements established in the applicable NSPS.

This emission limit is specific to the type of CT technology and CC configuration of the proposed CC units and accounts for supplemental firing, periods of operation at low loads, and use of distillate oil as a backup fuel.[64] The emission limit also accounts for unit degradation since BACT must be achievable over the life of the units, and the way the units are operated and the emission performance they can achieve may change over time. This limit is expressed on a carbon dioxide equivalent basis and is intended to cover emissions of CH_4 and N_2O based on the BACT determinations for those pollutants, which are summarized below.

Compliance with the proposed GHG BACT limit will be demonstrated by continuously monitoring heat input according to 40 CFR Part 75, Appendix D, and using emission factors to calculate monthly emissions. The emission factor for CO_2 will be based on 40 CFR Part 75, Appendix G, Eq. G-4, while emissions of CH_4 and N_2O will be based on the current emission factors in 40 CFR Part 98, Table C-2[65] and the current global warming potentials in 40 CFR Part 98, Table A-1 (1, 28, and 265 for CO_2, CH_4, and N_2O, respectively)[66].

[64] The proposed CO_2e BACT limit of 905 lb CO_2e/MWh-gross reflects the estimated performance, i.e., heat rate, of the proposed CC units while firing natural gas at minimum load, or at full pressure with duct burner in-service, at winter conditions and accounts for up to 1,200 hours per year of operation on distillate oil at full load.

[65] Emission factors are from 40 CFR Part 98 in 78 Federal Register at 71952, November 29, 2013.

[66] Global Warming Potentials for GHGs are from amendments to 40 CFR Part 98 in 89 Federal Register at 31802, April 25, 2024.

5.2.8 Greenhouse Gases – Methane (CH_4)

For the proposed CC units, the contribution of CH_4 to total CO_2e emissions is negligible and therefore should not warrant a detailed BACT review. Nonetheless, the following top-down analysis is provided for CH_4 emissions from the proposed CC units.

5.2.8.1 *Formation*

Emissions of CH_4 may occur because of incomplete combustion of methane and hydrocarbons in fuel.

5.2.8.2 *Step 1 – Identify Control Options for Evaluation*

As discussed above, CH_4 emissions may occur because of incomplete combustion. Good combustion practices are an available control option to reduce CH_4 emissions from the proposed CC units.

Catalyst providers do not offer products to control CH_4 emissions from combustion turbines due to the very low concentrations present in exhaust streams. Additionally, the reaction rate for hydrocarbons over an oxidation catalyst is a strong function of chain length, making post-combustion oxidation of CH_4 particularly difficult. Therefore, good combustion practices are the only available control option for CH_4 emissions from the proposed CC units.

5.2.8.3 *Step 2 – Eliminate Technically Infeasible Control Options*

Good combustion practices are the only available control option for CH_4 emissions from the proposed CC units and are technically feasible.

5.2.8.4 *Step 3 – Rank Remaining Control Options*

No ranking of control options is required, as good combustion practices are the only available and technically feasible control option for CH_4 emissions from the proposed CC units.

5.2.8.5 *Step 4 – Evaluate Remaining Control Options*

The top control option is proposed for emissions of CH_4 from the proposed CC units. Therefore, no further evaluation of the CH_4 control options is required.

5.2.8.6 *Step 5 – Select BACT*

Good combustion practices are selected as BACT for CH_4 emissions from the proposed CC units. GPC is proposing that a separate numerical limit for CH_4 emissions is unnecessary because CH_4 emissions are included in the proposed GHG limit expressed in CO_2e determined to be BACT for CO_2 above. Emissions of CH_4 will be calculated based on the emission factor from 40 CFR Part 98 Subpart C and the GWP of 28 (per 40 CFR 98 Subpart A, rule effective January 1, 2025).

5.2.9 Greenhouse Gases – Nitrous Oxide (N_2O)

For the proposed CC units, the contribution of N_2O to total CO_2e emissions is also negligible and therefore should not warrant a detailed BACT review. Nonetheless, the following top-down analysis is provided for N_2O emissions from the proposed CC units.

5.2.9.1 *Formation*

N_2O is a component of NO_X, which is formed through five (5) primary pathways of NO_X production in combustion turbines: thermal NO_X, prompt NO_X, NO_X from N_2O intermediate reactions, fuel NO_X, and NO_X formed through reburning. However, efforts to reduce NOx emissions overall can result in higher emissions of the N_2O component of NO_X. Specifically, for turbines using DLN combustors, the N_2O pathway is the prevailing mechanism of NO_X formation. Flame radicals produced in the high temperature and pressure DLN combustion zone react with N_2O, creating N_2 and NO.[67] In premixed gas flames, N_2O is primarily formed in the flame front or oxidation zone. Once formed, the N_2O is readily destroyed due to the relatively high concentration of H radicals, and therefore, the N_2O emissions from premixed gas flames like those in DLN combustors are found experimentally to be very small (generally less than 1 ppm). However, any mechanisms which decrease the H atom concentration in the N_2O formation zone can increase N_2O emissions. These mechanisms include lowering the flame combustion temperature, air-to-fuel staging, and injection of ammonia, urea, or other amine or cyanide species into the exhaust stream, all of which are common NO_X control measures.[68] Therefore, reductions in NO_X can result in incremental increases in N_2O emissions.

5.2.9.2 *Step 1 – Identify Control Options for Evaluation*

Good combustion practices are an available control option to reduce N_2O emissions from the proposed CC units. As discussed above, N_2O formation is limited during complete combustion, since most oxides of nitrogen will tend to oxidize completely to NO_2, which is not a GHG.

Additionally, N_2O catalysts are a potential control option, as they have been used in nitric/adipic acid plant applications to minimize N_2O emissions.[69] Through this technology, tail gas from the nitric acid production process is routed to a reactor vessel with an N_2O catalyst followed by ammonia injection and a NO_X catalyst.

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[67] Angello, L., Electric Power Research Institute, Fuel Composition Impacts on Combustion Turbine Operability (March 2006).

[68] American Petroleum Institute, Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Gas Industry (February 2004).

[69] N_2O Emissions from Adipic Acid and Nitric Acid Production, written by Heike Mainhardt (ICF Incorporated) and reviewed by Dina Kruger (U.S. EPA). Available at http://www.ipcc-nggip.iges.or.jp/public/gp/bgp/3_2_Adipic_Acid_Nitric_Acid_Production.pdf.

5.2.9.3 *Step 2 – Eliminate Technically Infeasible Control Options*

N_2O catalyst providers do not offer products to control N_2O emissions from combustion turbines due to the very low N_2O concentrations present in exhaust streams.[70]

Since N_2O catalysts are not available, good combustion practices are the only available control option and are technically feasible.

5.2.9.4 *Step 3 – Rank Remaining Control Options*

No ranking of control options is required, as good combustion practices are the only available and technically feasible control option for N_2O emissions from the proposed CC units.

5.2.9.5 *Step 4 – Evaluate Remaining Control Options*

The top control option is proposed for emissions of N_2O from the proposed CC units. Therefore, no further evaluation of the N_2O control options is required.

5.2.9.6 *Step 5 – Select BACT*

Good combustion practices are selected as BACT for N_2O emissions from the proposed CC units. GPC is proposing that a separate numerical limit for N_2O emissions is unnecessary because N_2O emissions are included in the proposed GHG limit expressed in CO_2e determined to be BACT for CO_2 above. Emissions of N_2O will be calculated based on the emission factor from 40 CFR Part 98 Subpart C and the GWP of 265 (per 40 CFR 98 Subpart A, rule effective January 1, 2025).

[70] Emissions of Nitrous Oxide from Combustion Sources, in Progress and Energy and Combustion Science 18(6): pages 529- 552, December 1992. Available at https://www.researchgate.net/publication/223546823_Emissions_of_nitrous_oxide_from_combustion_sources.

5.3 Cooling Towers BACT Review

5.3.1 Particulate Matter

5.3.1.1 *Formation*

In wet cooling towers, some liquid water droplets may be entrained in the cooling air stream and carried out of the tower. These droplets are referred to as "drift" and may contain dissolved solids. PM emissions occur when the droplets evaporate, leaving behind solid particles.

5.3.1.2 *Step 1 – Identify Control Options for Evaluation*

GPC searched RBLC for BACT determinations for PM emissions from cooling towers associated with power generation. The results of this search are summarized in Appendix E, Table 25.

Based on these results, the only potentially available control option to reduce PM emissions from the cooling towers is high-efficiency drift eliminators. Drift eliminators consist of baffles located at the top of a cooling tower that are designed to prevent water droplets from escaping the tower by causing the droplets to change direction and lose velocity, and by impaction on the baffle blades resulting in agglomeration of droplets.

5.3.1.3 *Step 2 – Eliminate Technically Infeasible Control Options*

High-efficiency drift eliminators are inherent to the Project and technically feasible.

5.3.1.4 *Step 3 –Rank Remaining Control Options*

No ranking of control options is required, as high-efficiency drift eliminators are the only available and technically feasible control option for PM emissions from the cooling towers.

5.3.1.5 *Step 4 – Evaluate Remaining Control Options*

The top control option is proposed for emissions of PM from the cooling towers. Therefore, no further evaluation of the PM control options is required.

5.3.1.6 *Step 5 – Select BACT*

Based on our review, PM BACT for the cooling towers should be based on the use of high-efficiency drift eliminators. Based on the search results, drift rates for high-efficiency drift eliminators range from 0.0005 to 0.001% of circulating water flow. Based on this information, GPC is proposing to install drift eliminators with a drift rate of 0.0005% as PM BACT for the cooling towers.

5.4 Fuel Gas Heaters BACT Review

5.4.1 Nitrogen Oxides

5.4.1.1 *Formation*

NO_X formation mechanisms for fuel-burning equipment such as the proposed fuel gas heaters are generally the same as those discussed above for the proposed CC units, although thermal NO_X is expected to be the basis for the majority of NO_X emissions from the heaters.

5.4.1.2 *Step 1 – Identify Control Options for Evaluation*

GPC searched RBLC and considered relevant existing and proposed federal and state emissions standards to identify potential control options for NO_X emissions from the proposed fuel gas heaters. Generally, NO_X emissions from fuel-burning equipment can be controlled through two types of emission control strategies: combustion controls and add-on controls. Combustion controls address thermal NO_X directly by reducing peak flame temperature by, for example, staging combustion and/or recirculating flue gas to reduce the oxygen content of the combustion air. Add-on controls employ various strategies to reduce NO_X emissions to water and nitrogen, which often includes the use of reagents in the presence of a catalyst. Based on the RBLC search results provided in Appendix E, Table E-26, no add-on control options were identified. Many facilities listed some variation of use of clean fuels (such as natural gas), good combustion practices (e.g., tune-ups), and combustion controls (such as low or ultra-low NO_X burners), as BACT. Add-on controls potentially applicable to the proposed fuel gas heaters include SCR, SNCR, and non-NSCR.

5.4.1.3 *Step 2 – Eliminate Technically Infeasible Control Options*

<u>Use of Clean Fuels, Good Combustion Practices, and Combustion Controls</u>

Use of natural gas, good combustion practices, and ultra-low NO_X burners are inherent to the Project and technically feasible.

<u>Selective Catalytic Reduction (SCR), Selective Non-catalytic Reduction (SNCR), Non-selective catalytic reduction (NSCR)</u>

As discussed in the BACT analysis for the proposed CC units, SCR, SNCR, and NSCR are all forms of post-combustion add-on controls that reduce NO_X emissions to water and nitrogen, as follows:

- SCR – Injection of nitrogen-based reagent (e.g., ammonia or urea) in the presence of a catalyst
- SNCR – Similar to SCR, except no catalyst is used and higher operating temperatures are required
- NSCR – Catalyst reaction without use of a reagent in exhaust gas with low oxygen content

GPC is unaware of any case in which these add-on controls have been installed and operated successfully on small fuel-burning equipment similar to the proposed fuel gas heaters. Combustion controls such as low or ultra-low NO_X burners, with or without flue gas recirculation, are the most effective controls that can be obtained through commercial channels for such units. Therefore, add-on controls are not considered available. Additionally, both SNCR and NSCR are not applicable based on the physical and chemical characteristics of the exhaust gas from the proposed fuel gas heaters. For SNCR, the exhaust gas is not hot enough for this add-on control to be effective. For NSCR, the oxygen content of the exhaust gas is too high for this add-on control to be effective and the proposed fuel gas heaters cannot be tuned to such low levels of excess air without causing excessive unburned hydrocarbons, soot, smoke, and CO emissions. Accordingly, SCR, SNCR, and NSCR are not technically feasible.

5.4.1.4 *Step 3 – Rank Remaining Control Options*

No ranking of control options is required, as use of natural gas, good combustion practices, and ultra-low NO_X burners are the only available and technically feasible control options for NO_X emissions from the proposed fuel gas heaters.

5.4.1.5 *Step 4 – Evaluate Remaining Control Options*

The top control options are being proposed for NO_X emissions from the proposed fuel gas heaters. Therefore, no evaluation of the NO_X control options is required.

5.4.1.6 *Step 5 – Select BACT*

Based on our review, NO_X BACT for the proposed fuel gas heaters should be based on the exclusive use of natural gas, good combustion practices, and ultra-low NO_X burners. Based on the search results, NO_X emission limits for natural gas-fired fuel gas heaters with a heat input rating of less than 10 MMBtu/hr range from 0.011 to 0.149 lb/MMBtu.

GPC is proposing a NO_X BACT limit of 9 ppmvd, corrected to 3% O_2, or 0.011 lb/MMBtu, to be demonstrated by monitoring NO_X emissions while emissions of CO are optimized during biennial tune-ups under the Industrial Boiler MACT (40 CFR Part 63, Subpart DDDDD).[71] Measurements of NO_X (and O_2) will be conducted using the procedures of ASTM D 6522, CTM-030, or EPA reference methods 7E and 3A.

[71] The proposed NO_X BACT limit, in conjunction with the proposed CO and VOC BACT limits, are based on vendor design information and are equivalent to “state-of-the-art” (SOTA) emission levels for natural gas-fired boiler and process heaters in the state of New Jersey. See State of the Art (SOTA) Manual for Boilers and Process Heaters, State of New Jersey, Department of Environmental Protection, Air Quality Permitting Element, July 1997, last revised February 2004.

5.4.2 Sulfur Dioxide

5.4.2.1 *Formation*

Emissions of SO_2 occur as a result of the oxidation of sulfur-containing compounds in the fuel during the combustion process. SO_2 emissions associated with combustion of natural gas are very low due to the low concentration of sulfur compounds in the fuel.

5.4.2.2 *Step 1 – Identify Control Options for Evaluation*

For SO_2, GPC also searched RBLC to identify potential control options for the proposed fuel gas heaters. The result of this search is summarized in Appendix E, Table E-27. Based on this review, no add-on control options were identified. Instead, many facilities listed some variation of use of clean fuels with inherently low sulfur content and good combustion practices as BACT.

The only potentially available control option for SO_2emissions from the proposed fuel gas heaters is use of clean fuels with inherently low sulfur content. Conventional add-on controls are not commercially available for such sources because the use of clean fuels inherently results in a low level of emissions.

5.4.2.3 *Step 2 – Eliminate Technically Infeasible Control Options*

Use of fuels with inherently low sulfur content are inherent to the Project and technically feasible.

5.4.2.4 *Step 3 – Rank Remaining Control Options*

No ranking of control options is required, as use of fuels with inherently low sulfur content is the only available and technically feasible control option for SO_2 emissions from the proposed fuel gas heaters.

5.4.2.5 *Step 4 – Evaluate Remaining Control Options*

The top control option is being proposed for SO_2 emissions from the proposed fuel gas heaters. Therefore, no further evaluation of the impacts of the control options is required.

5.4.2.6 *Step 5 – Select BACT*

Based on our review, SO_2 BACT for the proposed fuel gas heaters should be based on use of fuels with inherently low sulfur content. GPC proposes to exclusively fire pipeline quality natural gas in these heaters.

5.4.3 Carbon Monoxide

5.4.3.1 *Formation*

CO emissions from the proposed fuel gas heaters may result from incomplete conversion of carbon-containing compounds during combustion and are principally influenced by equipment operating conditions.

5.4.3.2 *Step 1 – Identify Control Options for Evaluation*

GPC searched RBLC and considered relevant existing and proposed federal and state emissions standards to identify potential control options for CO emissions from the proposed fuel gas heaters. Like NO_X, CO emissions from fuel-burning equipment can be controlled through two types of emission control strategies: good combustion practices and add-on controls. For sources such as the proposed fuel gas heaters, there is typically a trade-off between emissions of NO_X and CO. For example, higher combustion temperatures and residence times may lead to more complete fuel combustion and thus lower CO emissions, but these control techniques may result in excessive NO_X emissions. Good combustion practices strive to optimize emissions for both pollutants. Add-on controls may employ various types of catalysts to oxidize CO emissions to CO_2. Based on the RBLC search results provided in Appendix E, Table E-28, no add-on control options were identified. Many facilities listed some variation of use of clean fuels such as natural gas and good combustion practices (e.g., tune-ups). Add-on controls potentially applicable to the proposed fuel gas heaters include oxidation catalysts.

5.4.3.3 *Step 2 – Eliminate Technically Infeasible Control Options*

Use of Clean Fuels and Good Combustion Practices

Use of natural gas and good combustion practices are inherent to the Project and technically feasible. Available combustion controls for such units are typically offered with performance guarantees for CO emissions.

Oxidation Catalyst

Oxidation catalysts are add-on controls which convert emissions of CO to CO_2 in the presence of a catalyst without the addition of any chemical reagent. GPC is unaware of any case in which these add-on controls have been installed and operated successfully on small fuel-burning equipment like the proposed fuel gas heaters. As discussed above, only combustion controls for NO_X emissions from small process heaters are commercially available. Therefore, oxidation catalysts not technically feasible.

5.4.3.4 *Step 3 – Rank Remaining Control Options*

No ranking of control options is required, as use of natural gas and good combustion practices are the only available and technically feasible control options for CO emissions from the proposed fuel gas heaters.

5.4.3.5 *Step 4 – Evaluate Remaining Control Options*

The top control options are being proposed for CO emissions from the proposed fuel gas heaters. Therefore, no evaluation of the CO control options is required.

5.4.3.6 *Step 5 – Select BACT*

Based on our review, CO BACT for the proposed fuel gas heaters should be based on the exclusive use of natural gas and good combustion practices. Based on the search results, CO emission limits for natural gas-fired fuel gas heaters with a heat input rating of less than 10 MMBtu/hr range from 0.037 to 0.110 lb/MMBtu. As previously mentioned, good combustion practices seek to optimize emissions for both NO_X and CO emissions and only one facility lists fuel gas heaters that have emission limits for both of these pollutants (AL-0329). The CO emission limit for these fuel gas heaters is 0.080 lb/MMBtu, when limited to 0.011 lb/MMBtu for NO_X emissions consistent with the BACT determination as proposed above.

GPC is proposing a CO BACT limit of 100 ppmvd, corrected to 3% O_2, or 0.074 lb/MMBtu, to be demonstrated by using a portable analyzer to monitor emissions of CO during biennial tune-ups under the Industrial Boiler MACT (40 CFR Part 63, Subpart DDDDD).[72] Measurements of CO (and O_2) will be conducted using the procedures of ASTM D 6522, CTM030, or EPA reference methods 10 and 3A.

[72] *Id*.

5.4.4 Volatile Organic Compounds

5.4.4.1 *Formation*

Like CO, VOC emissions from the proposed fuel gas heaters may result from incomplete combustion of hydrocarbon in fuel and are principally influenced by equipment operating conditions.

5.4.4.2 *Step 1 – Identify Control Options for Evaluation*

GPC searched RBLC and considered relevant existing and proposed federal and state emissions standards to identify potential control options for VOC emissions from the proposed fuel gas heaters. Like CO, VOC emissions from fuel-burning equipment have similar considerations and can be controlled through good combustion practices and add-on controls. Based on the RBLC search results provided in Appendix E, Table E-29, no add-on control options were identified. Many facilities listed some variation of use of clean fuels such as natural gas and good combustion practices. Add-on controls potentially applicable to the proposed fuel gas heaters include oxidation catalysts.

5.4.4.3 *Step 2 – Eliminate Technically Infeasible Control Options*

Use of Clean Fuels and Good Combustion Practices

Use of natural gas and good combustion practices are inherent to the Project and technically feasible. Available combustion controls for such units are typically offered with performance guarantees for VOC emissions.

Oxidation Catalyst

Oxidation catalysts are add-on controls which convert emissions of organic compounds to CO_2 in the presence of a catalyst without the addition of any chemical reagent. GPC is unaware of any case in which these add-on controls have been installed and operated successfully on small fuel-burning equipment like the proposed fuel gas heaters. Therefore, oxidation catalysts not technically feasible.

5.4.4.4 *Step 3 – Rank Remaining Control Options*

No ranking of control options is required, as use of natural gas and good combustion practices are the only available and technically feasible control options for VOC emissions from the proposed fuel gas heaters.

5.4.4.5 *Step 4 – Evaluate Remaining Control Options*

The top control options are being proposed for VOC emissions from the proposed fuel gas heaters. Therefore, no evaluation of the VOC control options is required.

5.4.4.6 *Step 5 – Select BACT*

Based on our review, VOC BACT for the proposed fuel gas heaters should be based on the exclusive use of natural gas and good combustion practices. Based on the search results, VOC emission limits for natural gas-fired fuel gas heaters with a heat input rating of less than 10 MMBtu/hr range from 0.005 to 0.050 lb/MMBtu and no facilities list a corresponding VOC emission limit for fuel gas heaters limited to 9 ppmvd NO_X and 100 ppmvd CO, consistent with the proposed BACT determination for these pollutants. However, the fuel gas heaters under consideration for the Project that can achieve these levels for NO_X and CO emissions are expected to have VOC emissions less than 20 ppmvd.

Vendor information indicates that VOC emissions from the proposed fuel gas heaters should not exceed 20 ppmvd (as methane), corrected to 3% O_2, or 0.010 lb/MMBtu. However, instead of a numerical BACT limit, GPC is proposing the exclusive use of natural gas and optimizing emissions of CO during biennial tune-ups required by the Industrial Boiler MACT (40 CFR Part 63, Subpart DDDDD) as BACT.

5.4.5 Particulate Matter

5.4.5.1 *Formation*

PM emissions from fuel-burning equipment such as the proposed fuel gas heaters generally occur in the same manner as those discussed above for the proposed CC units, except that sulfates are expected to have a negligible contribution to the condensable portion of PM.

5.4.5.2 *Step 1 – Identify Control Options for Evaluation*

GPC searched RBLC and considered relevant existing and proposed federal and state emissions standards to identify potential control options for PM emissions from the proposed fuel gas heaters. Based on the RBLC search results provided in Appendix E, Table E-30, no add-on control options were identified. Generally, conventional add-on controls often applied to solid fuel boilers, such as baghouses, electrostatic precipitators, and scrubbers, have not been applied to gas-fired fuel-burning equipment like the fuel gas heaters since combustion of natural gas inherently results in low levels of emissions.[73] Instead, many facilities listed some variation of use of clean fuels such as natural gas and good combustion practices as BACT. Accordingly, these control options are the only options considered further.

5.4.5.3 *Step 2 – Eliminate Technically Infeasible Control Options*

Use of natural gas and good combustion practices are inherent to the Project and technically feasible.

5.4.5.4 *Step 3 – Rank Remaining Control Options*

No ranking of control options is required, as use of natural gas and good combustion practices are the only available and technically feasible control options for PM emissions from the proposed fuel gas heaters.

5.4.5.5 *Step 4 – Evaluate Remaining Control Options*

The top control options are being proposed for PM emissions from the proposed fuel gas heaters. Therefore, no evaluation of the PM control options is required.

5.4.5.6 *Step 5 – Select BACT*

Based on our review, PM BACT for the proposed fuel gas heaters should be based on the exclusive use of natural gas and good combustion practices. Based on the RBLC search results, PM emission limits for natural gas-fired fuel gas heaters with a heat input rating of less than 10 MMBtu/hr range from 0.007 to 0.010 lb/MMBtu.

Vendor information indicates that PM emissions from the proposed fuel gas heaters will be less than 0.005 lb/MMBtu. However, instead of a numerical BACT limit, GPC is proposing exclusive use of natural gas as BACT.

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[73] When EPA proposed national standards for small industrial, commercial, and institutional boilers and process heaters in NSPS Subpart Dc, EPA stated that "[b]ecause of [the] low uncontrolled PM emission levels, the application of any type of PM control technology to small natural gas-fired… units would impose significant costs for no benefit. Consequently, the use of any conventional PM control technology to reduce PM emissions from small natural gas-fired… units is considered unreasonable…" 54 Fed. Reg. at 24798 (June 9, 1989).

5.4.6 Greenhouse Gases

5.4.6.1 *Formation*

As with the proposed CC units, GHG emissions that result from the combustion of natural gas in the proposed fuel gas heaters include CO_2, CH_4, and N_2O.

5.4.6.2 *Step 1 – Identify Control Options for Evaluation*

Based on the RBLC search results provided in Appendix E, Table E-31, no add-on control options were identified that would reduce GHG emissions from the proposed fuel gas heaters. Instead, many facilities listed some variation of use of clean fuels and good combustion practices as BACT for GHG emissions.

CCS should not be considered as a potentially available control option for sources with insignificant GHG emissions. CCS should only be considered as an available control option for facilities that emit CO_2 in larger amounts, or for industrial facilities with high-purity CO_2 steams, consistent with past EPA guidance.[74] Accordingly, use of natural gas and good combustion practices are the only potentially available control options for GHG emissions from the proposed fuel gas heaters.

5.4.6.3 *Step 2 – Eliminate Technically Infeasible Control Options*

Exclusive use of natural gas and good combustion practices for the proposed fuel gas heaters are inherent to the Project and technically feasible.

5.4.6.4 *Step 3 – Rank Remaining Control Options*

No ranking of control options is required, as the exclusive use of natural gas and good combustion practices are the only available and technically feasible control options for GHG emissions from the proposed fuel gas heaters.

5.4.6.5 *Step 4 – Evaluate Remaining Control Options*

The top control options are being proposed for emissions of GHG from the proposed fuel gas heaters. Therefore, no evaluation of the control options is required.

5.4.6.6 *Step 5 – Select BACT*

Based on our review, GHG BACT for the proposed fuel gas heaters should be based on the exclusive use of natural gas as fuel and good combustion practices. GPC is proposing the exclusive use of natural gas and performing biennial tune-ups required by the Industrial Boiler MACT (40 CFR Part 63, Subpart DDDDD) as GHG BACT.

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[74] US EPA, PSD and Title V Permitting Guidance for Greenhouse Gases, at 32 (March 2011).

5.5 Distillate Oil Storage Tank

5.5.1 Volatile Organic Compounds

5.5.1.1 *Characterization of Emissions*

VOC emissions from storage tanks result from two mechanisms: evaporative losses during storage (referred to as breathing or standing losses) and losses during tank filling (known as working losses). Standing losses occur when organic compounds contained in the vapor headspace above the stored liquid expand are emitted from tank vents due to changes in temperature and barometric pressure. Emissions from working losses occur due to the change in tank liquid level that accompanies tank filling operations. As the liquid level increases, the vapor headspace is displaced from the tank vent. In both cases, emissions vary as a function of the vapor pressure of the stored liquid and atmospheric conditions at the tank location.

5.5.1.2 *Step 1 – Identify Control Options for Evaluation*

GPC searched RBLC and considered relevant existing and proposed federal and state emission standards to identify potential control options for VOC emissions from the proposed diesel storage tanks. Based on the search results provided in Appendix E, Table E-32, no add-on control options were identified. Many facilities listed work practice standards such as submerged filling and tank design, including the specific external surface color of the tank, as BACT for VOC emissions. Submerged filling reduces working losses from liquid storage tanks by eliminating splashing and reducing vapor displacement in the tank headspace. The use of light or reflective tank surface colors decreases breathing losses by reducing tank inventory temperature changes caused by solar energy absorptance through the tank shell. Partially or fully insulating the tank roof and/or shell is another method that may be used to decrease breathing losses by reducing the average daily vapor pressure and temperature ranges of the liquid stored.

On October 15, 2024, EPA finalized NSPS Subpart Kc, which applies to certain volatile organic liquid storage vessels, including petroleum liquid storage vessels.[75] Similar to the previous version of the standard, Subpart Kb, EPA requires equipping tanks storing certain liquids with either a floating roof (internal or external) or a closed vent system routed to a control device (such as an adsorption system, flare, or vapor recovery unit). However, this standard does not apply to the proposed diesel storage tanks because the vapor pressure of stored liquid (distillate oil) is so low. GPC has nonetheless evaluated technical feasibility and other factors for these control options, along with use of submerged filling and tank design.

5.5.1.3 *Step 2 – Eliminate Technically Infeasible Control Options*

Use of submerged filling and fully insulating the tank roof and shell are inherent to the Project and technically feasible. While use of light or reflective tank surface colors is technically feasible, there is no need to consider this control option since the tank roof and shell will be fully insulated.[76]

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[75] 89 Fed. Reg. 83296 (October 14, 2024).

[76] When the tank roof and shell are fully insulated, the average daily vapor pressure and temperature ranges are taken to be zero which makes vapor space expansion factor, the key cause of breathing losses, solely a function of tank vent pressure and

GPC did not identify a case where other control options have been installed and operated successfully on the type of source under review. In prior BACT determinations, EPA affirmed that these control options are generally not effective for controlling low concentrations of VOC generated by diesel storage tanks.[77] Therefore, use of submerged filling and light or reflective tank surface colors are the only technically feasible control options.

5.5.1.4 *Step 3 – Rank Remaining Control Options*

No ranking of control options is required, as use of submerged filling and fully insulating the tank roof and shell are the only available and technically feasible control options for VOC emissions from the proposed diesel storage tanks.

5.5.1.5 *Step 4 – Evaluate Remaining Control Options*

The top control options are being proposed for emissions of VOC from the proposed diesel storage tanks. Therefore, no evaluation of the VOC control options is required.[78]

5.5.1.6 *Step 5 – Select BACT*

Based on our review, VOC BACT for the proposed diesel storage tanks should be based on the use of submerged filling and fully insulating the tank roof and shell. Submerged filling will minimize emissions of VOC resulting from splashing of product loaded. A fill pipe opening will be submerged below the tank's liquid surface level, ensuring that liquid turbulence is mitigated during loading, resulting in minimal emissions into the vapor space above the liquid surface. Fully insulating the tank roof and shell will minimize vapor expansion above the liquid surface. Evaporative losses have a strong correlation with diurnal temperature changes and fully insulating the tank roof and shell minimizes evaporative losses.

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vacuum settings for unheated tanks. *See* U.S. EPA, AP 42, 5th Edition, Volume I, Chapter 7: Liquid Storage Tanks at 16 (October 2024). Available at https://www.epa.gov/system/files/documents/2024-10/c7s1_2024_clean.pdf.

[77] Preliminary Determination & Statement of Basis – Outer Continental Shelf Air Permit Modification OCS-EPA-R4012-M1 for Statoil Gulf Services, LLC – Desota Canyon Lease Blocks, issued by the U.S. EPA Region 4 on July 9, 2014. Discussion related to BACT analysis for storage tanks, Section 6.5, at 29. Available at https://www.epa.gov/sites/default/files/2015-07/documents/2014_07_09_statoil_pd_0.pdf

[78] While GPC concludes that equipping the proposed diesel storage tank with a floating roof or a closed vent system routed to a control device is technically infeasible insofar as these control options are not applicable, EPA has found these control options to not be cost-effective, even if feasible. In the NSPS Subpart Kc proposal, EPA states that "… cost effectiveness for [volatile organic liquids] with vapor pressures less than the proposed maximum true vapor pressure cutoffs are approximately $10,000 and $11,000 per ton of VOC reduced. This is not cost-effective because it is significantly higher than what the EPA has historically found to be cost-effective for VOC regulations." 88 Fed. Reg. at 68541 (October 4, 2023). Considering that distillate oil has a vapor pressure (<0.01 psia) that is significantly less than the lowest vapor pressure cut-off proposed (0.5 psia), the cost of control would be unreasonable on a cost effectiveness basis.

5.6 Emergency Generator and Fire Water Pump Engine BACT Review

5.6.1 General

In 1994, EPA began regulating emissions of NO_X, PM, CO, and nonmethane hydrocarbons (NMHC) from nonroad engines through a phased approach and has since issued multiple tiers of emission standards for various categories of engines. For new and in-use nonroad compression ignition (CI) engines, EPA issued four tiers of emission standards: Tiers 1, 2, 3, and 4. Once EPA sets emission standards for an engine category, manufacturers must produce engines that meet those standards within the timeframe of the corresponding implementation schedule. The original Tier 1, 2, and 3 standards were adopted in 40 CFR Part 89. EPA has since migrated regulatory requirements for these engines to 40 CFR part 1039 along with the Tier 4 standards.

Stationary engines are generally built to the same specifications as nonroad engines and are subject to the same tiered emission standards through NSPS Subpart IIII. To meet these standards, manufactures employ one of two types of emission control strategies: engine-based technologies and aftertreatment-based technologies. Engine-based technologies include inlet air cooling, fuel injection rate controls, injection timing retard, exhaust gas recirculation, control of air/fuel ratio, and control of air consumption. Collectively, these technologies are referred to as engine design, combustion controls, and good combustion practices, and are the basis for current Tier 2 and Tier 3 engine standards. Aftertreatment-based technologies include the use of SCR and catalyzed diesel particulate filters (CDPF) and are the basis for the current Tier 4 standards. EPA begin requiring use of ultra-low sulfur diesel (ELSD) fuel in 2010 since catalytic NO_X controls required its use to be effective.

NSPS Subpart IIII requires owners and operators of stationary CI internal combustion engines (ICE) that use diesel fuel to purchase engines certified to meet the emission standard applicable to the engine category for the same model year and maximum engine power as well as to use ULSD, with limited exceptions. The proposed emergency generators must be certified to Tier 2 standards, while the fire water pump engines must be certified to Tier 3 standards.[79] Once purchased, the engines and control devices must be operated and maintained according to the manufacturer's emission-related instructions. Therefore, the only available control options for the proposed emergency generators and fire water pump engines are those that are included with the purchase of an emergency generator certified to Tier 2 standards, a fire water pump engine certified to Tier 3 standards, or a non-emergency engine certified to Tier 4 standards and operated as if it were an emergency generator or fire water pump engine.

[79] See 40 CFR 60.4202(b)(2) for emergency generators (Tier 2) and 40 CFR 60.4202(d), Table 4 to 40 CFR Part 60 Subpart IIII, and Table 3 to Appendix I in 40 CFR Part 1039 (Tier 3) for fire water pump engines.

5.6.2 Nitrogen Oxides

5.6.2.1 *Formation*

NO_X emissions from the proposed emergency generators and fire water pump engines are influenced by engine design and operational features which promote fuel combustion efficiency.

5.6.2.2 *Step 1 – Identify Control Options for Evaluation*

As discussed above, available control options for NO_X emissions from the proposed emergency generators and fire water pump engines are limited to those that are included with purchasing a Tier 2 emergency generator and a Tier 3 fire water pump engine, or purchasing a Tier 4 non-emergency engine and operating it as if it were an emergency generator or fire water pump engine. Based on the RBLC search results provided in Appendix E, Table E-33, there are several cases in which Tier 4 was listed as BACT for an emergency engine. Therefore, Tier 4 is considered further for the purposes of BACT.

5.6.2.3 *Step 2 – Eliminate Technically Infeasible Control Options*

Purchasing a Tier 2 emergency generator and a Tier 3 fire water pump engine is inherent to the Project and technically feasible. Tier 4 engines with similar power ratings appear to be commercially available based on a review of EPA's annual certification database for nonroad CI engines.[80] Therefore, Tier 4 is also considered technically feasible.

5.6.2.4 *Step 3 – Rank Remaining Control Options*

In EPA's phased approach to regulating emissions from nonroad engines, each tier requires more stringent emissions reductions than the previous one. Tier 4 has the highest level of control effectiveness, whereas Tier 2 has the lowest.

5.6.2.5 *Step 4 – Evaluate Remaining Control Options*

In the 2005 NSPS Subpart IIII proposal, EPA estimated the cost effectiveness of Tier 4 control strategies for NO_X to be between ~$240,000 and $400,000 per ton when applied to emergency engines with similar power ratings.[81] The cost per ton will increase as operating hours decrease because capital costs remain unchanged, while emission reductions decrease with operating hours. This is true for the proposed emergency generators, which will be operated for a maximum of 200 hours pursuant to Rule (mmm) and for the proposed fire water pump engines, which will be operated for a maximum of 500 hours per year. Therefore, purchase of a Tier 4 engine is eliminated from this BACT analysis for both the proposed emergency generators and fire water pump engines based on the unreasonable estimated annual cost of control.

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[80] Annual Certification Data for Vehicles, Engines, and Equipment, Nonroad Compression Ignition (NRCI) Engines. Available at https://www.epa.gov/system/files/documents/2023-01/nonroad-compression-ignition-2011-present.xlsx.

[81] Cost per Ton for NSPS for Stationary CI ICE, Table 5, June 2004, available at https://www.epa.gov/sites/default/files/2014-02/documents/6-9-05_cost_per_ton_ci_nsps.pdf. In Table 4, EPA provides costs for NO_X adsorber technology as low as $13,500 per ton. However, since this technology is not listed as an aftertreatment device type in use for any Tier 4 certified engine in EPA's annual certification database (column Q), it is presumed that Tier 4 engines that reduce emissions of NO_X at this level of cost-effectiveness when used as emergency engines are not commercially available.

5.6.2.6 *Step 5 – Select BACT*

NO_X BACT for the proposed emergency generators and fire water pump engines is based on compliance with NSPS Subpart IIII. GPC will purchase emergency generators certified to Tier 2 standards and fire water pump engines certified to Tier 3 standards and operate and maintain each according to manufacturer's emission-related instructions.

5.6.3 Sulfur Dioxide

Emissions of SO_2 occur as a result of the oxidation of sulfur-containing compounds in the fuel during the combustion process. SO_2 emissions associated with combustion of ULSD are very low due to the low concentration of sulfur compounds in the fuel.

5.6.3.1 *Step 1 – Identify Control Options for Evaluation*

As discussed above, EPA requires the use of ULSD in nearly all CI engines and the proposed emergency generators and fire water pump engines will be required to use ULSD for compliance with NSPS Subpart IIII. Please refer to 40 CFR 60.4207 and 1090.305. Because of this, conventional add-on controls are not commercially available. As expected, no control alternatives were identified in the RBLC search results, summarized in Appendix E, Table E-34. The use of ULSD has consistently been determined to be SO_2 BACT for such engines. However, some of these listings also identify efficient combustion or good combustion practices as part of BACT.

5.6.3.2 *Step 2 – Eliminate Technically Infeasible Control Options*

Use of ULSD is inherent to the Project and technically feasible.

5.6.3.3 *Step 3 – Rank Remaining Control Options*

No ranking of control options is required, as use of ULSD is the only available and technically feasible control option for SO_2 emissions from the proposed emergency generators and fire water pump engines.

5.6.3.4 *Step 4 – Evaluate Remaining Control Options*

The top control option is being proposed for SO_2 emissions from the proposed emergency generators and fire water pump engines. Therefore, no further evaluation of the impacts of the control options is required.

5.6.3.5 *Step 5 – Select BACT*

SO_2 BACT for the proposed emergency generators and fire water pump engines is based on exclusive use of ULSD in compliance with NSPS Subpart IIII.

5.6.4 Carbon Monoxide

5.6.4.1 *Formation*

CO emissions from the proposed emergency generators and fire water pump engines are influenced by engine design and operational features which promote fuel combustion efficiency and complete combustion.

5.6.4.2 *Step 1 – Identify Control Options for Evaluation*

As discussed above, available control options for CO emissions from the proposed emergency generators and fire water pump engines are limited to those that are included with purchasing a Tier 2 emergency generator and a Tier 3 fire water pump engine, or purchasing a Tier 4 non-emergency engine and operating it as if it were an emergency generator or fire water pump engine. Based on the RBLC search results provided in Appendix E, Table E-35, there is one case in which Tier 4 was listed as BACT for an emergency engine. However, the CO emission standard for Tier 2, 3, and 4 engines for the same engine category and model year with similar power ratings is identical (3.5 g/kW-hr), so there are no additional CO emissions reductions to be obtained from use of a Tier 4 engine.[82]

5.6.4.3 *Step 2 – Eliminate Technically Infeasible Control Options*

Purchasing a Tier 2 emergency generator and a Tier 3 fire water pump engine is inherent to the Project and technically feasible.

5.6.4.4 *Step 3 – Rank Remaining Control Options*

In EPA's phased approach to regulating emissions from nonroad engines, each tier requires more stringent emissions reductions than the previous one. However, in the case of CO, the emissions standard for each tier is identical.

5.6.4.5 *Step 4 – Evaluate Remaining Control Options*

No ranking of control options is required, since there are no control options that reduce CO emissions more than purchase of a Tier 2 emergency engine and a Tier 3 fire water pump engine.

5.6.4.6 *Step 5 – Select BACT*

CO BACT for the proposed emergency generator and fire water pump engine is based on compliance with NSPS Subpart IIII. GPC will purchase emergency generators certified to Tier 2 standards and fire water pump engines certified to Tier 3 standards and operate and maintain each according to manufacturer's emission-related instructions.

[82] See Tables 2 and 3 to Appendix I in 40 CFR Part 1039 for Tier 2 and 3 standards, respectively, and Table 1 of 40 CFR 1039.101 for Tier 4 final standards.

5.6.5 Volatile Organic Compounds

5.6.5.1 *Formation*

As with CO emissions, VOC emissions from the proposed emergency generators and fire water pump engines are influenced by engine design and operational features which promote fuel combustion efficiency and complete combustion.

5.6.5.2 *Step 1 – Identify Control Options for Evaluation*

As discussed above, available control options for VOC (NMHC) emissions from the proposed emergency generators and fire water pump engines are limited to those that are included with purchasing a Tier 2 emergency generator and a Tier 3 fire water pump engine, or purchasing a Tier 4 non-emergency engine and operating it as if it were an emergency generator or fire water pump engine. Based on the RBLC search results provided in Appendix E, Table E-36, there are several cases in which Tier 4 was listed as BACT for an emergency engine. Therefore, Tier 4 is considered further for the purposes of BACT.

5.6.5.3 *Step 2 – Eliminate Technically Infeasible Control Options*

Purchasing Tier 2 emergency generators and Tier 3 fire water pump engines is inherent to the Project and technically feasible. Tier 4 engines with similar power ratings appear to be commercially available based on a review of EPA's annual certification database for nonroad CI engines. Therefore, Tier 4 is also considered technically feasible.

5.6.5.4 *Step 3 – Rank Remaining Control Options*

In EPA's phased approach to regulating emissions from nonroad engines, each tier requires more stringent emissions reductions than the previous one. Tier 4 has the highest level of control effectiveness, whereas Tier 2 has the lowest.

5.6.5.5 *Step 4 – Evaluate Remaining Control Options*

In the 2005 NSPS Subpart IIII proposal, EPA generally stated that the use of add-on controls for emergency stationary CI ICE could not be justified due to the cost of the technology relative to the emission reduction that would be obtained. EPA has previously estimated the cost effectiveness of Tier 4 control strategies for VOC (THC) to be between ~$80,000 and $100,000 per ton when applied to non-emergency engines with similar power ratings that operate for at least 1,000 hours per year.[83] The cost per ton will increase as operating hours decrease because capital costs remain unchanged, while emission reductions decrease with operating hours. This is true for the proposed emergency generators and fire water pump engines, which will be operated for a maximum of 200 and 500 hours per year, respectively. Therefore, Tier 4 is eliminated from this BACT analysis for the proposed emergency generators and fire water pump engines based on the unreasonable estimated annual cost of control.

[83] US EPA, Alternative Control Techniques Document: Stationary Diesel Engines, Final Report, EPA Contract No. EP-D-07-019, Table 5-5, March 2010.

5.6.5.6 *Step 5 – Select BACT*

VOC BACT for the proposed emergency generators and fire water pump engines is based on compliance with NSPS Subpart IIII. GPC will purchase emergency generators certified to Tier 2 standards and fire water pump engines certified to Tier 3 standards and operate and maintain each according to manufacturer's emission-related instructions.

5.6.6 Particulate Matter

5.6.6.1 *Formation*

PM emissions from the proposed emergency generators and fire water pump engines may consist of inorganic matter present in the fuel (e.g., ash, metals, etc.) and high molecular weight unburned hydrocarbons (soot). Generally, the use of clean fuels with negligible ash and sulfur content, such as ULSD, in conjunction with engine design and operational features to promote complete fuel combustion, minimizes PM emissions.

5.6.6.2 *Step 1 – Identify Control Options for Evaluation*

As discussed above, in addition to use of ULSD, available control options for PM emissions from the proposed emergency generators and fire water pump engines are limited to those that are included with purchasing a Tier 2 emergency generator and a Tier 3 fire water pump engine, or purchasing a Tier 4 non-emergency engine and operating it as if it were an emergency generator or fire water pump engine. Based on the RBLC search results provided in Appendix E, Table E-37, there were no cases in which Tier 4 was identified as BACT for PM. GPC has nonetheless evaluated technical feasibility and other factors for this control option.

5.6.6.3 *Step 2 – Eliminate Technically Infeasible Control Options*

Purchasing Tier 2 emergency generators and Tier 3 fire water pump engines and exclusive use of ULSD is inherent to the Project and technically feasible. Tier 4 engines with similar power ratings appear to be commercially available based on a review of EPA's annual certification database for nonroad CI engines. Therefore, Tier 4 is also considered technically feasible.

5.6.6.4 *Step 3 – Rank Remaining Control Options*

In EPA's phased approach to regulating emissions from nonroad engines, each tier requires more stringent emissions reductions than the previous one. Tier 4 has the highest level of control effectiveness, whereas Tier 2 has the lowest.

5.6.6.5 *Step 4 – Evaluate Remaining Control Options*

In the 2005 NSPS Subpart IIII proposal, EPA estimated the cost effectiveness of Tier 4 control strategies for PM to be between ~$160,000 and $970,000 per ton when applied to emergency engines with similar power ratings.[84] The cost per ton will increase as operating hours decrease because capital costs remain unchanged, while emission reductions decrease with operating hours. This is true for the proposed emergency generators, which will be operated for a maximum of 200 hours pursuant to Rule (mmm) and for the proposed fire water pump engines, which will be operated for a maximum of 500 hours per year. Therefore, Tier 4 is eliminated from this BACT analysis for the proposed emergency generators and fire water pump engines based on the unreasonable estimated annual cost of control.

[84] Cost per Ton for NSPS for Stationary CI ICE, Tables 4 and 6 (June 2004). Available at https://www.epa.gov/sites/default/files/2014-02/documents/6-9-05_cost_per_ton_ci_nsps.pdf.

5.6.6.6 *Step 5 – Select BACT*

PM BACT for the proposed emergency generators and fire water pump engines is based on compliance with NSPS Subpart IIII. GPC will purchase emergency generators certified to Tier 2 standards and fire water pump engines certified to Tier 3 standards and operate and maintain each according to manufacturer's emission-related instructions.

5.6.7 Greenhouse Gases

5.6.7.1 *Formation*

As with the proposed CC units and fuel gas heaters, GHG emissions that result from the combustion of ULSD in the proposed emergency generators and fire water pump engines include CO_2, CH_4, and N_2O.

5.6.7.2 *Step 1 – Identify Control Options for Evaluation*

While some engine-based technologies may promote fuel efficiency, EPA's tiered emission standards for CI ICE do not address GHG emissions directly. Based on the RBLC search results provided in Appendix E, Table E-38, no add-on control options were identified that would reduce GHG emissions from the proposed emergency generators and fire water pump engines. Instead, many facilities listed some variation of use of clean fuels (natural gas and distillate oil), good combustion practices, and limiting annual operating hours as BACT for GHG emissions.

Potential control options not considered in this BACT analysis include use of natural gas and CCS. Relative to ULSD, natural gas inherently results in lower GHG emissions on a heat input basis. However, natural gas cannot be stored onsite and may not be available during an emergency, including when the emergency itself is unavailability of natural gas. Because natural gas is less likely to be available in the emergency circumstances during which the emergency engines and fire pump are needed, this option will not be considered further in this analysis, as it would interfere with the intended function of the units.

Additionally, CCS should not be considered as a potentially available control option since GHG emissions from the proposed emergency generator and fire water pump engine are insignificant. CCS should only be considered as an available control option for facilities that emit CO_2 in larger amounts, or for industrial facilities with high-purity CO_2 steams, consistent with past EPA guidance.[85] Accordingly, use of ULSD, good combustion practices, and limiting annual operating hours are the only potentially available control options for GHG emissions from the proposed emergency generators and fire water pump engines.

5.6.7.3 *Step 2 – Eliminate Technically Infeasible Control Options*

Exclusive use of ULSD as fuel and limiting annual operating hours for the proposed emergency generators and fire water pump engines are inherent to the Project and technically feasible.

5.6.7.4 *Step 3 – Rank Remaining Control Options*

No ranking of control options is required, as the exclusive use of ULSD as fuel and limiting annual operating hours are the only available and technically feasible control options for GHG emissions from the proposed emergency generators and fire water pump engines.

5.6.7.5 *Step 4 – Evaluate Remaining Control Options*

The top control options are being proposed for emissions of GHG from the proposed emergency generators and fire water pump engines. Therefore, no evaluation of the control options is required.

[85] *See* footnote 74.

5.6.7.6 *Step 5 – Select BACT*

GHG BACT for the proposed emergency generators and fire water pump engines is the exclusive use of ULSD as fuel in compliance with NSPS Subpart IIII and limiting annual operating hours. The proposed emergency generators will be operated for emergency purposes for a maximum of 200 hours per year, including 100 hours per year for maintenance checks and readiness testing, 50 hours of which may be used in non-emergency situations, while the proposed fire water pump engines will be operated for a maximum of 500 hours per year.

5.7 Summary of Proposed BACT

Table 5-1 summarizes the proposed BACT limits and compliance demonstration methods for each of the Project's proposed emission units.

Table 5-1: Proposed BACT Emission Limits and Compliance Demonstration Methods

<table>
<tr><th>Emissions Unit</th><th>Pollutant</th><th>Fuel</th><th>Selected BACT</th><th>Emissions/Operation Limit</th><th>Compliance Method</th></tr>
<tr><td rowspan="11">Combined-Cycle Units</td><td rowspan="3">NOx</td><td>Natural gas</td><td rowspan="3">DLN Combustors, Water Injection, and Selective Catalytic Reduction</td><td>2.0 ppmvd NO_X, corrected to 15% O_2, excluding periods of startup, shutdown, and fuel switching</td><td>CEMS, 4-hour rolling average</td></tr>
<tr><td>Distillate oil</td><td>5.0 ppmvd NO_X, corrected to 15% O_2, excluding periods of startup, shutdown, and fuel switching</td><td>CEMS, 4-hour rolling average</td></tr>
<tr><td>Both</td><td>228.9 tons NO_X or less during any 12-month consecutive period, including periods of startup, shutdown, and fuel switching</td><td>CEMS, 12-mo rolling average</td></tr>
<tr><td rowspan="3">CO</td><td>Natural gas</td><td rowspan="3">Good Combustion Practices and Oxidation Catalyst</td><td>2.0 ppmvd CO, corrected to 15% O_2, excluding periods of startup, shutdown, and fuel switching</td><td>CEMS, 24-hour rolling average</td></tr>
<tr><td>Distillate oil</td><td>2.0 ppmvd CO, corrected to 15% O_2, excluding periods of startup, shutdown, and fuel switching</td><td>CEMS, 24-hour rolling average</td></tr>
<tr><td>Both</td><td>257.4 tons CO or less during any 12-month consecutive period, including periods of startup, shutdown, and fuel switching</td><td>CEMS, 12-mo rolling average</td></tr>
<tr><td rowspan="2">VOC</td><td>Natural gas</td><td rowspan="2">Good Combustion Practices and Oxidation Catalyst</td><td>1.0 ppmvd VOC, as methane, corrected to 15% O2, duct burner not in-service

2.0 ppmvd VOC, as methane, corrected to 15% O2, duct burner in-service</td><td rowspan="2">3-run stack test EPA Reference Method 25A</td></tr>
<tr><td>Distillate oil</td><td>2.0 ppmvd VOC, as methane, corrected to 15% O2</td></tr>
<tr><td rowspan="2">PM</td><td>Natural gas</td><td rowspan="2">Low Sulfur Content Fuels</td><td>0.0045 lb/MMBtu</td><td rowspan="2">3-run stack test EPA Reference Methods 5 and 202</td></tr>
<tr><td>Distillate oil</td><td>0.0135 lb/MMBtu</td></tr>
</table>

Emissions Unit	Pollutant	Fuel	Selected BACT	Emissions/Operation Limit	Compliance Method
	SO_2 and H_2SO_4	Natural gas	Low Sulfur Content Fuels	Natural gas, 0.5 grains sulfur/100 scf	Fuel supplier documentation
		Distillate oil		Ultra-low sulfur distillate oil (15 ppm sulfur)	
	GHG	Both	Clean/Low-Emitting Fuels, Efficient Design, and Good Combustion, Operating, and Maintenance Practices	905 lb CO_2e/MWh-gross	CEMS, 12-mo rolling average
Emergency Generators	NOx, SO_2, CO, VOC, PM	Distillate oil	NSPS Subpart IIII	Purchase Tier 2 engine Ultra-low sulfur diesel	Comply with Rule (mmm) and NSPS Subpart IIII
	GHG	Distillate oil	Clean/Low-Emitting Fuels	Ultra-low sulfur diesel	Comply with Rule (mmm) and NSPS Subpart IIII
Fire Water Engine Pumps	NOx, SO_2, CO, VOC, PM	Distillate oil	NSPS Subpart IIII	Purchase Tier 3 engine Ultra-low sulfur diesel	Comply with NSPS Subpart IIII
	GHG	Distillate oil	Clean/Low-Emitting Fuels	Ultra-low sulfur diesel	Comply with NSPS Subpart IIII
Fuel Oil Storage Tanks	VOC	Distillate oil	Submerged filling and fully insulated tank roof/shell	Tank design	Tank design
Fuel Gas Heaters	NOx	Natural gas	Ultra-low NO_X Burners and Good Combustion Practices	9 ppmvd, corrected to 3% O_2, or 0.011 lb/MMBtu	Biennial tune-up
	CO	Natural gas	Good Combustion Practices	100 ppmvd, corrected to 3% O_2, or 0.074 lb/MMBtu	Biennial tune-up

Emissions Unit	Pollutant	Fuel	Selected BACT	Emissions/Operation Limit	Compliance Method
	VOC	Natural gas	Good Combustion Practices	Exclusive use of natural gas	Biennial tune-up for CO
	PM	Natural gas	Low Sulfur Content Fuel	Exclusive use of natural gas	Fuels records
	SO_2	Natural gas	Low Sulfur Content Fuel	Exclusive use of natural gas	Fuels records
	GHG	Natural gas	Clean/Low-Emitting Fuels	Exclusive use of natural gas	Fuels records

Attachment A

Application Forms

State of Georgia
Department of Natural Resources
Environmental Protection Division
Air Protection Branch

Stationary Source Permitting Program
4244 International Parkway, Suite 120
Atlanta, Georgia 30354
404/363-7000
Fax: 404/363-7100

SIP AIR PERMIT APPLICATION

EPD Use Only

Date Received: ______________ Application No. ______________

FORM 1.00: GENERAL INFORMATION

1. Facility Information

Facility Name: Bowen Steam-Electric Generating Plant

AIRS No. (if known): 04-13- 015 - 0011

Facility Location: Street: 317 Covered Bridge Road

City: Cartersville Georgia Zip: 30120 County: Bartow

Is this facility a "small business" as defined in the instructions? Yes: ☐ No: ☒

2. Facility Coordinates

Latitude: 34° 7' 32" **NORTH** Longitude: 84° 55' 9" **WEST**

UTM Coordinates: 691,900 m **EAST** 3,778,000 m **NORTH** **ZONE** 16

3. Facility Owner

Name of Owner: Georgia Power Company

Owner Address Street: 241 Ralph McGill Blvd NE, Bin 10221

City: Atlanta State: GA Zip: 30308

4. Permitting Contact and Mailing Address

Contact Person: Jon Bandzul Title: Air Manager

Telephone No.: (404) 851-7056 Ext. ______ Fax No.: ______

Email Address: JBANDZUL@southernco.com

Mailing Address: Same as: Facility Location: ☐ Owner Address: ☒ Other: ☐

If Other: Street Address: ______

City: ______ State: ______ Zip: ______

5. Authorized Official

Name: Jennifer S. McNelly Title: Vice President, Environmental Affairs

Address of Official Street: 241 Ralph McGill NE, Bin 10221

City: Atlanta State: GA Zip: 30308

This application is submitted in accordance with the provisions of the Georgia Rules for Air Quality Control and, to the best of my knowledge, is complete and correct.

Signature: [signature] Date: 2/28/25

6. Reason for Application: (Check all that apply)

6. **Reason for Application: (Check all that apply)**

☐ New Facility (to be constructed)

☒ Existing Facility (initial or modification application)

☒ Permit to Construct

☒ Permit to Operate

☐ Change of Location

☐ Permit to Modify Existing Equipment: Affected Permit No.: 4911-015-0011-V-05-0

☐ Revision of Data Submitted in an Earlier Application

Application No.: ____________

Date of Original Submittal: ____________

7. **Permitting Exemption Activities (for permitted facilities only):**

Have any exempt modifications based on emission level per Georgia Rule 391-3-1-.03(6)(i)(3) been performed at the facility that have not been previously incorporated in a permit?

☒ **No** ☐ **Yes, please fill out the SIP Exemption Attachment** (See Instructions for the attachment download)

8. **Has assistance been provided to you for any part of this application?**

☐ **No** ☐ **Yes, SBAP** ☒ **Yes, a consultant has been employed or will be employed.**

If yes, please provide the following information:

Name of Consulting Company: AECOM

Name of Contact: Jeffrey Connors

Telephone No.: (978) 905-2166 Fax No.: ____________

Email Address: jeffrey.connors@aecom.com

Mailing Address: Street: 250 Apollo Dr.

City: Chelmsford State: MA Zip: 01824

Describe the Consultant's Involvement:

Prepared Volume II of the application

9. **Submitted Application Forms:** Select only the necessary forms for the facility application that will be submitted.

No. of Forms	Form
1	2.00 Emission Unit List
1	2.01 Boilers and Fuel Burning Equipment
1	2.02 Storage Tank Physical Data
	2.03 Printing Operations
	2.04 Surface Coating Operations
	2.05 Waste Incinerators (solid/liquid waste destruction)
	2.06 Manufacturing and Operational Data
1	3.00 Air Pollution Control Devices (APCD)
	3.01 Scrubbers
	3.02 Baghouses & Other Filter Collectors
	3.03 Electrostatic Precipitators
1	4.00 Emissions Data
1	5.00 Monitoring Information
	6.00 Fugitive Emission Sources
1	7.00 Air Modeling Information

10. **Construction or Modification Date**

Estimated Start Date: To meet capacity needs in the 2029-2031 timeframe

11. If confidential information is being submitted in this application, were the guidelines followed in the "Procedures for Requesting that Submitted Information be treated as Confidential"?

☐ No ☒ Yes

12. New Facility Emissions Summary

Criteria Pollutant	New Facility	
	Potential (tpy)	Actual (tpy)
Carbon monoxide (CO)		
Nitrogen oxides (NOx)		
Particulate Matter (PM) (filterable only)		
PM <10 microns (PM10)		
PM <2.5 microns (PM2.5)		
Sulfur dioxide (SO_2)		
Volatile Organic Compounds (VOC)		
Greenhouse Gases (GHGs) (in CO2e)		
Total Hazardous Air Pollutants (HAPs)		
Individual HAPs Listed Below:		

13. Existing Facility Emissions Summary

Criteria Pollutant	Current Facility		After Modification	
	Potential (tpy)	Actual (tpy) [b]	Potential (tpy)	Actual (tpy) [c]
Carbon monoxide (CO)	>100	1,068	>100	2,116
Nitrogen oxides (NOx)	>100	5,689	>100	6,518
Particulate Matter (PM) [a]	>100	347	>100	601
PM <10 microns (PM10)	>100	320	>100	785
PM <2.5 microns (PM2.5)	>100	262	>100	725
Sulfur dioxide (SO_2)	>100	7,143	>100	7,287
Volatile Organic Compounds (VOC)	>100	128	>100	779
Greenhouse Gases (GHGs) (in CO2e)	>100,000	11,178,814	>100,000	22,209,815
Total Hazardous Air Pollutants (HAPs) [d]	>25	26	>25	88
Individual HAPs Listed Below:				
Hydrochloric acid (HCl)	>10	14	>10	14
Formaldehyde (HCOH)	<10	<1	>10	22

[a] The particulate matter emissions shown represent the total of filterable and condensable emissions.
[b] Current Facility Actual (tpy) emissions, except GHG and HAPs, are based on the 2023 Emissions Inventory report in available in the Combined Air Emissions Reporting System. GHG emissions are based on 2023 Facility Level emissions submitted under the 40 CFR Part 98 Mandatory GHG Reporting Program. HAP emissions are estimated for 2023 using the Electric Power Research Institute (EPRI) Toxic Release Inventory for Power Plants (TRIPP) software.
[c] After Modification Actual (tpy) emissions are based on the Current Facility Actual (tpy) emissions listed plus emissions for the proposed CC units, cooling towers, fuel gas heaters, distillate oil storage tanks, emergency generators, and fire water pump engines that reflect the BACT emission limitations proposed in the application.

14. 4-Digit Facility Identification Code:

SIC Code: 4911 SIC Description: Electric Services

NAICS Code: 221112 NAICS Description: Electric Power Generation

15. Description of general production process and operation for which a permit is being requested. If necessary, attach additional sheets to give an adequate description. Include layout drawings, as necessary, to describe each process. References should be made to source codes used in the application.

This application is for approval to construct and operate up to four (4) combined-cycle power blocks, each of which includes an advanced-class dual-fuel combustion turbine generator, heat recovery steam generator with natural gas-fired duct burners, and steam turbine generator arranged in a 1-on-1 configuration. Air pollution controls include dry low NO_X combustors and water injection in the combustion turbines and selective catalytic reduction systems and oxidation catalysts installed in the heat recovery steam generators.

Equipment associated with the proposed combined-cycle power blocks includes up to four (4) 10-cell wet mechanical induced draft cooling towers with high-efficiency drift eliminators, four (4) natural gas-fired water bath type fuel gas heaters with ultra-low NO_X burners with a maximum heat input of approximately 8.67 MMBtu/hr (each), four (4) 90' diameter fully insulated distillate oil storage tanks with submerged filled with a working capacity of 2.3 million gallons (each), four (4) Tier 2 1,500 kW emergency generators, two (2) Tier 2 500 kW emergency generators, and two (2) Tier 3 350 hp fire water pump engines.

16. Additional information provided in attachments as listed below:

Appendix A - Application Forms

Appendix B - Plot Plan

Appendix C - Emission Calculations

Appendix D - Compliance Assurance Monitoring Forms

Appendix E - Best Available Control Technology Search Results

Appendix F -

Appendix G -

17. Additional Information: Unless previously submitted, include the following two items:

☒ Plot plan/map of facility location or date of previous submittal:

☒ Flow Diagram or date of previous submittal:

18. Other Environmental Permitting Needs:

Will this facility/modification trigger the need for environmental permits/approvals (other than air) such as Hazardous Waste Generation, Solid Waste Handling, Water withdrawal, water discharge, SWPPP, mining, landfill, etc.?

☐ **No** ☒ **Yes, please list below:**

NPDES Construction Stormwater

19. List requested permit limits including synthetic minor (SM) limits.

Please refer to Section 5.7 in the accompanying application for proposed BACT emissions limitations.

20. Effective March 1, 2019, permit application fees will be assessed. The fee amount varies based on type of permit application. Application acknowledgement emails will be sent to the current registered fee contact in the GECO system. If fee contacts have changed, please list that below:

Fee Contact name: Bill Hodan

Fee Contact email address: bhodan@southernco.com

Fee Contact phone number: (919) 452-2726

Fee invoices will be created through the GECO system shortly after the application is received. It is the applicant's responsibility to access the facility GECO account, generate the fee invoice, and submit payment within 10 days after notification.

Facility Name: Bowen Steam-Electric Generating Plant **Date of Application:** March 2025

FORM 2.00 – EMISSION UNIT LIST

Emission Unit ID	Name	Manufacturer and Model Number [a]	Description
CT7	Combustion Turbine Unit 7	TBD	Four (4) advanced-class dual fuel combustion turbines with DLN, water injection, SCR and oxidation catalyst
CT8	Combustion Turbine Unit 8	TBD	
CT9	Combustion Turbine Unit 9	TBD	
CT10	Combustion Turbine Unit 10	TBD	
DB7	Duct Burner Unit 7	TBD	Four (4) natural gas-fired HRSG duct burners with SCR and oxidation catalyst
DB8	Duct Burner Unit 8	TBD	
DB9	Duct Burner Unit 9	TBD	
DB10	Duct Burner Unit 10	TBD	
[b]	Cooling Towers Units 7-10	TBD	Four (4) 10-cell wet mechanical induced draft cooling towers with high-efficiency drift eliminators
WBH1	Water Bath Heater 1	TBD	Four (4) natural gas-fired water bath type fuel gas heaters with ultra-low NOX burners
WBH2	Water Bath Heater 2	TBD	
WBH3	Water Bath Heater 3	TBD	
WBH4	Water Bath Heater 4	TBD	
[c]	Distillate Oil Storage Tanks	TBD	Four (4) 90' dia. distillate oil storage tanks with submerged fill
[c]	Emergency Generators	TBD	Four (4) Tier 2 1,500 kW emergency generators
[c]	Emergency Generators	TBD	Two (2) Tier 2 500 kW emergency generators
[c]	Fire Water Pump Engines	TBD	Two (2) Tier 3 350 hp fire water pump engines

[a] Commercial negotiations with potential engineering, construction, and procurement (EPC) contractors and equipment vendors are ongoing; manufacturer and model numbers for all equipment will be provided once contracts are executed

[b] The cooling towers will be listed in Attachment B to the permit in the table for Insignificant Activities Based on Emission Levels

[c] The distillate oil storage tanks, emergency generators, and fire water pump engines will be listed in Attachment B to the permit in the checklist for Insignificant Activities

Facility Name: Bowen Steam-Electric Generating Plant **Date of Application:** March 2025

FORM 2.01 – BOILERS AND FUEL BURNING EQUIPMENT

Emission Unit ID	Type of Burner	Type of Draft [a]	Design Capacity of Unit [b] (MMBtu/hr Input)	Percent Excess Air	Dates		Date & Description of Last Modification
					Construction	Installation [c]	
CT7 CT8 CT9 CT10	Dry Low-NOx	N/A	4,121 (Natural gas) 3,502 (Distillate oil)	~125			N/A
DB7 DB8 DB10 DB7	Dry Low-NOx	N/A	1,197 (Natural gas)	~15			N/A
WBH1 WBH2 WBH3 WBH4	Ultra Low-NOx	N/A	8.61 (Natural gas)	~15			N/A
	1,500 kW Emergency Generator	N/A	12.62 (ULSD)	~100			N/A
	500 kW Emergency Generator	N/A	4.21 (ULSD)	~100			N/A
	350 hp Fire Water Pump Engine	N/A	2.07 (ULSD)	~100			N/A

[a] This column does not have to be completed for natural gas only fired equipment.
[b] Design Capacity of Unit for the combustion turbines is based on 40°F for natural gas without duct burners in-service and 0°F distillate oil.
[c] Units 7-10 aim to meet capacity needs projected to occur in years 2029-2031.

Facility Name: Bowen Steam-Electric Generating Plant **Date of Application:** March 2025

FUEL DATA

Emission Unit ID	Fuel Type	Potential Annual Consumption				Hourly Consumption		Heat Content		Percent Sulfur		Percent Ash in Solid Fuel	
		Total Quantity		Percent Use by Season									
		Amount [a]	Units	Ozone Season May 1 - Sept 30	Non-ozone Season Oct 1 - Apr 30	Max.	Avg.	Min.	Avg.	Max.	Avg.	Max.	Avg.
Unit 7 Unit 8 Unit 9 Unit 10	Natural gas	45,490	mmscf			5.19			1,019 Btu/scf	0.5 gr/100 scf		N/A	
Unit 7 Unit 8 Unit 9 Unit 10	Distillate oil	30,455	mgal			24.98			138,000 Btu/gal	15 ppm		N/A	
WBH1 WBH2 WBH3 WBH4	Natural gas	74,022	mscf			8.45			1,019 Btu/scf	0.5 gr/100 scf		N/A	
1,500 kW EDG	ULSD	18,300	gal			91.5			138,000 Btu/gal	15 ppm		N/A	
500 kW EDG	ULSD	6,100	gal			30.5			138,000 Btu/gal	15 ppm		N/A	
350 hp FWP	ULSD	7,500	gal			15			138,000 Btu/gal	15 ppm		N/A	

[a] Potential Annual Consumption of Natural gas and Distillate oil for Units 7-10 is based on ISO conditions without use of evaporative cooling. The Total Quantity of Natural gas for Units 7-10 does not account for use of distillate oil as a backup fuel. The Total Quantity of Distillate oil for Units 7-10 is based on 1,200 hours per year. The Total Quantity of ULSD for the emergency generators is based on 200 hours per year. The Total Quantity of ULSD for the fire water pumps engines is based on 500 hours per year.

Fuel Supplier Information

Fuel Type	Name of Supplier	Phone Number	Supplier Location			
			Address	City	State	Zip
Natural gas	Williams-Transco (same as current)					
Distillate oil	TBD	TBD	TBD	TBD	TBD	TBD

Facility Name: Bowen Steam-Electric Generating Plant **Date of Application:** March 2025

FORM 2.02 – ORGANIC COMPOUND STORAGE TANK

Emission Unit ID	Emission Unit Name	Capacity (gal)	Material Stored	Maximum True Vapor Pressure (psi @ ºF)	Storage Temp. (ºF) [b]	Filling Method	Construction/ Modification Date [c]	Roof Type	Seal Type
[a]	Distillate Oil Storage Tanks (4)	2,300,000 ea.	Distillate Oil	0.01 psia	Ambient	Submerged Fill		Fixed, Cone, Insulated	N/A

[a] The distillate oil storage tanks will be listed in Attachment B to the permit in the checklist for Insignificant Activities
[b] The distillate oil storage tanks will be fully insulated to minimize breathing losses
[c] Units 7-10 aim to meet capacity needs projected to occur in years 2029-2031.

Facility Name: Bowen Steam-Electric Generating Plant **Date of Application:** March 2025

Form 3.00 – AIR POLLUTION CONTROL DEVICES - PART A: GENERAL EQUIPMENT INFORMATION

APCD Unit ID	Emission Unit ID	APCD Type (Baghouse, ESP, Scrubber etc)	Date Installed [a]	Make & Model Number (Attach Mfg. Specifications & Literature)	Unit Modified from Mfg Specifications?	Gas Temp. °F		Inlet Gas Flow Rate [a] (lb/hr)
						Inlet [a]	Outlet [b]	
SCR7 SCR8 SCR9 SCR10	Unit 7 (CT7/DB7) Unit 8 (CT8/DB8) Unit 9 (CT9/DB9) Unit 10 (CT10/DB10)	Selective Catalytic Reduction		Vendor Not Yet Selected	N/A	Up to 650		Up to 6,720,000
OC7 OC8 OC9 OC10	Unit 7 (CT7/DB7) Unit 8 (CT8/DB8) Unit 9 (CT9/DB9) Unit 10 (CT10/DB10)	Oxidation Catalyst		Vendor Not Yet Selected	N/A	Up to 950		Up to 6,720,000

[a] Units 7-10 aim to meet capacity needs projected to occur in years 2029-2031.
[b] Inlet and Outlet Gas Temp. and Inlet Gas Flow Rate for the air pollution control devices depend on ambient conditions, load, and the fuel source being utilized.

Facility Name: Bowen Steam-Electric Generating Plant **Date of Application:** March 2025

Form 3.00 – AIR POLLUTION CONTROL DEVICES – PART B: EMISSION INFORMATION

APCD Unit ID	Pollutants Controlled	Percent Control Efficiency [a]		Inlet Stream To APCD [a]		Exit Stream From APCD [a]		Pressure Drop Across Unit (Inches of water)
		Design	Actual	lb/hr	Method of Determination	lb/hr	Method of Determination	
SCR7 SCR8 SCR9 SCR10	NOx	Up to 95%		Varies		Varies		TBD
OC7 OC8 OC9 OC10	CO	Up to 97%		Varies		Varies		TBD
OC7 OC8 OC9 OC10	VOC	Up to 80%		Varies		Varies		TBD

[a] Percent Control Efficiency, Inlet Stream To APCD, and Exit Stream From the APCD for the air pollution control devices vary depending on ambient conditions, load, and the fuel source being utilized.

Facility Name: Bowen Steam-Electric Generating Plant **Date of Application:** March 2025

FORM 4.00 – EMISSION INFORMATION

Emission Unit ID	Air Pollution Control Device ID	Stack ID	Pollutant Emitted	Emission Rates				
				Hourly Actual Emissions (lb/hr)	Hourly Potential Emissions [a] (lb/hr)	Actual Annual Emission (tpy)	Potential Annual Emission [b] (tpy)	Method of Determination
Natural gas Unit 7 (CT7/DB7) Unit 8 (CT8/DB8) Unit 9 (CT9/DB9) Unit 10 (CT10/DB10)	SCR7-10 OC7-10	ST7 (Unit 7) ST8 (Unit 8) ST9 (Unit 9) ST10 (Unit10)	NOx		42.14		736.07	2.0 ppm @ 15% O_2
			CO		25.65		818.36	2.0 ppm @ 15% O_2
			VOC		14.66		475.97	2.0 ppm @ 15% O_2
			Total PM		10.62		185.42	0.0045 lb/MMBtu
			Total PM10		23.14		404.22	0.0045 lb/MMBtu
			Total PM2.5		23.14		404.22	0.0045 lb/MMBtu
			SO2		8.18		142.88	0.5 gr S per 100 scf
			H2SO4		12.53		218.80	0.5 gr S per 100 scf
			Pb		2.60E-03		4.55E-02	Emission Factors
			Total HAP		2.97		52.00	Emission Factors
			CO2e		630,444		11,012,203	Emission Factors
Distillate oil Unit 7 (CT7/DB7) Unit 8 (CT8/DB8) Unit 9 (CT9/DB9) Unit 10	SCR7-10 OC7-10	ST7 (Unit 7) ST8 (Unit 8) ST9 (Unit 9) ST10 (Unit10)	NOx		75.07		814.90	5.0 ppm @ 15% O_2
			CO		18.28		1029.64	2.0 ppm @ 15% O_2
			VOC		10.50		646.38	2.0 ppm @ 15% O_2
			Total PM		38.02		250.47	0.0135 lb/MMBtu
			Total PM10		47.01		460.90	0.0135 lb/MMBtu
			Total PM2.5		47.01		460.90	0.0135 lb/MMBtu
			SO2		5.89		137.41	15 ppm S
			H2SO4		9.03		210.43	15 ppm S
			Pb		4.90E-02		1.57E-01	Emission Factors
			Total HAP		5.37		57.77	Emission Factors

[a] Hourly Potential Emissions for are provided in the emissions calculations in Appendix C of the application. See Table C-3 for Units 7-10 (natural gas), Table C-5 for Units 7-10 (distillate oil), Table C-12 for cooling towers, Table C-8 for WBH1-4, Table C-13 for distillate oil storage tanks, and Tables C-9 through C-11 for emergency generators and fire water pump engines. Also see Tables C-15 through C-17 for HAPs. The Hourly Potential Emissions listed in this SIP Form 4.00 are for each individual source type and not the combined emissions of identical source types.

[b] Annual Potential Emissions are summarized in Appendix C, Tables C-1 and C-2. Annual emissions include the combined emissions of identical source types related to the project. Natural gas CC emissions are based on 8,760 hours per year on natural gas (Table C-1). Distillate oil emissions (Table C-2) accounts for up to 1,200 hours of use of distillate oil and 7,560 hours of use of natural gas

Facility Name: Bowen Steam-Electric Generating Plant **Date of Application:** March 2025

FORM 4.00 – EMISSION INFORMATION

Emission Unit ID	Air Pollution Control Device ID	Stack ID	Pollutant Emitted	Emission Rates				
				Hourly Actual Emissions (lb/hr)	Hourly Potential Emissions [a] (lb/hr)	Actual Annual Emission (tpy)	Potential Annual Emission [b] (tpy)	Method of Determination
(CT10/DB10)			CO2e		570,244		10,868,311	Emission Factors
Units 7-10 Cooling Towers	High-efficiency Drift Eliminators		Total PM		0.13		2.19	Emission Factors
			Total PM10		0.11		1.99	Emission Factors
			Total PM2.5		0.0013		0.023	Emission Factors
Water Bath Heaters 1-4 WBH1 WBH2 WBH3 WBH4	Ultra-low NOx Burners	STW1 STW2 STW3 STW4	NOx		0.09		1.65	9 ppmvd @ 3%O2
			CO		0.64		11.16	100 ppmvd @ 3%O2
			VOC		0.09		1.51	20 ppmvd @ 3%O2
			Total PM		0.04		0.72	Emission Factors
			Total PM10		0.04		0.72	Emission Factors
			Total PM2.5		0.04		0.72	Emission Factors
			SO2		0.01		0.21	0.5 gr S per 100 scf
			Pb		4.23E-06		7.40E-05	Emission Factors
			Total HAP		1.60E-02		2.80E-01	Emission Factors
			CO2e		1,008		17,665	Emission Factors
Distillate Oil Storage Tanks	Fully insulated/ Submerged fill		VOC		0.074		1.29	AP-42
			Total HAP		0.010		0.17	AP-42
1,500 kW Emergency Generators	Tier 2		NOx		22.34		8.94	Emission Factors
			CO		12.86		5.14	Emission Factors
			VOC		1.18		0.47	Emission Factors

[a] Hourly Potential Emissions for are provided in the emissions calculations in Appendix C of the application. See Table C-3 for Units 7-10 (natural gas), Table C-5 for Units 7-10 (distillate oil), Table C-12 for cooling towers, Table C-8 for WBH1-4, Table C-13 for distillate oil storage tanks, and Tables C-9 through C-11 for emergency generators and fire water pump engines. Also see Tables C-15 through C-17 for HAPs. The Hourly Potential Emissions listed in this SIP Form 4.00 are for each individual source type and not the combined emissions of identical source types.

[b] Annual Potential Emissions are summarized in Appendix C, Tables C-1 and C-2. Annual emissions include the combined emissions of identical source types related to the project. Natural gas CC emissions are based on 8,760 hours per year on natural gas (Table C-1). Distillate oil emissions (Table C-2) accounts for up to 1,200 hours of use of distillate oil and 7,560 hours of use of natural gas

FORM 4.00 – EMISSION INFORMATION

Emission Unit ID	Air Pollution Control Device ID	Stack ID	Pollutant Emitted	Emission Rates				
				Hourly Actual Emissions (lb/hr)	Hourly Potential Emissions [a] (lb/hr)	Actual Annual Emission (tpy)	Potential Annual Emission [b] (tpy)	Method of Determination
			Total PM		0.73		0.29	Emission Factors
			Total PM10		0.68		0.27	Emission Factors
			Total PM2.5		0.66		0.26	Emission Factors
			SO2		2.71E-02		1.08E-02	SO2
			Pb		1.77E-04		7.07E-05	Pb
			Total HAP		3.07E-02		1.23E-02	Total HAP
			CO2e		2,064		826	CO2e
500 kW Emergency Generators	Tier 2		NOx		7.45		1.49	NOx
			CO		4.29		0.86	CO
			VOC		0.39		0.08	VOC
			Total PM		0.24		0.05	Total PM
			Total PM10		0.23		0.05	Total PM10
			Total PM2.5		0.22		0.04	Total PM2.5
			SO2		9.04E-03		1.81E-03	SO2
			Pb		5.89E-05		1.18E-05	Pb
			Total HAP		1.02E-02		2.05E-03	Total HAP
			CO2e		688		138	CO2e
350 hp Fire Water Pump Engines	Tier 3		NOx		2.31		1.16	Emission Factors
			CO		2.01		1.00	Emission Factors
			VOC		2.31		1.16	Emission Factors
			Total PM		0.12		0.06	Emission Factors

[a] Hourly Potential Emissions for are provided in the emissions calculations in Appendix C of the application. See Table C-3 for Units 7-10 (natural gas), Table C-5 for Units 7-10 (distillate oil), Table C-12 for cooling towers, Table C-8 for WBH1-4, Table C-13 for distillate oil storage tanks, and Tables C-9 through C-11 for emergency generators and fire water pump engines. Also see Tables C-15 through C-17 for HAPs. The Hourly Potential Emissions listed in this SIP Form 4.00 are for each individual source type and not the combined emissions of identical source types.

[b] Annual Potential Emissions are summarized in Appendix C, Tables C-1 and C-2. Annual emissions include the combined emissions of identical source types related to the project. Natural gas CC emissions are based on 8,760 hours per year on natural gas (Table C-1). Distillate oil emissions (Table C-2) accounts for up to 1,200 hours of use of distillate oil and 7,560 hours of use of natural gas

Facility Name: Bowen Steam-Electric Generating Plant **Date of Application:** March 2025

FORM 4.00 – EMISSION INFORMATION

Emission Unit ID	Air Pollution Control Device ID	Stack ID	Pollutant Emitted	Emission Rates				
				Hourly Actual Emissions (lb/hr)	Hourly Potential Emissions [a] (lb/hr)	Actual Annual Emission (tpy)	Potential Annual Emission [b] (tpy)	Method of Determination
			Total PM10		0.11		0.05	Emission Factors
			Total PM2.5		0.10		0.05	Emission Factors
			SO2		4.25E-03		2.12E-03	Emission Factors
			Pb		2.90E-05		1.45E-05	Emission Factors
			Total HAP		9.80E-03		4.90E-03	Emission Factors
			CO2e		339		169	Emission Factors

[a] Hourly Potential Emissions for are provided in the emissions calculations in Appendix C of the application. See Table C-3 for Units 7-10 (natural gas), Table C-5 for Units 7-10 (distillate oil), Table C-12 for cooling towers, Table C-8 for WBH1-4, Table C-13 for distillate oil storage tanks, and Tables C-9 through C-11 for emergency generators and fire water pump engines. Also see Tables C-15 through C-17 for HAPs. The Hourly Potential Emissions listed in this SIP Form 4.00 are for each individual source type and not the combined emissions of identical source types.

[b] Annual Potential Emissions are summarized in Appendix C, Tables C-1 and C-2. Annual emissions include the combined emissions of identical source types related to the project. Natural gas CC emissions are based on 8,760 hours per year on natural gas (Table C-1). Distillate oil emissions (Table C-2) accounts for up to 1,200 hours of use of distillate oil and 7,560 hours of use of natural gas

Facility Name: Bowen Steam-Electric Generating Plant **Date of Application:** March 2025

FORM 5.00 MONITORING INFORMATION

Emission Unit ID/ APCD ID	Emission Unit/APCD Name	Monitored Parameter		Monitoring Frequency
		Parameter	Units	
Unit 7 (CT7/DB7)	Combined-Cycle Unit 7	NOx/CO		Continuous
Unit 8 (CT8/DB8)	Combined-Cycle Unit 8	NOx/CO		Continuous
Unit 9 (CT9/DB9)	Combined-Cycle Unit 9	NOx/CO		Continuous
Unit 10 (CT10/DB10)	Combined-Cycle Unit 10	NOx/CO		Continuous

Comments:

For each combined-cycle unit, the combined exhaust of each combustion turbine and duct burner pair, e.g., Combustion Turbine Unit 7 and Duct Burner Unit 7 (CT7/DB7), will be monitored by NOx and CO CEMS.

Please refer to the CAM plans provided in Appendix D.

Facility Name: Bowen Steam-Electric Generating Plant **Date of Application:** March 2025

FORM 7.00 – AIR MODELING INFORMATION: Stack Data

Stack ID	Emission Unit ID(s)	Stack Information			Dimensions of largest Structure Near Stack		Exit Gas Conditions at Maximum Emission Rate			
		Height Above Grade (ft)	Inside Diameter (ft)	Exhaust Direction	Height (ft)	Longest Side (ft)	Velocity (ft/sec)	Temperature (°F)	Flow Rate (acfm)	
									Average	Maximum
See NOTE.										

NOTE: If emissions are not vented through a stack, describe point of discharge below and, if necessary, include an attachment. List the attachment in Form 1.00 *General Information*, Item 16.

Air Modeling Information: Stack Data is provided in Volume II of the application.

Facility Name: Bowen Steam-Electric Generating Plant **Date of Application:** March 2025

FORM 7.00 AIR MODELING INFORMATION: Chemicals Data

Chemical	Potential Emission Rate (lb/hr)	Toxicity	Reference	MSDS Attached
Please refer to Volume II of the application.				☐
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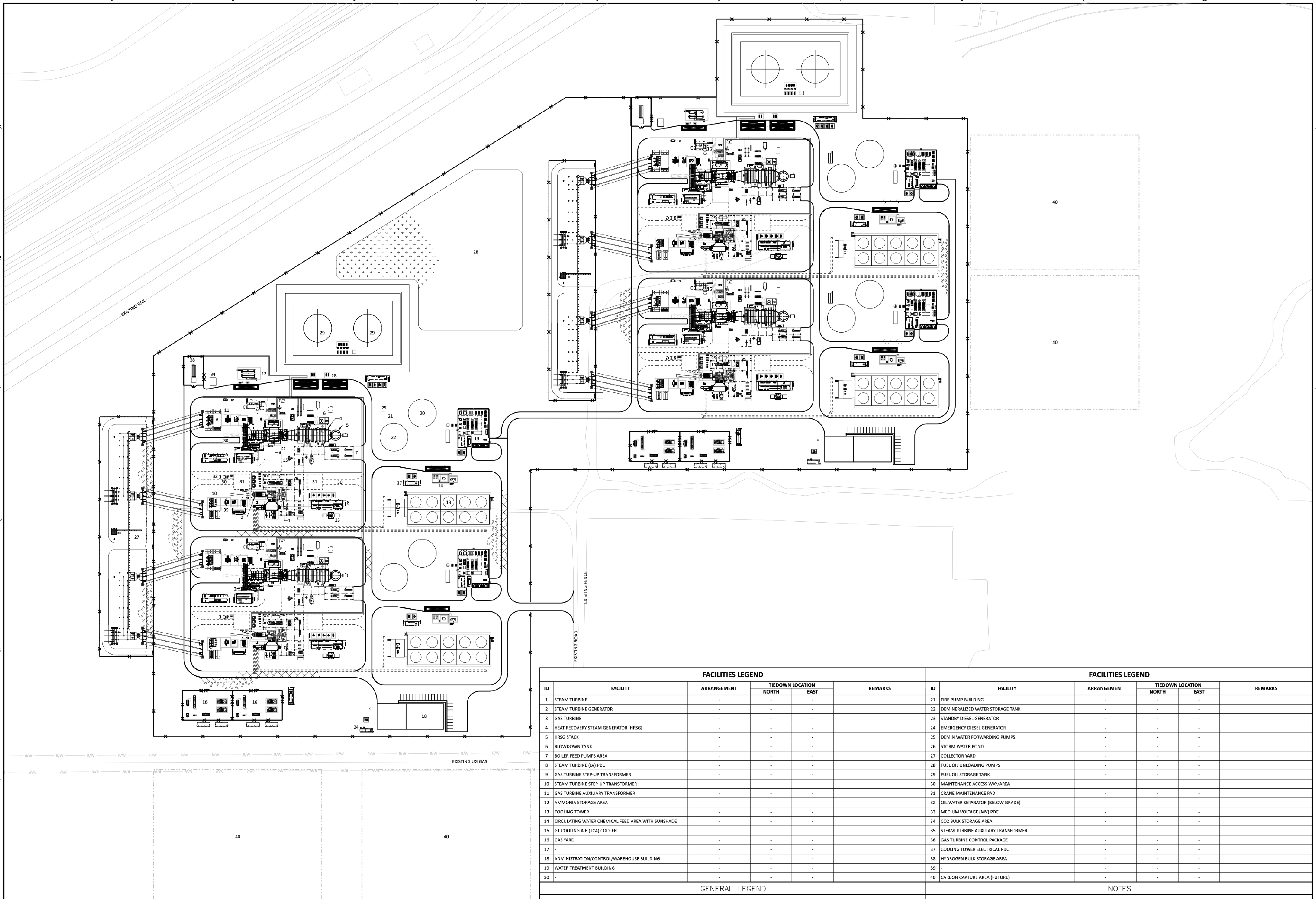
Attachment B

Plot Plan



FACILITIES LEGEND

ID	FACILITY	ARRANGEMENT	TIEDOWN LOCATION		REMARKS
			NORTH	EAST	
1	STEAM TURBINE	-	-	-	
2	STEAM TURBINE GENERATOR	-	-	-	
3	GAS TURBINE	-	-	-	
4	HEAT RECOVERY STEAM GENERATOR (HRSG)	-	-	-	
5	HRSG STACK	-	-	-	
6	BLOWDOWN TANK	-	-	-	
7	BOILER FEED PUMPS AREA	-	-	-	
8	STEAM TURBINE (LV) PDC	-	-	-	
9	GAS TURBINE STEP-UP TRANSFORMER	-	-	-	
10	STEAM TURBINE STEP-UP TRANSFORMER	-	-	-	
11	GAS TURBINE AUXILIARY TRANSFORMER	-	-	-	
12	AMMONIA STORAGE AREA	-	-	-	
13	COOLING TOWER	-	-	-	
14	CIRCULATING WATER CHEMICAL FEED AREA WITH SUNSHADE	-	-	-	
15	GT COOLING AIR (TCA) COOLER	-	-	-	
16	GAS YARD	-	-	-	
17	-	-	-	-	
18	ADMINISTRATION/CONTROL/WAREHOUSE BUILDING	-	-	-	
19	WATER TREATMENT BUILDING	-	-	-	
20	-	-	-	-	

FACILITIES LEGEND

ID	FACILITY	ARRANGEMENT	TIEDOWN LOCATION		REMARKS
			NORTH	EAST	
21	FIRE PUMP BUILDING	-	-	-	
22	DEMINERALIZED WATER STORAGE TANK	-	-	-	
23	STANDBY DIESEL GENERATOR	-	-	-	
24	EMERGENCY DIESEL GENERATOR	-	-	-	
25	DEMIN WATER FORWARDING PUMPS	-	-	-	
26	STORM WATER POND	-	-	-	
27	COLLECTOR YARD	-	-	-	
28	FUEL OIL UNLOADING PUMPS	-	-	-	
29	FUEL OIL STORAGE TANK	-	-	-	
30	MAINTENANCE ACCESS WAY/AREA	-	-	-	
31	CRANE MAINTENANCE PAD	-	-	-	
32	OIL WATER SEPARATOR (BELOW GRADE)	-	-	-	
33	MEDIUM VOLTAGE (MV) PDC	-	-	-	
34	CO2 BULK STORAGE AREA	-	-	-	
35	STEAM TURBINE AUXILIARY TRANSFORMER	-	-	-	
36	GAS TURBINE CONTROL PACKAGE	-	-	-	
37	COOLING TOWER ELECTRICAL PDC	-	-	-	
38	HYDROGEN BULK STORAGE AREA	-	-	-	
39	-	-	-	-	
40	CARBON CAPTURE AREA (FUTURE)	-	-	-	

GENERAL LEGEND

AGGREGATE SURFACING
ASPHALT SURFACING
CONCRETE
SEEDING

NOTES

1. THIS DRAWING IS THE BASIS FOR THE SITE ARRANGEMENT AND IS SUBJECT TO REVISIONS AS A RESULT OF DETAILED DESIGN AND DUE TO VARIATIONS IN SUPPLIERS OF MAJOR EQUIPMENT.
2. ALL COORDINATES ARE BASED ON NAD83 GEORGIA STATE PLANE WEST ZONE, US SURVEY FEET. ALL ELEVATIONS ARE BASED ON NAVD88 VERTICAL DATUM.

NOT TO BE USED FOR CONSTRUCTION

THE DISTRIBUTION AND USE OF THE NATIVE FORMAT CAD FILE OF THIS DRAWING IS UNCONTROLLED. THE USER SHALL VERIFY TRACEABILITY OF THIS DRAWING TO THE LATEST CONTROLLED VERSION.

NO	DATE	REVISIONS AND RECORD OF ISSUE	DRN	DES	CHK	PDE	APP
B	06/NOV/24	ISSUED FOR PROPOSAL	MJW	DDO			
A	11/SEP/24	ISSUED FOR ESTIMATING	MJW	DDO			

N

100' 50' 0 100' 200'
1"=100'

SOUTHERN COMPANY - GEORGIA POWER
BOWEN SITE
SITE ARRANGEMENT
4X 1X1 COMBINED CYCLE

PROJECT / DRAWING NUMBER: 241963B-0GAU-G1011
REV: B

DESIGNER | DRAWN | CHECKED | DATE | CODE | AREA

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MicroStation v23.00.01.44
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Attachment C

Emissions Calculations

Table C-1
PSD Applicability Calculations – 2025 CC Expansion
8,760 Hours on Natural Gas
Summary of PSD Applicability Assessment 4 CCs

	Annual Emission Rates (tons/yr)									
	TSP	**PM_{10}**	**$PM_{2.5}$**	**NO_x**	**CO**	**VOC**	**SO_2**	**H_2SO_4**	**Lead**	**CO_2e**
Combustion Turbine & HRSG A	46.4	101.1	101.1	184.0	204.6	119.0	35.7	54.70	0.011	2,753,051
Combustion Turbine & HRSG B	46.4	101.1	101.1	184.0	204.6	119.0	35.7	54.70	0.011	2,753,051
Combustion Turbine & HRSG C	46.4	101.1	101.1	184.0	204.6	119.0	35.7	54.70	0.011	2,753,051
Combustion Turbine & HRSG D	46.4	101.1	101.1	184.0	204.6	119.0	35.7	54.70	0.011	2,753,051
Power Block Emergency Generators (4 engines)	0.29	0.27	0.26	8.9	5.1	0.5	0.011	--	7.07E-05	826
Admin Building Emergency Generators (2 engines)	0.05	0.05	0.04	1.5	0.86	0.08	0.002	--	1.18E-05	138
Firewater Pump Engine (2 engines)	0.06	0.05	0.05	1.2	1.0	1.2	0.0021	--	1.45E-05	169
Gas Heaters (4 heaters)	0.72	0.72	0.72	1.6	11.2	1.5	0.2115	--	7.40E-05	17,665
Cooling Tower (4, 10 cells each)	2.2	2.0	0.02	--	--	--	--	--	--	--
Facility Total Emissions	**188.7**	**407.3**	**405.3**	**749.3**	**836.5**	**479.2**	**143.1**	**218.80**	**0.05**	**11,031,001**
PSD Significance Level (ton/yr)	25	15	10	40	100	40	40	7	0.6	75,000
PSD Review Triggered?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	No	**Yes**

Table C-2

PSD Applicability Calculations – 2025 CC Expansion

7,560 Hours on Natural Gas and 1,200 Hours on Distillate Oil

Summary of PSD Applicability Assessment 4 CCs

	Annual Emission Rates (tons/yr)									
	TSP	**PM_{10}**	**$PM_{2.5}$**	**NO_x**	**CO**	**VOC**	**SO_2**	**H_2SO_4**	**Lead**	**CO_2e**
Combustion Turbine & HRSG A, gas 7560 hr/yr	40.0	87.2	87.2	158.8	189.2	110.2	30.8	47.21	0.010	2,375,920
Combustion Turbine & HRSG B, gas 7560 hr/yr	40.0	87.2	87.2	158.8	189.2	110.2	30.8	47.21	0.010	2,375,920
Combustion Turbine & HRSG C, gas 7560 hr/yr	40.0	87.2	87.2	158.8	189.2	110.2	30.8	47.21	0.010	2,375,920
Combustion Turbine & HRSG D, gas 7560 hr/yr	40.0	87.2	87.2	158.8	189.2	110.2	30.8	47.21	0.010	2,375,920
Combustion Turbine & HRSG A, oil 1200 hr/yr	22.6	28.0	28.0	44.9	68.2	51.4	3.5	5.40	0.029	341,157
Combustion Turbine & HRSG B, oil 1200 hr/yr	22.6	28.0	28.0	44.9	68.2	51.4	3.5	5.40	0.029	341,157
Combustion Turbine & HRSG C, oil 1200 hr/yr	22.6	28.0	28.0	44.9	68.2	51.4	3.5	5.40	0.029	341,157
Combustion Turbine & HRSG D, oil 1200 hr/yr	22.6	28.0	28.0	44.9	68.2	51.4	3.5	5.40	0.029	341,157
Power Block Emergency Generators (4 engines)	0.29	0.29	0.29	8.9	5.1	0.5	0.011	--	7.07E-05	826
Admin Building Emergency Generators (2 engines)	0.05	0.05	0.04	1.5	0.86	0.08	0.002	--	1.18E-05	138
Firewater Pump Engine (2 engines)	0.06	0.05	0.05	1.2	1.0	1.2	0.0021	--	1.45E-05	169
Gas Heaters (4 heaters)	0.72	0.72	0.72	1.6	11.2	1.5	0.2115	--	7.40E-05	17,665
Cooling Tower (4, 10 cells each)	2.2	2.0	0.02	--	--	--	--	--	--	--
Fuel Oil Tanks (4 tanks)	--	--	--	--	--	1.29	--	--	--	--
Facility Total Emissions	**253.8**	**464.0**	**462.0**	**828.1**	**1,047.8**	**650.9**	**137.6**	**210.43**	**0.16**	**10,887,109**
PSD Significance Level (ton/yr)	25	15	10	40	100	40	40	7	0.6	75,000
PSD Review Triggered?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	No	**Yes**

Table C-3

PSD Applicability Calculations – 2025 CC Expansion

8,760 Hours on Natural Gas

Emissions Calculations - Combustion Turbine and HRSG Duct Burner

Maximum Heat Input (HHV) 5,308 MMBtu/hr

Annual Average Heat Input (HHV) 5,292 MMBtu/hr

	Summary of Short Term Emission Rates (lb/hr)												
	TSP[6/7/]	PM_{10}	$PM_{2.5}$	NO_x	CO	VOC	SO_2	H_2SO_4	Lead	CO_2	CH_4	N_2O	CO_2e[9/]
Maximum hourly operating emission rates [1/2/3/]	10.62	23.14	23.14	42.14	25.65	14.66	8.18	12.53	0.00260	629,742	12.9	1.3	630,444
Annual average hourly operating emission rates [2/3]	10.58	23.07	23.07	42.01	25.57	14.61	8.16	12.49	0.00260	627,851	12.8	1.3	628,550
Maximum Hourly Startup Emission Rates	2.27	5.22	5.22	43.9	457.1								
Maximum Hourly Shutdown Emission Rates [5/]	0.65	1.4	1.4	8.0	128.0								

	Summary of Worst-Case Annual Emission Totals (tons/yr)												
	TSP	PM_{10}	$PM_{2.5}$	NO_x	CO	VOC	SO_2	H_2SO_4	Lead	CO_2	CH_4	N_2O	CO_2e
Worst-Case Annual Emissions [8/]	**46.4**	**101.1**	**101.1**	**184.0**	**204.6**	**119.0**	**35.7**	**54.70**	**0.0114**				**2,753,051**

	Assessment of Worst-Case Annual Emission Totals (ton/yr)												
	TSP	PM_{10}	$PM_{2.5}$	NO_x	CO	VOC	SO_2	H_2SO_4	Lead	CO_2	CH_4	N_2O	CO_2e
1. Full Load Operation @ 8760 hrs/yr	**46.35**	**101.06**	**101.06**	**184.02**	**112.01**	**64.01**	**35.72**	**54.70**	**0.01137**	**2,749,987**	**56**	**6**	**2,753,051**
2. Accounting for SU/SD hours				Annual hours breakdown									
				startup:	482	shutdown	28	operating	8,249				
a. Startup Emissions	0.56	1.22	1.22	7.52	88.23	48.52	0.43	0.66	0.00014	32,721	0.6	0.06	32,754
b. Shutdown Emissions	0.05	0.12	0.12	0.68	10.88	10.20	0.04	0.06	0.00001	3,213	0.06	0.01	3,216
c. Operating Emissions	43.65	95.16	95.16	173.29	105.48	60.27	33.64	51.51	0.01071	2,589,629	52.93	5.29	2,592,514
Total Emissions	**44.27**	**96.50**	**96.50**	**181.49**	**204.59**	**118.99**	**34.11**	**52.24**	**0.01086**				**2,628,484**

1/ Maximum short term PM, NO_X, CO and VOC emission rates are from vendor data at 20°F, 75% RH, 100% Base Load.

2/ Emission rates for lead, CO_2, CH_4 and N_2O are calculated using emission factors from AP-42 Table 1.4-2 and 40 CFR Part 98 Tables C-1 and C-2.

3/ Emission rate for SO_2 and H_2SO_4 from vendor data; H_2SO_4 calculated assuming all S goes to H_2SO_4.

4/ Annual average PM, NO_X, CO, and VOC emission rates are from vendor data at 59°F, 60% RH, 100% Base Load, including evaporative cooling, and supplemental firing.

5/ Emissions are based on 10-minute shutdown and not averaged up for lb/hour.

6/ All FPM and CPM assumed to be < 10 microns; $PM_{2.5}$ = PM_{10}

7/ Short term and annual average TSP and $PM_{10/2.5}$ emission rates are estimated to correspond to the expected maximum pipeline gas sulfur content

8/ Worst-case emissions determined between full load operation for 8,760 hours per year or operations with expected startup/shutdown times.

9/Global Warming Potentials for GHGs are from amendments to 40 CFR Part 98 in 89 FR 31894, April 25, 2024.

Table C-4
PSD Applicability Calculations – 2025 CC Expansion
7,560 Hours on Natural Gas and 1,200 Hours on Distillate Oil - Natural Gas Operations
Emissions Calculations - Combustion Turbine and HRSG Duct Burner

Maximum Heat Input (HHV)	5,308	MMBtu/hr
Annual Average Heat Input (HHV)	5,292	MMBtu/hr

	Summary of Short Term Emission Rates (lb/hr)												
	TSP [6/7/]	PM_{10}	$PM_{2.5}$	NO_x	CO	VOC	SO_2	H_2SO_4	Lead	CO_2	CH_4	N_2O	CO_2e [9/]
Maximum hourly operating emission rates [1/2/3/]	10.62	23.14	23.14	42.14	25.65	14.66	8.18	12.53	0.00260	629,742	12.9	1.3	630,444
Annual average hourly operating emission rates [2/3/]	10.58	23.07	23.07	42.01	25.57	14.61	8.16	12.49	0.00260	627,851	12.8	1.3	628,550
Maximum Hourly Startup Emission Rates	2.27	5.22	5.22	43.9	457.1								
Maximum Hourly Shutdown Emission Rates [5/]	0.65	1.4	1.4	8.0	128.0								

	Summary of Worst-Case Annual Emission Totals (tons/yr)												
	TSP	PM_{10}	$PM_{2.5}$	NO_x	CO	VOC	SO_2	H_2SO_4	Lead	CO_2	CH_4	N_2O	CO_2e
Worst-Case Annual Emissions [8/]	**40.0**	**87.2**	**87.2**	**158.8**	**189.2**	**110.2**	**30.8**	**47.21**	**0.0098**				**2,375,920**

	Assessment of Worst-Case Annual Emission Totals (ton/yr)												
	TSP	PM_{10}	$PM_{2.5}$	NO_x	CO	VOC	SO_2	H_2SO_4	Lead	CO_2	CH_4	N_2O	CO_2e
1. Full Load Operation @ 7,560 hrs/yr	**40.00**	**87.21**	**87.21**	**158.81**	**96.67**	**55.24**	**30.83**	**47.21**	**0.00981**	**2,373,277**	**49**	**5**	**2,375,920**
2. Accounting for SU/SD hours													
a. Startup Emissions	0.56	1.22	1.22	7.52	88.23	48.52	0.43	0.66	0.00014	32,721	0.6	0.06	32,754
b. Shutdown Emissions	0.05	0.12	0.12	0.68	10.88	10.20	0.04	0.06	0.00001	3,213	0.06	0.01	3,216
c. Operating Emissions	37.30	81.32	81.32	148.08	90.14	51.51	28.74	44.02	0.00915	2,212,918	45.23	4.52	2,215,383
Total Emissions	**37.92**	**82.66**	**82.66**	**156.28**	**189.25**	**110.23**	**29.22**	**44.74**	**0.00930**				**2,251,354**

Annual hours breakdown					
startup:	482	shutdown	28	operating	7,049

1/ Maximum short term PM, NO_X, CO and VOC emission rates are from vendor data at 20°F, 75% RH, 100% Base Load.

2/ Emission rates for lead, CO_2, CH_4 and N_2O are calculated using emission factors from AP-42 Table 1.4-2 and 40 CFR Part 98 Tables C-1 and C-2.

3/ Emission rate for SO_2 and H_2SO_4 from vendor data; H_2SO_4 calculated assuming all S goes to H_2SO_4.

4/ Annual average PM, NO_X, CO, and VOC emission rates are from vendor data at 59°F, 60% RH, 100% Base Load, including evaporative cooling, and supplemental firing.

5/ Emissions are based on 10-minute shutdown and not averaged up for lb/hour.

6/ All FPM and CPM assumed to be < 10 microns; $PM_{2.5}$ = PM_{10}

7/ Short term and annual average TSP and $PM_{10/2.5}$ emission rates are estimated to correspond to the expected maximum pipeline gas sulfur content

8/ Worst-case emissions determined between full load operation for **7,560** hours per year or operations with expected startup/shutdown times.

9/Global Warming Potentials for GHGs are from amendments to 40 CFR Part 98 in 89 FR 31894, April 25, 2024.

Table C-5
PSD Applicability Calculations – 2025 CC Expansion
7,560 Hours on Natural Gas and 1,200 Hours on Distillate Oil - Distillate Oil Operation
Emissions Calculations - Combustion Turbine firing Distillate Oil and HRSG (no Duct Burner on oil)

Maximum Heat Input (HHV)	3,502	MMBtu/hr
Annual Average Heat Input (HHV)	3,492	MMBtu/hr

	Summary of Short Term Emission Rates (lb/hr)												
	TSP[6/7/]	PM_{10}	$PM_{2.5}$	NO_x	CO	VOC	SO_2	H_2SO_4	Lead	CO_2	CH_4	N_2O	CO_2e[9/]
Maximum hourly operating emission rates [1/2/3/]	38.02	47.01	47.01	75.1	18.28	10.50	5.89	9.03	0.049	568,368	23.16	4.63	570,244
Annual average hourly operating emission rates [2/4]	37.69	46.69	46.69	74.9	18.23	10.42	5.88	9.00	0.049	566,725	23.10	4.62	568,595
Maximum Hourly Startup Emission Rates	15.04	18.29	18.29	56.4	1,507.6								
Maximum Hourly Shutdown Emission Rates[5/]	4.39	5.34	5.34	9.0	213.0								

	Summary of Worst-Case Annual Emission Totals (tons/yr)												
	TSP	PM_{10}	$PM_{2.5}$	NO_x	CO	VOC	SO_2	H_2SO_4	Lead	CO_2	CH_4	N_2O	CO_2e
Worst-Case Annual Emissions [8/]	22.6	28.0	28.0	44.9	68.2	51.4	3.5	5.401	0.0293				341,157

	Assessment of Worst-Case Annual Emission Totals (ton/yr)												
	TSP	PM_{10}	$PM_{2.5}$	NO_x	CO	VOC	SO_2	H_2SO_4	Lead	CO_2	CH_4	N_2O	CO_2e
1. Full Load Operation @ 1,200 hrs/yr	**22.61**	**28.01**	**28.01**	**44.92**	**10.94**	**6.25**	**3.53**	**5.401**	**0.03**	**340,035**	**14**	**3**	**341,157**
2. Accounting for SU/SD hours				Annual hours breakdown: startup: 106 hutdowr 7)perating 1,088									
a. Startup Emissions	0.91	0.91	0.91	2.47	54.42	42.56	0.11	0.18	0.00095	11,046	0.5	0.09	11,046
b. Shutdown Emissions	0.10	0.10	0.10	0.16	3.83	3.15	0.012	0.018	0.00010	1,162	0.05	0.01	1,162
c. Operating Emissions	20.50	25.39	25.39	40.71	9.91	5.66	3.20	4.90	0.02659	308,227	12.56	2.51	309,245
Total Emissions	**21.51**	**26.40**	**26.40**	**43.35**	**68.16**	**51.37**	**3.32**	**5.09**	**0.02764**				**321,453**

1/ Maximum short term NO_X, CO and VOC emission rates are from vendor data at 0 degrees, 75% RH. TPS, $PM_{10/2.5}$ are vendor data at 65°F.
2/ Emission rates for lead, CO_2, CH_4 and N_2O are calculated using emission factors from AP-42 Table 3.1-2a and 40 CFR Part 98 Tables C-1 and C-2.
3/ Emission rate for SO_2 and H_2SO_4 from vendor data and assumes all S goes to SO_2 and H_2SO_4.
4/ Annual average PM, NO_X, CO, and VOC emission rates are from vendor data
5/ Emissions are based on 11-minute shutdown and not averaged up for lb/hour.
6/ All FPM and CPM assumed to be < 10 microns; $PM_{2.5}$ = PM_{10}
7/ Short term and annual average TSP and $PM_{10/2.5}$ emission rates are estimated to correspond to the expected maximum sulfur content in ULSD and ULSHO
8/ Worst-case emissions determined between full load operation for **1,200** hours per year or operations with expected startup/shutdown times.
9/Global Warming Potentials for GHGs are from amendments to 40 CFR Part 98 in 89 FR 31894, April 25, 2024.

Table C-6

Combustion Turbine Data - Natural Gas Firing

Operating and Emissions Data for CT

List for each operating condition varying ambient T, RH.

Parameter	Units	95 ºF	100% -DB EC	76%	MECL (55%)	65 ºF	100% -DB EC	59 ºF	100% -DB EC	100%	75%	MECL (50%)	40 ºF	100%	75%	MECL (50 %)	20 ºF
CT Load	%																
Ambient Pressure	psia		14.590	14.590	14.590		14.590		14.590	14.590	14.590	14.590		14.590	14.590	14.590	
Ambient Temp	°F		95	95	95		65		59	59	59	59		20	20	20	
Relative Humidity	%		45	45	45		75		60	60	60	60		75	75	75	
Fuel Type			natural gas	natural gas	natural gas		natural gas		natural gas	natural gas	natural gas	natural gas		natural gas	natural gas	natural gas	
Evap Cooler Status	On/Off		ON	OFF	OFF		ON		ON	OFF	OFF	OFF		OFF	OFF	OFF	
Natural Gas Supply																	
S	gr/100 scf		0.5	0.5	0.5		0.5		0.5	0.5	0.5	0.5		0.5	0.5	0.5	
Fuel HHV	BTU/lb		22,892	22,892	22,892		22,892		22,892	22,892	22,892	22,892		22,892	22,892	22,892	
Natural Gasl to the CC																	
Natural Gas Heat Input to GT	MMBtu/hr - HHV		3,942	2,980	2,455		4,060		4,107	4,067	3,178	2,458		4,121	3,250	2,509	
'Natural Gas Heat Input to DB	'MMBtu/hr - HHV		1,146				1,177		1,185					1,186			
Total Natural Gas Heat Input	'MMBtu/hr - HHV		5,088	2,980	2,455		5,237		5,292	4,067	3,178	2,458		5,307	3,250	2,509	
Flow Rate	lb/hr		222,266	130,179	107,245		228,788		231,161	177,663	138,820	107,379		231,852	141,959	109,596	
Stack Exit Conditions (GT post controls)																	
Oxygen	mol%		7.62	10.77	10.77		7.81		7.86	10.71	10.91	10.92		7.93	10.89	10.90	
Carbon Dioxide	mol%		5.88	4.48	4.48		5.92		5.94	4.65	4.55	4.55		5.97	4.60	4.60	
Water	mol%		14.43	11.08	11.09		13.12		12.72	9.98	9.80	9.79		12.16	9.52	9.51	
Nitrogen	mol%		71.31	72.79	72.78		72.28		72.61	73.78	73.85	73.85		73.06	74.10	74.11	
Argon	mol%		0.86	0.88	0.88		0.87		0.87	0.89	0.89	0.89		0.88	0.89	0.89	
Exhaust Flow at CC Stack	lb/hr		6,450,784	5,007,729	4,121,699		6,632,362		6,687,002	6,616,811	5,279,734	4,087,052		6,693,939	5,349,627	4,134,237	
Exhaust Flow at CC Stack	ACFM		1,776,482	1,386,487	1,125,596		1,810,510		1,818,143	1,848,414	1,447,638	1,100,125		1,808,436	1,460,546	1,107,405	
Exhaust Flow at CC Stack	DSCFM		1,380,000	1,062,632	874,634		1,411,996		1,421,297	1,397,314	1,114,504	862,727		1,419,581	1,127,859	871,602	
Exhaust Temp	F		172	181	172		170		168	189	178	166		165	176	164	
Exhaust Mol Wt	lb/lbmol		27.93	28.16	28.16		28.07		28.11	28.29	28.30	28.31		28.17	28.34	28.34	
Stack Height	ft		180	180	180		180		180	180	180	180		180	180	180	
Stack Diameter	ft		23.0	23.0	23.0		23.0		23.0	23.0	23.0	23.0		23.0	23.0	23.0	
NOx	ppmvd @ 15% O2		2.0	2.0	2.0		2.0		2.0	2.0	2.0	2.0		2.0	2.0	2.0	
NOx	lb/hr		40.3	23.7	19.5		41.6		42.0	32.3	25.3	19.5		42.1	25.8	19.9	
NOx	lb/MMBtu -HHV		0.00792	0.00795	0.00795		0.00794		0.00794	0.00795	0.00795	0.00795		0.00794	0.00795	0.00795	
CO	ppmvd @ 15% O2		2.0	2.0	2.0		2.0		2.0	2.0	2.0	2.0		2.0	2.0	2.0	
CO	lb/hr		24.5	14.4	11.9		25.31		25.6	19.7	15.4	11.9		25.6	15.7	12.1	
CO	lb/MMBtu -HHV		0.00482	0.00484	0.00484		0.00483		0.00483	0.00484	0.00484	0.00484		0.00483	0.00484	0.00484	
VOC	ppmvd @ 15% O2		2.0	1.0	1.0		2.0		2.0	1.0	1.0	1.0		2.0	1.0	1.0	
VOC	lb/hr		14.0	4.1	3.4		14.5		14.6	5.6	4.4	3.4		14.7	4.5	3.5	
VOC	lb/MMBtu -HHV		0.0028	0.0014	0.0014		0.0028		0.0028	0.0014	0.0014	0.0014		0.0028	0.0014	0.0014	
SO2	lb/hr		7.8	4.6	3.8		8.1		8.2	6.3	4.9	3.8		8.2	5.0	3.9	
SO2	lb/MMBtu -HHV		0.00154	0.00154	0.00154		0.00154		0.00154	0.00154	0.00154	0.00154		0.00154	0.00154	0.00154	
H2SO4	lb/hr		12.0	7.0	5.8		12.4		12.5	9.6	7.5	5.8		12.5	7.7	5.9	
H2SO4	lb/MMBtu -HHV		0.00236	0.00236	0.00236		0.00236		0.00236	0.00236	0.00236	0.00236		0.00236	0.00236	0.00236	
CO2	lb/hr		603,691	353,577	291,286		621,405		627,851	482,545	377,046	291,650		629,727	385,571	297,672	
CO2	lb/MMBtu -HHV		118.65	118.65	118.65		118.65		118.65	118.65	118.65	118.65		118.65	118.65	118.65	
PM filterable	lb/hr		10.18	5.97	4.91		10.47		10.58	7.85	6.26	4.85		10.60	6.34	4.90	
	lb/MMBtu -HHV		0.0020	0.0020	0.0020		0.0020		0.0020	0.0019	0.0020	0.0020		0.0020	0.0019	0.0020	
PM10/PM2.5 (Filterable + Condensable)	lb/hr		22.18	13.00	10.71		22.84		23.07	17.45	13.76	10.65		23.10	14.01	10.82	
PM10/PM2.5 (Filterable + Condensable)	lb/MMBtu -HHV		0.0044	0.0044	0.0044		0.0044		0.0044	0.0043	0.0043	0.0043		0.0044	0.0043	0.0043	
Ammonia Slip	ppmvd @ 15% O2		5.0	5.0	5.0		5.0		5.0	5.0	5.0	5.0		5.0	5.0	5.0	
Ammonia Slip	lb/hr		37.2	21.9	18.0		38.4		38.8	29.9	23.3	18.1		38.9	23.9	18.4	
Ammonia Slip	lb/MMBtu -HHV		0.0073	0.0073	0.0073		0.0073		0.0073	0.0073	0.0073	0.0073		0.0073	0.0073	0.0073	
Formaldehyde	ppbvd @ 15% O2		91.0	91.0	91.0		91.0		91.0	91.0	91.0	91.0		91.0	91.0	91.0	
Formaldehyde	lb/MMBtu -HHV		0.00024	0.00024	0.00024		0.00024		0.00024	0.00024	0.00024	0.00024		0.00024	0.00024	0.00024	

Table C-6

Combustion Turbine Data - Natural Gas Firing

Operating and Emissions Data for CT

List for each operating condition varying ambient T, RH.

Parameter	**Units**								representative annual average	highest
CT Load	%	100%	82%	MECL (65 %)	0 ºF	100%	88%	MECL (70 %)	100%	100%
Ambient Pressure	psia	14.590	14.590	14.590		14.590	14.590	14.590		
Ambient Temp	°F	20	20	20		0	0	0	59	20
Relative Humidity	%	75	75	75		75	75	75	60	75
Fuel Type		natural gas	natural gas	natural gas		natural gas	natural gas	natural gas	natural gas	natural gas
Evap Cooler Status	On/Off	OFF	OFF	OFF		OFF	OFF	OFF	ON	OFF
Natural Gas Supply										
S	gr/100 scf	0.5	0.5	0.5		0.5	0.5	0.5	0.5	0.5
Fuel HHV	BTU/lb	22,892	22,892	22,892		22,892	22,892	22,892	22,892	22,892
Natural Gasl to the CC										
Natural Gas Heat Input to GT	MMBtu/hr - HHV	4,111	3,417	2,588		4,087	3,534	2,818	4,107	4,111
'Natural Gas Heat Input to DB	'MMBtu/hr - HHV	1,197				1,162			1,185	1,197
Total Natural Gas Heat Input	'MMBtu/hr - HHV	5,308	3,417	2,588		5,249	3,534	2,818	5,292	5,308
Flow Rate	lb/hr	231,857	149,291	113,062		229,308	154,387	123,089	231,161	231,857
Stack Exit Conditions (GT post controls)										
Oxygen	mol%	8.01	11.01	10.88		7.94	10.94	10.86		
Carbon Dioxide	mol%	5.96	4.58	4.64		6.01	4.63	4.66		
Water	mol%	11.81	9.12	9.24		11.75	9.06	9.13		
Nitrogen	mol%	73.34	74.39	74.35		73.42	74.48	74.45		
Argon	mol%	0.88	0.90	0.90		0.88	0.90	0.90		
Exhaust Flow at CC Stack	lb/hr	6,708,449	5,664,845	4,231,100		6,581,179	5,798,089	4,584,364		
Exhaust Flow at CC Stack	ACFM	1,805,587	1,544,877	1,127,894		1,764,335	1,589,547	1,233,285		
Exhaust Flow at CC Stack	DSCFM	1,420,728	1,192,422	890,845		1,393,245	1,220,149	964,890		
Exhaust Temp	F	164	176	162		162	180	168		
Exhaust Mol Wt	lb/lbmol	28.21	28.38	28.38		28.22	28.39	28.39		
Stack Height	ft	180	180	180		180	180	180	180	180
Stack Diameter	ft	23.0	23.0	23.0		23.0	23.0	23.0	23.0	23.0
NOx	ppmvd @ 15% O2	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0
NOx	lb/hr	42.1	27.2	20.6		41.7	28.1	22.4	42.0	42.1
NOx	lb/MMBtu -HHV	0.00794	0.00795	0.00795		0.00794	0.00795	0.00795	0.00794	0.00795
CO	ppmvd @ 15% O2	2.0	2.0	2.0		2.0	2.0	2.0	2	2
CO	lb/hr	25.7	16.5	12.5		25.4	17.1	13.6	25.6	25.7
CO	lb/MMBtu -HHV	0.00483	0.00484	0.00484		0.00483	0.00484	0.00484	0.00483	0.00483
VOC	ppmvd @ 15% O2	2.0	1.0	1.0		2.0	1.0	1.0	2.0	2.0
VOC	lb/hr	14.7	4.7	3.6		14.5	4.9	3.9	14.6	14.7
VOC	lb/MMBtu -HHV	0.0028	0.0014	0.0014		0.0028	0.0014	0.0014	0.0028	0.0028
SO2	lb/hr	8.2	5.3	4.0		8.1	5.4	4.3	8.2	8.2
SO2	lb/MMBtu -HHV	0.00154	0.00154	0.00154		0.00154	0.00154	0.00154	0.00154	0.00154
H2SO4	lb/hr	12.5	8.1	6.1		12.4	8.3	6.7	12.5	12.5
H2SO4	lb/MMBtu -HHV	0.00236	0.00236	0.00236		0.00236	0.00236	0.00236	0.00236	0.00236
CO2	lb/hr	629,742	405,486	307,086		622,818	419,328	334,318	627,851.0	629,742.3
CO2	lb/MMBtu -HHV	118.65	118.65	118.65		118.65	118.65	118.65	118.65	118.65
PM filterable	lb/hr	10.62	6.70	5.00		10.50	6.85	5.42	10.58	10.62
	lb/MMBtu -HHV	0.0020	0.0020	0.0019		0.0020	0.0019	0.0019	0.0020	0.0020
PM10/PM2.5 (Filterable + Condensable)	lb/hr	23.14	14.76	11.11		22.89	15.20	12.07	23.07	23.14
PM10/PM2.5 (Filterable + Condensable)	lb/MMBtu -HHV	0.0044	0.0043	0.0043		0.0044	0.0043	0.0043	0.0044	0.0044
Ammonia Slip	ppmvd @ 15% O2	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0
Ammonia Slip	lb/hr	38.93	25.10	19.01		38.5	26.0	20.7	38.8	38.9
Ammonia Slip	lb/MMBtu -HHV	0.0073	0.0073	0.0073		0.0073	0.0073	0.0073	0.0073	0.0073
Formaldehyde	ppbvd @ 15% O2	91.0	91.0	91.0		91.0	91.0	91.0	91.0	91.0
Formaldehyde	lb/MMBtu -HHV	0.00024	0.00024	0.00024		0.00024	0.00024	0.00024	0.00024	0.00024

Table C-7

Combustion Turbine Data - Distillate Oil Firing

Operating and Emissions Data for CT

List for each operating condition varying ambient T, RH.

Parameter	Units																						representative annual average	highest
CT Load	%	95 ºF	100% - EC	76%	MECL (60%)	65 ºF	100% - EC	75%	MECL (60%)	59 ºF	100% - EC	100%	75%	MECL (61%)	20 ºF	100%	82%	MECL (65 %)	0 ºF	100%	88%	MECL (70 %)	100%	100%
Ambient Pressure	psia		14.590	14.590	14.590		14.590	14.590	14.590		14.590	14.590	14.590	14.590		14.590	14.590	14.590		14.590	14.590	14.590		
Ambient Temp	°F		95	95	95		65	65	65		59	59	59	59		20	20	20		0	0	0	59	0
Relative Humidity	%		45	45	45		75	75	75		60	60	60	60		75	75	75		75	75	75	60	75
Fuel Type			Fuel Oil	Fuel Oil	Fuel Oil		Fuel Oil	Fuel Oil	Fuel Oil		Fuel Oil	Fuel Oil	Fuel Oil	Fuel Oil		Fuel Oil	Fuel Oil	Fuel Oil		Fuel Oil	Fuel Oil	Fuel Oil	Fuel Oil	Fuel Oil
Evap Cooler Status	On/Off		ON	OFF	OFF		ON	OFF	OFF		ON	OFF	OFF	OFF		OFF	OFF	OFF		OFF	OFF	OFF	ON	OFF
Fuel Oil Supply																								
S	ppmwt		15	15	15		15	15	15		15	15	15	15		15	15	15		15	15	15	15.0	15.0
Fuel LHV	BTU/lb		18,360	18,360	18,360		18,360	18,360	18,360		18,360	18,360	18,360	18,360		18,360	18,360	18,360		18,360	18,360	18,360	18,360	18,360
Fuel HHV	BTU/lb		19,594	19,594	19,594		19,594	19,594	19,594		19,594	19,594	19,594	19,594		19,594	19,594	19,594		19,594	19,594	19,594	19,594	19,594
Fuel Oil to the CT																								
Fuel Oil Heat Input	MMBtu/hr - HHV		3,423	2,641	2,336		3,488	2,808	2,491		3,492	3,488	2,842	2,511		3,501	3,061	2,657		3,502	3,168	2,741	3,492	3,502
Flow Rate	lb/hr		174,674	134,811	119,239		178,024	143,306	127,131		178,229	177,994	145,026	128,142		178,673	156,207	135,582		178,745	161,708	139,896	178,229	178,745
Stack Exit Conditions (GT post controls)																								
Oxygen	mol%		10.70	10.56	10.66		10.84	10.58	10.77		10.83	10.98	10.67	10.85		10.81	10.75	10.74		10.83	10.65	10.65		
Carbon Dioxide	mol%		5.58	5.73	5.67		5.65	5.82	5.71		5.71	5.65	5.83	5.73		5.84	5.87	5.88		5.85	5.95	5.95		
Water	mol%		12.25	11.95	11.85		11.11	11.23	11.05		10.76	10.43	10.73	10.55		10.03	10.09	10.10		9.89	10.07	10.07		
Nitrogen	mol%		70.62	70.91	70.96		71.54	71.51	71.61		71.83	72.07	71.90	72.00		72.45	72.41	72.41		72.56	72.46	72.46		
Argon	mol%		0.85	0.85	0.85		0.86	0.86	0.86		0.87	0.87	0.87	0.87		0.87	0.87	0.87		0.87	0.87	0.87		
Exhaust Flow at CC Stack	lb/hr		6,352,467	4,786,732	4,277,512		6,420,279	5,017,589	4,539,650		6,374,549	6,437,019	5,078,610	4,573,365		6,272,236	5,449,956	4,725,628		6,268,370	5,571,963	4,818,132		
Exhaust Flow at CC Stack	ACFM		1,859,661	1,359,915	1,203,385		1,851,789	1,408,361	1,263,971		1,824,030	1,842,949	1,416,014	1,266,774		1,761,038	1,506,650	1,303,735		1,755,867	1,548,055	1,324,428		
Exhaust Flow at CC Stack	DSCFM		1,345,424	1,012,070	904,266		1,353,414	1,057,558	956,533		1,341,693	1,353,411	1,068,325	961,759		1,315,853	1,143,452	991,497		1,314,302	1,168,609	1,010,516		
Exhaust Temp	F		219	200	193		212	194	189		207	209	191	187		197	187	186		196	190	183		
Exhaust Mol Wt	lb/lbmol		28.21	28.26	28.26		28.34	28.35	28.36		28.39	28.42	28.40	28.41		28.48	28.48	28.48		28.50	28.49	28.49		
Stack Height	ft		180	180	180		180	180	180		180	180	180	180		180	180	180		180	180	180	180	180
Stack Diameter	ft		23.0	23.0	23.0		23.0	23.0	23.0		23.0	23.0	23.0	23.0		23.0	23.0	23.0		23.0	23.0	23.0	23.0	23.0
NOx	ppmvd @ 15% O2		5.0	5.0	5.0		5.0	5.0	5.0		5.0	5.0	5.0	5.0		5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0
NOx	lb/hr		73.4	56.6	50.1		74.78	60.18	53.40		74.9	74.8	60.9	53.8		75.0	65.6	56.9		75.1	67.9	58.7	74.9	75.1
NOx	lb/MMBtu -HHV		0.02145	0.02143	0.02144		0.02144	0.02143	0.02144		0.02144	0.02144	0.02143	0.02144		0.02143	0.02143	0.02143		0.02143	0.02143	0.02143	0.02144	0.02145
CO	ppmvd @ 15% O2		2.0	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2	2
CO	lb/hr		17.9	13.8	12.2		18.2	14.7	13.0		18.2	18.2	14.8	13.1		18.3	16.0	13.9		18.3	16.5	14.3	18.2	18.3
CO	lb/MMBtu -HHV		0.00522	0.00522	0.00522		0.00522	0.00522	0.00522		0.00522	0.00522	0.00522	0.00522		0.00522	0.00522	0.00522		0.00522	0.00522	0.00522	0.00522	0.00522
VOC	ppmvd @ 15% O2		2.0	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0
VOC	lb/hr		10.2	7.9	7.0		10.4	8.4	7.4		10.4	10.4	8.5	7.5		10.5	9.1	7.9		10.4	9.4	8.2	10.4	10.5
VOC	lb/MMBtu -HHV		0.0030	0.0030	0.0030		0.0030	0.0030	0.0030		0.0030	0.0030	0.0030	0.0030		0.0030	0.0030	0.0030		0.0030	0.0030	0.0030	0.0030	0.0030
SO2	lb/hr		5.8	4.4	3.9		5.9	4.7	4.2		5.9	5.9	4.8	4.2		5.9	5.2	4.5		5.9	5.3	4.6	5.9	5.9
SO2	lb/MMBtu -HHV		0.00168	0.00168	0.00168		0.00168	0.00168	0.00168		0.00168	0.00168	0.00168	0.00168		0.00168	0.00168	0.00168		0.00168	0.00168	0.00168	0.00168	0.00168
H2SO4	lb/hr		8.8	6.8	6.0		9.0	7.2	6.4		9.0	9.0	7.3	6.5		9.0	7.9	6.8		9.0	8.2	7.1	9.0	9.03
H2SO4	lb/MMBtu -HHV		0.00258	0.00258	0.00258		0.00258	0.00258	0.00258		0.00258	0.00258	0.00258	0.00258		0.00258	0.00258	0.00258		0.00258	0.00258	0.00258	0.00258	0.00258
CO2	lb/hr		555,429	428,670	379,157		566,080	455,684	404,249		566,730	565,983	461,152	407,463		568,145	496,707	431,122		568,373	514,199	444,841	566,729.8	568,373.3
CO2	lb/MMBtu -HHV		162.3	162.3	162.3		162.3	162.3	162.3		162.3	162.3	162.3	162.3		162.3	162.3	162.3		162.3	162.3	162.3	162.3	162.3
PM filterable	lb/hr		37.79	28.43	25.40		38.02	29.71	26.87		37.69	38.02	30.01	27.01		36.96	32.12	27.85		36.92	32.82	28.38	37.69	38.02
0.0110	lb/MMBtu -HHV		0.0110	0.0108	0.0109		0.0109	0.0106	0.0108		0.0108	0.0109	0.0106	0.0108		0.0106	0.0105	0.0105		0.0105	0.0104	0.0104	0.0	0.0
PM10/PM2.5 (Filterable + Condensable)	lb/hr		46.61	35.24	31.42		47.01	36.94	33.29		46.69	47.01	37.33	33.49		45.98	40.01	34.70		45.94	40.99	35.45	46.69	47.01
PM10/PM2.5 (Filterable + Condensable)	lb/MMBtu -HHV		0.0136	0.0133	0.0134		0.0135	0.0132	0.0134		0.0134	0.0135	0.0131	0.0133		0.0131	0.0131	0.0131		0.0131	0.0129	0.0129	0.0134	0.0134
Ammonia Slip	ppmvd @ 15% O2		5.0	5.0	5.0		5.0	5.0	5.0		5.0	5.0	5.0	5.0		5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0
Ammonia Slip	lb/hr		27.1	20.9	18.5		27.6	22.2	19.7		27.7	27.6	22.5	19.9		27.7	24.2	21.0		27.7	25.1	21.7	27.7	27.7
Ammonia Slip	lb/MMBtu -HHV		0.0079	0.0079	0.0079		0.0079	0.0079	0.0079		0.0079	0.0079	0.0079	0.0079		0.0079	0.0079	0.0079		0.0079	0.0079	0.0079	0.0079	0.0079
Formaldehyde	ppbvd @ 15% O2		91.0	91.0	91.0		91.0	91.0	91.0		91.0	91.0	91.0	91.0		91.0	91.0	91.0		91.0	91.0	91.0	91.0	91.0
Formaldehyde	lb/MMBtu -HHV		0.00025	0.00025	0.00025		0.00025	0.00025	0.00025		0.00025	0.00025	0.00025	0.00025		0.00025	0.00025	0.00025		0.00025	0.00025	0.00025	0.00025	0.00025

Table C-8
Gas Heater Calculations
Annual and Maximum Hourly Emission Rates

Emission Source	Gas Fired Heater
Source Type	Natural Gas-Fired Boiler
Heat Input	8.61 MMBtu/hr
Number of Units	4
Natural Gas Heating Value	1,019 Btu/scf
Sulfur Content of Natural Gas	0.50 gr/100 scf
Operating Hours per Year	8,760 hr/year

Compound	Emission Factor (lb/MMBtu)	Emission Rate - per Unit: Hourly [c] (lb/hr)	Emission Rate - per Unit: Annual [d] (ton/year)	Total Units: Annual [d] (ton/year)
Criteria Pollutants [a]				
Nitrogen Oxides	0.011	0.094	0.41	1.65
Carbon Monoxide	0.074	0.637	2.79	11.16
VOC	0.010	0.086	0.38	1.51
Sulfur Dioxide [b]	0.0014	0.012	0.053	0.21
$PM_{10}/PM_{2.5}$ [e]	0.0048	0.041	0.18	0.72
Lead [e]	4.91E-07	4.2E-06	1.9E-05	7.4E-05
CO_2 [f]	116.98	1,007	4,412	17,647
CH_4 [f]	2.2E-03	1.90E-02	8.31E-02	3.33E-01
N_2O [f]	2.2E-04	1.90E-03	8.31E-03	3.33E-02
GHG Mass	116.98	1,007	4,412	17,647
CO_2e [g]	117.10	1,008	4,416	17,665

Notes:

(a) NOx emission Factor (lb/MMBtu) based on 9 ppmvd @ 3% O2 for ultra low NOx burners.

(b) SO2 emissions are based on fuel sulfur content.

(c) Hourly emission rate (lb/hr) = heat input (MMBtu/hr) * Emission factor (lb/MMBtu)

(d) Annual emission rate (tons/year) = hourly emission rate (lb/hr) * annual operating hours (hr/year) / (2000 lb/ton)

(e) Emission factors (lb/MMBtu) are based on BACT.

(f) Emission factors are based on the EPA rule "Mandatory Reporting of Greenhouse Gases", Tables C-1 & C-2.

(g) Global Warming Potentials for GHGs are from amendments to 40 CFR Part 98 in 89 FR 31802, April 25, 2024.

Table C-9
Emergency Diesel Generator Calculations, Power Block
Annual and Maximum Hourly Emission Rates

Emission Source:	Emergency Generators - Power Block
Source Type:	Diesel-fired Emergency Generator
Engine Power (bhp)	2,235
Engine Power (kW)	1,500
Maximum Fuel Usage (gal/hr)	91.4
Heat Input (mmBtu/hr):	12.619
Fuel consumption (Btu/hphr)	5,646
Number of Units:	4
Fuel Oil Heating Value (BTU/gal)	138,000
Sulfur Content of Fuel (wt. %)	0.0015
Operating Hours per Year:	200

Compound	Emission Factor	Emission Rates	
		Hourly [f]	Annual [g]
	(g/hp-hr)	(Lbs/Hr/Engine)	(Tons/Year)
Nitrogen Oxides [a]	4.5	22.34	8.94
Carbon Monoxide [a]	2.6	12.86	5.14
TOC [a]	0.2	1.18	0.47
Sulfur Dioxide [b]	0.0055	0.027	0.011
TSP [a]	0.15	0.73	0.29
PM_{10} [c]	0.14	0.68	0.27
$PM_{2.5}$ [c]	0.13	0.66	0.26
Lead [h]	3.59E-05	1.77E-04	7.1E-05
	kg/MMBtu	(Lbs/Hr/Engine)	(Tons/Year)
CO_2 [d]	73.96	2057.63	823.1
CH_4 [d]	3.00E-03	8.35E-02	3.34E-02
N_2O [d]	6.00E-04	1.67E-02	6.68E-03
GHG Mass	73.96	2,058	823.1
CO_2e [e]	74.20	2,064	825.8

Notes:

(a) Emission factors (g/hp-hr) are the NSPS Subpart IIII Tier 2 emission standards. NMHC+NOx standard assumed to be 95% NOx and 5% NMHC (TOC) based on standard industry practice. See https://www.tceq.texas.gov/downloads/air-quality/terp/emission-standards-non-road.pdf or https://www.baaqmd.gov/~/media/files/engineering/policy_and_procedures/engines/emissionfactorsfordieselengines.pdf.

(b) SO_2 emission factor from USEPA AP-42, Section 3.4, Table 3.4-1, dated October 1996, 100% conversion of fuel sulfur to SO_2

(c) Emission factors for PM10 and PM2.5 are based on speciation in AP-42 Table 3.4-2, adjusted to conform to the Tier 2 TSP standards.

(d) Emission factors for CO_2, CH_4 and N_2O are from 40 CFR Part 98 "Mandatory Greenhouse Gas Reporting ", Tables C-1 and C-2.

(e) Global Warming Potentials for GHGs are from amendments to 40 CFR Part 98 in 89 FR 31802, April 25, 2024.

(f) Hourly Emission Rate (Lbs/Hr) = (Emission Factor, g/hp-hr) * (Engine Power, hp) * (1 lb / 453.6 g)

(g) Annual Emission Rate (Tons/Yr) = (Hourly Emission Rate, Lbs/Hr) * (Hour of Operation Per Year, Hr/Yr)*number of units / (2,000 Lbs/Ton)

(h) AP-42 Table 3.1-5 (4/00) Metallic HAP Emission Factors for Distillate Oil-Fired Stationary Gas Turbines. Metallic HAP emission factors for diesel engines are unavailabe in AP-42.

Table C-10
Admin Building Diesel Generator Calculations
Annual and Maximum Hourly Emission Rates

Emission Source:	Emergency Generators - Admin Buildings
Source Type:	Diesel-fired Emergency Generator
Engine Power (bhp)	745
Engine Power (kW)	500
Maximum Fuel Usage (gal/hr)	30.5
Heat Input (mmBtu/hr):	4.206
Fuel consumption (Btu/hphr)	5,646
Number of Units:	2
Fuel Oil Heating Value (BTU/gal)	138,000
Sulfur Content of Fuel (wt. %)	0.0015
Operating Hours per Year:	200

Compound	Emission Factor	Emission Rates	
		Hourly (f)	Annual (g)
	(g/hp-hr)	(Lbs/Hr/Engine)	(Tons/Year)
Nitrogen Oxides (a)	4.5	7.45	1.49
Carbon Monoxide (a)	2.6	4.29	0.86
TOC (a)	0.2	0.39	0.08
Sulfur Dioxide (b)	0.0055	0.009	0.002
TSP (a)	0.15	0.24	0.05
PM_{10} (c)	0.14	0.23	0.05
$PM_{2.5}$ (c)	0.13	0.22	0.04
Lead (h)	3.59E-05	5.89E-05	1.2E-05
	kg/MMBtu	(Lbs/Hr/Engine)	(Tons/Year)
CO_2 (d)	73.96	685.88	137.2
CH_4 (d)	3.00E-03	2.78E-02	5.56E-03
N_2O (d)	6.00E-04	5.56E-03	1.11E-03
GHG Mass	73.96	686	137.2
CO_2e (e)	74.20	688	137.6

Notes:

(a) Emission factors (g/hp-hr) are the NSPS Subpart IIII Tier 2 emission standards. NMHC+NOx standard assumed to be 95% NOx and 5% NMHC (TOC) based on standard industry practice. See https://www.tceq.texas.gov/downloads/air-quality/terp/emission-standards-non-road.pdf or https://www.baaqmd.gov/~/media/files/engineering/policy_and_procedures/engines/emissionfactorsfordieselengines.pdf.

(b) SO_2 emission factor from USEPA AP-42, Section 3.4, Table 3.4-1, dated October 1996, 100% conversion of fuel sulfur to SO_2

(c) Emission factors for PM10 and PM2.5 are based on speciation in AP-42 Table 3.4-2, adjusted to conform to the Tier 2 TSP standards.

(d) Emission factors for CO_2, CH_4 and N_2O are from 40 CFR Part 98 "Mandatory Greenhouse Gas Reporting ", Tables C-1 and C-2.

(e) Global Warming Potentials for GHGs are from amendments to 40 CFR Part 98 in 89 FR 31802, April 25, 2024.

(f) Hourly Emission Rate (Lbs/Hr) = (Emission Factor, g/hp-hr) * (Engine Power, hp) * (1 lb / 453.6 g)

(g) Annual Emission Rate (Tons/Yr) = (Hourly Emission Rate, Lbs/Hr) * (Hour of Operation Per Year, Hr/Yr)*number of units / (2,000 Lbs/Ton)

(h) AP-42 Table 3.1-5 (4/00) Metallic HAP Emission Factors for Distillate Oil-Fired Stationary Gas Turbines. Metallic HAP emission factors for diesel engines are unavailabe in AP-42.

Table C-11
Diesel Fire-Water Pump Engine Calculations
Annual and Maximum Hourly Emission Rates

Emission Source:	Emergency Fire-Water Pump Engines
Source Type:	Diesel Fueled IC Reciprocating Engine
Engine Power (bhp)	350
Engine Power (kW)	261
Maximum Fuel Usage (gal/hr)	15.0
Heat Input (mmBtu/hr):	2.070
Fuel consumption (Btu/hphr)	5,914
Number of Units:	2
Fuel Oil Heating Value (BTU/gal)	138,000
Sulfur Content of Fuel (wt. %)	0.0015
Operating Hours per Year:	500

Compound	**Emission Factors**	**Emission Rates**	
		Hourly[g]	**Annual[h]**
	(g/hp-hr)	**(Lbs/Hr/Engine)**	**(Tons/Year)**
Nitrogen Oxides [a]	3.00	2.31	1.16
Carbon Monoxide [a]	2.60	2.01	1.00
TOC [a]	3.00	2.31	1.16
Sulfur Dioxide [b]	0.0055	0.004	0.0021
TSP [a]	0.15	0.12	0.058
PM_{10} [c]	0.14	0.11	0.053
$PM_{2.5}$ [c]	0.13	0.10	0.052
Lead [i]	3.76E-05	2.90E-05	1.4E-05
	kg/MMBtu	**(Lbs/Hr/Engine)**	**(Tons/Year)**
CO_2 [d]	73.96	337.52	168.8
CH_4 [d]	3.00E-03	1.37E-02	6.85E-03
N_2O [d]	6.00E-04	2.74E-03	1.37E-03
GHG Mass	73.96	337.54	168.8
CO_2e [e]	74.20	339	169.3

Notes:

(a) Emission factors (g/hp-hr) are the NSPS Subpart IIII Table 4 limits for Stationary Compression Ignition Internal Combustion Fire Pump Engines.

(b) SO_2 emission factor from USEPA AP-42, Section 3.4, Table 3.4-1, dated October 1996, 100% conversion of fuel sulfur to SO_2.

(c) Emission factors for PM10 and PM2.5 are based on speciation in AP-42 Table 3.4-2, adjusted to conform to 40 CFR 60 Subpart IIII TSP limit.

(d) Emission factors for CO_2, CH_4 and N_2O are from 40 CFR Part 98 "Mandatory Greenhouse Gas Reporting," Tables C-1 and C-2 (amended 12/9/2016).

(e) Global Warming Potentials for GHGs are from amendments to 40 CFR Part 98 in 89 FR 31802, April 25, 2024.

(f) Hourly Emission Rate (Lbs/Hr) = (Emission Factor, g/hp-hr) * (Engine Power, hp) * (1 lb / 453.6 g)

(g) Annual Emission Rate (Tons/Yr) = (Hourly Emission Rate, Lbs/Hr) * (Hour of Operation Per Year, Hr/Yr) / (2,000 Lbs/Ton)

(h) AP-42 Table 3.1-5 (4/00) Metallic HAP Emission Factors for Distillate Oil-Fired Stationary Gas Turbines.

Table C-12

Cooling Tower Calculations
Annual and Maximum Hourly Emission Rates

		per tower	Total (4 towers)
Operating Water Circulation Rate	(GPM)	102,000	408,000
Design Water Circulation Rate (a)	(GPM)	125,000	500,000
No of Cells		10	40
Total Liquid Drift (b)	(%)	0.0005	0.0005
Expected TDS/TSS of Circulated Water (c)	(ppmw)	400	400
Weight % PM_{10} in Particulate Emissions (e)		90.7%	90.7%
Weight % $PM_{2.5}$ in Particulate Emissions (e)		1.05%	1.05%
Number of Cooling Towers		4	

Emission Rate - Total Cooling Tower		per tower	Total (4 towers)
Total Suspended Particulate (d)	(Lbs/Hr)	0.13	0.50
	(Tons/Yr)	0.55	2.19
PM-10 (e)	(Lbs/Hr)	0.11	0.45
	(Tons/Yr)	0.50	1.99
PM2.5 (e)	(Lbs/Hr)	0.0013	0.005
	(Tons/Yr)	0.006	0.023
Emission Rate - Per Cell			
Total Suspended Particulate	(Lbs/Hr)	0.01	0.01
	(Tons/Yr)	0.05	0.05
PM-10	(Lbs/Hr)	0.0114	0.0114
	(Tons/Yr)	0.050	0.050
PM2.5	(Lbs/Hr)	0.00013	0.00013
	(Tons/Yr)	0.0006	0.0006

PM Distribution

EPRI Droplet Diameter (µm)	Droplet Volume (μm^3)	Droplet Mass (µg)	Particle Mass (Solids) (µg)	Solid Particle Volume (μm^3)	Solids Particle Diameter (µm)	EPRI % Mass Smaller
10	524	5.24E-04	2.09E-07	0.10	0.57	0.000
20	4,189	4.19E-03	1.68E-06	0.76	1.13	0.196
30	14,137	1.41E-02	5.65E-06	2.57	1.70	0.226
40	33,510	3.35E-02	1.34E-05	6.09	2.27	0.514
50	65,450	6.54E-02	2.62E-05	11.90	2.83	1.816
60	113,097	1.13E-01	4.52E-05	20.56	3.40	5.702
70	179,594	1.80E-01	7.18E-05	32.65	3.97	21.348
90	381,704	3.82E-01	1.53E-04	69.40	5.10	49.812
110	696,910	6.97E-01	2.79E-04	126.71	6.23	70.509
130	1,150,347	1.15E+00	4.60E-04	209.15	7.36	82.023
150	1,767,146	1.77E+00	7.07E-04	321.30	8.50	88.012
180	3,053,628	3.05E+00	1.22E-03	555.21	10.20	91.032
210	4,849,048	4.85E+00	1.94E-03	881.65	11.90	92.468
240	7,238,229	7.24E+00	2.90E-03	1,316.04	13.60	94.091
270	10,305,995	1.03E+01	4.12E-03	1,873.82	15.30	94.689
300	14,137,167	1.41E+01	5.65E-03	2,570.39	17.00	96.288
350	22,449,298	2.24E+01	8.98E-03	4,081.69	19.83	97.011
400	33,510,322	3.35E+01	1.34E-02	6,092.79	22.66	98.340
450	47,712,938	4.77E+01	1.91E-02	8,675.08	25.49	99.071
500	65,449,847	6.54E+01	2.62E-02	11,899.97	28.33	99.071
600	113,097,336	1.13E+02	4.52E-02	20,563.15	33.99	100.000

Abbreviation	Value	Unit
ρ_w	1.00E-06	$\mu g/\mu m^3$
ρ_w	1.0	g/cm^3
ρ_{TDS}	2.2	g/cm^3
TDS	400	ppmw TDS

Linear Interpolation			
X1 =	8.50	Y1 =	88.01
Desired Diameter X2 =	**10.00**	Y2 =	**90.68**
X3 =	10.20	Y3 =	91.03

Linear Interpolation			
X1 =	2.27	Y1 =	0.51
Desired Diameter X2 =	**2.50**	Y2 =	**1.05**
X3 =	2.83	Y3 =	1.82

Notes:

(a) Design Water Circulation Rate, Gallons/Minute (GPM)

(b) Design Total Liquid Drift, Percent (%), vendor guarantee

(c) Estimated 400 ppmw TDS in circulating water

(d) Based on USEPA AP-42 Section 13.4 Wet Cooling Towers, Table 13.4-1 dated 1/95. Modified to Cooling Tower Design
Lbs/Hr = (Water Circulation Rate,GPM)*60*(Drift,%) / 100 * (8.3453 Lbs/Gal) * (TDS, Lbs PM/1,000,000 Lbs Water)
Tons/Yr = (Lbs/Hr) * (8,760 Hrs/Yr) / (2,000 Lbs/Ton)

(e) PM_{10} and $PM_{2.5}$ fractions are calculated based on the methodology presented in the paper entitled "*Calculating Realistic PM $_{10}$ Emissions from Cooling Towers", Reisman and Frisbie, Environmental Progress, 2002, vol. 21, no2, pp. 127-130*.

Table C-13
Storage Tank Emissions

Annual Emission Rates

TankSummaries_Speciated for 2025 Annual
Site: Bowen
Equations for this site: After 2019 AP-42 revisions H/D ratio: Default 0.5

		1 Fuel Tank	4 Fuel Tanks
Capacity	gallons	2,300,000	9,200,000
number of tanks			4
VOCs	lb/yr	644.52	2578.06
VOCs	tpy	0.32	1.29
HAPs	tpy	0.04	0.17

Tank ID	Diameter (ft)	Fixed Roof Type	Inside Shell Condition	Shell Condition (post-19)	Shell Finish	Roof Condition (post-19)	Roof Finish	Is Insulated	Product	RVP	Throughput (gal)	Bulk Liquid Temperature (degF)	Avg. Liquid Surface Temp. (degF)	Avg. TVP (psia)	Estimated standing losses (lbs)	Estimated working losses (lbs)	Total estimated emissions (lbs)
CC Tanks	90	A	L	Av	L	Av	L	Y	Diesel		29600000	62.5	62.5	0.00703637	0	644.51501	644.51501

Total loss components in the "Chosen Components" set (lbs)

Benzene	Benzo (g,h,i) perylene	Biphenyl	Cumene {isopropylbenzene}	Cyclo hexane	Ethyl benzene	Hexane (n-)	Iso-octane {2,2,4 trimethyl pentane}	Methanol {methyl alcohol}	Naphthalene	PACs {Chrysene}	Phenanthrene	Propylene glycol (1,2) {1,2 propanediol}	Toluene	Triethylene Glycol	Trimethyl benzene (1,2,4)	Xylene
1.3294087	3.166E-13	no data	0	0	1.947977	0.27029	0	no data	0.26841832	7.17384E-11	no data	no data	15.1593843	no data	29.9009441	37.874516

Table C-14

Combustion Turbine Hazardous Air Pollutant Emissions

Annual and Maximum Hourly Emission Rates

Pollutant	Listed §112(b) HAP? [j]	CTG Gas firing Emission Factor: AP-42 Section 3.1-3 04/00 - Combustion Turbine Natural Gas and AP-42 Section 1.4 07/98 - Natural Gas Combustion			CTG Oil Firing Emission Factor: AP-42 Section 3.1-3 04/00 - Combustion Turbine Fuel Oil and AP-42 Section 1.3 05/10 - Fuel Oil Combustion			HAP Emissions from Combined Cycle CTGs: CC Gas (CTG+DB) Emissions, Emission Rate 1 CC, gas		CTG Oil Emissions, Emission Rate 1 CC, oil		Emission Rates, larger gas or oil 1 CC		Larger of 8,760 hr gas or Gas hrs and oil hrs combined	Total Emissions, Emission Rates 4 CCs		
								Max Hourly[b]	Annual[c]	Max Hourly[b]	Annual[c]	Max Hourly[d]	Daily [i]	Annual[e]	Max Hourly[d]	Daily [i]	Annual[e]
		($lb/10^6 scf$)	(lb/MMBtu)[a]	Rating	($lb/10^3$ gal)	(lb/MMBtu)[a]	Rating	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(lb/day)	(tpy)	(lb/hr)	(lb/day)	(tpy)
Metal Compounds:																	
Arsenic [g]	Y	2.00E-04	1.96E-07	E		1.10E-05	D	1.04E-03	4.56E-03	**3.85E-02**	2.31E-02	3.85E-02	9.25E-01	2.71E-02	1.54E-01	3.70E+00	1.08E-01
Beryllium [g]	Y	1.20E-05	1.18E-08	E		3.10E-07	D	6.25E-05	2.74E-04	**1.09E-03**	6.51E-04	1.09E-03	2.61E-02	8.88E-04	4.34E-03	1.04E-01	3.55E-03
Cadmium [g]	Y	1.10E-03	1.08E-06	D		4.80E-06	D	5.73E-03	2.51E-02	**1.68E-02**	1.01E-02	1.68E-02	4.03E-01	3.17E-02	6.72E-02	1.61E+00	1.27E-01
Chromium (total) [g]	Y	1.40E-03	1.37E-06	D		1.10E-05	D	7.29E-03	3.19E-02	**3.85E-02**	2.31E-02	3.85E-02	9.25E-01	5.07E-02	1.54E-01	3.70E+00	2.03E-01
Cobalt [g]	Y	8.40E-05	8.24E-08	D				**4.38E-04**	1.92E-03	-	-	4.38E-04	1.05E-02	1.92E-03	1.75E-03	4.20E-02	7.67E-03
Lead [g]	Y	5.00E-04	4.91E-07	D		1.40E-05	D	2.60E-03	1.14E-02	**4.90E-02**	2.94E-02	4.90E-02	1.18E+00	3.93E-02	1.96E-01	4.71E+00	1.57E-01
Manganese [g]	Y	3.80E-04	3.73E-07	D		7.90E-04	D	1.98E-03	8.67E-03	**2.77E+00**	1.66E+00	2.77E+00	6.64E+01	1.67E+00	1.11E+01	2.66E+02	6.67E+00
Mercury [g]	Y	2.60E-04	2.55E-07	D		1.20E-06	D	1.35E-03	5.93E-03	**4.20E-03**	2.52E-03	4.20E-03	1.01E-01	7.64E-03	1.68E-02	4.03E-01	3.06E-02
Nickel [g]	Y	2.10E-03	2.06E-06	C		4.60E-06	D	1.09E-02	4.79E-02	**1.61E-02**	9.67E-03	1.61E-02	3.87E-01	5.10E-02	6.44E-02	1.55E+00	2.04E-01
Selenium [g]	Y	2.40E-05	2.36E-08	E		2.50E-04	D	1.25E-04	5.48E-04	**8.76E-01**	5.25E-01	8.76E-01	2.10E+01	5.26E-01	3.50E+00	8.41E+01	2.10E+00
Organic Compounds:																	
1,3-Butadiene	Y		4.30E-07	D		1.60E-05	D	2.28E-03	1.00E-02	5.60E-02	3.36E-02	5.60E-02	1.34E+00	4.22E-02	2.24E-01	5.38E+00	1.69E-01
1,1,1-Trichloroethane [h]	Y				0.000236	1.67E-06	E	-	-	5.84E-03	3.51E-03	5.84E-03	1.40E-01	3.51E-03	2.34E-02	5.61E-01	1.40E-02
Acetaldehyde	Y		4.00E-05	C				**2.12E-01**	9.30E-01	-	-	2.12E-01	5.10E+00	9.30E-01	8.49E-01	2.04E+01	3.72E+00
Acrolein	Y		6.40E-06	C				**3.40E-02**	1.49E-01	-	-	3.40E-02	8.15E-01	1.49E-01	1.36E-01	3.26E+00	5.95E-01
Benzene	Y		1.20E-05	A		5.50E-05	C	6.37E-02	2.79E-01	**1.93E-01**	1.16E-01	1.93E-01	4.62E+00	3.56E-01	7.71E-01	1.85E+01	1.43E+00
Ethylbenzene [h]	Y		3.20E-05	C	6.36E-05	4.50E-07	E	**1.70E-01**	7.44E-01	1.58E-03	9.45E-04	1.70E-01	4.08E+00	7.44E-01	6.79E-01	1.63E+01	2.98E+00
Formaldehyde [f]	Y		2.36E-04			2.54E-04		**1.25E+00**	5.48E+00	8.91E-01	5.35E-01	1.25E+00	3.01E+01	5.48E+00	5.01E+00	1.20E+02	**2.19E+01**
Naphthalene	Y		1.30E-06	C		3.50E-05	C	6.90E-03	3.02E-02	**1.23E-01**	7.35E-02	1.23E-01	2.94E+00	9.96E-02	4.90E-01	1.18E+01	3.99E-01
PAHs	Y		2.20E-06	C		4.00E-05		1.17E-02	5.11E-02	**1.40E-01**	8.41E-02	1.40E-01	3.36E+00	1.28E-01	5.60E-01	1.34E+01	5.13E-01
Propylene Oxide	Y		2.90E-05	D				**1.54E-01**	6.74E-01	**-**	-	1.54E-01	3.69E+00	6.74E-01	6.16E-01	1.48E+01	2.70E+00
Toluene [h]	Y		1.30E-04	C	6.20E-03	4.38E-05	D	**6.90E-01**	3.02E+00	1.54E-01	9.21E-02	6.90E-01	1.66E+01	3.02E+00	2.76E+00	6.62E+01	1.21E+01
Xylene [h]	Y		6.40E-05	C	1.09E-04	7.71E-07	E	**3.40E-01**	1.49E+00	2.70E-03	1.62E-03	3.40E-01	8.15E+00	1.49E+00	1.36E+00	3.26E+01	5.95E+00
Other non-HAP Toxic Compounds:																	
Ammonia [f]			7.34E-03			7.92E-03		**3.89E+01**	1.71E+02	2.77E+01	1.66E+01	3.89E+01	9.34E+02	1.71E+02	1.56E+02	3.74E+03	6.82E+02
Sulfuric Acid [f]			2.36E-03			2.58E-03		**1.25E+01**	5.49E+01	9.03E+00	5.42E+00	1.25E+01	3.01E+02	5.49E+01	5.01E+01	1.20E+03	2.19E+02
Total HAPs								**gas only:**	**13.00**	**oil only**	**3.22**		**combined:**	**15.52**	**28.70**	**688.92**	**62.10**

		CTG gas	CTG gas/oil
Gas	Max Heat Input per Turbine(MMBtu/hr)	5,308	5,308
	Max Operating hours per year	8,760	7,560
	Total Heat Input per Turbine(MMBtu/yr)	46,494,248	40,125,173
Oil	Max Heat Input per Turbine(MMBtu/hr)		3,502
	Max Operating hours per year		1,200
	Total Heat Input per Turbine(MMBtu/yr)		4,202,760

number of units: 4

Natural Gas Heating Value 1,019 Btu/SCF (HHV)

Table C-14

Combustion Turbine Hazardous Air Pollutant Emissions

Annual and Maximum Hourly Emission Rates

Notes:

(a) Emission Factor (lb/MMBtu) = (Emission Factor, lb/10^6 scf) / (Volumetric Heat Content, Btu/scf) if lb/10^6 scf is given.

(b) Max Hourly Emission Rate (lb/hr) = [Max Heat Input (MMBtu/hr) * Emission Factor (lb/MMBtu)]

(c) Annual Emission Rate (ton/yr) = [Heat Input (MMBtu/yr) * Emission Factor (lb/MMBtu) / 2000 lb/ton]

(d) Total Max Hourly Emissions (lb/hr) = Maximum of either CC Gas Emissions (lb/hr) or CC Oil Emissions (lb/hr)

(e) Total Annual Emissions (ton/yr) = larger of 8,760 hours CC gas Emissions (ton/yr) or 7,560 hours CC Gas Emissions (ton/yr) + 1,200 hours CC oil emissions (ton/yr)

(f) Vendor-supplied emission estimate

(g) Emission Factor for natural gas from AP-42 Section 1.4 07/98 - Natural Gas Combustion.

(h) Emission Factor for fuel oil from AP-42 Section 1.3 05/10 - Fuel Oil Combustion.

(i) Daily emission rate (lb/day) = maximum hourly emission rate (lb/hr) * (24 hours/day

(j) Organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100 ºC, are considered a HAP. Have assumed total PAHs are a HAP.

Table C-15
Gas Heaters Hazardous Air Pollutant Emissions
Annual and Maximum Hourly Emission Rates

Compound Categories	Listed §112(b) HAP? [b]	Emission Factor		Emission Est. Method	Gas Heater Emission Rate - per Heater			Gas Heater Total Heaters
		(lb/10^6 scf)	(lb/MMBtu)[a]		Max Hourly (lb/hr)	Max Daily (lb/day)	Annual (tpy)	Annual (tpy)
Metals:								
Arsenic	Y	2.00E-04	1.96E-07	2	1.69E-06	4.06E-05	7.40E-06	2.96E-05
Beryllium	Y	1.20E-05	1.18E-08	2	1.01E-07	2.43E-06	4.44E-07	1.78E-06
Cadmium	Y	1.10E-03	1.08E-06	2	9.30E-06	2.23E-04	4.07E-05	1.63E-04
Chromium (total)	Y	1.40E-03	1.37E-06	2	1.18E-05	2.84E-04	5.18E-05	2.07E-04
Cobalt	Y	8.40E-05	8.24E-08	2	7.10E-07	1.70E-05	3.11E-06	1.24E-05
Lead	Y	5.00E-04	4.91E-07	3	4.23E-06	1.01E-04	1.85E-05	7.40E-05
Manganese	Y	3.80E-04	3.73E-07	2	3.21E-06	7.71E-05	1.41E-05	5.63E-05
Mercury	Y	2.60E-04	2.55E-07	2	2.20E-06	5.27E-05	9.62E-06	3.85E-05
Nickel	Y	2.10E-03	2.06E-06	2	1.77E-05	4.26E-04	7.77E-05	3.11E-04
Selenium	Y	2.40E-05	2.36E-08	2	2.03E-07	4.87E-06	8.88E-07	3.55E-06
Organic Compounds:								
Benzene	Y	2.10E-03	2.06E-06	1	1.77E-05	4.26E-04	7.77E-05	3.11E-04
Dichlorobenzene	Y	1.20E-03	1.18E-06	1	1.01E-05	2.43E-04	4.44E-05	1.78E-04
Formaldehyde	Y	7.50E-02	7.36E-05	1	6.34E-04	1.52E-02	2.78E-03	1.11E-02
Hexane	Y	1.80E+00	1.77E-03	1	1.52E-02	3.65E-01	6.66E-02	2.66E-01
Toluene	Y	3.40E-03	3.34E-06	1	2.87E-05	6.90E-04	1.26E-04	5.03E-04
Polycyclic Organic Matter (POM):								
Acenaphthene	Y	1.80E-06	1.77E-09	1	1.52E-08	3.65E-07	6.66E-08	2.66E-07
Acenaphthylene	Y	1.80E-06	1.77E-09	1	1.52E-08	3.65E-07	6.66E-08	2.66E-07
Anthracene	Y	2.40E-06	2.36E-09	1	2.03E-08	4.87E-07	8.88E-08	3.55E-07
Benz(a)anthracene	Y	1.80E-06	1.77E-09	1	1.52E-08	3.65E-07	6.66E-08	2.66E-07
Benzo(a)pyrene	Y	1.20E-06	1.18E-09	1	1.01E-08	2.43E-07	4.44E-08	1.78E-07
Benzo(b)fluoranthene	Y	1.80E-06	1.77E-09	1	1.52E-08	3.65E-07	6.66E-08	2.66E-07
Benzo(g,h,I)perylene	Y	1.20E-06	1.18E-09	1	1.01E-08	2.43E-07	4.44E-08	1.78E-07
Benzo(k)fluoranthene	Y	1.80E-06	1.77E-09	1	1.52E-08	3.65E-07	6.66E-08	2.66E-07
Chrysene	Y	1.80E-06	1.77E-09	1	1.52E-08	3.65E-07	6.66E-08	2.66E-07
Dibenz(a,h)anthracene	Y	1.20E-06	1.18E-09	1	1.01E-08	2.43E-07	4.44E-08	1.78E-07
Dimethylbenz(a)anthracene, 7,12-	Y	1.60E-05	1.57E-08	1	1.35E-07	3.24E-06	5.92E-07	2.37E-06
Fluoranthene	Y	3.00E-06	2.94E-09	1	2.54E-08	6.08E-07	1.11E-07	4.44E-07
Fluorene	Y	2.80E-06	2.75E-09	1	2.37E-08	5.68E-07	1.04E-07	4.15E-07
Indeno(1,2,3-cd)pyrene	Y	1.80E-06	1.77E-09	1	1.52E-08	3.65E-07	6.66E-08	2.66E-07
Methylnaphthalene, 2-	Y	2.40E-05	2.36E-08	1	2.03E-07	4.87E-06	8.88E-07	3.55E-06
Methylchloranthrene, 3-	Y	1.80E-06	1.77E-09	1	1.52E-08	3.65E-07	6.66E-08	2.66E-07
Naphthalene	Y	6.10E-04	5.99E-07	1	5.15E-06	1.24E-04	2.26E-05	9.03E-05
Phenanthrene	Y	1.70E-05	1.67E-08	1	1.44E-07	3.45E-06	6.29E-07	2.52E-06
Pyrene	Y	5.00E-06	4.91E-09	1	4.23E-08	1.01E-06	1.85E-07	7.40E-07
Total HAPs					**1.60E-02**	**3.83E-01**	**6.99E-02**	**2.80E-01**

Fuel:	Gas
Number of Heaters	4
Max Heat Input (MMBtu/hr)	8.61
Max Operating hours per year	8760
Total Heat Input (MMBtu/yr)	75,428
Gas Heating Value (BTU/scf)	1019

Estimation Method:

1. AP-42 Section 1.4 07/98 - Boilers - Natural Gas Combustion Table 1.4-3
2. AP-42 Section 1.4 07/98 - Boilers - Natural Gas Combustion Table 1.4-4
3. AP-42 Section 1.4 07/98 - Boilers - Natural Gas Combustion Table 1.4-2

Notes:

(a) Emission Factor (lb/MMBtu) = (Emission Factor, lb/10^6 scf) / (Gas Heat Content, Btu/scf).

(b) Organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100 ºC, are considered a HAP. Have conservatively assumed all POM compounds are a HAP.

Table C-16
Emergency Generator Hazardous Air Pollutant Emissions
Annual and Maximum Hourly Emission Rates

Compound Categories	Listed §112(b) HAP? [a]	Emission Factor		Emission Est. Method	Emergency Generators - Power Block (Emissions per Generator)			Emergency Generators	Emergency Generators - Admin Building (Emissions per Generator)			Building Emergency Generators
		Value	Units		Max Hourly (lb/hr)	Max Daily (lb/day)	Annual (tpy)	Annual (tpy)	Max Hourly (lb/hr)	Max Daily (lb/day)	Annual (tpy)	Annual (tpy)
Metals:												
Arsenic	Y	1.10E-05	lb/MMBtu	3	1.39E-04	3.33E-03	1.39E-05	5.55E-05	4.63E-05	1.11E-03	4.63E-06	9.25E-06
Beryllium	Y	3.10E-07	lb/MMBtu	3	3.91E-06	9.39E-05	3.91E-07	1.56E-06	1.30E-06	3.13E-05	1.30E-07	2.61E-07
Cadmium	Y	4.80E-06	lb/MMBtu	3	6.06E-05	1.45E-03	6.06E-06	2.42E-05	2.02E-05	4.85E-04	2.02E-06	4.04E-06
Chromium (total)	Y	1.10E-05	lb/MMBtu	3	1.39E-04	3.33E-03	1.39E-05	5.55E-05	4.63E-05	1.11E-03	4.63E-06	9.25E-06
Lead	Y	1.40E-05	lb/MMBtu	3	1.77E-04	4.24E-03	1.77E-05	7.07E-05	5.89E-05	1.41E-03	5.89E-06	1.18E-05
Manganese	Y	7.90E-04	lb/MMBtu	3	9.97E-03	2.39E-01	9.97E-04	3.99E-03	3.32E-03	7.98E-02	3.32E-04	6.65E-04
Mercury	Y	1.20E-06	lb/MMBtu	3	1.51E-05	3.63E-04	1.51E-06	6.06E-06	5.05E-06	1.21E-04	5.05E-07	1.01E-06
Nickel	Y	4.60E-06	lb/MMBtu	3	5.80E-05	1.39E-03	5.80E-06	2.32E-05	1.93E-05	4.64E-04	1.93E-06	3.87E-06
Selenium	Y	2.50E-05	lb/MMBtu	3	3.15E-04	7.57E-03	3.15E-05	1.26E-04	1.05E-04	2.52E-03	1.05E-05	2.10E-05
Organic Compounds:												
Acetaldehyde	Y	2.52E-05	lb/MMBtu	1	3.18E-04	7.63E-03	3.18E-05	1.27E-04	1.06E-04	2.54E-03	1.06E-05	2.12E-05
Acrolein	Y	7.88E-06	lb/MMBtu	1	9.94E-05	2.39E-03	9.94E-06	3.98E-05	3.31E-05	7.96E-04	3.31E-06	6.63E-06
Benzene	Y	7.76E-04	lb/MMBtu	1	9.79E-03	2.35E-01	9.79E-04	3.92E-03	3.26E-03	7.83E-02	3.26E-04	6.53E-04
Formaldehyde	Y	7.89E-05	lb/MMBtu	1	9.96E-04	2.39E-02	9.96E-05	3.98E-04	3.32E-04	7.97E-03	3.32E-05	6.64E-05
Toluene	Y	2.81E-04	lb/MMBtu	1	3.55E-03	8.51E-02	3.55E-04	1.42E-03	1.18E-03	2.84E-02	1.18E-04	2.36E-04
Xylenes	Y	1.93E-04	lb/MMBtu	1	2.44E-03	5.85E-02	2.44E-04	9.74E-04	8.12E-04	1.95E-02	8.12E-05	1.62E-04
Polycyclic Organic Matter (POM):												
Acenaphthene	Y	4.68E-06	lb/MMBtu	2	5.91E-05	1.42E-03	5.91E-06	2.36E-05	1.97E-05	4.72E-04	1.97E-06	3.94E-06
Acenaphthylene	Y	9.23E-06	lb/MMBtu	2	1.16E-04	2.80E-03	1.16E-05	4.66E-05	3.88E-05	9.32E-04	3.88E-06	7.77E-06
Anthracene	Y	1.23E-06	lb/MMBtu	2	1.55E-05	3.73E-04	1.55E-06	6.21E-06	5.17E-06	1.24E-04	5.17E-07	1.03E-06
Benz(a)anthracene	Y	6.22E-07	lb/MMBtu	2	7.85E-06	1.88E-04	7.85E-07	3.14E-06	2.62E-06	6.28E-05	2.62E-07	5.23E-07
Benzo(a)pyrene	Y	2.57E-07	lb/MMBtu	2	3.24E-06	7.78E-05	3.24E-07	1.30E-06	1.08E-06	2.59E-05	1.08E-07	2.16E-07
Benzo(b)fluoranthene	Y	1.11E-06	lb/MMBtu	2	1.40E-05	3.36E-04	1.40E-06	5.60E-06	4.67E-06	1.12E-04	4.67E-07	9.34E-07
Benzo(g,h,i)perylene	Y	5.56E-07	lb/MMBtu	2	7.02E-06	1.68E-04	7.02E-07	2.81E-06	2.34E-06	5.61E-05	2.34E-07	4.68E-07
Benzo(k)fluoranthene	Y	2.18E-07	lb/MMBtu	2	2.75E-06	6.60E-05	2.75E-07	1.10E-06	9.17E-07	2.20E-05	9.17E-08	1.83E-07
Chrysene	Y	1.53E-06	lb/MMBtu	2	1.93E-05	4.63E-04	1.93E-06	7.72E-06	6.44E-06	1.54E-04	6.44E-07	1.29E-06
Dibenz(a,h)anthracene	Y	3.46E-07	lb/MMBtu	2	4.37E-06	1.05E-04	4.37E-07	1.75E-06	1.46E-06	3.49E-05	1.46E-07	2.91E-07
Fluoranthene	Y	4.03E-06	lb/MMBtu	2	5.09E-05	1.22E-03	5.09E-06	2.03E-05	1.70E-05	4.07E-04	1.70E-06	3.39E-06
Fluorene	Y	1.28E-05	lb/MMBtu	2	1.62E-04	3.88E-03	1.62E-05	6.46E-05	5.38E-05	1.29E-03	5.38E-06	1.08E-05
Indeno(1,2,3-cd)pyrene	Y	4.14E-07	lb/MMBtu	2	5.22E-06	1.25E-04	5.22E-07	2.09E-06	1.74E-06	4.18E-05	1.74E-07	3.48E-07
Naphthalene	Y	1.30E-04	lb/MMBtu	2	1.64E-03	3.94E-02	1.64E-04	6.56E-04	5.47E-04	1.31E-02	5.47E-05	1.09E-04
Phenanthrene	Y	4.08E-05	lb/MMBtu	2	5.15E-04	1.24E-02	5.15E-05	2.06E-04	1.72E-04	4.12E-03	1.72E-05	3.43E-05
Pyrene	Y	3.71E-06	lb/MMBtu	2	4.68E-05	1.12E-03	4.68E-06	1.87E-05	1.56E-05	3.75E-04	1.56E-06	3.12E-06
Total HAPs					**3.07E-02**	**7.38E-01**	**3.07E-03**	**1.23E-02**	**1.02E-02**	**2.46E-01**	**1.02E-03**	**2.05E-03**

Fuel:	Power Block	Admin Building
Number of generators	4	2
Fuel	diesel	diesel
Horsepower (hp)	2235	745
Max Heat Input (MMBtu/hr)	12.62	4.21
Max Operating hours per year	200	200
Total Heat Input (MMBtu/yr)	2523.9	841.3
Maximum Fuel Usage (gal/hr)	91	30
Fuel Oil Heating Value (BTU/gal)	138000	138000

Estimation Method:

1. AP-42 Table 3.4-3 (10/96) Speciated Organic Compound Emission Factors for Large Uncontrolled Stationary Diesel Engines
2. AP-42 Table 3.4-4 (10/96) PAH Emission Factors for Large Uncontrolled Stationary Diesel Engines
3. AP-42 Table 3.1-5 (04/00) Emission Factors for HAPs from Distillate Oil-Fired Stationary Gas Turbines. No factors for metals provided for Diesel Engines in AP-42.

Notes:

(a) Organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100 ºC, are considered a HAP. Have conservatively assumed all POM compounds are a HAP.

Table C-17

Firewater Pump Hazardous Air Pollutant Emissions

Annual and Maximum Hourly Emission Rates

Compound Categories	Listed §112(b) HAP? [(a)]	Emission Factor		Emission Est. Method	Fire Water Pump			Fire Water Pumps
					Emission Rate, per Fire Water Pump			Emission Rate, Total
		Value	Units		Max Hourly	Max Daily	Annual	Annual
Metals:					(lb/hr)	(lb/day)	(tpy)	(tpy)
Arsenic	Y	1.10E-05	lb/MMBtu	2	2.28E-05	5.46E-04	5.69E-06	1.14E-05
Beryllium	Y	3.10E-07	lb/MMBtu	2	6.42E-07	1.54E-05	1.60E-07	3.21E-07
Cadmium	Y	4.80E-06	lb/MMBtu	2	9.94E-06	2.38E-04	2.48E-06	4.97E-06
Chromium (total)	Y	1.10E-05	lb/MMBtu	2	2.28E-05	5.46E-04	5.69E-06	1.14E-05
Lead	Y	1.40E-05	lb/MMBtu	2	2.90E-05	6.96E-04	7.25E-06	1.45E-05
Manganese	Y	7.90E-04	lb/MMBtu	2	1.64E-03	3.92E-02	4.09E-04	8.18E-04
Mercury	Y	1.20E-06	lb/MMBtu	2	2.48E-06	5.96E-05	6.21E-07	1.24E-06
Nickel	Y	4.60E-06	lb/MMBtu	2	9.52E-06	2.29E-04	2.38E-06	4.76E-06
Selenium	Y	2.50E-05	lb/MMBtu	2	5.18E-05	1.24E-03	1.29E-05	2.59E-05
Organic Compounds:								
Acetaldehyde	Y	7.67E-04	lb/MMBtu	1	1.59E-03	3.81E-02	3.97E-04	7.94E-04
Acrolein	Y	9.25E-05	lb/MMBtu	1	1.91E-04	4.60E-03	4.79E-05	9.57E-05
Benzene	Y	9.33E-04	lb/MMBtu	1	1.93E-03	4.64E-02	4.83E-04	9.66E-04
Butadiene, 1,3-	Y	3.91E-05	lb/MMBtu	1	8.09E-05	1.94E-03	2.02E-05	4.05E-05
Formaldehyde	Y	1.18E-03	lb/MMBtu	1	2.44E-03	5.86E-02	6.11E-04	1.22E-03
Toluene	Y	4.09E-04	lb/MMBtu	1	8.47E-04	2.03E-02	2.12E-04	4.23E-04
Xylenes	Y	2.85E-04	lb/MMBtu	1	5.90E-04	1.42E-02	1.47E-04	2.95E-04
Polycyclic Organic Matter (POM):								
Acenaphthene	Y	1.42E-06	lb/MMBtu	1	2.94E-06	7.05E-05	7.35E-07	1.47E-06
Acenaphthylene	Y	5.06E-06	lb/MMBtu	1	1.05E-05	2.51E-04	2.62E-06	5.24E-06
Anthracene	Y	1.87E-06	lb/MMBtu	1	3.87E-06	9.29E-05	9.68E-07	1.94E-06
Benz(a)anthracene	Y	1.68E-06	lb/MMBtu	1	3.48E-06	8.35E-05	8.69E-07	1.74E-06
Benzo(a)pyrene	Y	1.88E-07	lb/MMBtu	1	3.89E-07	9.34E-06	9.73E-08	1.95E-07
Benzo(b)fluoranthene	Y	9.91E-08	lb/MMBtu	1	2.05E-07	4.92E-06	5.13E-08	1.03E-07
Benzo(g,h,i)perylene	Y	4.89E-07	lb/MMBtu	1	1.01E-06	2.43E-05	2.53E-07	5.06E-07
Benzo(k)fluoranthene	Y	1.55E-07	lb/MMBtu	1	3.21E-07	7.70E-06	8.02E-08	1.60E-07
Chrysene	Y	3.53E-07	lb/MMBtu	1	7.31E-07	1.75E-05	1.83E-07	3.65E-07
Dibenz(a,h)anthracene	Y	5.83E-07	lb/MMBtu	1	1.21E-06	2.90E-05	3.02E-07	6.03E-07
Fluoranthene	Y	7.61E-06	lb/MMBtu	1	1.58E-05	3.78E-04	3.94E-06	7.88E-06
Fluorene	Y	2.92E-05	lb/MMBtu	1	6.04E-05	1.45E-03	1.51E-05	3.02E-05
Indeno(1,2,3-cd)pyrene	Y	3.75E-07	lb/MMBtu	1	7.76E-07	1.86E-05	1.94E-07	3.88E-07
Naphthalene	Y	8.48E-05	lb/MMBtu	1	1.76E-04	4.21E-03	4.39E-05	8.78E-05
Phenanthrene	Y	2.94E-05	lb/MMBtu	1	6.09E-05	1.46E-03	1.52E-05	3.04E-05
Pyrene	Y	4.78E-06	lb/MMBtu	1	9.89E-06	2.37E-04	2.47E-06	4.95E-06
Total HAPs					**9.80E-03**	**2.35E-01**	**2.45E-03**	**4.90E-03**

<u>Fuel:</u>

Number of firewater pump engines	2
Fuel	Diesel
Horsepower (hp)	350
Max Heat Input (MMBtu/hr)	2.07
Max Operating hours per year	500
Total Heat Input (MMBtu/yr)	1,035
Maximum Fuel Usage (gal/hr)	15.0
Fuel Oil Heating Value (BTU/gal)	138000

<u>Estimation Method:</u>

1 - AP-42 Table 3.3-2 (10/96) Speciated Organic Compound Emission Factors for Uncontrolled Diesel Engines

2 - AP-42 Table 3.1-5 (04/00) Emission Factors for HAPs from Distillate Oil-Fired Stationary Gas Turbines. No factors for metals provided for Diesel Engines in AP-

<u>Notes:</u>

(a) Organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100 ºC, are considered a HAP. Have conservatively assumed all POM compounds are a HAP.

Table C-18

Annual Hazardous Air Pollutant Emissions (tons/year) - All Units

Pollutant	Listed §112(b) HAP? [(a)]	Gas Heaters ton/yr	Firewater Pump Engines ton/yr	Power Block Emergency Generators ton/yr	Admin Building Emergency Generators ton/yr	Fuel Oil Storage Tanks ton/yr	CTG/HRSG ton/yr	Total - All Units ton/yr
Metal Compounds:								
Arsenic	Y	2.96E-05	1.14E-05	5.55E-05	9.25E-06		1.08E-01	1.08E-01
Beryllium	Y	1.78E-06	3.21E-07	1.56E-06	2.61E-07		3.55E-03	3.55E-03
Cadmium	Y	1.63E-04	4.97E-06	2.42E-05	4.04E-06		1.27E-01	1.27E-01
Chromium (total)	Y	2.07E-04	1.14E-05	5.55E-05	9.25E-06		2.03E-01	2.03E-01
Cobalt	Y	1.24E-05					7.67E-03	7.68E-03
Lead	Y	7.40E-05	1.45E-05	7.07E-05	1.18E-05		1.57E-01	1.57E-01
Manganese	Y	5.63E-05	8.18E-04	3.99E-03	6.65E-04		6.67E+00	6.68E+00
Mercury	Y	3.85E-05	1.24E-06	6.06E-06	1.01E-06		3.06E-02	3.06E-02
Nickel	Y	3.11E-04	4.76E-06	2.32E-05	3.87E-06		2.04E-01	2.04E-01
Selenium	Y	3.55E-06	2.59E-05	1.26E-04	2.10E-05		2.10E+00	2.10E+00
Organic Compounds:								
Acetaldehyde	Y		7.94E-04	1.27E-04	2.12E-05		3.72E+00	3.72E+00
Acrolein	Y		9.57E-05	3.98E-05	6.63E-06		5.95E-01	5.95E-01
Ammonia							6.82E+02	6.82E+02
Benzene	Y	3.11E-04	9.66E-04	3.92E-03	6.53E-04	2.66E-03	1.43E+00	1.43E+00
1,3-Butadiene	Y						1.69E-01	1.69E-01
1,1,1-Trichloroethane	Y						1.40E-02	1.40E-02
Dichlorobenzene	Y	1.78E-04						1.78E-04
Ethylbenzene	Y						2.98E+00	2.98E+00
Formaldehyde	Y	1.11E-02	1.22E-03	3.98E-04	6.64E-05	3.90E-03	2.19E+01	2.20E+01
Hexane	Y	2.66E-01				5.41E-04		2.67E-01
Propylene Oxide	Y						2.70E+00	2.70E+00
Sulfuric Acid							2.19E+02	2.19E+02
Toluene	Y	5.03E-04	4.23E-04	1.42E-03	2.36E-04	3.03E-02	1.21E+01	1.21E+01
Xylenes	Y		2.95E-04	9.74E-04	1.62E-04	7.57E-02	5.95E+00	6.03E+00
Polycyclic Organic Matter:								
Acenaphthene	Y	2.66E-07	1.47E-06	2.36E-05	3.94E-06			2.93E-05
Acenaphthylene	Y	2.66E-07	5.24E-06	4.66E-05	7.77E-06			5.99E-05
Anthracene	Y	3.55E-07	1.94E-06	6.21E-06	1.03E-06			9.53E-06
Benz(a)anthracene	Y	2.66E-07	1.74E-06	3.14E-06	5.23E-07			5.67E-06
Benzo(a)pyrene	Y	1.78E-07	1.95E-07	1.30E-06	2.16E-07			1.89E-06
Benzo(b)fluoranthene	Y	2.66E-07	1.03E-07	5.60E-06	9.34E-07			6.91E-06
Benzo(g,h,I)perylene	Y	1.78E-07	5.06E-07	2.81E-06	4.68E-07	6.33E-16		3.96E-06
Benzo(k)fluoranthene	Y	2.66E-07	1.60E-07	1.10E-06	1.83E-07			1.71E-06
Chrysene	Y	2.66E-07	3.65E-07	7.72E-06	1.29E-06			9.64E-06
Dibenz(a,h)anthracene	Y	1.78E-07	6.03E-07	1.75E-06	2.91E-07			2.82E-06
Dimethylbenz(a)anthracene, 7,12	Y	2.37E-06						2.37E-06
Fluoranthene	Y	4.44E-07	7.88E-06	2.03E-05	3.39E-06			3.21E-05
Fluorene	Y	4.15E-07	3.02E-05	6.46E-05	1.08E-05			1.06E-04
Indeno(1,2,3-cd)pyrene	Y	2.66E-07	3.88E-07	2.09E-06	3.48E-07			3.09E-06
Methylnaphthalene, 2-	Y	3.55E-06						3.55E-06
Methylchloranthrene, 3-	Y	2.66E-07						2.66E-07
Naphthalene	Y	9.03E-05	8.78E-05	6.56E-04	1.09E-04	5.37E-04	3.99E-01	4.00E-01
Phenanthrene	Y	2.52E-06	3.04E-05	2.06E-04	3.43E-05			2.73E-04
Pyrene	Y	7.40E-07	4.95E-06	1.87E-05	3.12E-06			2.75E-05
Total POM	*Y*	*1.03E-04*	*1.74E-04*	*1.07E-03*	*1.78E-04*	*5.37E-04*	*3.99E-01*	*4.01E-01*
Total HAPs		**2.80E-01**	**4.86E-03**	**1.23E-02**	**2.05E-03**	**1.14E-01**	**6.16E+01**	**62.00**
							Max Individual HAP	**21.96 (formaldehyde)**

	Gas Heaters	FWP	Power Block Gen	Admin Building Gen	Storage Tanks	CTG/HRSG
Number of Units:	4	2	4	2	4	4

Notes:

(a) Organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100 ºC, are considered a HAP. Have conservatively assumed all POM compounds are a HAP.

Table C-19
Daily Hazardous Air Pollutant Emissions (lb/day) - All Units

Pollutant	Listed §112(b) HAP? [(a)]	Gas Heaters lb/day	Firewater Pump Engines lb/day	Power Block Emergency Generators lb/day	Admin Building Emergency Generators lb/day	Fuel Oil Storage Tanks lb/day	CTG/HRSG lb/day	Total - All Units lb/day
Metal Compounds:								
Arsenic	Y	1.62E-04	1.09E-03	1.33E-02	2.22E-03		3.70E+00	3.72E+00
Beryllium	Y	9.73E-06	3.08E-05	3.76E-04	6.26E-05		1.04E-01	1.05E-01
Cadmium	Y	8.92E-04	4.77E-04	5.81E-03	9.69E-04		1.61E+00	1.62E+00
Chromium (total)	Y	1.14E-03	1.09E-03	1.33E-02	2.22E-03		3.70E+00	3.72E+00
Cobalt	Y	6.81E-05					4.20E-02	4.21E-02
Lead	Y	4.06E-04	1.39E-03	1.70E-02	2.83E-03		4.71E+00	4.73E+00
Manganese	Y	3.08E-04	7.85E-02	9.57E-01	1.60E-01		2.66E+02	2.67E+02
Mercury	Y	2.11E-04	1.19E-04	1.45E-03	2.42E-04		4.03E-01	4.05E-01
Nickel	Y	1.70E-03	4.57E-04	5.57E-03	9.29E-04		1.55E+00	1.56E+00
Selenium	Y	1.95E-05	2.48E-03	3.03E-02	5.05E-03		8.41E+01	8.41E+01
Organic Compounds:								
Acetaldehyde	Y		7.62E-02	3.05E-02	5.09E-03		2.04E+01	2.05E+01
Acrolein	Y		9.19E-03	9.55E-03	1.59E-03		3.26E+00	3.28E+00
Ammonia							3.74E+03	3.74E+03
Benzene	Y	1.70E-03	9.27E-02	9.40E-01	1.57E-01	1.46E-02	1.85E+01	1.97E+01
1,3-Butadiene	Y						5.38E+00	5.38E+00
1,1,1-Trichloroethane	Y						5.61E-01	5.61E-01
Dichlorobenzene	Y	9.73E-04						9.73E-04
Ethylbenzene	Y						1.63E+01	1.63E+01
Formaldehyde	Y	6.08E-02	1.17E-01	9.56E-02	1.59E-02	2.13E-02	1.20E+02	1.21E+02
Hexane	Y	1.46E+00				2.96E-03		1.46E+00
Propylene Oxide	Y						1.48E+01	1.48E+01
Sulfuric Acid							1.20E+03	1.20E+03
Toluene	Y	2.76E-03	4.06E-02	3.40E-01	5.67E-02	1.66E-01	6.62E+01	6.68E+01
Xylenes	Y		2.83E-02	2.34E-01	3.90E-02	4.15E-01	3.26E+01	3.33E+01
Polycyclic Organic Matter:								
Acenaphthene	Y	1.46E-06	1.41E-04	5.67E-03	9.45E-04			6.76E-03
Acenaphthylene	Y	1.46E-06	5.03E-04	1.12E-02	1.86E-03			1.35E-02
Anthracene	Y	1.95E-06	1.86E-04	1.49E-03	2.48E-04			1.93E-03
Benz(a)anthracene	Y	1.46E-06	1.67E-04	7.54E-04	1.26E-04			1.05E-03
Benzo(a)pyrene	Y	9.73E-07	1.87E-05	3.11E-04	5.19E-05			3.83E-04
Benzo(b)fluoranthene	Y	1.46E-06	9.85E-06	1.34E-03	2.24E-04			1.58E-03
Benzo(g,h,I)perylene	Y	9.73E-07	4.86E-05	6.74E-04	1.12E-04	3.47E-15		8.35E-04
Benzo(k)fluoranthene	Y	1.46E-06	1.54E-05	2.64E-04	4.40E-05			3.25E-04
Chrysene	Y	1.46E-06	3.51E-05	1.85E-03	3.09E-04			2.20E-03
Dibenz(a,h)anthracene	Y	9.73E-07	5.79E-05	4.19E-04	6.99E-05			5.48E-04
Dimethylbenz(a)anthracene, 7,12-	Y	1.30E-05						1.30E-05
Fluoranthene	Y	2.43E-06	7.56E-04	4.88E-03	8.14E-04			6.45E-03
Fluorene	Y	2.27E-06	2.90E-03	1.55E-02	2.58E-03			2.10E-02
Indeno(1,2,3-cd)pyrene	Y	1.46E-06	3.73E-05	5.02E-04	8.36E-05			6.24E-04
Methylnaphthalene, 2-	Y	1.95E-05						1.95E-05
Methylchloranthrene, 3-	Y	1.46E-06						1.46E-06
Naphthalene	Y	4.95E-04	8.43E-03	1.57E-01	2.62E-02	2.94E-03	1.18E+01	1.20E+01
Phenanthrene	Y	1.38E-05	2.92E-03	4.94E-02	8.24E-03			6.06E-02
Pyrene	Y	4.06E-06	4.75E-04	4.49E-03	7.49E-04			5.72E-03
Total POM	*Y*	*5.66E-04*	*1.67E-02*	*2.56E-01*	*4.27E-02*	*2.94E-03*	*1.18E+01*	*1.21E+01*
Total HAPs		**1.53E+00**	**4.67E-01**	**2.95E+00**	**4.92E-01**	**6.23E-01**	**6.75E+02**	**681.53**
							Max Individual HAP	**266.81 (formaldehyde)**

	Gas Heaters	FWP	Power Block Gen	Admin Building Gen	Storage Tanks	CTG/HRSG
Number of Units:	4	2	4	2	4	4

Notes:
(a) Organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100 ºC, are considered a HAP. Have conservatively assumed all POM compounds are a HAP.

Table C-20
Hourly Hazardous Air Pollutant Emissions (lb/hr) - All Units

Pollutant	Listed §112(b) HAP?	Gas Heaters lb/hr	Firewater Pump Engines lb/hr	Power Block Emergency Generators lb/hr	Building Emergency Generators lb/hr	Fuel Oil Storage Tanks lb/hr	CTG/HRSG lb/hr	Total - All Units lb/hr
Metal Compounds:								
Arsenic	Y	6.76E-06	4.55E-05	5.55E-04	9.25E-05		1.54E-01	1.55E-01
Beryllium	Y	4.06E-07	1.28E-06	1.56E-05	2.61E-06		4.34E-03	4.36E-03
Cadmium	Y	3.72E-05	1.99E-05	2.42E-04	4.04E-05		6.72E-02	6.76E-02
Chromium (total)	Y	4.73E-05	4.55E-05	5.55E-04	9.25E-05		1.54E-01	1.55E-01
Cobalt	Y	2.84E-06					1.75E-03	1.75E-03
Lead	Y	1.69E-05	5.80E-05	7.07E-04	1.18E-04		1.96E-01	1.97E-01
Manganese	Y	1.28E-05	3.27E-03	3.99E-02	6.65E-03		1.11E+01	1.11E+01
Mercury	Y	8.79E-06	4.97E-06	6.06E-05	1.01E-05		1.68E-02	1.69E-02
Nickel	Y	7.10E-05	1.90E-05	2.32E-04	3.87E-05		6.44E-02	6.48E-02
Selenium	Y	8.11E-07	1.04E-04	1.26E-03	2.10E-04		3.50E+00	3.50E+00
Organic Compounds:								
Acetaldehyde	Y		3.18E-03	1.27E-03	2.12E-04		8.49E-01	8.54E-01
Acrolein	Y		3.83E-04	3.98E-04	6.63E-05		1.36E-01	1.37E-01
Ammonia							1.56E+02	1.56E+02
Benzene	Y	7.10E-05	3.86E-03	3.92E-02	6.53E-03	6.07E-04	7.71E-01	8.21E-01
1,3-Butadiene	Y						2.24E-01	2.24E-01
1,1,1-Trichloroethane	Y						2.34E-02	2.34E-02
Dichlorobenzene	Y	4.06E-05						4.06E-05
Ethylbenzene	Y						6.79E-01	6.79E-01
Formaldehyde	Y	2.54E-03	4.89E-03	3.98E-03	6.64E-04	8.89E-04	5.01E+00	5.02E+00
Hexane	Y	6.08E-02				1.23E-04		6.10E-02
Propylene Oxide	Y						6.16E-01	6.16E-01
Sulfuric Acid							5.01E+01	5.01E+01
Toluene	Y	1.15E-04	1.69E-03	1.42E-02	2.36E-03	6.92E-03	2.76E+00	2.79E+00
Xylenes	Y		1.18E-03	9.74E-03	1.62E-03	1.73E-02	1.36E+00	1.39E+00
Polycyclic Organic Matter:								
Acenaphthene	Y	6.08E-08	5.88E-06	2.36E-04	3.94E-05			2.82E-04
Acenaphthylene	Y	6.08E-08	2.09E-05	4.66E-04	7.77E-05			5.65E-04
Anthracene	Y	8.11E-08	7.74E-06	6.21E-05	1.03E-05			8.03E-05
Benz(a)anthracene	Y	6.08E-08	6.96E-06	3.14E-05	5.23E-06			4.36E-05
Benzo(a)pyrene	Y	4.06E-08	7.78E-07	1.30E-05	2.16E-06			1.60E-05
Benzo(b)fluoranthene	Y	6.08E-08	4.10E-07	5.60E-05	9.34E-06			6.58E-05
Benzo(g,h,I)perylene	Y	4.06E-08	2.02E-06	2.81E-05	4.68E-06	1.45E-16		3.48E-05
Benzo(k)fluoranthene	Y	6.08E-08	6.42E-07	1.10E-05	1.83E-06			1.35E-05
Chrysene	Y	6.08E-08	1.46E-06	7.72E-05	1.29E-05			9.16E-05
Dibenz(a,h)anthracene	Y	4.06E-08	2.41E-06	1.75E-05	2.91E-06			2.28E-05
Dimethylbenz(a)anthracene, 7,12-	Y	5.41E-07						5.41E-07
Fluoranthene	Y	1.01E-07	3.15E-05	2.03E-04	3.39E-05			2.69E-04
Fluorene	Y	9.46E-08	1.21E-04	6.46E-04	1.08E-04			8.75E-04
Indeno(1,2,3-cd)pyrene	Y	6.08E-08	1.55E-06	2.09E-05	3.48E-06			2.60E-05
Methylnaphthalene, 2-	Y	8.11E-07						8.11E-07
Methylchloranthrene, 3-	Y	6.08E-08						6.08E-08
Naphthalene	Y	2.06E-05	3.51E-04	6.56E-03	1.09E-03	1.23E-04	4.90E-01	4.98E-01
Phenanthrene	Y	5.75E-07	1.22E-04	2.06E-03	3.43E-04			2.53E-03
Pyrene	Y	1.69E-07	1.98E-05	1.87E-04	3.12E-05			2.38E-04
Total POM	*Y*	*2.36E-05*	*6.96E-04*	*1.07E-02*	*1.78E-03*	*1.23E-04*	*4.90E-01*	*5.04E-01*
Total HAPs		**6.38E-02**	**1.94E-02**	**1.23E-01**	**2.05E-02**	**2.60E-02**	**2.81E+01**	**28.40**
							Max Individual HAP	**11.12 (formaldehyde)**

	Gas Heaters	FWP	Power Block Gen	Admin Building Gen	Storage Tanks	CTG/HRSG
Number of Units:	4	2	4	2	4	4

Notes:

(a) Organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100 ºC, are considered a HAP. Have conservatively assumed all POM compounds are a HAP.

Table C-21

Startup and Shutdown Emissions Summary: Combustion Turbines

Emissions are on a per-CT basis

Gas fired	Cold Start	Warm Start	Hot Start	Shutdown		
Events per year estimates:	25	34	111	170		
Operating durations per event (hrs):	4.8	3.5	2.2	0.2		
Total annual operating duration (hrs):	120.0	120.1	242.4	28.3	**510.8**	**Annual total operating hrs in SU/SD mode**
Total gas fired SU/SD hrs - oil fired SU/SD hours:	104.3	93.1	179.5	21.7	**398.6**	**=> Conservatively assumes no idle time between SU/SD events**

	Emissions per Event (lbs)				Emissions per year (tons/yr)					
	Cold Start	**Warm Start**	**Hot Start**	**Shutdown**	**Cold Start**	**Warm Start**	**Hot Start**	**Total Startups**	**Shutdown**	**Total**
NOx	178.0	155.0	48.0	8.0	2.2	2.6	2.7	7.5	0.7	8.2
CO	1213.0	1040.0	998.0	128.0	15.2	17.7	55.4	88.2	10.9	99.1
VOC	1079.0	1127.0	286.0	120.0	13.5	19.2	15.9	48.5	10.2	58.7
PM10/2.5	25.1	18.0	10.8	1.4	0.3	0.3	0.6	1.2	0.1	1.34
PM10/2.5 filterable	11.5	8.3	5.0	0.6	0.14	0.1	0.3	0.6	0.1	0.6
SO2	8.9	6.4	3.8	0.5	0.11	0.11	0.21	0.43	0.04	0.5
H2SO4	13.57	9.76	5.85	0.76	0.17	0.17	0.32	0.66	0.065	0.72
Lead	2.8E-03	2.0E-03	1.2E-03	1.6E-04	3.5E-05	3.5E-05	6.7E-05	1.4E-04	1.3E-05	1.5E-04
CO2	672,591	483,862	289,869	37,796	8,407	8,226	16,088	32,721	3,213	35,933
CH4	12.7	9.1	5.5	0.7	0.16	0.16	0.30	0.6	0.06	0.7
N2O	1.3	0.9	0.5	0.1	0.02	0.02	0.03	0.1	0.01	0.1
CO2e	673,282	484,358	290,167	37,835	8,416.03	8,234.09	16,104.26	32,754	3,216	35,970

Worst-case model inputs for SU/SD cases: emission rates (hourly average lb/hr), stack temperature, and exhaust rate

	NOx	CO	PM2.5	SO2	Temp (°F)	Exhaust rate (acfm)
Shutdown	8.0	128.0	1.4	0.5	166	1,100,125
Cold start	37.1	252.7	5.2	1.8	166	1,100,125
Warm start	43.9	294.3	5.1	1.8	166	1,100,125
Hot start	22.0	457.1	4.9	1.7	166	1,100,125
Max start	43.9	457.1	5.2	1.8	166	1,100,125

Table C-21
Startup and Shutdown Emissions Summary: Combustion Turbines

Emissions are on a per-CT basis

Oil Fired	Cold Start	Varm Start	Hot Start	Shutdown		
Events per year estimates:	3	7	26	36		
Operating durations per event (hrs):	5.3	3.9	2.4	0.2		
Total annual operating duration (hrs):	15.8	27.1	62.8	6.6	**112.3**	**Annual total operating hrs in SU/SD mode => Conservatively assumes no idle time between SU/SD events**

	Emissions per Event (lbs)				**Emissions per year (tons/yr)**					
	Cold Start	**Warm Start**	**Hot Start**	**Shutdown**	**Cold Start**	**Warm Start**	**Hot Start**	**Total Startups**	**Shutdown**	**Total**
NOx	296.0	248.0	89.0	9.0	0.4	0.9	1.2	2.5	0.16	2.6
CO	7,915	7,004.0	1,387.0	213.0	11.9	24.5	18.0	54.4	3.83	58.3
VOC	4,603	3,426.0	1,820.0	175.0	6.9	12.0	23.7	42.6	3.15	45.7
PM10/2.5	96.0	67.8	40.9	5.3	0.1	0.2	0.5	0.9	0.10	1.01
PM10/2.5 filterable	79.0	55.8	33.7	4.4	0.1	0.2	0.4	0.8	0.08	0.83
SO2	12.0	8.5	5.1	0.7	0.02	0.03	0.07	0.11	0.012	0.13
H2SO4	18.4	13.0	7.9	1.0	0.03	0.05	0.10	0.18	0.018	0.2
Lead	1.0E-01	7.1E-02	4.3E-02	5.6E-03	1.5E-04	2.5E-04	5.6E-04	9.5E-04	1.0E-04	1.1E-03
CO2	1,160,795	820,008	495,003	64,541	1,741	2,870	6,435	11,046	1161.74	12,208
CH4	47.3	33.4	20.2	2.6	0.07	0.12	0.26	0.5	0.047	0.5
N2O	9.5	6.7	4.0	0.5	0.01	0.02	0.05	0.1	0.009	0.1
CO2e	1,164,627	822,715	496,637	64,754	1,746.94	2,879.50	6,456.28	11,046	1161.74	12,208

Worst-case model inputs for SU/SD cases: emission rates (hourly average lb/hr), stack temperature, and exhaust rate

	NOx	CO	PM2.5	SO2	Temp (°F)	Exhaust rate (acfm)
Shutdown	9.0	213.0	5.3	0.7	187	1,266,774
Cold start	56.4	1507.6	18.3	2.3	187	1,266,774
Warm start	64.1	1811.4	17.5	2.2	187	1,266,774
Hot start	36.8	573.9	16.9	2.1	187	1,266,774
Max start	64.1	1811.4	18.3	2.3	187	1,266,774

Attachment D

Compliance Assurance Monitoring Plan Forms

GEORGIA ENVIRONMENTAL PROTECTION DIVISION
AIR PROTECTION BRANCH
4244 INTERNATIONAL PARKWAY, SUITE 120
ATLANTA, GEORGIA 30354

FOR APPLICANT'S USE

Revision #: ________________
Date: _____ / _____ / _____
Page _________ of ________
Source Designation:
____

COMPLIANCE ASSURANCE MONITORING (CAM) PLAN

FOR AGENCY USE ONLY
AIRS NUMBER:
PERMIT #:
APPLICATION NUMBER:

FOR INFORMATION ABOUT THE CAM RULE AND THIS FORM, PLEASE REFER TO 40 CFR PART 64. ADDITIONAL INFORMATION (INCLUDING GUIDANCE DOCUMENTS) MAY ALSO BE FOUND AT http://www.epa.gov/ttn/emc/cam.html

SOURCE INFORMATION

1) SOURCE NAME:
Bowen Steam-Electric Generating Plant

2) DATE FORM	3) AIRS NUMBER:
March 2025	04-13-015-0011

BASIS OF CAM SUBMITTAL

4) MARK THE APPROPRIATE BOX BELOW AS TO WHY THIS CAM PLAN IS BEING SUBMITTED AS PART OF AN APPLICATION FOR A TITLE V PERMIT:

☐ RENEWAL APPLICATION. **ALL** PSEUs (POLLUTANT-SPECIFIC EMISSIONS UNITS CONSIDERED SEPARATELY WITH RESPECT TO EACH REGULATED AIR POLLUTANT) FOR WHICH A CAM PLAN HAS NOT YET BEEN APPROVED NEED TO BE ADDRESSED IN THIS CAM PLAN SUBMITTAL.

☐ INITIAL APPLICATION (SUBMITTED AFTER 4/20/98). **ONLY** LARGE PSEUs (PSEUs WITH POTENTIAL POST-CONTROL DEVICE EMISSIONS OF AN APPLICABLE REGULATED AIR POLLUTANT THAT ARE EQUAL TO OR GREATER THAN MAJOR SOURCE THRESHOLD LEVELS) NEED TO BE ADDRESSED IN THIS CAM PLAN SUBMITTAL.

☒ SIGNIFICANT MODIFICATION TO LARGE PSEUs. **ONLY** LARGE PSEUs BEING MODIFIED AFTER 4/20/98 NEED TO BE ADDRESSED IN THIS CAM PLAN SUBMITTAL. FOR LARGE PSEUs WITH AN APPROVED CAM PLAN, ONLY ADDRESS THE APPROPRIATE MONITORING REQUIREMENTS AFFECTED BY THE SIGNIFICANT MODIFICATION.

CAM APPLICABILITY DETERMINATION

5) DOES THE SOURCE HAVE A PSEU THAT IS SUBJECT TO CAM, 40 CFR PART 64, WHICH MUST BE ADDRESSED IN THIS CAM PLAN SUBMITTAL? TO DETERMINE APPLICABILITY, A PSEU MUST MEET **ALL** OF THE FOLLOWING CRITERIA (IF NO, THEN THE REMAINDER OF THIS FORM NEED NOT BE COMPLETED): ☒ YES ☐ NO

a. THE PSEU IS LOCATED AT A MAJOR SOURCE THAT IS REQUIRED TO OBTAIN A TITLE V PERMIT;

b. THE PSEU IS SUBJECT TO AN EMISSION LIMITATION OR STANDARD FOR THE APPLICABLE REGULATED AIR POLLUTANT THAT IS NOT EXEMPT;

LIST OF EXEMPT EMISSION LIMITATIONS OR STANDARDS:
- NSPS (40 CFR PART 60) OR NESHAP (40 CFR PARTS 61 AND 63) PROPOSED AFTER 11/15/1990.
- STRATOSPHERIC OZONE PROTECTION REQUIREMENTS.
- ACID RAIN PROGRAM REQUIREMENTS.
- EMISSION LIMITATIONS OR STANDARDS FOR WHICH A GEORGIA AIR QUALITY PERMIT SPECIFIES A CONTINUOUS COMPLIANCE DETERMINATION METHOD, AS DEFINED IN 40 CFR 64.1.
- AN EMISSION CAP THAT MEETS THE REQUIREMENTS SPECIFIED IN 40 CFR 70.4(b)(12).

c. THE PSEU USES AN ADD-ON CONTROL DEVICE (AS DEFINED IN 40 CFR 64.1) TO ACHIEVE COMPLIANCE WITH AN EMISSION LIMITATION OR STANDARD;

d. THE PSEU HAS POTENTIAL PRE-CONTROL DEVICE EMISSIONS OF THE APPLICABLE REGULATED AIR POLLUTANT THAT ARE EQUAL TO OR GREATER THAN THE PART 70 MAJOR SOURCE THRESHOLD LEVELS; AND

e. THE PSEU IS NOT AN EXEMPT BACKUP UTILITY POWER EMISSIONS UNIT THAT IS MUNICIPALLY-OWNED.

6) [a]BACKGROUND DATA AND INFORMATION

COMPLETE THE FOLLOWING TABLE FOR **ALL** PSEUs THAT NEED TO BE ADDRESSED IN THIS CAM PLAN SUBMITTAL. THIS SECTION IS TO BE USED TO PROVIDE BACKGROUND DATA AND INFORMATION FOR EACH PSEU IN ORDER TO SUPPLEMENT THE SUBMITTAL REQUIREMENTS SPECIFIED IN 40 CFR 64.4. IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL ACCORDINGLY.

PSEU DESIGNATION	DESCRIPTION	POLLUTANT	CONTROL DEVICE	[b]EMISSION LIMITATION OR STANDARD	[c]MONITORING REQUIREMENT
Unit 7 (CT7/DB7)	Combined-Cycle Unit 7	NOx	Selective Catalytic Reduction	2.0 ppmvd, corrected to 15% O2, 4-hour rolling average, excluding startup, shutdown, and fuel switching (gas) 5.0 ppmvd, corrected to 15% O2, 4-hour rolling average, excluding startup, shutdown, and fuel switching (oil) 6.0 ppmvd, corrected to 15% O2, 30-operating day rolling average (ozone season only)	Continuous Emissions Monitoring System (CEMS)
Unit 8 (CT8/DB8)	Combined-Cycle Unit 8				
Unit 9 (CT9/DB9)	Combined-Cycle Unit 9				
Unit 10 (CT10/DB10)	Combined-Cycle Unit 10				
EXAMPLE BOILER NO. 1	WOOD-FIRED BOILER	PM	MULTICLONE	391-3-1-.02(2)(d)2.(ii); $0.5(10/R)^{0.5}$ lb/mmBtu	MONITOR PRESSURE DROP ACROSS MULTICLONE WEEKLY INSPECTION OF MULTICLONE

[a]IF A CONTROL DEVICE IS COMMON TO MORE THAN ONE PSEU, ONE MONITORING PLAN MAY BE SUBMITTED FOR THE CONTROL DEVICE WITH THE AFFECTED PSEUS IDENTIFIED AND ANY CONDITIONS THAT MUST BE MAINTAINED OR MONITORED IN ACCORDANCE WITH 64.3(a). IF A SINGE PSEU IS CONTROLLED BY MORE THAN ONE CONTROL DEVICE SIMILAR IN DESIGN AND OPERATION, ONE MONITORING PLAN FOR THE APPLICABLE CONTROL DEVICES MAY BE SUBMITTED WITH THE APPLICABLE CONTROL DEVICES IDENTIFIED AND ANY CONDITIONS THAT MUST BE MAINTAINED OR MONITORED IN ACCORDANCE WITH 64.3(a).

[b]INDICATE THE EMISSION LIMITATION OR STANDARD FOR ANY APPLICABLE REQUIREMENT THAT CONSTITUTES AN EMISSION LIMITATION, EMISSION STANDARD, OR STANDARD OF PERFORMANCE (AS DEFINED IN 40 CFR 64.1).

[c]INDICATE THE MONITORING REQUIREMENTS FOR THE PSEU THAT ARE REQUIRED BY AN APPLICABLE REGULATION OR PERMIT CONDITION.

APPLICATION PAGE ________

CAM MONITORING APPROACH CRITERIA

COMPLETE THIS SECTION FOR **EACH** PSEU THAT NEEDS TO BE ADDRESSED IN THIS CAM PLAN SUBMITTAL. THIS SECTION MAY BE COPIED AS NEEDED FOR EACH PSEU. THIS SECTION IS TO BE USED TO PROVIDE MONITORING DATA AND INFORMATION FOR EACH INDICATOR SELECTED FOR EACH PSEU IN ORDER TO MEET THE MONITORING DESIGN CRITERIA SPECIFIED IN 40 CFR 64.3 AND 64.4. IF MORE THAN TWO INDICATORS ARE BEING SELECTED FOR A PSEU OR IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL ACCORDINGLY WITH THE APPROPRIATE PSEU DESIGNATION, POLLUTANT, AND INDICATOR NOs.

7a) PSEU DESIGNATION: CT7/DB7, CT8/DB8, CT9/DB9, CT10/DB10	**7b) POLLUTANT:** NOx	**7c) [a]INDICATOR NO. 1:** CEMS NOx Value	**7d) [a]INDICATOR NO. 2:**
8a) GENERAL CRITERIA DESCRIBE THE MONITORING APPROACH USED TO MEASURE THE INDICATORS:		NOx and O2 are monitored continuously by CEMS. The unit control system adjusts ammonia injection as needed to maintain compliance.	
[b]ESTABLISH THE APPROPRIATE INDICATOR RANGE OR THE PROCEDURES FOR ESTABLISHING THE INDICATOR RANGE WHICH PROVIDES A REASONABLE ASSURANCE OF COMPLIANCE:		2.0 ppmvd 4-hour rolling avg. (gas) 5.0 ppmvd 4-hour rolling avg. (oil) 6.0 ppmvd 30-day rolling avg. (ozone season)	
8b) PERFORMANCE CRITERIA PROVIDE THE SPECIFICATIONS FOR OBTAINING REPRESENTATIVE DATA, SUCH AS DETECTOR LOCATION, INSTALLATION SPECIFICATIONS, AND MINIMUM ACCEPTABLE ACCURACY:		NOx and O2 are monitored with a CEMS that is certified under 40 CFR Part 75.	
[c]FOR NEW OR MODIFIED MONITORING EQUIPMENT, PROVIDE VERIFICATION PROCEDURES, INCLUDING MANUFACTURER'S RECOMMENDATIONS, TO CONFIRM THE OPERATIONAL STATUS OF THE MONITORING:			
PROVIDE QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) PRACTICES THAT ARE ADEQUATE TO ENSURE THE CONTINUING VALIDITY OF THE DATA, (i.e., DAILY CALIBRATIONS, VISUAL INSPECTIONS, ROUTINE MAINTENANCE, CGA, RATA, ETC.):		NOx and O2 analyzers are calibrated daily and maintained according to the QA/QC program developed specifically for the plant.	
[d]PROVIDE THE MONITORING FREQUENCY:		NOx and O2 are monitored continuously except during calibration and maintenance.	
PROVIDE THE DATA COLLECTION PROCEDURES THAT WILL BE USED:		The DAS retains all hourly average NOx and O2 measurements.	
PROVIDE THE DATA AVERAGING PERIOD FOR THE PURPOSE OF DETERMINING WHETHER AN EXCURSION OR EXCEEDANCE HAS OCCURRED:		Hourly averages based on at least 30 minutes operating time using 1-minute data.	

[a]DESCRIBE ALL INDICATORS TO BE MONITORED WHICH SATISFIES 40 CFR 64.3(a). INDICATORS OF EMISSION CONTROL PERFORMANCE FOR THE CONTROL DEVICE AND ASSOCIATED CAPTURE SYSTEM MAY INCLUDE MEASURED OR PREDICTED EMISSIONS (INCLUDING VISIBLE EMISSIONS OR OPACITY), PROCESS AND CONTROL DEVICE OPERATING PARAMETERS THAT AFFECT CONTROL DEVICE (AND CAPTURE SYSTEM) EFFICIENCY OR EMISSION RATES, OR RECORDED FINDINGS OF INSPECTION AND MAINTENANCE ACTIVITIES.

[b]INDICATOR RANGES MAY BE BASED ON A SINGLE MAXIMUM OR MINIMUM VALUE OR AT MULTIPLE LEVELS THAT ARE RELEVANT TO DISTINCTLY DIFFERENT OPERATING CONDITIONS, EXPRESSED AS A FUNCTION OF PROCESS VARIABLES, EXPRESSED AS MAINTAINING THE APPLICABLE INDICATOR IN A PARTICULAR OPERATIONAL STATUS OR DESIGNATED CONDITION, OR ESTABLISHED AS INTERDEPENDENT BETWEEN MORE THAN ONE INDICATOR. FOR CEMS, COMS, OR PEMS, INCLUDE THE MOST RECENT CERTIFICATION TEST FOR THE MONTIOR.

[c]THE VERIFICATION FOR OPERATIONAL STATUS SHOULD INCLUDE PROCEDURES FOR INSTALLATION, CALIBRATION, AND OPERATION OF THE MONITORING EQUIPMENT, CONDUCTED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, NECESSARY TO CONFIRM THE MONITORING EQUIPMENT IS OPERATIONAL PRIOR TO THE COMMENCEMENT OF THE REQUIRED MONITORING.

[d]EMISSION UNITS WITH POSTCONTROL PTE ≥ 100 PERCENT OF THE AMOUNT CLASSIFYING THE SOURCE AS A MAJOR SOURCE MUST COLLECT FOUR OR MORE VALUES PER HOUR TO BE AVERAGED. A REDUCED DATA COLLECTION FREQUENCY MAY BE APPROVED IN LIMITED CIRCUMSTANCES. OTHER EMISSION UNITS MUST COLLECT DATA AT LEAST ONCE PER 24 HOUR PERIOD.

RATIONALE AND JUSTIFICATION	
COMPLETE THIS SECTION FOR **EACH** PSEU THAT NEEDS TO BE ADDRESSED IN THIS CAM PLAN SUBMITTAL. THIS SECTION MAY BE COPIED AS NEEDED FOR EACH PSEU. THIS SECTION IS TO BE USED TO PROVIDE RATIONALE AND JUSTIFICATION FOR THE SELECTION OF EACH INDICATOR AND MONITORING APPROACH AND EACH INDICATOR RANGE IN ORDER TO MEET THE SUBMITTAL REQUIREMENTS SPECIFIED IN 40 CFR 64.4.	
9a) PSEU DESIGNATION: **CT7/DB7, CT8/DB8, CT9/DB9, CT10/DB10**	9b) REGULATED AIR POLLUTANT: **NOx**

10) INDICATORS AND THE MONITORING APPROACH: PROVIDE THE RATIONALE AND JUSTIFICATION FOR THE SELECTION OF THE INDICATORS AND THE MONITORING APPROACH USED TO MEASURE THE INDICATORS. ALSO PROVIDE ANY DATA SUPPORTING THE RATIONALE AND JUSTIFICATION. EXPLAIN THE REASONS FOR ANY DIFFERENCES BETWEEN THE VERIFICATION OF OPERATIONAL STATUS OR THE QUALITY ASSURANCE AND CONTROL PRACTICES PROPOSED AND THE MANUFACTURER'S RECOMMENDATIONS. (IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL ACCORDINGLY WITH THE APPROPRIATE PSEU DESIGNATION AND POLLUTANT):

NOx concentration was selected as the CAM performance indicator. A properly calibrated and operated NOx CEMS provides accurate NOx emissions data. The NOx CEMS will be certified according to 40 CFR Part 75. The analyzers will be calibrated daily and maintained according to the QA/QC plan developed specifically for the plant.

11) INDICATOR RANGES: PROVIDE THE RATIONALE AND JUSTIFICATION FOR THE SELECTION OF THE INDICATOR RANGES. THE RATIONALE AND JUSTIFICATION SHALL INDICATE HOW **EACH** INDICATOR RANGE WAS SELECTED BY EITHER A COMPLIANCE OR PERFORMANCE TEST, A TEST PLAN AND SCHEDULE, OR BY ENGINEERING ASSESSMENTS. DEPENDING ON WHICH METHOD IS BEING USED FOR EACH INDICATOR RANGE, INCLUDE THE SPECIFIC INFORMATION REQUIRED BELOW FOR THAT SPECIFIC INDICATOR RANGE. (IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL ACCORDINGLY WITH THE APPROPRIATE PSEU DESIGNATION AND POLLUTANT):

- COMPLIANCE OR PERFORMANCE TEST (INDICATOR RANGES DETERMINED FROM CONTROL DEVICE OPERATING PARAMETER DATA OBTAINED DURING A COMPLIANCE OR PERFORMANCE TEST CONDUCTED UNDER REGULATORY SPECIFIED CONDITIONS OR UNDER CONDITIONS REPRESENTATIVE OF MAXIMUM POTENTIAL EMISSIONS UNDER ANTICIPATED OPERATING CONDITIONS. SUCH DATA MAY BE SUPPLEMENTED BY ENGINEERING ASSESSMENTS AND MANUFACTURER'S RECOMMENDATIONS). THE RATIONALE AND JUSTIFICATION SHALL INCLUDE A SUMMARY OF THE COMPLIANCE OR PERFORMANCE TEST RESULTS THAT WAS USED TO DETERMINE THE INDICATOR RANGE AND DOCUMENTATION INDICATING THAT NO CHANGES HAVE TAKEN PLACE THAT COULD RESULT IN A SIGNIFICANT CHANGE IN THE CONTROL SYSTEM PERFORMANCE OR THE SELECTED INDICATOR RANGES SINCE THE COMPLIANCE OR PERFORMANCE TEST WAS CONDUCTED.
- TEST PLAN AND SCHEDULE (INDICATOR RANGES WILL BE DETERMINED FROM A PROPOSED IMPLEMENTATION PLAN AND SCHEDULE FOR INSTALLING, TESTING, AND PERFORMING ANY OTHER APPROPRIATE ACTIVITIES PRIOR TO USE OF THE MONITORING). THE RATIONALE AND JUSTIFICATION SHALL INCLUDE THE PROPOSED IMPLEMENTATION PLAN AND SCHEDULE THAT WILL PROVIDE FOR USE OF THE MONITORING AS EXPEDITIOUSLY AS PRACTICABLE AFTER APPROVAL OF THIS CAM PLAN, BUT IN NO CASE SHALL THE SCHEDULE FOR COMPLETING INSTALLATION AND BEGINNING OPERATION OF THE MONITORING EXCEED 180 DAYS AFTER APPROVAL.
- ENGINEERING ASSESSMENTS (INDICATOR RANGES OR THE PROCEDURES FOR ESTABLISHING INDICATOR RANGES ARE DETERMINED FROM ENGINEERING ASSESSMENTS AND OTHER DATA, SUCH AS MANUFACTURERS' DESIGN CRITERIA AND HISTORICAL MONITORING DATA, BECAUSE FACTORS SPECIFIC TO THE TYPE OF MONITORING, CONTROL DEVICE, OR PSEU MAKE COMPLIANCE OR PERFORMANCE TESTING UNNECESSARY). THE RATIONALE AND JUSTIFICATION SHALL INCLUDE DOCUMENTATION DEMONSTRATING THAT COMPLIANCE TESTING IS NOT REQUIRED TO ESTABLISH THE INDICATOR RANGE.

RATIONALE AND JUSTIFICATION:

NOx CEMS is a direct measurement of the NOx concentration. If the NOx concentration approaches the emissions limit, corrective action will be taken to ensure the limit is not exceeded. If the 4-hour rolling NOx average is above the emissions limit, an exceedance has occurred. If the 30-day rolling NOx average is above the emissions limit, excess emissions have occurred.

FOR APPLICANT'S USE
Revision #: ________________
Date: _____ / _____ / _____
Page _________ of ________
Source Designation: ________________

GEORGIA ENVIRONMENTAL PROTECTION DIVISION
AIR PROTECTION BRANCH
4244 INTERNATIONAL PARKWAY, SUITE 120
ATLANTA, GEORGIA 30354

COMPLIANCE ASSURANCE MONITORING (CAM) PLAN	***FOR AGENCY USE ONLY***
	AIRS NUMBER:
	PERMIT #:
	APPLICATION NUMBER:

FOR INFORMATION ABOUT THE CAM RULE AND THIS FORM, PLEASE REFER TO 40 CFR PART 64. ADDITIONAL INFORMATION (INCLUDING GUIDANCE DOCUMENTS) MAY ALSO BE FOUND AT http://www.epa.gov/ttn/emc/cam.html

SOURCE INFORMATION

1) SOURCE NAME: Bowen Steam-Electric Generating Plant	
2) DATE FORM March 2025	3) AIRS NUMBER: 04-13-015-0011

BASIS OF CAM SUBMITTAL

4) MARK THE APPROPRIATE BOX BELOW AS TO WHY THIS CAM PLAN IS BEING SUBMITTED AS PART OF AN APPLICATION FOR A TITLE V PERMIT:

☐ RENEWAL APPLICATION. **ALL** PSEUs (POLLUTANT-SPECIFIC EMISSIONS UNITS CONSIDERED SEPARATELY WITH RESPECT TO EACH REGULATED AIR POLLUTANT) FOR WHICH A CAM PLAN HAS NOT YET BEEN APPROVED NEED TO BE ADDRESSED IN THIS CAM PLAN SUBMITTAL.

☐ INITIAL APPLICATION (SUBMITTED AFTER 4/20/98). **ONLY** LARGE PSEUs (PSEUs WITH POTENTIAL POST-CONTROL DEVICE EMISSIONS OF AN APPLICABLE REGULATED AIR POLLUTANT THAT ARE EQUAL TO OR GREATER THAN MAJOR SOURCE THRESHOLD LEVELS) NEED TO BE ADDRESSED IN THIS CAM PLAN SUBMITTAL.

☒ SIGNIFICANT MODIFICATION TO LARGE PSEUs. **ONLY** LARGE PSEUs BEING MODIFIED AFTER 4/20/98 NEED TO BE ADDRESSED IN THIS CAM PLAN SUBMITTAL. FOR LARGE PSEUs WITH AN APPROVED CAM PLAN, ONLY ADDRESS THE APPROPRIATE MONITORING REQUIREMENTS AFFECTED BY THE SIGNIFICANT MODIFICATION.

CAM APPLICABILITY DETERMINATION

5) DOES THE SOURCE HAVE A PSEU THAT IS SUBJECT TO CAM, 40 CFR PART 64, WHICH MUST BE ADDRESSED IN THIS CAM PLAN SUBMITTAL? TO DETERMINE APPLICABILITY, A PSEU MUST MEET **ALL** OF THE FOLLOWING CRITERIA (IF NO, THEN THE REMAINDER OF THIS FORM NEED NOT BE COMPLETED): ☒ YES ☐ NO

a. THE PSEU IS LOCATED AT A MAJOR SOURCE THAT IS REQUIRED TO OBTAIN A TITLE V PERMIT;

b. THE PSEU IS SUBJECT TO AN EMISSION LIMITATION OR STANDARD FOR THE APPLICABLE REGULATED AIR POLLUTANT THAT IS NOT EXEMPT;

LIST OF EXEMPT EMISSION LIMITATIONS OR STANDARDS:
- NSPS (40 CFR PART 60) OR NESHAP (40 CFR PARTS 61 AND 63) PROPOSED AFTER 11/15/1990.
- STRATOSPHERIC OZONE PROTECTION REQUIREMENTS.
- ACID RAIN PROGRAM REQUIREMENTS.
- EMISSION LIMITATIONS OR STANDARDS FOR WHICH A GEORGIA AIR QUALITY PERMIT SPECIFIES A CONTINUOUS COMPLIANCE DETERMINATION METHOD, AS DEFINED IN 40 CFR 64.1.
- AN EMISSION CAP THAT MEETS THE REQUIREMENTS SPECIFIED IN 40 CFR 70.4(b)(12).

c. THE PSEU USES AN ADD-ON CONTROL DEVICE (AS DEFINED IN 40 CFR 64.1) TO ACHIEVE COMPLIANCE WITH AN EMISSION LIMITATION OR STANDARD;

d. THE PSEU HAS POTENTIAL PRE-CONTROL DEVICE EMISSIONS OF THE APPLICABLE REGULATED AIR POLLUTANT THAT ARE EQUAL TO OR GREATER THAN THE PART 70 MAJOR SOURCE THRESHOLD LEVELS; AND

e. THE PSEU IS NOT AN EXEMPT BACKUP UTILITY POWER EMISSIONS UNIT THAT IS MUNICIPALLY-OWNED.

6) [a]BACKGROUND DATA AND INFORMATION

COMPLETE THE FOLLOWING TABLE FOR **ALL** PSEUs THAT NEED TO BE ADDRESSED IN THIS CAM PLAN SUBMITTAL. THIS SECTION IS TO BE USED TO PROVIDE BACKGROUND DATA AND INFORMATION FOR EACH PSEU IN ORDER TO SUPPLEMENT THE SUBMITTAL REQUIREMENTS SPECIFIED IN 40 CFR 64.4. IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL ACCORDINGLY.

PSEU DESIGNATION	DESCRIPTION	POLLUTANT	CONTROL DEVICE	[b]EMISSION LIMITATION OR STANDARD	[c]MONITORING REQUIREMENT
Unit 7 (CT7/DB7)	Combined-Cycle Unit 7	CO and VOC	Oxidation Catalyst	2.0 ppmvd CO, corrected to 15% O2, 24-hour rolling average, excluding startup, shutdown, and fuel switching (gas/oil) 1.0 ppmvd VOC, as methane, corrected to 15% O2, without duct burner in-service (gas) 2.0 ppmvd VOC, as methane, corrected to 15% O2, with duct burner in-service (gas) 2.0 ppmvd VOC, as methane, corrected to 15% O2 (oil)	Continuous Emissions Monitoring System (CEMS)
Unit 8 (CT8/DB8)	Combined-Cycle Unit 8				
Unit 9 (CT9/DB9)	Combined-Cycle Unit 9				
Unit 10 (CT10/DB10)	Combined-Cycle Unit 10				
EXAMPLE BOILER NO. 1	WOOD-FIRED BOILER	PM	MULTICLONE	391-3-1-.02(2)(d)2.(ii); $0.5(10/R)^{0.5}$ lb/mmBtu	MONITOR PRESSURE DROP ACROSS MULTICLONE WEEKLY INSPECTION OF MULTICLONE

[a]IF A CONTROL DEVICE IS COMMON TO MORE THAN ONE PSEU, ONE MONITORING PLAN MAY BE SUBMITTED FOR THE CONTROL DEVICE WITH THE AFFECTED PSEUS IDENTIFIED AND ANY CONDITIONS THAT MUST BE MAINTAINED OR MONITORED IN ACCORDANCE WITH 64.3(a). IF A SINGE PSEU IS CONTROLLED BY MORE THAN ONE CONTROL DEVICE SIMILAR IN DESIGN AND OPERATION, ONE MONITORING PLAN FOR THE APPLICABLE CONTROL DEVICES MAY BE SUBMITTED WITH THE APPLICABLE CONTROL DEVICES IDENTIFIED AND ANY CONDITIONS THAT MUST BE MAINTAINED OR MONITORED IN ACCORDANCE WITH 64.3(a).

[b]INDICATE THE EMISSION LIMITATION OR STANDARD FOR ANY APPLICABLE REQUIREMENT THAT CONSTITUTES AN EMISSION LIMITATION, EMISSION STANDARD, OR STANDARD OF PERFORMANCE (AS DEFINED IN 40 CFR 64.1).

[c]INDICATE THE MONITORING REQUIREMENTS FOR THE PSEU THAT ARE REQUIRED BY AN APPLICABLE REGULATION OR PERMIT CONDITION.

APPLICATION PAGE _______

CAM MONITORING APPROACH CRITERIA

COMPLETE THIS SECTION FOR **EACH** PSEU THAT NEEDS TO BE ADDRESSED IN THIS CAM PLAN SUBMITTAL. THIS SECTION MAY BE COPIED AS NEEDED FOR EACH PSEU. THIS SECTION IS TO BE USED TO PROVIDE MONITORING DATA AND INFORMATION FOR EACH INDICATOR SELECTED FOR EACH PSEU IN ORDER TO MEET THE MONITORING DESIGN CRITERIA SPECIFIED IN 40 CFR 64.3 AND 64.4. IF MORE THAN TWO INDICATORS ARE BEING SELECTED FOR A PSEU OR IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL ACCORDINGLY WITH THE APPROPRIATE PSEU DESIGNATION, POLLUTANT, AND INDICATOR NOs.

7a) PSEU DESIGNATION: CT7/DB7, CT8/DB8, CT9/DB9, CT10/DB10	**7b) POLLUTANT: CO and VOC**	**7c) [a]INDICATOR NO. 1: CEMS CO Value**	**7d) [a]INDICATOR NO. 2:**
8a) GENERAL CRITERIA DESCRIBE THE MONITORING APPROACH USED TO MEASURE THE INDICATORS:		CO and O2 are monitored continuously by CEMS.	
[b]ESTABLISH THE APPROPRIATE INDICATOR RANGE OR THE PROCEDURES FOR ESTABLISHING THE INDICATOR RANGE WHICH PROVIDES A REASONABLE ASSURANCE OF COMPLIANCE:		2.0 ppmvd 24-hour rolling avg. (gas/oil)	
8b) PERFORMANCE CRITERIA PROVIDE THE SPECIFICATIONS FOR OBTAINING REPRESENTATIVE DATA, SUCH AS DETECTOR LOCATION, INSTALLATION SPECIFICATIONS, AND MINIMUM ACCEPTABLE ACCURACY:		CO is monitored with CEMS certified under 40 CFR Part 60, PS-4A and O2 is monitored with CEMS certified under 40 CFR Part 75.	
[c]FOR NEW OR MODIFIED MONITORING EQUIPMENT, PROVIDE VERIFICATION PROCEDURES, INCLUDING MANUFACTURER'S RECOMMENDATIONS, TO CONFIRM THE OPERATIONAL STATUS OF THE MONITORING:			
PROVIDE QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) PRACTICES THAT ARE ADEQUATE TO ENSURE THE CONTINUING VALIDITY OF THE DATA, (i.e., DAILY CALIBRATIONS, VISUAL INSPECTIONS, ROUTINE MAINTENANCE, CGA, RATA, ETC.):		CO and O2 analyzers are calibrated daily and maintained according to the QA/QC program developed specifically for the plant.	
[d]PROVIDE THE MONITORING FREQUENCY:		CO and O2 are monitored continuously except during calibration and maintenance.	
PROVIDE THE DATA COLLECTION PROCEDURES THAT WILL BE USED:		The DAS retains all hourly average CO and O2 measurements.	
PROVIDE THE DATA AVERAGING PERIOD FOR THE PURPOSE OF DETERMINING WHETHER AN EXCURSION OR EXCEEDANCE HAS OCCURRED:		Hourly averages based on at least 30 minutes operating time using 1-minute data.	

[a]DESCRIBE ALL INDICATORS TO BE MONITORED WHICH SATISFIES 40 CFR 64.3(a). INDICATORS OF EMISSION CONTROL PERFORMANCE FOR THE CONTROL DEVICE AND ASSOCIATED CAPTURE SYSTEM MAY INCLUDE MEASURED OR PREDICTED EMISSIONS (INCLUDING VISIBLE EMISSIONS OR OPACITY), PROCESS AND CONTROL DEVICE OPERATING PARAMETERS THAT AFFECT CONTROL DEVICE (AND CAPTURE SYSTEM) EFFICIENCY OR EMISSION RATES, OR RECORDED FINDINGS OF INSPECTION AND MAINTENANCE ACTIVITIES.

[b]INDICATOR RANGES MAY BE BASED ON A SINGLE MAXIMUM OR MINIMUM VALUE OR AT MULTIPLE LEVELS THAT ARE RELEVANT TO DISTINCTLY DIFFERENT OPERATING CONDITIONS, EXPRESSED AS A FUNCTION OF PROCESS VARIABLES, EXPRESSED AS MAINTAINING THE APPLICABLE INDICATOR IN A PARTICULAR OPERATIONAL STATUS OR DESIGNATED CONDITION, OR ESTABLISHED AS INTERDEPENDENT BETWEEN MORE THAN ONE INDICATOR. FOR CEMS, COMS, OR PEMS, INCLUDE THE MOST RECENT CERTIFICATION TEST FOR THE MONTIOR.

[c]THE VERIFICATION FOR OPERATIONAL STATUS SHOULD INCLUDE PROCEDURES FOR INSTALLATION, CALIBRATION, AND OPERATION OF THE MONITORING EQUIPMENT, CONDUCTED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, NECESSARY TO CONFIRM THE MONITORING EQUIPMENT IS OPERATIONAL PRIOR TO THE COMMENCEMENT OF THE REQUIRED MONITORING.

[d]EMISSION UNITS WITH POSTCONTROL PTE ≥ 100 PERCENT OF THE AMOUNT CLASSIFYING THE SOURCE AS A MAJOR SOURCE MUST COLLECT FOUR OR MORE VALUES PER HOUR TO BE AVERAGED. A REDUCED DATA COLLECTION FREQUENCY MAY BE APPROVED IN LIMITED CIRCUMSTANCES. OTHER EMISSION UNITS MUST COLLECT DATA AT LEAST ONCE PER 24 HOUR PERIOD.

RATIONALE AND JUSTIFICATION

COMPLETE THIS SECTION FOR **EACH** PSEU THAT NEEDS TO BE ADDRESSED IN THIS CAM PLAN SUBMITTAL. THIS SECTION MAY BE COPIED AS NEEDED FOR EACH PSEU. THIS SECTION IS TO BE USED TO PROVIDE RATIONALE AND JUSTIFICATION FOR THE SELECTION OF EACH INDICATOR AND MONITORING APPROACH AND EACH INDICATOR RANGE IN ORDER TO MEET THE SUBMITTAL REQUIREMENTS SPECIFIED IN 40 CFR 64.4.

9a) PSEU DESIGNATION:	9b) REGULATED AIR POLLUTANT:
CT7/DB7, CT8/DB8, CT9/DB9, CT10/DB10	**CO and VOC**

10) INDICATORS AND THE MONITORING APPROACH: PROVIDE THE RATIONALE AND JUSTIFICATION FOR THE SELECTION OF THE INDICATORS AND THE MONITORING APPROACH USED TO MEASURE THE INDICATORS. ALSO PROVIDE ANY DATA SUPPORTING THE RATIONALE AND JUSTIFICATION. EXPLAIN THE REASONS FOR ANY DIFFERENCES BETWEEN THE VERIFICATION OF OPERATIONAL STATUS OR THE QUALITY ASSURANCE AND CONTROL PRACTICES PROPOSED AND THE MANUFACTURER'S RECOMMENDATIONS. (IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL ACCORDINGLY WITH THE APPROPRIATE PSEU DESIGNATION AND POLLUTANT):

CO and VOC are controlled by the same pollution control equipment. CO concentration was selected as the CAM performance indicator because CO can be monitored continuously and provides an indicator of catalyst performance. A properly calibrated and operated CO CEMS provides accurate CO emissions data and is an indicator of VOC emissions performance. The CO CEMS will be certified according to 40 CFR Part 60, PS-4A. The analyzers are calibrated daily and maintained according to the QA/QC plan developed specifically for the plant.

11) INDICATOR RANGES: PROVIDE THE RATIONALE AND JUSTIFICATION FOR THE SELECTION OF THE INDICATOR RANGES. THE RATIONALE AND JUSTIFICATION SHALL INDICATE HOW **EACH** INDICATOR RANGE WAS SELECTED BY EITHER A COMPLIANCE OR PERFORMANCE TEST, A TEST PLAN AND SCHEDULE, OR BY ENGINEERING ASSESSMENTS. DEPENDING ON WHICH METHOD IS BEING USED FOR EACH INDICATOR RANGE, INCLUDE THE SPECIFIC INFORMATION REQUIRED BELOW FOR THAT SPECIFIC INDICATOR RANGE. (IF ADDITIONAL SPACE IS NEEDED, ATTACH AND LABEL ACCORDINGLY WITH THE APPROPRIATE PSEU DESIGNATION AND POLLUTANT):

- COMPLIANCE OR PERFORMANCE TEST (INDICATOR RANGES DETERMINED FROM CONTROL DEVICE OPERATING PARAMETER DATA OBTAINED DURING A COMPLIANCE OR PERFORMANCE TEST CONDUCTED UNDER REGULATORY SPECIFIED CONDITIONS OR UNDER CONDITIONS REPRESENTATIVE OF MAXIMUM POTENTIAL EMISSIONS UNDER ANTICIPATED OPERATING CONDITIONS. SUCH DATA MAY BE SUPPLEMENTED BY ENGINEERING ASSESSMENTS AND MANUFACTURER'S RECOMMENDATIONS). THE RATIONALE AND JUSTIFICATION SHALL INCLUDE A SUMMARY OF THE COMPLIANCE OR PERFORMANCE TEST RESULTS THAT WAS USED TO DETERMINE THE INDICATOR RANGE AND DOCUMENTATION INDICATING THAT NO CHANGES HAVE TAKEN PLACE THAT COULD RESULT IN A SIGNIFICANT CHANGE IN THE CONTROL SYSTEM PERFORMANCE OR THE SELECTED INDICATOR RANGES SINCE THE COMPLIANCE OR PERFORMANCE TEST WAS CONDUCTED.
- TEST PLAN AND SCHEDULE (INDICATOR RANGES WILL BE DETERMINED FROM A PROPOSED IMPLEMENTATION PLAN AND SCHEDULE FOR INSTALLING, TESTING, AND PERFORMING ANY OTHER APPROPRIATE ACTIVITIES PRIOR TO USE OF THE MONITORING). THE RATIONALE AND JUSTIFICATION SHALL INCLUDE THE PROPOSED IMPLEMENTATION PLAN AND SCHEDULE THAT WILL PROVIDE FOR USE OF THE MONITORING AS EXPEDITIOUSLY AS PRACTICABLE AFTER APPROVAL OF THIS CAM PLAN, BUT IN NO CASE SHALL THE SCHEDULE FOR COMPLETING INSTALLATION AND BEGINNING OPERATION OF THE MONITORING EXCEED 180 DAYS AFTER APPROVAL.
- ENGINEERING ASSESSMENTS (INDICATOR RANGES OR THE PROCEDURES FOR ESTABLISHING INDICATOR RANGES ARE DETERMINED FROM ENGINEERING ASSESSMENTS AND OTHER DATA, SUCH AS MANUFACTURERS' DESIGN CRITERIA AND HISTORICAL MONITORING DATA, BECAUSE FACTORS SPECIFIC TO THE TYPE OF MONITORING, CONTROL DEVICE, OR PSEU MAKE COMPLIANCE OR PERFORMANCE TESTING UNNECESSARY). THE RATIONALE AND JUSTIFICATION SHALL INCLUDE DOCUMENTATION DEMONSTRATING THAT COMPLIANCE TESTING IS NOT REQUIRED TO ESTABLISH THE INDICATOR RANGE.

RATIONALE AND JUSTIFICATION:

CO CEMS is a direct measurement of the CO concentration and an indicator of VOC concentration and catalyst performance. If the CO concentration approaches the emissions limit, corrective action will be taken to ensure the limit is not exceeded. If the 24-hour rolling CO average is above the emissions limit, an exceedance has occurred.

Attachment E

Best Available Control Technology Search Results

Table E-1: Natural Gas Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for NOx

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN PPMVD
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	FGCTGHRSG (EUCTGHRSG1 & EUCTGHRSG2)	SCR with DLNB (Selective catalytic reduction with dry low NOx burners).	2	PPMVD	AT 15%O2; 24-H ROLL AVG; EACH UNIT;	2
*LA-0365	BIG CAJUN I POWER PLANT	6/27/2019	Combustion Turbine #1 (EQT0002, CTG-1)	Dry low NOX Burners & water injection	23	PPMV	THREE HOUR ROLLING AVERAGE	23
*LA-0365	BIG CAJUN I POWER PLANT	6/27/2019	Combustion Turbine #2 (EQT0003, CTG-2)	Dry low NOX burners & water injection	23	PPMV	THREE HOUR ROLLING AVERAGE	23
*WV-0032	BROOKE COUNTY POWER PLANT	9/18/2018	GE 7HA.01 Turbine	Dry-Low NOx Burners, SCR	23.2	LB/HR		2
VA-0328	C4GT, LLC	4/26/2018	GE Combustion Turbine - Option 1 - Normal Operation	dry, low NOx burners and selective catalytic reduction	2	PPMVD @ 15% O2	1 H AV	2
VA-0328	C4GT, LLC	4/26/2018	Siemens Combusion Turbine - Option 2 - Normal Operation	DRY, LOW NOx BURNERS & SCR	2	PPMVD @ 15% O2	1 H AV	2
LA-0331	CALCASIEU PASS LNG PROJECT	9/21/2018	Combined Cycle Combustion Turbines (CCCT1 to CCCT5)	Low NOx Burners, SCR, and Good Combustion Practices	2.5	PPMV	30 DAY ROLLING AVERAGE	2.5
TX-0689	CEDAR BAYOU ELECTRIC GENERATION STATION	8/29/2014	Combined cycle natural gas turbines	DLN, SCR	2	PPM	24HR ROLLING AVG.	2
VA-0332	CHICKAHOMINY POWER LLC	6/24/2019	Three (3) Mitsubishi Hitachi Power Systems combustion turbine generators	Controlled by dry, low NOx burners and selective catalytic reduction (SCR).	2	PPMVD 15% O2	1 HR AVG	2
OH-0366	CLEAN ENERGY FUTURE - LORDSTOWN, LLC	8/25/2015	Combined Cycle Combustion Turbines (two, identical) (P001 and P002)	dry low NOx combustors, selective catalytic reduction (SCR)	23.5	LB/H	WITH DUCT BURNER. SEE NOTES.	2
NJ-0088	COGEN TECH LINDEN VENTURE LP	7/30/2019	250 MW COMBINED CYCLE COMBUSTION TURBINE FIRING NATURAL GAS	Selective Catalytic Reduction, Dry Low NOx, and use of Natural gas as Primary fuel	18.3	LB/H	AV OF THREE ONE H STACK TESTS EVERY 5 YR	2
TX-0730	COLORADO BEND ENERGY CENTER	4/1/2015	Combined-cycle gas turbine electric generating facility	SCR and oxidation catalyst	2	PPMVD @ 15% O2	24-HR AVERAGE	2
TX-0672	CORPUS CHRISTI LIQUEFACTION PLANT	9/12/2014	Refrigeration compressor turbines	dry low emission combustors	25	PPMVD	@15% O2, 4 HOUR ROLLING AVERAGE	25
PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Combustion turbine and HRSG with duct burner NG only	Dry Low NOx combustion technology, SCR at all steady state operating loads, good combustion and operating practices	2	PPMDV @ 15% O2		2
MD-0041	CPV ST. CHARLES	4/23/2014	2 COMBINED-CYCLE COMBUSTION TURBINES	DRY LOW-NOX COMBUSTOR DESIGN AND SELECTIVE CATALYTIC REDUCTION (SCR)	2	PPMVD @ 15% O2	3-HOUR BLOCK AVERAGE, EXCLUDING SU/SD	2
IL-0129	CPV THREE RIVERS ENERGY CENTER	7/30/2018	Combined Cycle Combustion Turbines	Selective catalytic reduction (SCR) and low-NOx combustion technology (dry low-NOx combustion technology for natural gas; water injection for ULSD)	2	PPMV @ 15% O2	3-UNIT OPERATING HOURS	2

Table E-1: Natural Gas Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for NOx

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN PPMVD
CT-0157	CPV TOWANTIC, LLC	11/30/2015	Combined Cycle Power Plant	SCR	2	PPMVD @15% O2	1 HR BLOCK	2
CT-0158	CPV TOWANTIC, LLC	11/30/2015	Combined Cycle Power Plant	SCR	2	PPMVD @15% O2	1 HR BLOCK	2
TX-0789	DECORDOVA STEAM ELECTRIC STATION	3/8/2016	Combined Cycle & Cogeneration	Selective Catalytic Reduction	2	PPM		2
VA-0334	DOMINION ENERGY - BRUNSWICK	12/1/2020	COMBUSTION TURBINE GENERATORS, (3) with Alternate Operating Scenario - Turbine Tuning	Dry, low NOx burners and selective catalytic reduction (SCR) with a NOx performance of 2.0 ppmvd at 15% O2.	604	LBS	CALENDAR DAY/PER TURBINE	2
VA-0334	DOMINION ENERGY - BRUNSWICK	12/1/2020	COMBUSTION TURBINE GENERATORS, (3) with Alternate Operating Scenario - Turbine Blade Water Washing	Dry, low NOx burners and selective catalytic reduction (SCR) with a NOx performance of 2.0 ppmvd at 15% O2.	604	LBS	CALENDAR DAY/PER TURBINE	2
TX-0751	EAGLE MOUNTAIN STEAM ELECTRIC STATION	6/18/2015	Combined Cycle Turbines (>25 MW) â€“ natural gas	Selective Catalytic Reduction	2	PPM	ROLLING 24-HR AVERAGE	2
PA-0333	ESC TIOGA COUNTY POWER LLC/ELEC PWR GEN FAC	8/20/2019	COMBUSTION TURBINE/DUCT BURNER	SCR, Catalytic Oxidizer	2	PPMVD	@ 15% O2 / 1 HR	2
LA-0364	FG LA COMPLEX	1/6/2020	Cogeneration Units	Dry low NOx combustor design along with SCR.	2	PPMVD	12-MONTH ROLLING AVERAGE	2
TX-0773	FGE EAGLE PINES PROJECT	11/4/2015	Combined Cycle Turbines (>25 MW)	Selective Catalytic Reduction	2	PPM	24-HR AVERAGE	2
TX-0660	FGE TEXAS POWER I AND FGE TEXAS POWER II	3/24/2014	Alstom Turbine	Selective catalytic reduction	2	PPMVD	CORRECTED TO 15% O2, ROLLING 24 HR AVE	2
MI-0427	FILER CITY STATION	11/17/2017	EUCCT (Combined cycle CTG with unfired HRSG)	SCR with DLNB (Selective catalytic reduction with dry low NOx burners).	3	PPM	24-H ROLL.AVG., EXCEPT STARTUP/SHUTDOWN	3
TX-0678	FREEPORT LNG PRETREATMENT FACILITY	7/16/2014	Combustion Turbine	Selective Catalytic Reduction	2	PPMVD	15@ O2, 3 HOUR ROLLING AVERAGE	2
*PA-0298	FUTURE POWER PA/GOOD SPRINGS NGCC FACILITY	3/4/2014	Turbine, COMBINED CYCLE UNIT (Siemens 5000)	SCR	2	PPMVD	@ 15% OXYGEN	2
TX-0819	GAINES COUNTY POWER PLANT	4/28/2017	Combined Cycle Turbine with Heat Recovery Steam Generator, fired Duct Burners, and Steam Turbine Generator	Selective Catalytic Reduction (SCR) and Dry Low NOx burners	2	PPMVD	15% O2 3-H AVG	2

Table E-1: Natural Gas Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for NOx

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN PPMVD
AK-0085	GAS TREATMENT PLANT	8/13/2020	Six (6) Cogeneration Gas-Fired Turbines (Treated Gas Compressor Turbines)	DLN combustors and Good Combustion Practices	17	PPMV @ 15% O2	3-HOUR AVERAGE	17
AK-0085	GAS TREATMENT PLANT	8/13/2020	Six (6) Cogeneration Gas-Fired Turbines (CO2 Compressor Turbines))	DLN combustors and good combustion practices	17	PPMV @ 15% O2	3-HOUR AVERAGE	17
VA-0325	GREENSVILLE POWER STATION	6/17/2016	COMBUSTION TURBINE GENERATOR WITH DUCT-FIRED HEAT RECOVERY STEAM GENERATORS (3)	SCR	2	PPMVD	1 HR AVG	2
OH-0374	GUERNSEY POWER STATION LLC	10/23/2017	Combined Cycle Combustion Turbines (3, identical) (P001 to P003)	dry low NOx burners and SCR	33.85	LB/H	WITH DUCT BURNER. SEE NOTES.	2
*WV-0029	HARRISON COUNTY POWER PLANT	3/27/2018	GE 7HA.02 Turbine	Dry-Low NOx Burners, SCR	32.9	LB/HR	1-HOUR AVERAGE	2
OH-0377	HARRISON POWER	4/19/2018	Mitsubishi Hitachi Power Systems (MHPS) Combustion Turbines (P007 & P008)	dry low NOx burners and an SCR system	28	LB/H	WITH DUCT BURNER. SEE NOTES.	2
OH-0377	HARRISON POWER	4/19/2018	General Electric (GE) Combustion Turbines (P005 & P006)	dry low NOx burners and an SCR system	29.5	LB/H	WITH DUCT BURNER. SEE NOTES.	2
*PA-0315	HILLTOP ENERGY CENTER, LLC	4/12/2017	Combustion Turbine without Duct Burner		2	PPMDV	CORRECTED TO 15% O2	2
MI-0424	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/5/2016	FGCTGHRSG (2 Combined cycle CTGs with HRSGs; EUCTGHRSG10 & EUCTGHRSG11)	Selective catalytic reduction with dry low NOx burners (SCR with DLNB).	3	PPM AT 15% O2	24-H ROLLING AVG; EACH EU	3
MI-0431	INDECK NILES LLC	6/26/2018	FGCTGHRSG (2 Combined Cycle CTG with HRSGs)	SCR with DLNB (Selective Catalytic Reduction with Dry Low NOx Burners)	2	PPM	AT 15%O2; 24-HR ROLL AVG	2
*MI-0445	INDECK NILES, LLC	11/26/2019	FGCTGHRSG	SCR with DLNB (Selective Catalytic Reduction with Dry Low NOx Burners)	2	PPM	PPMVD @15% O2. 24HR ROLL AVG EXCEPT SS	2
MI-0423	INDECK NILES, LLC	1/4/2017	FGCTGHRSG (2 Combined Cycle CTGs with HRSGs)	SCR with DLNB (selective catalytic reduction with dry low NOx burners)	38.1	LB/H	24-H ROLLING AVERAGE	Revised in MI-0445
IL-0130	JACKSON ENERGY CENTER	12/31/2018	Combined-Cycle Combustion Turbine	Selective Catalytic Reduction (SCR) and low-NOx technology (dry low-NOx combustion technology)	2	PPMV	3-UNIT OPERATING HOURS @ 15% O2	2
MI-0439	JACKSON GENERATING STATION	4/2/2019	FGLMDB1-6 (6 combined cycle natural gas fired CTG each equipped with a HRSG)	Steam injection, good combustion practices and only combust natural gas.	25	PPM	AT 15% O2; 30 DAY ROLLING AVG; EACH UNIT	25
TN-0162	JOHNSONVILLE COGENERATION	4/19/2016	Natural Gas-Fired Combustion Turbine with HRSG	Good combustion design and practices, selective catalytic reduction (SCR)	2	PPMVD @ 15% O2	30 UNIT-OPERATING-DAY MOVING AVERAGE	2

Table E-1: Natural Gas Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for NOx

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN PPMVD
MD-0046	KEYS ENERGY CENTER	10/31/2014	2 COMBINED-CYCLE COMBUSTION TURBINES	GOOD COMBUSTION PRACTICES, DRY LOW-NOX COMBUSTOR DESIGN AND SELECTIVE CATALYTIC REDUCTION	2	PPMVD @ 15% O2	3-HOUR BLOCK AVERAGE, EXCLUDING SU/SD	2
CT-0161	KILLINGLY ENERGY CENTER	6/30/2017	Natural Gas w/o Duct Firing	SCR	2	PPMVD @15% O2	1 HOUR BLOCK	2
CT-0161	KILLINGLY ENERGY CENTER	6/30/2017	Natural Gas w/Duct Firing	SCR	2	PPMVD @15% O2	1 HOUR BLOCK	2
PA-0309	LACKAWANNA ENERGY CTR/JESSUP	12/23/2015	Combustion turbine with duct burner	Dry low-NOx burners, SCR, exclusive natural gas	2	PPMDV @15% O2		2
MI-0454	LBWL-ERICKSON STATION	12/20/2022	EUCTGHRSG1	Dry low NOx burners and selective catalytic reduction for NOx control for each CTG/HRSG unit.	3	PPM	PPMVD AT 15%O2; 24-HR ROLL AVG EXC SU/SD	3
MI-0454	LBWL-ERICKSON STATION	12/20/2022	EUCTGHRSG2	Dry low NOx burners and selective catalytic reduction for NOx control for each CTG/HRSG unit.	3	PPM	@15%OX; 24-HR ROLL AVG EXCEPT START/SHUT	3
MI-0447	LBWL--ERICKSON STATION	1/7/2021	EUCTGHRSG1	Dry low NOx burners and selective catalytic reduction for NOx control for each CTG/HRSG unit.	60	LB/H	HOURLY; INCL STRT/SHUT IN COMBINED CYCLE	3
MI-0447	LBWL--ERICKSON STATION	1/7/2021	EUCTGHRSG2	Dry low NOx burners and selective catalytic reduction for NOx control for each CTG/HRSG unit.	60	LB/H	HOURLY; INCL STRT/SHUT IN COMBINED CYCLE	3
MI-0441	LBWL--ERICKSON STATION	12/21/2018	EUCTGHRSG2--A 667 MMBTU/H natural gas fired CTG with a HRSG.	Dry low NOx burners and selective catalytic reduction for NOx control.	3	PPM	PPMVD@15%O2; 24-H AVG; SEE NOTES	3
MI-0441	LBWL--ERICKSON STATION	12/21/2018	EUCTGHRSG1--A 667 MMBTU/H NG fired combustion turbine generator coupled with a heat recovery steam generator (HRSG)	Dry low NOx burners and selective catalytic reduction for NOx control.	3	PPM	PPMVD@15%O2; 24-H ROLL AVG; SEE NOTES	3
IL-0133	LINCOLN LAND ENERGY CENTER	7/29/2022	Combined-Cycle Combustion Turbines	Dry low-NOx combustion with ultra-low NOx combustors; low-NOx duct burners; and selective catalytic reduction (SCR)	2	PPMV @ 15% O2	SEE NOTES	2
AK-0088	LIQUEFACTION PLANT	7/7/2022	Four Combined Cycle Gas-Fired Turbines	SCR, DLN combustors, and good combustion practices	2	PPMV @ 15% O2	3-HOURS	2
TX-0878	LNG EXPORT TERMINAL	9/15/2022	Refrigeration Compression Turbines	Dry low NOx burners and good combustion practices.	0	PPM	24-HR AVG	
TX-0767	LON C. HILL POWER STATION	10/2/2015	Combined Cycle Turbines (>25 MW)	Selective Catalytic Reduction	2	PPM	ROLLING 24-HR AVERAGE	2

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RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN PPMVD
OH-0375	LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER	11/7/2017	Mitsubishi Combustion Turbine (P005)	dry low NOx burners and an SCR system	25.1	LB/H	WITH DUCT BURNER. SEE NOTES.	2
OH-0375	LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER	11/7/2017	General Electric Combustion Turbine (P004)	dry low NOx burners and an SCR system	26.1	LB/H	EXCEPT STARTUP AND SHUTDOWN. SEE NOTES	2
OH-0375	LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER	11/7/2017	Siemens Combustion Turbine (P006)	dry low NOx burners and an SCR system	27.1	LB/H	WITH DUCT BURNER. SEE NOTES.	2
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Combined Cycle Gas Turbine w/ Duct Burners and HRSG	Dry low-NOx combustor design, selective catalytic reduction (SCR), and good combustion practices.	2	PPMVD	24-HR ROLLING AVG BASED ON 1-HR AVG	2
*WV-0033	MAIDSVILLE	1/5/2022	Combustion Turbine & Duct Burner (CT-01/HRSG1 & CT-02/HRSG2)	Dry Low NOx Combustion w/ SCR	2	PPMDV @ 15% O2	3-HOUR ROLLING AVERAGE	2
*WV-0033	MAIDSVILLE	1/5/2022	Combustion Turbine & Duct Burner (CT-01/HRSG1 & CT-02/HRSG2)	Dry Low NOx Combustor with SCR	2	PPMDV @ 15% O2	3-HOUR ROLLING AVERAGE	2
*IN-0365	MAPLE CREEK ENERGY LLC	6/19/2023	Combined Cycle Turbine CTGB	Selective Catalytic Reduction system and dry-low-NOx combustors.	2	PPMVD	15% O2 BASED ON A 3-HR AVERAGE	2
*IN-0365	MAPLE CREEK ENERGY LLC	6/19/2023	Combined Cycle Turbine CTGA	Selective catalytic reduction system and dry-low-NOx combustors	0.0085	POUND PER MMBTU		2
IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014	Combustion turbine #1 - combined cycle	Low-NOx burners and SCR	2	PPM	30-DAY ROLLING AVG. @15% O2	2
IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014	Combustion turbine #2 -combined cycle	SCR, Low-NOx burner	2	PPM	30-DAY ROLLING AVERAGE	2
MD-0045	MATTAWOMAN ENERGY CENTER	11/13/2015	2 COMBINED-CYCLE COMBUSTION TURBINES	GOOD COMBUSTION PRACTICES, DRY LOW-NOX COMBUSTOR DESIGN AND SELECTIVE CATALYTIC REDUCTION (SCR)	2	PPMVD @ 15% O2	3-HOUR BLOCK AVERAGE (EXCLUDING SU/SD)	2
MI-0451	MEC NORTH, LLC	6/23/2022	EUCTGHRSG (North Plant): A combined cycle natural gas fired combustion turbine generator with heat recovery steam generator	SCR with DLNB (Selective catalytic reduction with Dry low NOx burners)	2.5	PPM	24-HR ROLLING AVG	2.5
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUCTGHRSG (North Plant): A combined-cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	SCR with DLNB (Selective catalytic reduction with Dry Low NOx burners).	2	PPMVD	AT 15%O2; 24-H ROLL AVG; NOT S.S.	2

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RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN PPMVD
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUCTGHRSG (South Plant): A combined cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	SCR with DLNB (Selective catalytic reduction with dry low NOx burners).	2	PPMV	AT 15%O2; 24-HR ROLL AVG NOT S.S.	2
MI-0452	MEC SOUTH, LLC	6/23/2022	EUCTGHRSG (South Plant): A combined-cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	SCR with DLNB [Selective Catalytic Reduction with Dry Low NOx Burners]	2	PPM	24-HR ROLLING AVG	2
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	Combined Cycle Combustion Turbine firing Natural Gas with Duct Burner	SELECTIVE CATALYTIC REDUCTION AND DRY LOW NOX	2	PPMVD@15%O2	3 H ROLLING AV BASED ON ONE H BLOCK AV	2
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	Combined Cycle Combustion Turbine firing Natural Gas without Duct Burner	Selective Catalytic Reduction System and Dry Low NOx	2	PPMVD@15%O2	3 H ROLLING AV BASED ON ONE H BLOCK AV	2
MI-0455	MIDLAND COGENERATION VENTURE LIMITED PARTNERSHIP	2/1/2023	EUCTGHRSG1	Selective catalytic regeneration	2	PPM	PPMVD AT 15%O2; 24-HR ROLL AVG EXC SU/SD	2
TX-0834	MONTGOMERY COUNTY POWER STATIOIN	3/30/2018	Combined Cycle Turbine	SCR and Dry Low NOx burners	2	PPMVD	15% O2 1-HOUR AVERAGE	2
WV-0025	MOUNDSVILLE COMBINED CYCLE POWER PLANT	11/21/2014	Combined Cycle Turbine/Duct Burner	SCR & Dry Low-NOx Burners	15.2	LB/H		2
PA-0311	MOXIE FREEDOM GENERATION PLANT	9/1/2015	Combustion Turbine With Duct Burner	DLN burner, SCR, good engineering practice	2	PPMDV @ 15% O2		2
PA-0311	MOXIE FREEDOM GENERATION PLANT	9/1/2015	Combustion Turbine without Duct Burner	DLN burners, SCR, good engineering practice	2	PPMDV @15% O2		2
TX-0788	NECHES STATION	3/24/2016	Combined Cycle & Cogeneration	Selective Catalytic Reduction	2	PPM		2
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Natural-Gas-Fired Combined-Cycle Turbine (P01)	Selective Catalytic Reduction (SCR), low-NOx burners, Water injection when firing diesel fuel oil.	2	PPM AT 15% O2	24-HR ROLLING AVG., NATURAL GAS	2
MI-0432	NEW COVERT GENERATING FACILITY	7/30/2018	FG-TURB/DB1-3 (3 combined cycle combustion turbine and heat recovery steam generator trains)	Good combustion practices, DLN burners and SCR.	2	PPMVD	AT 15%O2; EACH INDIV. CT/HRSG TRAIN	2
TX-0908	NEWMAN POWER STATION	8/27/2021	Simple Cycle Turbine	Dry Low NOx Burners and SCR	2.5	PPMVD		2.5
OH-0363	NTE OHIO, LLC	11/5/2014	Turbine generator with HRSG and duct burners (P001)	Use of natural gas, low NOx burner, and selective catalytic reduction (SCR).	27.7	LB/H	WITH DUCT BURNER. SEE NOTES.	2
FL-0356	OKEECHOBEE CLEAN ENERGY CENTER	3/9/2016	Combined-cycle electric generating unit	Selective catalytic reduction; dry low-NOx; and wet injection	2	PPMVD@15% O2	GAS, 24-HR BLOCK, EXCLUDING SSM	2

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RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN PPMVD
OH-0372	OREGON ENERGY CENTER	9/27/2017	Combined Cycle Combustion Turbines (two, identical) (P001 and P002)	Dry low NOX combustors and selective catalytic reduction (SCR)	25.3	LB/H	WITH DUCT BURNER. SEE NOTES.	2
CA-1251	PALMDALE ENERGY PROJECT	4/25/2018	Combustion Turbines (GEN1 and GEN2)	Selective Catalytic Reduction, Dry Low NOx Burners	2	PPM @ 15% O2	1-HOUR	2
*VA-0335	PANDA STONEWALL LLC	12/18/2020	Combustion Turbines, Two (2) and HRSG Duct Burners	Selective Catalytic Reduction (SCR), with ammonia injection and dry low NOx combustion.	2	PPMVD @ 15% O2	W & W/O DUCT BURNING	2
AL-0328	PLANT BARRY	11/9/2020	Two 744 MW Combined Cycle Units	SCR	2	PPM	3 HOUR AVG / @15% O2	2
TX-0790	PORT ARTHUR LNG EXPORT TERMINAL	2/17/2016	Simple Cycle Electrical Generation Gas Turbines 15.210	SELECTIVE CATALYTIC REDUCTION	5	PPM	ROLLING 24-HR AVERAGE	5
TX-0790	PORT ARTHUR LNG EXPORT TERMINAL	2/17/2016	Refrigeration Compression Turbines	Dry low NOx burners and good combustion practices	9	PPM	ROLLING 24-HR AVERAGE	9
NJ-0084	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/10/2016	Combined Cycle Combustion Turbine with Duct Burner firing natural gas	SCR and use of natural gas a clean burning fuel	2	PPMVD@15%O2	3 H ROLLING AV BASED ON ONE H BLOCK	2
NJ-0084	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/10/2016	Combined Cycle Combustion Turbine without Duct Burner Firing Natural Gas	SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	2	PPMVD@15%O2	3 H ROLLING AV BASED ON ONE H BLOCK	2
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - GENERAL ELECTRIC	Selective Catalytic Reduction Systems(SCR) and Dry Low NOx	2	PPMVD@15%O2	3-HR BLOCK AVERAGE BASED ON 1-HR BLOCK	2
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITHOUT DUCT BURNER - GENERAL ELECTRIC	Selective Catalytic Reduction System (SCR) and Dry Low NOx	2	PPMVD@15%O2	3-HR ROLLING AVERAE BASED ON 1-HR BLOCK	2
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	Combined Cycle Combustion Turbine -Siemens turbine without Duct Burner	Selective Catalytic Reduction and Dry Low NOx	2	PPMVD@ 15% O2	3-HR ROLLING AVE BASED ON 1-HR BLOCK	2
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - SIEMENS	Selective Catalytic Reduction System (SCR)	2	PPMVD	3-HR ROLLING AVE BASED ON 1-HR BLOCK AVE	2
OK-0169	PSO COMANCHE POWER STATION	10/8/2015	COMBINED CYCLE COMBUSTION TURBINE	Use of Dry Low NOx Burners	0.15	LB/MMBTU	30-DAY ROLLING AVG	41

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*PA-0319	RENAISSANCE ENERGY CENTER	8/27/2018	COMBUSTION TURBINE UNIT w/o DUCT BURNERS UNIT	SCR	2	PPMDV	@15% O2	2
PA-0334	RENOVO ENERGY CENTER LLC/RENOVO PLT	4/29/2021	COMBUSTION TURBINE w DUCT BURNER #2 (Natural Gas)	SCR, CATALYTIC OXIDIZER	2	PPMVD	@ 15% O2 / 1 HR	2
PA-0334	RENOVO ENERGY CENTER LLC/RENOVO PLT	4/29/2021	COMBUSTION TURBINE w DUCT BURNER #1 (Natural Gas)	SCR, Catalytic Oxidizer	2	PPMVD	@ 15% O2 / 1 HR	2
*PA-0316	RENOVO ENERGY CENTER, LLC	1/26/2018	Combustion Turbine Firing NG	SCR	2	PPMDV	CORRECTED TO 15% O2	2
OH-0365	ROLLING HILLS GENERATING, LLC	5/20/2015	Combustion Turbines, Scenario 1 (4, identical) (P001, P002, P004, P005)	dry-low NOx (DLN) burner and selective catalytic reduction (SCR)	14.7	LB/H	WITHOUT DUCT BURNERS. SEE NOTES.	2
OH-0365	ROLLING HILLS GENERATING, LLC	5/20/2015	Combustion Turbines, Scenario 2 (4, identical) (P001, P002, P004, P005)	dry-low NOx (DLN) burner and selective catalytic reduction (SCR)	15.6	LB/H	WITHOUT DUCT BURNERS. SEE NOTES.	2
TX-0714	S R BERTRON ELECTRIC GENERATING STATION	12/19/2014	(2) combined cycle turbines	Selective Catalytic Reduction	2	PPMVD	@15% O2, 24-HR ROLLING AVERAGE	2
MA-0039	SALEM HARBOR STATION REDEVELOPMENT	1/30/2014	Combustion Turbine with Duct Burner	Dry Low NOx Combustors & Selective Catalytic Reduction	2	PPMVD @ 15% O2	1 HR BLOCK AVG/DO NOT APPLY DURING SS	2
FL-0371	SHADY HILLS COMBINED CYCLE FACILITY	6/7/2021	GE 7HA.02 Combustion Turbine and HRSG with Duct Firing	Dry low-NOX combustors and Selective Catalytic Reduction (SCR)	2	PPMVD AT 15% O2	24-HOUR BLOCK AVERAGE BASIS (BACT)	2
FL-0367	SHADY HILLS COMBINED CYCLE FACILITY	7/27/2018	1-on-1 combined cycle unit (GE 7HA)	Dry low-NOX combustors and Selective Catalytic Reduction (SCR)	2	PPMVD AT 15% O2	24-HOUR BLOCK AVERAGE BASIS (BACT)	2
OH-0367	SOUTH FIELD ENERGY LLC	9/23/2016	Combined Cycle Combustion Turbines (two, identical) (P001 and P002)	Dry low NOx (DLN) burners for natural gas firing, wet injection when firing ultra low sulfur diesel, and selective catalytic reduction (SCR) for both natural gas and ultra low sulfur diesel.	30.51	LB/H	WITH DUCT BURNER. SEE NOTES.	2
LA-0313	ST. CHARLES POWER STATION	8/31/2016	SCPS Combined Cycle Unit 1A	Selective Catalytic Reduction (SCR) with Dry Low NOx Burners (DLNB) during normal operations; Good Combustion Practices during Startup/Shutdown operations.	26.91	LB/H	HOURLY MAXIMUM	2
LA-0313	ST. CHARLES POWER STATION	8/31/2016	SCPS Combined Cycle Unit 1B	Selective Catalytic Reduction (SCR) with Dry Low NOx Burners (DLNB) during normal operations, and good combustion practices during startup/shutdown operations.	26.91	LB/H	HOURLY MAXIMUM	2

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TX-0713	TENASKA BROWNSVILLE GENERATING STATION	4/29/2014	(2) combined cycle turbines	Selective Catalytic Reduction	2	PPMVD	@15% O2, 24-HR ROLLING AVERAGE	2
PA-0306	TENASKA PA PARTNERS/WESTMORELAND GEN FAC	2/12/2016	Large combustion turbine	SCR, DLN, and good combustion practice	2	PPMVD@15% O2		2
MI-0442	THOMAS TOWNSHIP ENERGY, LLC	8/21/2019	FGCTGHRSG	Good combustion practices, dry low NOx burners and selective catalytic reduction (SCR).	2	PPM	EACH; 24-HR ROLL.AVG EXCEPT START/SHUT	2
TX-0712	TRINIDAD GENERATING FACILITY	11/20/2014	combined cycle turbine	Selective Catalytic Reduction	2	PPMVD	@15% O2, 24-HR ROLLING AVERAGE	2
OR-0050	TROUTDALE ENERGY CENTER, LLC	3/5/2014	Mitsubishi M501-GAC combustion turbine, combined cycle configuration with duct burner.	Utilize dry low-NOx burners when combusting natural gas; Utilize water injection when combusting ULSD; Utilize selective catalytic reduction (SCR) with aqueous ammonia injection at all times except during startup and shutdown; Limit the time in startup or shutdown.	2	PPMDV AT 15% O2	3-HR ROLLING AVERAGE ON NG	2
OH-0370	TRUMBULL ENERGY CENTER	9/7/2017	Combined Cycle Combustion Turbines (two, identical) (P001 and P002)	dry low NOx combustors (DLN) and selective catalytic reduction (SCR)	25.3	LB/H	WITH DUCT BURNER. SEE NOTES.	2
*TN-0164	TVA - JOHNSONVILLE COGENERATION	2/1/2018	Dual-fuel CT and HRSG with duct burner	SCR, good combustion design & practices	2	PPMVD @ 15% O2	30-DAY AVG WHEN BURNING NATURAL GAS	2
TX-0710	VICTORIA POWER STATION	12/1/2014	combined cycle turbine	Selective Catalytic Reduction	2	PPMVD	@15% O2, 24-HR ROLLING AVERAGE	2
*IN-0371	WABASH VALLEY RESOURCES, LLC	1/11/2024	Integrated Gasification Combined Cycle Combustion Turbine	Steam Injection/SCR and Good Combustion Practices	2	PPMV	15% OXYGEN WHEN COMBUSTING >50% NAT. GAS	2
NJ-0082	WEST DEPTFORD ENERGY STATION	7/18/2014	Combined Cycle Combustion Turbine without Duct Burner	Selective Catalytic Reduction System (SCR) and use of natural gas a clean burning fuel	2	PPMVD@15%O2	3-HR ROLLING AVE BASED ON 1-HR BLOCK	2
NJ-0082	WEST DEPTFORD ENERGY STATION	7/18/2014	Combined Cycle Combustion Turbine with Duct Burner	Selective Catalytic reduction (SCR) and use of natural gas a clean burning fuel	23	LB/H	3-HR ROLLING AVE BASED ON 1-HR BLOCK	2
MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	2 COMBINED CYCLE COMBUSTION TURBINES, WITH DUCT FIRING	USE OF DRY LOW-NOX COMBUSTOR TURBINE DESIGN , USE OF PIPELINE QUALITY NATURAL GAS DURING NORMAL OPERATION AND SCR SYSTEM	2	PPMVD @ 15% O2	3-HOUR BLOCK AVERAGE, EXCLUDING SU/SD	2
PA-0307	YORK ENERGY CENTER BLOCK 2 ELECTRICITY GENERATION	6/15/2015	Two Combine Cycle Combustion Turbine with Duct Burner	SCR, Dry Lo-NOx combustor, good combustion practices and low sulfur	2	PPVDM @ 15 O2		2

Table E-2: Natural Gas Fired Combined Cycle Combustion Turbines, Greater than 25 MW, NEEDS and EIA-860Listings for NOx

NEEDS: Commencing Commercial Operation in Past 5 Years; EIA-860: Facilities Listed as Planned and Under Construction

STATE	FACILITY NAME	UNIT CODE	APPLICATION/PERMIT DATE	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN PPMVD
FL	Big Bend Station	060/061	4/10/2024	DLN and SCR	96	PPMVD @ 15% O2	30-unit-operating day Load<75%	96
FL	Big Bend Station	060/061	4/10/2024	DLN and SCR	15	PPMVD @ 15% O2	30-unit-operating day Load>=75%	15
CA	AES Huntington Beach	D115	3/14/2024	DLN and SCR	2	PPMVD @ 15% O2	1-hour average No DB	2
CA	AES Huntington Beach	D124	3/14/2024	DLN and SCR	2	PPMVD @ 15% O2	1-hour average No DB	2
CA	Alamitos Energy Center	D165/D173	4/18/2017	DLN and SCR	8.35	lb/MMSCF	(or 2.3 PPMVD)	
CA	Alamitos Energy Center	D165/D173	4/18/2017	DLN and SCR	2	PPMVD @ 15% O2		2
NC	Asheville Combined Cycle Plant	Unit 5/7	1/11/2022	SCR	96	PPMVD @ 15% O2	>75% Peak Load or Tamb<0F	96
NC	Asheville Combined Cycle Plant	Unit 5/7	1/11/2022	SCR	15	PPMVD @ 15% O2	>=75% Peak Load	15
PA	BIRDSBORO POWER LLC	PROC101	1/1/2021	SCR	2	PPMVD @ 15% O2	3-hour block average	2
CT	Bridgeport Energy, LLC	Stack 5	3/24/2023	Low NOx and SCR	6	PPMVD @ 15% O2	24-hour rolling avg.	6
CT	Bridgeport Energy, LLC	Stack 6	3/24/2023	Low NOx and SCR	6	PPMVD @ 15% O2		6
NY	Cricket Valley Energy	U-00001	12/5/2018	DLN and SCR	2	PPMVD @ 15% O2	1 hour avg	2
NY	Cricket Valley Energy	U-00002	12/5/2018	DLN and SCR	2	PPMVD @ 15% O2	1 hour avg	2
NY	Cricket Valley Energy	U-00003	12/5/2018	DLN and SCR	2	PPMVD @ 15% O2	1 hour avg	2
PA	Hickory Run Energy Station	CC1 and CC2	4/23/2013	SCR	2	PPMVD @ 15% O2		2
LA	Magnolia Power	CCGT-1 (EQTT001)	5/23/2024	Dry low-NOx combustor, SCR, and good combustion practices	2	PPMVD @ 15% O2	3-hour average	2
MN	Makato energy center	CT1 and DB1 EQUI 16/EQUI 17	2/14/2014	DLN and SCR	3	PPMVD @ 15% O2	3 hour rolling avg	3

Table E-2: Natural Gas Fired Combined Cycle Combustion Turbines, Greater than 25 MW, NEEDS and EIA-860Listings for NOx

NEEDS: Commencing Commercial Operation in Past 5 Years; EIA-860: Facilities Listed as Planned and Under Construction

STATE	FACILITY NAME	UNIT CODE	APPLICATION/PERMIT DATE	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN PPMVD
MN	Makato energy center	CT2 and DB2 EQUI 5/EQUI 6	2/14/2014		3	PPMVD @ 15% O2	3 hour rolling avg	3
FL	Shady Hills Combined Cycle Facility	EU001	2/15/2023	DLN and SCR	15	PPMVD @ 15% O2	30-day rolling avg	
FL	Shady Hills Combined Cycle Facility	EU001	2/15/2023	DLN and SCR	96	PPMVD @ 15% O2	30-day rolling avg	
FL	Shady Hills Combined Cycle Facility	EU001	2/15/2023	DLN and SCR	2	PPMVD @ 15% O2	24-hour bloack avg.	2
OH	Trumbull Energy Center	P001/P002	2/5/2020	DLN and SCR	2	PPMVD @ 15% O2	With or w/o DB	2
WI	West Riverside Energy Center	P20/P21	4/13/2019	DLN and SCR	2	PPMVD @ 15% O2	avg 30 consecutive operating days	2

Table E-3: Distillate Oil-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for NOx

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN PPMVD
NJ-0088	COGEN TECH LINDEN VENTURE LP	7/30/2019	250 MW COMBINED CYCLE COMBUSTION TURBINE FIRING ULTRA LOW SULFUR DISTILLATE OIL	Selective Catalytic Reduction and Dry Low NOx; use of clean burning fuels.	40.4	LB/H	AV OF THREE ONE H STACK TESTS EVERY 5 YR	4
PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Combustion turbine and HRSG without duct burner ULSD	Water/steam injection, SCR, good combustion practices	6	PPMDV @ 15% O2		6
CT-0157	CPV TOWANTIC, LLC	11/30/2015	Combined Cycle Power Plant	SCR	5	PPMVD @15% O2	1 HR BLOCK	5
CT-0158	CPV TOWANTIC, LLC	11/30/2015	Combined Cycle Power Plant	SCR	5	PPMVD @15% O2	1 HR BLOCK	5
CT-0161	KILLINGLY ENERGY CENTER	6/30/2017	ULSD w/o Duct Firing	SCR	4	PPMVD @15% O2	1 HOUR BLOCK	4
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	COMBINED CYCLE COMBUSTION TURBINE FIRING ULTRA LOW SULFUR DISTILLATE OIL	Selective catalytic Reduction Systems and Dry Low NOx	4	PPMVD@15% O2	3 H ROLLING AV BASED ON ONE H BLOCK AV	4
NJ-0084	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/10/2016	Combined Cycle Combustion Turbine without Duct Burner Firing ULSD	Selective Catalytic Reduction (SCR) and use of natural gas a clean burning fuel	4	PPMVD@15% O2	3 H ROLLING AV BASED ON ONE H BLOCK	4
PA-0334	RENOVO ENERGY CENTER LLC/RENOVO PLT	4/29/2021	COMBUSTION TURBINE #2 (ULSD)	selective catalytic reduction (SCR) system, oxidation catalyst.	4	PPMVD	@ 15% O2 / 1 HR	4
PA-0334	RENOVO ENERGY CENTER LLC/RENOVO PLT	4/29/2021	COMBUSTION TURBINE #1 (ULSD)	selective catalytic reduction (SCR) system, oxidation catalyst.	4	PPMVD	@ 15% O2 / 1 HR	4
PA-0307	YORK ENERGY CENTER BLOCK 2 ELECTRICITY GENERATION PROJECT	6/15/2015	Two combined cycle combustion turbines ULSD fired with duct burner NG fired	SCR and good combustion practices with ULSD fuels	6	PPMDV @ 15% O2		6

Table E-4: Distillate Oil-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, NEEDS and EIA-860Listings for NOx

NEEDS: Commencing Commercial Operation in Past 5 Years; EIA-860: Facilities Listed as Planned and Under Construction

STATE	FACILITY NAME	UNIT CODE	APPLICATION/PERMIT DATE	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN PPMVD
NC	Asheville Combined Cycle Plant	Unit 5/7	1/11/2022	SCR	42	PPMVD @ 15% O2	>=75% Peak Load	42
NC	Asheville Combined Cycle Plant	Unit 5/7	1/11/2022	SCR	96	PPMVD @ 15% O2	>75% Peak Load or Tamb<0F	96
MN	Makato energy center	CT2 and DB2 EQUI 5/EQUI 6	2/14/2014	DLN and SCR	5.5	PPMVD @ 15% O2	3 hour rolling avg	5.5

Table E-5: Natural Gas Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for SO_2

RBLCID	FACILITY NAME	STATE	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
VA-0328	C4GT, LLC	VA	4/26/2018	GE Combustion Turbine - Option 1 - Normal Operation	use of pipeline quality natural gas with a maximum sulfur content of 0.4 gr/100 scf on a 12-month rolling average.	0.0011	LB/MMBTU	3 HR AVG
VA-0328	C4GT, LLC	VA	4/26/2018	Siemens Combusion Turbine - Option 2 - Normal Operation	use of pipeline quality natural gas with a maximum sulfur content of 0.4 gr/100 scf on a 12 mo rolling av.	0.0011	LB/MMBTU	3 H AV
LA-0331	CALCASIEU PASS LNG PROJECT	LA	9/21/2018	Combined Cycle Combustion Turbines (CCCT1 to CCCT5)	Exclusive Combustion of Low Sulfur Fuel and Proper Engineering Practices	4	PPMV	ANNUAL AVERAGE
VA-0332	CHICKAHOMINY POWER LLC	VA	6/24/2019	Three (3) Mitsubishi Hitachi Power Systems combustion turbine generators	Controlled by the use of pipeline-quality natural gas with a maximum sulfur content of 0.4 grains per 100 standard cubic feet (scf), on a 12-month rolling average.	0.0011	LB/MMBTU	3 HR AVG
NJ-0088	COGEN TECH LINDEN VENTURE LP	NJ	7/30/2019	250 MW COMBINED CYCLE COMBUSTION TURBINE FIRING NATURAL GAS	USE OF NATURAL GAS AND ULSD; BOTH CLEAN BURNING FUELS	3.45	LB/H	AV OF THREE ONE H STACK TESTS EVERY 5 YR
TX-0730	COLORADO BEND ENERGY CENTER	TX	4/1/2015	Combined-cycle gas turbine electric generating facility	efficient combustion, natural gas fuel	2	GR/100 SCF	1-HOUR
TX-0672	CORPUS CHRISTI LIQUEFACTION PLANT	TX	9/12/2014	Refrigeration compressor turbines		0.31	LB/H	1 HOUR
CT-0157	CPV TOWANTIC, LLC	CT	11/30/2015	Combined Cycle Power Plant		4.49	LB/H	
CT-0158	CPV TOWANTIC, LLC	CT	11/30/2015	Combined Cycle Power Plant	Use of inherently low sulfur fuel	4.49	LB/H	
FL-0363	DANIA BEACH ENERGY CENTER	FL	12/4/2017	2-on-1 combined cycle unit (GE 7HA)	Clean fuels	0		
TX-0789	DECORDOVA STEAM ELECTRIC STATION	TX	3/8/2016	Combined Cycle & Cogeneration	GOOD COMBUSTION PRACTICES AND LOW SULFUR FUEL	5	GR/100 SCF	HOURLY
TX-0751	EAGLE MOUNTAIN STEAM ELECTRIC STATION	TX	6/18/2015	Combined Cycle Turbines (>25 MW) â€“ natural gas		40.66	LB/H	
LA-0364	FG LA COMPLEX	LA	1/6/2020	Cogeneration Units	Use of pipeline quality natural gas or fuel gas.	1.24	LB/H	
TX-0660	FGE TEXAS POWER I AND FGE TEXAS POWER II	TX	3/24/2014	Alstom Turbine	Low sulfur fuel, good combustion practices	1	GR S / 100 DSCF	HOURLY
TX-0678	FREEPORT LNG PRETREATMENT FACILITY	TX	7/16/2014	Combustion Turbine		3.68	LB/H	
*PA-0298	FUTURE POWER PA/GOOD SPRINGS NGCC FACILITY	PA	3/4/2014	Turbine, COMBINED CYCLE UNIT (Siemens 5000)		5.2	LB/H	WITH DUCT BURNER

Table E-5: Natural Gas Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for SO_2

RBLCID	FACILITY NAME	STATE	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
TX-0819	GAINES COUNTY POWER PLANT	TX	4/28/2017	Combined Cycle Turbine with Heat Recovery Steam Generator, fired Duct Burners, and Steam Turbine Generator	Pipeline quality natural gas	1.54	GR/100 DSCF	
AK-0085	GAS TREATMENT PLANT	AK	8/13/2020	Six (6) Cogeneration Gas-Fired Turbines (Treated Gas Compressor Turbines)	Good combustion practices and clean burning fuel low sulfur natural gas	96	PPMV SULFUR IN FUEL	PRIOR TO COMPLETING TREATMENT TRAINS
AK-0085	GAS TREATMENT PLANT	AK	8/13/2020	Six (6) Cogeneration Gas-Fired Turbines (CO2 Compressor Turbines))	Good combustion practices and clean burning fuel low sulfur natural gas	96	PPMV SULFUR IN FUEL	PRIOR TO COMPLETING TREATMENT TRAINS
VA-0325	GREENSVILLE POWER STATION	VA	6/17/2016	COMBUSTION TURBINE GENERATOR WITH DUCT-FIRED HEAT RECOVERY STEAM GENERATORS (3)	Low Sulfur fuel	0.0011	LB/MMBTU	DURING NORMAL OPERATION INCLUDING SU/SD
OH-0374	GUERNSEY POWER STATION LLC	OH	10/23/2017	Combined Cycle Combustion Turbines (3, identical) (P001 to P003)	pipeline quality natural gas with a maximum sulfur content not exceed 0.50 grain/100 scf	0.0015	LB/MMBTU	SEE NOTES.
OH-0377	HARRISON POWER	OH	4/19/2018	General Electric (GE) Combustion Turbines (P005 & P006)	Good combustion practices and pipeline quality natural gas	0.0017	LB/MMBTU	SEE NOTES.
OH-0377	HARRISON POWER	OH	4/19/2018	Mitsubishi Hitachi Power Systems (MHPS) Combustion Turbines (P007 & P008)	Good combustion practices and pipeline quality natural gas	0.0021	LB/MMBTU	
*MI-0445	INDECK NILES, LLC	MI	11/26/2019	FGCTGHRSG	Good combustion practices, inlet air conditioning and the use of pipeline quality natural gas.	11.7	LB/H	HOURLY; EACH CTGHRSG
MI-0423	INDECK NILES, LLC	MI	1/4/2017	FGCTGHRSG (2 Combined Cycle CTGs with HRSGs)	Good Combustion Practices and the use of pipeline quality natural gas.	11.7	LB/H	TEST PROTOCOL WILL SPECIFY AVG TIME
MD-0046	KEYS ENERGY CENTER	MD	10/31/2014	2 COMBINED-CYCLE COMBUSTION TURBINES		2.6	NG/J HEAT INPUT	AT ALL TIMES
CT-0161	KILLINGLY ENERGY CENTER	CT	6/30/2017	Natural Gas w/o Duct Firing	Low Sulfur fuel	0.0015	LB/MMBTU	
CT-0161	KILLINGLY ENERGY CENTER	CT	6/30/2017	Natural Gas w/Duct Firing	Low Sulfur Fuel	0.0015	LB/MMBTU	
IL-0133	LINCOLN LAND ENERGY CENTER	IL	7/29/2022	Combined-Cycle Combustion Turbines	Good combustion practices and use of natural gas with a sulfur content of no more than 0.5 grains (gr)/100 standard	5.5	POUNDS/HOUR	ROLLING 3-OPERATING HOUR
AK-0088	LIQUEFACTION PLANT	AK	7/7/2022	Four Combined Cycle Gas-Fired Turbines	pipeline quality natural gas and good combustion practices	16	PPMV SULFUR IN FUEL	
TX-0878	LNG EXPORT TERMINAL	TX	9/15/2022	Refrigeration Compression Turbines	Good combustion practices and use of pipeline quality natural gas	0		

Table E-5: Natural Gas Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for SO_2

RBLCID	FACILITY NAME	STATE	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
*WV-0033	MAIDSVILLE	WV	1/5/2022	Combustion Turbine & Duct Burner (CT-01/HRSG1 & CT-02/HRSG2)	Low Sulfur Fuel	0.4	GR-S/100 SCF	SEE APPENDIX D OF 40CFR75
*WV-0033	MAIDSVILLE	WV	1/5/2022	Combustion Turbine & Duct Burner (CT-01/HRSG1 & CT-02/HRSG2)	Low Sulfur Fuel	0.4	GR-S/100 SCF	SEE APPENDIX D OF 40CFR75
*IN-0365	MAPLE CREEK ENERGY LLC	IN	6/19/2023	Combined Cycle Turbine CTGA		0.0017	POUND PER MMBTU	3-HR AVERAGE
*IN-0365	MAPLE CREEK ENERGY LLC	IN	6/19/2023	Combined Cycle Turbine CTGB		0.0019	LB PER MMBTU	BASED ON 3-HR AVERAGE
MD-0045	MATTAWOMAN ENERGY CENTER	MD	11/13/2015	2 COMBINED-CYCLE COMBUSTION TURBINES		26	NG/J HEAT INPUT	AT ALL TIMES
MI-0451	MEC NORTH, LLC	MI	6/23/2022	EUCTGHRSG (North Plant): A combined cycle natural gas fired combustion turbine generator with heat recovery steam generator	Good combustion practices and the use of pipeline quality natural gas.	6.6	LB/H	HOURLY
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	MI	6/29/2018	EUCTGHRSG (South Plant): A combined cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	Good combustion practices and the use of pipeline quality natural gas.	6.6	LB/H	HOURLY
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	MI	6/29/2018	EUCTGHRSG (North Plant): A combined-cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	Good combustion practices and the use of pipeline quality natural gas.	6.6	LB/H	HOURLY
MI-0452	MEC SOUTH, LLC	MI	6/23/2022	EUCTGHRSG (South Plant): A combined-cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	Good Combustion Practices and the use of pipeline quality natural gas	6.6	LB/H	HOURLY
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	NJ	7/19/2016	Combined Cycle Combustion Turbine firing Natural Gas without Duct Burner	USE OF NATURAL GAS A CLEAN BURNING LOW SULFUR FUEL	5.62		
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	NJ	7/19/2016	Combined Cycle Combustion Turbine firing Natural Gas with Duct Burner	USE OF NATURAL GAS A LOW SULFUR FUEL CLEAN FUEL	6.64	LB/H	AV OF THREE ONE H STACK TESTS EVERY 5 YR
TX-0834	MONTGOMERY COUNTY POWER STATIOIN	TX	3/30/2018	Combined Cycle Turbine	PIPELINE QUALITY NATURAL GAS	1	GR/100 DSCF	
TX-0788	NECHES STATION	TX	3/24/2016	Combined Cycle & Cogeneration	GOOD COMBUSTION PRACTICES, LOW SULFUR FUEL	1	GR/100 SCF	HOURLY

Table E-5: Natural Gas Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for SO_2

RBLCID	FACILITY NAME	STATE	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
WI-0300	NEMADJI TRAIL ENERGY CENTER	WI	9/1/2020	Natural-Gas-Fired Combined-Cycle Turbine (P01)	Only use pipeline quality natural gas and diesel fuel, and use good combustion control	0		
MI-0432	NEW COVERT GENERATING FACILITY	MI	7/30/2018	FG-TURB/DB1-3 (3 combined cycle combustion turbine and heat recovery steam generator trains)	Use of clean fuel (natural gas) with a fuel sulfur limit of 0.8 grains per 100 standard cubic feet of natural gas.	0.8	GR/100 SCF	NAT.GAS BURNED IN FG-TURB/DB1-3
TX-0908	NEWMAN POWER STATION	TX	8/27/2021	Simple Cycle Turbine	use of natural gas	0		
FL-0356	OKEECHOBEE CLEAN ENERGY CENTER	FL	3/9/2016	Combined-cycle electric generating unit	Use of low-sulfur fuels	2	GR. S/100 SCF GAS	FOR NATURAL GAS
OH-0372	OREGON ENERGY CENTER	OH	9/27/2017	Combined Cycle Combustion Turbines (two, identical) (P001 and P002)	low sulfur fuel	5.1	LB/H	WITH DUCT BURNER. SEE NOTES.
AL-0328	PLANT BARRY	AL	11/9/2020	Two 744 MW Combined Cycle Units		0.6	GR S/100 SCF FUEL	
TX-0790	PORT ARTHUR LNG EXPORT TERMINAL	TX	2/17/2016	Simple Cycle Electrical Generation Gas Turbines 15.210	Equipment specifications & work practices - Good combustion practices and use of low carbon, low sulfur fuel	2.96	LB/H	
TX-0790	PORT ARTHUR LNG EXPORT TERMINAL	TX	2/17/2016	Refrigeration Compression Turbines	Dry low NOx burners, good combustion practices, pipeline quality sweet natural gas fuel (low sulfur fuel)	5	GR/100 SCF	
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	NJ	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITHOUT DUCT BURNER - GENERAL ELECTRIC	Use of Natural gas a low sulfur fuel	4.9	LB/H	AVERAGE OF THREE ONE-HOUR TESTS
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	NJ	3/7/2014	Combined Cycle Combustion Turbine -Siemens turbine without Duct Burner	USE OF NATURAL GAS A CLEAN BURNING FUEL	5	LB/H	AVERAGE OF THREE ONE HOUR TESTS
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	NJ	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - SIEMENS	Use of natural gas a clean burning fuel	5.1	LB/H	AVERAGE OF THREE ONE HOUR TESTS
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	NJ	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - GENERAL ELECTRIC	Use of natural gas only as a clean burning fuel	5.2	LB/H	AVERAGE OF THREE ONE HOUR TESTS
NJ-0084	PSEG FOSSIL LLC SEWAREN GENERATING STATION	NJ	3/10/2016	Combined Cycle Combustion Turbine without Duct Burner Firing Natural Gas	Use of natural gas which is low sulfur fuel	8.5	LB/H	AV OF THREE ONE H STACK TESTS
NJ-0084	PSEG FOSSIL LLC SEWAREN GENERATING STATION	NJ	3/10/2016	Combined Cycle Combustion Turbine with Duct Burner firing natural gas	use of natural gas a low sulfur fuel	10.3	LB/H	AV OF THREE ONE H STACK TESTS

Table E-5: Natural Gas Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for SO_2

RBLCID	FACILITY NAME	STATE	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
PA-0334	RENOVO ENERGY CENTER LLC/RENOVO PLT	PA	4/29/2021	COMBUSTION TURBINE w DUCT BURNER #2 (Natural Gas)	SCR, CATALYTIC OXIDIZER	0.0012	LB/MMBTU	
PA-0334	RENOVO ENERGY CENTER LLC/RENOVO PLT	PA	4/29/2021	COMBUSTION TURBINE w DUCT BURNER #1 (Natural Gas)	SCR, Catalytic Oxidizer	0.0012	LB/MMBTU	
MA-0039	SALEM HARBOR STATION REDEVELOPMENT	MA	1/30/2014	Combustion Turbine with Duct Burner		0.3	PPMVD@15% O2	1 HR AVG, DOES NOT APPLY DURING SS
FL-0367	SHADY HILLS COMBINED CYCLE FACILITY	FL	7/27/2018	1-on-1 combined cycle unit (GE 7HA)	Clean Fuels	0		
FL-0371	SHADY HILLS COMBINED CYCLE FACILITY	FL	6/7/2021	GE 7HA.02 Combustion Turbine and HRSG with Duct Firing	Low sulfur fuel	1.4	GR. S/100 SCF NG	
OH-0367	SOUTH FIELD ENERGY LLC	OH	9/23/2016	Combined Cycle Combustion Turbines (two, identical) (P001 and P002)	Low sulfur fuels	5.64	LB/H	NAT GAS, WITH DUCT BURNER. SEE NOTES.
MI-0442	THOMAS TOWNSHIP ENERGY, LLC	MI	8/21/2019	FGCTGHRSG	The use of clean fuel (natural gas), with a fuel sulfur limit of 1 grain per 100 standard cubic feet of natural gas.	0.003	LB/MMBTU	HOURLY; EACH UNIT
OH-0370	TRUMBULL ENERGY CENTER	OH	9/7/2017	Combined Cycle Combustion Turbines (two, identical) (P001 and P002)	Low sulfur fuel	5.1	LB/H	WITH DUCT BURNER. SEE NOTES.
NJ-0082	WEST DEPTFORD ENERGY STATION	NJ	7/18/2014	Combined Cycle Combustion Turbine without Duct Burner	Use of natural gas a clean burning fuel	4.94	LB/H	AVERAGE OF THREE ONE HOUR STACK TESTS
NJ-0082	WEST DEPTFORD ENERGY STATION	NJ	7/18/2014	Combined Cycle Combustion Turbine with Duct Burner	Use of natural gas a clean burning fuel	6.56	LB/H	AVERAGE OF THREE ONE HOUR TESTS
MD-0042	WILDCAT POINT GENERATION FACILITY	MD	4/8/2014	2 COMBINED CYCLE COMBUSTION TURBINES, WITHOUT DUCT FIRING	EXCLUSIVE USE OF PIPELINE QUALITY NATURAL GAS	6.3	LB/H	3-HOUR BLOCK AVERAGE
MD-0042	WILDCAT POINT GENERATION FACILITY	MD	4/8/2014	2 COMBINED CYCLE COMBUSTION TURBINES, WITH DUCT FIRING	EXCLUSIVE USE OF PIPELINE QUALITY NATURAL GAS AND EFFICIENT TURBINE DESIGN	8.2	LB/H	3-HOUR BLOCK AVERAGE

Table E-6: Natural Gas Fired Combined Cycle Combustion Turbines, Greater than 25 MW, NEEDS and EIA-860Listings for SO_2

NEEDS: Commencing Commercial Operation in Past 5 Years; EIA-860: Facilities Listed as Planned and Under Construction

STATE	FACILITY NAME	UNIT CODE	APPLICATION/PERMIT DATE	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
FL	Big Bend Station	060/061	4/10/2024		0.06	lb SO2/MMBtu	
FL	Big Bend Station	060/061	4/10/2024		0.9	lb/MWh (Gross)	Stack exhaust
FL	Big Bend Station	060/061	4/10/2024	fuel sulfur content	2	grain Sulfur/100 SCF NG	
CA	AES Huntington Beach	D115	3/14/2024		0.06	lb/MMBTU NG	No DB
CA	AES Huntington Beach	D124	3/14/2024		0.06	lb/MMBTU NG	No DB
CA	AES Huntington Beach	D115	3/14/2024		0.71	lb/MMSCF NG	No DB
CA	AES Huntington Beach	D124	3/14/2024		0.71	lb/MMSCF NG	No DB
CA	AES Huntington Beach	D115	3/14/2024	fuel sulfur content	1	grain/100 CDF	No DB
CA	AES Huntington Beach	D124	3/14/2024	fuel sulfur content	1	grain/100 CDF	No DB
CA	Alamitos Energy Center	D165/D173	4/18/2017		0.06	lb/MMBTU NG	
NC	Asheville Combined Cycle Plant	Unit 5/7	1/11/2022		0.06	lbs/MMBtu	
NC	Asheville Combined Cycle Plant	Unit 5/7	1/11/2022		1.7	grain/100 CDF	
PA	BIRDSBORO POWER LLC	PROC101	1/1/2021	Use of natural gas	0.0015	lb/MMBtu	
CT	Bridgeport Energy, LLC	Stack 5	3/24/2023		0.0006	lb/MMBtu	
CT	Bridgeport Energy, LLC	Stack 6	3/24/2023		0.0006	lb/MMBtu	24-hour rolling avg.
CT	Bridgeport Energy, LLC	Stack 5	3/24/2023	sulfur content	0.5	grain S/100 SCF	
CT	Bridgeport Energy, LLC	Stack 5	3/24/2023	sulfur content	0.5	grain S/100 SCF	

Table E-6: Natural Gas Fired Combined Cycle Combustion Turbines, Greater than 25 MW, NEEDS and EIA-860Listings for SO_2

NEEDS: Commencing Commercial Operation in Past 5 Years; EIA-860: Facilities Listed as Planned and Under Construction

STATE	FACILITY NAME	UNIT CODE	APPLICATION/PERMIT DATE	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
NY	Cricket Valley Energy	U-00001	12/5/2018		0.4	grain S/100 DSCF	
NY	Cricket Valley Energy	U-00002	12/5/2018		0.4	grain S/100 DSCF	
NY	Cricket Valley Energy	U-00003	12/5/2018		0.4	grain S/100 DSCF	
PA	Hickory Run Energy Station	CC1 and CC2	4/23/2013		7.9	lb/hr	
MN	Makato energy center	CT1 and DB1 EQUI 16/EQUI 17	2/14/2014	Natural gas as fuel	0.06	lb/MMBtu	
MN	Makato energy center	CT1 and DB1 EQUI 16/EQUI 17	2/14/2014	Natural gas as fuel	0.8	grain S/100 DSCF	
MN	Makato energy center	CT2 and DB2 EQUI 5/EQUI 6	2/14/2014	Natural gas as fuel	0.8	grain S/100 DSCF	
FL	Shady Hills Combined Cycle Facility	EU001	2/15/2023	Clean fuels	1.4	grain Sulfur/100 SCF NG	
OH	Trumbull Energy Center	P001/P002	2/5/2020	Low sulfur fuel	0.0015	lb/MMBtu	With or w/o DB
WI	West Riverside Energy Center	P20/P21	4/13/2019		0.5	grain S/100 DSCF	
WI	West Riverside Energy Center	P20/P21	4/13/2019		0.9	lb/MWh gross	

Table E-7: Distillate Oil-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for SO_2

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
NJ-0088	COGEN TECH LINDEN VENTURE LP	7/30/2019	250 MW COMBINED CYCLE COMBUSTION TURBINE FIRING ULTRA LOW SULFUR DISTILLATE OIL (ULSD)	USE OF NATURAL GAS AND ULSD; BOTH CLEAN BURNING FUELS	4.8	LB/H	AV OF THREE ONE H STACK TESTS EVERY 5 YR
CT-0157	CPV TOWANTIC, LLC	11/30/2015	Combined Cycle Power Plant	Use of inherently low sulfur fuel	4.92	LB/H	
CT-0158	CPV TOWANTIC, LLC	11/30/2015	Combined Cycle Power Plant	Use of inherently low sulfur fuel	4.92	LB/H	
CT-0161	KILLINGLY ENERGY CENTER	6/30/2017	ULSD w/o Duct Firing	Low sulfur fuel	0.0015	LB/MMBTU	
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	COMBINED CYCLE COMBUSTION TURBINE FIRING ULTRA LOW SULFUR DISTILLATE OIL	USE OF ULSD A CLEAN BURNING LOW SULFUR FUEL	6.65	LB/H	AV OF THREE ONE H STACK TESTS EVERY 5 YR
NJ-0084	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/10/2016	Combined Cycle Combustion Turbine without Duct Burner Firing ULSD	USE OF ULTRA LOW SULFUR DISTILLATE (ULSD) OIL AS FUEL	6.7	LB/H	AV OF THREE ON HOUR STACK TESTS
PA-0334	RENOVO ENERGY CENTER LLC/RENOVO PLT	4/29/2021	COMBUSTION TURBINE #2 (ULSD)	selective catalytic reduction (SCR) system, oxidation catalyst.	0.0018	LB/MMBTU	
PA-0334	RENOVO ENERGY CENTER LLC/RENOVO PLT	4/29/2021	COMBUSTION TURBINE #1 (ULSD)	SCR, Catalytic Oxidizer	0.0018	LB/MMBTU	

Table E-8: Distillate Oil-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, NEEDS and EIA-860Listings for SO_2

NEEDS: Commencing Commercial Operation in Past 5 Years; EIA-860: Facilities Listed as Planned and Under Construction

STATE	FACILITY NAME	UNIT CODE	APPLICATION/PERMIT DATE	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
NC	Asheville Combined Cycle Plant	Unit 5/7	1/11/2022		0.06	lbs/MMBtu	
MN	Makato energy center	CT2 and DB2 EQUI 5/EQUI 6	2/14/2014	Natural gas as fuel	0.05	% by weight	

Table E-9: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMINT IN PPMV	SECONDARY EMISSION LIMIT IN PPMV
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	FGCTGHRSG (EUCTGHRSG1 & EUCTGHRSG2)	Oxidation catalyst technology and good combustion practices.	0.0045	LB/MMBTU	EACH UNIT; 24-H ROLL AVG; NOT S.S.	2	2
*LA-0365	BIG CAJUN I POWER PLANT	6/27/2019	Combustion Turbine #1 (EQT0002, CTG-1)		25	PPMV	THREE HOUR ROLLING AVERAGE	25	25
*LA-0365	BIG CAJUN I POWER PLANT	6/27/2019	Combustion Turbine #2 (EQT0003, CTG-2)		25	PPMV	THREE HOUR ROLLING AVERAGE	25	25
*WV-0032	BROOKE COUNTY POWER PLANT	9/18/2018	GE 7HA.01 Turbine	Oxidation Catalyst, Good Combustion Practices	14.1	LB/HR		2	2
VA-0328	C4GT, LLC	4/26/2018	GE Combustion Turbine - Option 1 - Normal Operation	Oxidation catalyst and good combustion practices	1	PPMVD@ 15% O2	3 HR AV/WITHOUT DB	1	1.6
VA-0328	C4GT, LLC	4/26/2018	Siemens Combusion Turbine - Option 2 - Normal Operation	Oxidation catalyst & good combustion practice	1.8	PPMVD @ 15% O2	3 H AV/WITH OR WITHOUT DB	1.8	1.8
LA-0331	CALCASIEU PASS LNG PROJECT	9/21/2018	Combined Cycle Combustion Turbines (CCCT1 to CCCT5)	Oxidation Catalyst, Proper Design, Good Combustion Practices.	5	PPMV	30 DAY ROLLING AVERAGE	5	5
TX-0727	CEDAR BAYOU ELECTRIC GENERATING STATION	3/31/2015	Combined cycle turbines	Oxidation catalysts	15	PPMVD	15%O2	15	15
TX-0689	CEDAR BAYOU ELECTRIC GENERATION STATION	8/29/2014	Combined cycle natural gas turbines	OC	2	PPM	ROLLING 12 MONTHS	2	2
VA-0332	CHICKAHOMINY POWER LLC	6/24/2019	Three (3) Mitsubishi Hitachi Power Systems combustion turbine generators	Controlled by an oxidation catalyst and good combustion practices (e.g. controlled fuel/air mixing, adequate temperature, and gas residence time).	1	PPMVD @ 15% O2	3 HR AVG	1	NA
OH-0366	CLEAN ENERGY FUTURE - LORDSTOWN, LLC	8/25/2015	Combined Cycle Combustion Turbines (two, identical) (P001 and P002)	Good combustion controls and oxidation catalyst	14.3	LB/H	WITH DUCT BURNER. SEE NOTES.	2	2
NJ-0088	COGEN TECH LINDEN VENTURE LP	7/30/2019	250 MW COMBINED CYCLE COMBUSTION TURBINE FIRING NATURAL GAS	Oxidation catalyst and use of clean burning fuels, natural gas and ULSD	11.1	LB/H	AV OF THREE ONE H STACK TESTS EVERY 5 YR	2	2
TX-0730	COLORADO BEND ENERGY CENTER	4/1/2015	Combined-cycle gas turbine electric generating facility	SCR and oxidation catalyst	4	PPMVD @ 15% O2	3-HR AVERAGE	4	4
TX-0672	CORPUS CHRISTI LIQUEFACTION PLANT	9/12/2014	Refrigeration compressor turbines	dry low emission combustors	29	PPMVD	@15% O2, 4 HOUR ROLLING AVERAGE	29	29
PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Combustion turbine and HRSG with duct burner NG only	Oxidation catalyst operated at all steady state operating loads and good combustion practices	2	PPMDV @ 15% O2		2	2
MD-0041	CPV ST. CHARLES	4/23/2014	2 COMBINED-CYCLE COMBUSTION TURBINES	OXIDATION CATALYST AND GOOD COMBUSTION PRACTICES	2	PPMVD @ 15% O2	3-HOUR BLOCK AVERAGE, EXCLUDING SU/SD	2	2
IL-0129	CPV THREE RIVERS ENERGY CENTER	7/30/2018	Combined Cycle Combustion Turbines	Oxidation catalyst	2	PPMV @ 15 % O2	3 OPERATING-HOUR, ROLLED HOURLY, AVERAGE	2	2
CT-0157	CPV TOWANTIC, LLC	11/30/2015	Combined Cycle Power Plant	Oxidation Catalyst	0.9	PPMVD @15% O2	1 HR BLOCK	0.9	1.7
CT-0158	CPV TOWANTIC, LLC	11/30/2015	Combined Cycle Power Plant	Oxidation Catalyst	0.9	PPMVD @15% O2	1 HR BLOCK	0.9	1.7

Table E-9: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMINT IN PPMV	SECONDARY EMISSION LIMIT IN PPMV
FL-0363	DANIA BEACH ENERGY CENTER	12/4/2017	2-on-1 combined cycle unit (GE 7HA)	Clean burning fuel with lean pre-mix turbines	4.3	PPMVD@15% O2	AT LOADS > 90%	4.3	4.3
TX-0789	DECORDOVA STEAM ELECTRIC STATION	3/8/2016	Combined Cycle & Cogeneration	OXIDATION CATALYST	4	PPM		4	4
TX-0751	EAGLE MOUNTAIN STEAM ELECTRIC STATION	6/18/2015	Combined Cycle Turbines (>25 MW) â€“ natural gas	Oxidation catalyst	2	PPM	ROLLING 24-HR AVERAGE	2	2
PA-0333	ESC TIOGA COUNTY POWER LLC/ELEC PWR GEN FAC	8/20/2019	COMBUSTION TURBINE/DUCT BURNER		1.5	PPMVD	@ 15% O2 / 1 HR	1.5	1.5
LA-0364	FG LA COMPLEX	1/6/2020	Cogeneration Units	Good combustion practices and catalytic oxidation	4	PPMVD		4	4
TX-0773	FGE EAGLE PINES PROJECT	11/4/2015	Combined Cycle Turbines (>25 MW)	Oxidation Catalyst	2	PPM	3-HR AVERAGE	2	2
TX-0660	FGE TEXAS POWER I AND FGE TEXAS POWER II	3/24/2014	Alstom Turbine	Oxidation catalyst	2	PPMVD	CORRECTED TO 15% O2, ROLLING 3 HR AVE	2	2
MI-0427	FILER CITY STATION	11/17/2017	EUCCT (Combined cycle CTG with unfired HRSG)	Oxidation catalyst technology and good combustion practices.	4	PPM	24-H ROLL.AVG., EXCEPT STARTUP/SHUTDOWN	4	4
TX-0678	FREEPORT LNG PRETREATMENT FACILITY	7/16/2014	Combustion Turbine	oxidation catalyst	4	PPMVD	@15% O2, 3 HOUR ROLLING AVERAGE	4	4
*PA-0298	FUTURE POWER PA/GOOD SPRINGS NGCC FACILITY	3/4/2014	Turbine, COMBINED CYCLE UNIT (Siemens 5000)	CO Catalyst	3	PPMVD	@ 15% OXYGEN	3	3
TX-0819	GAINES COUNTY POWER PLANT	4/28/2017	Combined Cycle Turbine with Heat Recovery Steam Generator, fired Duct Burners, and Steam Turbine	Selective Catalytic Reduction (SCR) and Dry Low NOx burners	2	PPMVD	15% O2 3-H AVG	2	2
AK-0085	GAS TREATMENT PLANT	8/13/2020	Six (6) Cogeneration Gas-Fired Turbines (Treated Gas Compressor Turbines)	Oxidation catalyst and good combustion practices	5	PPMV @ 15% O2	3-HOUR AVERAGE	5	5
AK-0085	GAS TREATMENT PLANT	8/13/2020	Six (6) Cogeneration Gas-Fired Turbines (CO2 Compressor Turbines))	Oxidation catalyst and good combustion control practices	5	PPMV @ 15% O2	3-HOUR AVERAGE	5	5
VA-0325	GREENSVILLE POWER STATION	6/17/2016	COMBUSTION TURBINE GENERATOR WITH DUCT-FIRED HEAT RECOVERY STEAM GENERATORS (3)	Oxidation Catalyst	1.6	PPMVD	3 HR AVG	1	1.6
OH-0374	GUERNSEY POWER STATION LLC	10/23/2017	Combined Cycle Combustion Turbines (3, identical) (P001 to P003)	oxidation catalyst and good combustion practices as recommended by the manufacturer	20.76	LB/H	WITH DUCT BURNER. SEE NOTES.	2	2
*WV-0029	HARRISON COUNTY POWER PLANT	3/27/2018	GE 7HA.02 Turbine	Oxidation Catalyst, Good Combustion Practices	20	LB/HR	1-HOUR AVERAGE	2	2
OH-0377	HARRISON POWER	4/19/2018	General Electric (GE) Combustion Turbines (P005 & P006)	Good combustion practices and oxidation catalyst	17.9	LB/H	WITH DUCT BURNER. SEE NOTES.	2	2
OH-0377	HARRISON POWER	4/19/2018	Mitsubishi Hitachi Power Systems (MHPS) Combustion Turbines (P007 & P008)	Good combustion practices and oxidation catalyst	17.1	LB/H	WITH DUCT BURNER. SEE NOTES.	2	2
*PA-0315	HILLTOP ENERGY CENTER, LLC	4/12/2017	Combustion Turbine without Duct Burner	Oxidation Catalyst	2	PPMDV	CORRECTED TO 15% O2	2	2

Table E-9: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMINT IN PPMV	SECONDARY EMISSION LIMIT IN PPMV
MI-0424	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/5/2016	FGCTGHRSG (2 Combined cycle CTGs with HRSGs; EUCTGHRSG10 & EUCTGHRSG11)	Oxidation catalyst technology and good combustion practices.	4	PPM	EACH EU; 24-H ROLL AVG EXCEPT	4	4
*MI-0445	INDECK NILES, LLC	11/26/2019	FGCTGHRSG	Oxidation catalyst technology and good combustion practices.	4	PPM	PPMVD @15% O2. 24HR ROLL AVG EXCEPT SS	4	4
IL-0130	JACKSON ENERGY CENTER	12/31/2018	Combined-Cycle Combustion Turbine	Oxidation catalyst	2	PPMV	3 OPERATING HOUR AVERAGE @ 15% O2	2	2
TN-0162	JOHNSONVILLE COGENERATION	4/19/2016	Natural Gas-Fired Combustion Turbine with HRSG	Good combustion design and practices, oxidation catalyst	2	PPMVD @ 15% O2	30 UNIT-OPERATING-DAY MOVING AVERAGE	2	2
MD-0046	KEYS ENERGY CENTER	10/31/2014	2 COMBINED-CYCLE COMBUSTION TURBINES	GOOD COMBUSTION PRACTICES AND OXIDATION CATALYST	2	PPMVD @ 15% O2	3-HOUR BLOCK AVERAGE	2	2
CT-0161	KILLINGLY ENERGY CENTER	6/30/2017	Natural Gas w/o Duct Firing	Oxidation Catalyst	0.9	PPMVD @15% O2	1 HOUR BLOCK	0.9	See below
CT-0161	KILLINGLY ENERGY CENTER	6/30/2017	Natural Gas w/Duct Firing	Oxidation Catalyst	1.7	LB/MMBTU	1 HOUR BLOCK	See above	757
PA-0309	LACKAWANNA ENERGY CTR/JESSUP	12/23/2015	Combustion turbine with duct burner	Oxidation catalyst, combustion controls, exclusive natural gas	2	PPMDV @ 15 % O2		2	2
MI-0454	LBWL-ERICKSON STATION	12/20/2022	EUCTGHRSG1	An oxidation catalyst for CO control for each CTG/HRSG unit, good combustion practices.	9	LB/H	HOURLY EXCEPT DURING SU/SD	4	4
MI-0454	LBWL-ERICKSON STATION	12/20/2022	EUCTGHRSG2	An oxidation catalyst for CO control for each CTG/HRSG unit, good combustion practices.	4	PPM	PPMVD AT 15%O2; 24-HR ROLL AVG EXC SU/SD	4	4
MI-0441	LBWL--ERICKSON STATION	12/21/2018	EUCTGHRSG2--A 667 MMBTU/H natural gas fired CTG with a HRSG.	An oxidation catalyst for CO control for each CTG/HRSG unit, good combustion practices.	4	PPM	PPMVD@15%O2; 24-H AVG; SEE NOTES	4	4
MI-0441	LBWL--ERICKSON STATION	12/21/2018	EUCTGHRSG1--A 667 MMBTU/H NG fired combustion turbine generator coupled with a heat recovery steam generator (HRSG)	An oxidation catalyst for CO control for each CTG/HRSG unit; good combustion practices.	4	PPM	PPMVD@15%O2;24-H ROLL AVG; SEE NOTES	4	4
MI-0447	LBWL--ERICKSON STATION	1/7/2021	EUCTGHRSG1	An oxidation catalyst for CO control for each CTG/HRSG unit, good combustion practices.	4	PPM	24-HR ROLL AVG EXCEPT STARTUP/SHUTDOWN	4	4
MI-0447	LBWL--ERICKSON STATION	1/7/2021	EUCTGHRSG2	An oxidation catalyst for CO control for each CTG/HRSG unit, good combustion practices.	4	PPM	24-HR ROLL AVG EXCEPT STARTUP/SHUTDOWN	4	4
IL-0133	LINCOLN LAND ENERGY CENTER	7/29/2022	Combined-Cycle Combustion Turbines	Oxidation catalyst and good combustion practices	1.5	PPMV @ 15% O2	TURBINE LOAD > OR = 60% W/O DUCT BURNERS	1.5	1.8
AK-0088	LIQUEFACTION PLANT	7/7/2022	Four Combined Cycle Gas-Fired Turbines	Oxidation Catalyst and good combustion practices	2	PPMV @ 15% O2	3-HOURS	2	2
TX-0878	LNG EXPORT TERMINAL	9/15/2022	Refrigeration Compression Turbines	good combustion practices.	25	PPM	24-HR AVG	25	25
TX-0767	LON C. HILL POWER STATION	10/2/2015	Combined Cycle Turbines (>25 MW)	Oxidation Catalyst	2	PPM	ROLLING 24-HR AVERAGE	2	2

Table E-9: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMINT IN PPMV	SECONDARY EMISSION LIMIT IN PPMV
OH-0375	LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER	11/7/2017	General Electric Combustion Turbine (P004)	Oxidation catalyst and good combustion practices as recommended by the manufacturer.	15.9	LB/H	EXCEPT STARTUP AND SHUTDOWN. SEE NOTES	2	2
OH-0375	LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER	11/7/2017	Mitsubishi Combustion Turbine (P005)	oxidation catalyst and shall operate the emissions unit in accordance with good combustion practices as recommended by the manufacturer	15.3	LB/H	WITH DUCT BURNER. SEE NOTES.	2	2
OH-0375	LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER	11/7/2017	Siemens Combustion Turbine (P006)	oxidation catalyst and shall operate the emissions unit in accordance with good combustion practices as recommended by the manufacturer	16.5	LB/H	WITH DUCT BURNER. SEE NOTES.	2	2
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Combined Cycle Gas Turbine w/ Duct Burners and HRSG	Catalytic oxidation and good combustion practices.	2	PPMVD	24-HR ROLLING AVG BASED ON 1-HR AVG	2	2
*WV-0033	MAIDSVILLE	1/5/2022	Combustion Turbine & Duct Burner (CT-01/HRSG1 & CT-02/HRSG2)	Good Combustion Practices and OxCat	2	PPMDV @ 15% O2	3-HOUR BLOCK AVERAGE	2	2
*WV-0033	MAIDSVILLE	1/5/2022	Combustion Turbine & Duct Burner (CT-01/HRSG1 & CT-02/HRSG2)	Good Combustion Practices and Oxidation catalyst	2	PPMDV @ 15% O2	3-HOUR BLOCK AVERAGE	2	2
*IN-0365	MAPLE CREEK ENERGY LLC	6/19/2023	Combined Cycle Turbine CTGB	oxidation catalyst	2	PPMVD	@ 15% O2 BASED ON A 3-HR AVERAGE	2	2
*IN-0365	MAPLE CREEK ENERGY LLC	6/19/2023	Combined Cycle Turbine CTGA	Oxidation catalyst	2	PPMVD	15% O2 BASED ON A 3-HR AVERAGE	2	2
IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014	Combustion turbine #1 - combined cycle	catalytic oxidizer	2	PPM	30-DAY ROLLING AVG. @15% O2	2	NA
IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014	Combustion turbine #2 -combined cycle	CO catalyst	2	PPM	30-DAY ROLLING AVERAGE	2	NA
MD-0045	MATTAWOMAN ENERGY CENTER	11/13/2015	2 COMBINED-CYCLE COMBUSTION TURBINES	GOOD COMBUSTION PRACTICES AND OXIDATION CATALYST	2	PPMVD @ 15% O2	3-HOUR BLOCK AVERAGE (EXCLUDING SU/SD)	2	2
MI-0451	MEC NORTH, LLC	6/23/2022	EUCTGHRSG (North Plant): A combined cycle natural gas fired combustion turbine generator with heat recovery steam generator	Oxidation catalyst technology and good combustion practices.	2	PPM	24-HR ROLLING AVG	2	2
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUCTGHRSG (South Plant): A combined cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	Oxidation catalyst technology and good combustion practices.	4	PPMV	AT 15%O2; 240HR ROLL AVG; NOT S.S.	4	4
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUCTGHRSG (North Plant): A combined-cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	Oxidation catalyst technology and good combustion practices.	4	PPMVD	AT 15%O2; 24-H ROLL AVG; NOT INCL ST/SH	4	4
MI-0452	MEC SOUTH, LLC	6/23/2022	EUCTGHRSG (South Plant): A combined-cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	Oxidation Catalyst Technology and Good Combustion Practices	2	PPM	24-HR ROLLING AVG	2	2

Table E-9: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMINT IN PPMV	SECONDARY EMISSION LIMIT IN PPMV
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	Combined Cycle Combustion Turbine firing Natural Gas without Duct Burner	OXIDATION CATALYST AND GOOD COMBUSTION PRACTICES	2	PPMVD@15% O2	3 H ROLLING AV BASED ON ONE H BLOCK AV	2	NA
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	Combined Cycle Combustion Turbine firing Natural Gas with Duct Burner	Oxidation Catalyst and good combustion practices	2	PPMVD@15%O2	3 H ROLLING AV BASED ON ONE H BLOCK AV	NA	2
MI-0455	MIDLAND COGENERATION VENTURE LIMITED PARTNERSHIP	2/1/2023	EUCTGHRSG1	Oxidation catalyst	2	PPM	PPMVD AT 15%O2; 24-HR ROLL AVG EXC SU/SD	2	2
TX-0834	MONTGOMERY COUNTY POWER STATIOIN	3/30/2018	Combined Cycle Turbine	OXIDATION CATALYST	2	PPMVD	15% O2 3 HOUR AVERAGE	2	2
WV-0025	MOUNDSVILLE COMBINED CYCLE POWER PLANT	11/21/2014	Combined Cycle Turbine/Duct Burner	Oxidation Catalyst + Combustion Controls	9.2	LB/H		2	2
PA-0311	MOXIE FREEDOM GENERATION PLANT	9/1/2015	Combustion Turbine without Duct Burner	Oxidation catalyst, good engineering practice	2	PPMDV @ 15% O2		2	NA
PA-0311	MOXIE FREEDOM GENERATION PLANT	9/1/2015	Combustion Turbine With Duct Burner	Oxidation catalyst and good combustion practices	2	PPMDV @ 15% O2		NA	2
TX-0788	NECHES STATION	3/24/2016	Combined Cycle & Cogeneration	OXIDATION CATALYST	4	PPM	HOURLY	2	2
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Natural-Gas-Fired Combined-Cycle Turbine (P01)	Oxidation Catalyst and good combustion controls	1.5	PPM AT 15% O2	168-HR ROLLING AVG., NATURAL GAS	1.5	1.5
MI-0432	NEW COVERT GENERATING FACILITY	7/30/2018	FG-TURB/DB1-3 (3 combined cycle combustion turbine and heat recovery steam generator trains)	Oxidation catalyst technology and good combustion practices.	2	PPMVD	EACH CT/HRSG TRAIN; 24-HR ROLL AVG	2	2
TX-0908	NEWMAN POWER STATION	8/27/2021	Simple Cycle Turbine	Oxidation catalyst	3	PPMVD		3	3
OH-0363	NTE OHIO, LLC	11/5/2014	Turbine generator with HRSG and duct burners (P001)	Used of natural gas, combustion controls, and catalytic oxidation	16.8	LB/H	WITH DUCT BURNER. SEE NOTES.	2	2
FL-0356	OKEECHOBEE CLEAN ENERGY CENTER	3/9/2016	Combined-cycle electric generating unit	Clean burners that prevent CO formation	4.3	PPMVD@15% O2	3-HR AVERAGE, NATURAL GAS OPERATION	4.3	4.3
TX-0939	ORANGE COUNTY ADVANCED POWER STATION	3/13/2023	Combined Cycle Turbines	Oxidation Catalyst and good combustion practices	2	PPMVD	15% O2 24-HR AVERAGE	2	2
OH-0372	OREGON ENERGY CENTER	9/27/2017	Combined Cycle Combustion Turbines (two, identical) (P001 and P002)	oxidation catalyst and good combustion control	15.5	LB/H	WITH DUCT BURNER. SEE NOTES.	2	2
CA-1251	PALMDALE ENERGY PROJECT	4/25/2018	Combustion Turbines (GEN1 and GEN2)	Oxidation Catalyst	1.5	PPM @ 15% O2	1-HR, DEMO LIMIT, W/O DUCT FIRING	1.5	2
*VA-0335	PANDA STONEWALL LLC	12/18/2020	Combustion Turbines, Two (2) and HRSG Duct Burners	Catalytic Oxidizer	2	PPMVD @ 15% O2	NORMAL OPERATION W & W/O DUCT BURNING	2	2

Table E-9: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMINT IN PPMV	SECONDARY EMISSION LIMIT IN PPMV
AL-0328	PLANT BARRY	11/9/2020	Two 744 MW Combined Cycle Units	Oxidation Catalyst	23.8	LB/HR	3 HOUR AVG	2	2
TX-0790	PORT ARTHUR LNG EXPORT TERMINAL	2/17/2016	Simple Cycle Electrical Generation Gas Turbines 15.210	OXIDATION CATALYST	9	PPM	ROLLING 3-HR AVERAGE	9	9
TX-0790	PORT ARTHUR LNG EXPORT TERMINAL	2/17/2016	Refrigeration Compression Turbines	Dry low NOx burners and good combustion practices	25	PPM	ROLLING 3-HR AVERAGE	25	25
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	Combined Cycle Combustion Turbine - Siemens turbine without Duct Burner	CO Oxidation Catalyst and Good Combustion Practices and use of Natural gas as a clean burning fuel	2	PPMVD@15% O2	3-HR ROLLING AVE BASED ON 1-HR BLOCK	2	2
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - SIEMENS	Oxidation catalyst and use of only natural gas a clean burning fuel	2	PPMVD	3-HR ROLLING AVE BASED ON 1-HR BLOCK AVE	2	2
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - GENERAL ELECTRIC	CO Oxidation catalyst and good combustion practices and use of natural gas only as a clean burning fuel	2	PPMVD@15%O2	3-HR ROLLING AVERAGE BASED ON 1-HR BLOCK	2	2
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITHOUT DUCT BURNER - GENERAL ELECTRIC	CO Oxidation Catalyst and Good Combustion Practices and use of Natural gas as a clean burning fuel	2	PPMVD@15%O2	3-HR ROLLING AVE BASED ON 1-HR BLOCK	2	2
NJ-0084	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/10/2016	Combined Cycle Combustion Turbine with Duct Burner firing natural gas	Oxidation Catalyst and good combustion practices	2	PPMVD@15%O2	3 H ROLLING AV BASED ON ONE H	2	2
NJ-0084	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/10/2016	Combined Cycle Combustion Turbine without Duct Burner Firing Natural Gas	OXIDATION CATALYST AND GOOD COMBUSTION PRACTICES	2	PPMVD@15%O2	3 H ROLLING AV BASED ON ONE H	2	2
OK-0169	PSO COMANCHE POWER STATION	10/8/2015	COMBINED CYCLE COMBUSTION TURBINE	Controlled Startup and Shutdown procedures with respect to Dry Low NOx Burners.	0.0785	LB/MMBTU	3-HR AVG NORMAL OPERATION	35	35
*PA-0319	RENAISSANCE ENERGY CENTER	8/27/2018	COMBUSTION TURBINE UNIT w/o DUCT BURNERS UNIT	Oxidation Catalyst	2	PPPDV	@15% O2	2	2
PA-0334	RENOVO ENERGY CENTER LLC/RENOVO PLT	4/29/2021	COMBUSTION TURBINE w DUCT BURNER #2 (Natural Gas)	SCR, CATALYTIC OXIDIZER	1.5	PPMVD	@ 15% O2 / 1 HR	1.5	1.5
PA-0334	RENOVO ENERGY CENTER LLC/RENOVO PLT	4/29/2021	COMBUSTION TURBINE w DUCT BURNER #1 (Natural Gas)	SCR, Catalytic Oxidizer	1.5	PPMVD	@ 15% O2 / 1 HR	1.5	1.5
OH-0365	ROLLING HILLS GENERATING, LLC	5/20/2015	Combustion Turbines, Scenario 1 (4, identical) (P001, P002, P004, P005)	Oxidation catalyst	10.4	LB/H	WITHOUT DUCT BURNERS. SEE NOTES.	2	2
OH-0365	ROLLING HILLS GENERATING, LLC	5/20/2015	Combustion Turbines, Scenario 2 (4, identical) (P001, P002, P004, P005)	Oxidation catalyst	12	LB/H	WITH DUCT BURNER. SEE NOTES.	2	2
TX-0714	S R BERTRON ELECTRIC GENERATING STATION	12/19/2014	(2) combined cycle turbines	oxidation catalyst	4	PPMVD	@15% O2, ONE HOUR	2	2
MA-0039	SALEM HARBOR STATION REDEVELOPMENT	1/30/2014	Combustion Turbine with Duct Burner	oxidation catalyst	2	PPMVD@15% O2	1 HR AVG, DOES NOT APPLY DURING SS	2	2
FL-0367	SHADY HILLS COMBINED CYCLE FACILITY	7/27/2018	1-on-1 combined cycle unit (GE 7HA)	Clean burning fuel with good combustion practices	4.3	PPMVD @15% O2	(TURBINE LOADS â‰¥ 90%); THREE 1-HR RUNS	4.3	6.5

Table E-9: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMINT IN PPMV	SECONDARY EMISSION LIMIT IN PPMV
FL-0371	SHADY HILLS COMBINED CYCLE FACILITY	6/7/2021	GE 7HA.02 Combustion Turbine and HRSG with Duct Firing	Clean burning fuel with good combustion practices	4.3	PPMVD AT 15% O2	(TURBINE LOADS â‰¥ 90%); THREE 1-HR	4.3	6.5
OH-0367	SOUTH FIELD ENERGY LLC	9/23/2016	Combined Cycle Combustion Turbines (two, identical) (P001 and P002)	Good combustion controls and oxidation catalyst	18.57	LB/H	WITH DUCT BURNER. SEE NOTES.	2	2
LA-0313	ST. CHARLES POWER STATION	8/31/2016	SCPS Combined Cycle Unit 1A	Catalytic Oxidation and good combustion practices during normal operations, and good combustion practices during startup/shutdown operations.	125.21	LB/H	HOURLY MAXIMUM	2	2
LA-0313	ST. CHARLES POWER STATION	8/31/2016	SCPS Combined Cycle Unit 1B	Catalytic oxidation and good combustion practices during normal operations, and good combustion practices during startup/shutdown operations.	125.21	LB/H	HOURLY MAXIMUM	2	2
TX-0713	TENASKA BROWNSVILLE GENERATING STATION	4/29/2014	(2) combined cycle turbines	oxidation catalyst	2	PPMVD	@15% O2, 24-HR ROLLING AVERAGE	2	2
PA-0306	TENASKA PA PARTNERS/WESTMORELAND GEN FAC	2/12/2016	Large combustion turbine	Oxidation Catalyst and good combustion practice	15.9	LB/HR	3 HR AVERAGE	NA	NA
MI-0442	THOMAS TOWNSHIP ENERGY, LLC	8/21/2019	FGCTGHRSG	Oxidation catalyst and good combustion practices	2	PPM	PPMVD; EACH UNIT; 24-HR AVG, NO START/SH	2	2
TX-0712	TRINIDAD GENERATING FACILITY	11/20/2014	combined cycle turbine	oxidation catalyst	4	PPMVD	@15% O2, 24-HR ROLLING AVERAGE	4	4
OR-0050	TROUTDALE ENERGY CENTER, LLC	3/5/2014	Mitsubishi M501-GAC combustion turbine, combined cycle configuration with duct burner.	Oxidation catalyst; Limit the time in startup or shutdown.	3.3	PPMDV AT 15% O2	3-HR ROLLING AVERAGE ON NG	3.3	3.3
OH-0370	TRUMBULL ENERGY CENTER	9/7/2017	Combined Cycle Combustion Turbines (two, identical) (P001 and P002)	Good combustion controls and oxidation catalyst	15.5	LB/H	WITH DUCT BURNER. SEE NOTES.	2	2
*TN-0164	TVA - JOHNSONVILLE COGENERATION	2/1/2018	Dual-fuel CT and HRSG with duct burner	Oxidation catalyst, good combustion design & practice	2	PPMVD @ 15% O2	30-DAY AVG WHEN BURNING NATURAL GAS	2	2
TX-0915	UNIT 5	3/17/2021	COMBINED CYCLE TURBINE	OXIDATION CATALYST	4	PPMVD	3-HR ROLLING	4	4
TX-0710	VICTORIA POWER STATION	12/1/2014	combined cycle turbine	oxidation catalyst	4	PPMVD	@15% O2, 3-HR ROLLING AVERAGE	4	4
NJ-0082	WEST DEPTFORD ENERGY STATION	7/18/2014	Combined Cycle Combustion Turbine without Duct Burner	Oxidation Catalyst and Use of Natural gas a clean burning fuel	0.9	PPMVD@15%O2	3-HR ROLLING AVE BASED ON 1-HR BLOCK	0.9	See Below
NJ-0082	WEST DEPTFORD ENERGY STATION	7/18/2014	Combined Cycle Combustion Turbine with Duct Burner	Oxidation catalyst and use of natural gas a clean burning fuel	1.5	PPMVD@15%O2	3-HR ROLLING AVE BASED ON 1-HR BLOCK	See above	1.5
TX-0687	WEST PLANT AND EAST PLANT CENTRAL HEAT AND POWER	10/13/2014	Two Combustion Turbine-Generators	Good combustion practices	50	PPM	15% O2, 24HR ROLLING AVG.	50	50

Table E-9: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMINT IN PPMV	SECONDARY EMISSION LIMIT IN PPMV
MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	2 COMBINED CYCLE COMBUSTION TURBINES, WITHOUT DUCT FIRING	EXCLUSIVE USE OF PIPELINE QUALITY NATURAL GAS, USE OF AN OXIDATION CATALYST AND EFFICIENT CT DESIGN	1.5	PPMVD @ 15% O2	3-HOUR BLOCK AVERAGE, EXCLUDING SU/SD	1.5	No DB
WI-0306	WPL- RIVERSIDE ENERGY CENTER	2/28/2020	Natural Gas Fired Combustion Turbine (P20, P21) Phase II Commissioning		150	PPMVD, 15% OXYGEN	AVG. ANY 24-HR OPERATIONAL PERIOD	150	150
WI-0306	WPL- RIVERSIDE ENERGY CENTER	2/28/2020	Natural Gas Fired Combustion Turbine (P20, P21) Phase I Commissioning		1750	PPMVD, 15% OXYGEN	AVG. ANY 24-HR OPERATIONAL	1750	1750
PA-0307	YORK ENERGY CENTER BLOCK 2 ELECTRICITY GENERATION PROJECT	6/15/2015	Two Combine Cycle Combustion Turbine with Duct Burner	Oxidation catalyst and good combustion practices	2	PPMDV @ 15% O2		2	2

Table E-10: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, NEEDS and EIA-860Listings for CO

NEEDS: Commencing Commercial Operation in Past 5 Years; EIA-860: Facilities Listed as Planned and Under Construction

STATE	FACILITY NAME	UNIT CODE	APPLICATION/PERMIT DATE	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN PPMVD
LA	Magnolia Power	CCGT-1 (EQTT001)	5/23/2024	Catalytic Oxidation and Good combustion practices	2	PPMVD @ 15% O2	3-hour average	2
FL	Shady Hills Combined Cycle Facility	EU001	2/15/2023	Combustion design and good opeating practices	4.3	PPMVD @ 15% O2	Three 1-hour runs loads>=90%	4.3
FL	Shady Hills Combined Cycle Facility	EU001	2/15/2023	Combustion design and good opeating practices	6.5	PPMVD @ 15% O2	Three 1-hour runs When duct firing	6.5
FL	Shady Hills Combined Cycle Facility	EU001	2/15/2023	Combustion design and good opeating practices	7.1	PPMVD @ 15% O2	Three 1-hour runs loads<90%	7.1
OH	Trumbull Energy Center	P001/P002	2/5/2020	Good combustion controls and oxidation catalys	2	PPMVD @ 15% O2	With or w/o DB	2
CA	AES Huntington Beach	D115	3/14/2024	Oxidation Catalyst	1.5	PPMVD @ 15% O2	1-hour average No DB	No DB
CA	AES Huntington Beach	D124	3/14/2024	Oxidation Catalyst	1.5	PPMVD @ 15% O2	1-hour average No DB	No DB
CA	AES Huntington Beach	D115	3/14/2024		2000	PPMVD @ 15% O2		2000
CA	AES Huntington Beach	D124	3/14/2024		2000	PPMVD @ 15% O2		2000
CA	Alamitos Energy Center	D165/D173	4/18/2017	Oxidation Catalyst	1.5	PPMVD @ 15% O2	1-hour average No DB	No DB
NC	Asheville Combined Cycle Plant	Unit 5/7	1/11/2022	Oxidation Catalyst	260	tpy		
PA	BIRDSBORO POWER LLC	PROC101	1/1/2021	Oxidation Catalyst	2	PPMVD @ 15% O2	3-hour block average	2
CT	Bridgeport Energy, LLC	Stack 5	3/24/2023	Oxidation Catalyst	10	PPMVD @ 15% O2	1 hour block	10
CT	Bridgeport Energy, LLC	Stack 6	3/24/2023	Oxidation Catalyst	10	PPMVD @ 15% O2		10
NY	Cricket Valley Energy	U-00001	12/5/2018	Oxidation Catalyst	2	PPMVD @ 15% O2	1 hour avg	2
NY	Cricket Valley Energy	U-00002	12/5/2018	Oxidation Catalyst	2	PPMVD @ 15% O2	1 hour avg	2

Table E-10: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, NEEDS and EIA-860Listings for CO

NEEDS: Commencing Commercial Operation in Past 5 Years; EIA-860: Facilities Listed as Planned and Under Construction

STATE	FACILITY NAME	UNIT CODE	APPLICATION/PERMIT DATE	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN PPMVD
NY	Cricket Valley Energy	U-00003	12/5/2018	Oxidation Catalyst	2	PPMVD @ 15% O2	1 hour avg	2
PA	Hickory Run Energy Station	CC1 and CC2	4/23/2013	Oxidation Catalyst	2	PPMVD @ 15% O2		2
MN	Makato energy center	CT1 and DB1 EQUI 16/EQUI 17	2/14/2014	Oxidation Catalyst	4	PPMVD @ 15% O2	3 hour rolling avg for NG and capacity >=90% (normal baseload)	4
MN	Makato energy center	CT1 and DB1 EQUI 16/EQUI 17	2/14/2014	Oxidation Catalyst	4.7	PPMVD @ 15% O2	3 hour rolling avg for NG and capacity >=60% and <90% (below basedload)	4.7
MN	Makato energy center	CT2 and DB2 EQUI 5/EQUI 6	2/14/2014	Oxidation Catalyst	4.7	PPMVD @ 15% O2	3 hour rolling avg for NG and capacity >=90% (normal baseload)	4.7
MN	Makato energy center	CT2 and DB2 EQUI 5/EQUI 6	2/14/2014	Oxidation Catalyst	4.8	PPMVD @ 15% O2	3 hour rolling avg for NG and capacity >=60% and <90% (below basedload)	4.8
MS	R D Morrow Sr Generating Plant	AA-012/AA-13	12/20/2019	Oxidation Catalyst	2	PPMVD @ 15% O2	3 hour avg.	2
MS	R D Morrow Sr Generating Plant	AA-012/AA-13	12/20/2019	Oxidation Catalyst	18.2	lb/hr		
MS	R D Morrow Sr Generating Plant	AA-012/AA-13	12/20/2019	Oxidation Catalyst	1502	tpy	including SUSD	NA
WI	West Riverside Energy Center	P20/P21	4/13/2019	complete and efficient combustion	2	PPMVD @ 15% O2	avg 30 consecutive operating days	2

Table E-11: Distillate Oil-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMINT IN PPMV
NJ-0088	COGEN TECH LINDEN VENTURE LP	7/30/2019	250 MW COMBINED CYCLE COMBUSTION TURBINE FIRING ULTRA LOW SULFUR DISTILLATE OIL (ULSD)	Oxidation Catalyst and use of clean burning fuels	18.4	LB/H	AV OF THREE ONE H STACK TESTS EVERY 5 YR	3
CT-0157	CPV TOWANTIC, LLC	11/30/2015	Combined Cycle Power Plant	Oxidation Catalyst	2	PPMVD @15% O2	1 HR BLOCK	2
CT-0158	CPV TOWANTIC, LLC	11/30/2015	Combined Cycle Power Plant	Oxidation Catalyst	2	PPMVD @15% O2	1 HR BLOCK	2
CT-0161	KILLINGLY ENERGY CENTER	6/30/2017	ULSD w/o Duct Firing	Oxidation Catalyst	1.8	PPMVD @15% O2	1 HOUR BLOCK	1.8
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	COMBINED CYCLE COMBUSTION TURBINE FIRING ULTRA LOW SULFUR DISTILLATE OIL	Oxidation Catalyst and good combustion practices	2	PPMVD@15%O2	3 H ROLLING AV BASED ON ONE H BLOCK AV	2
NJ-0084	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/10/2016	Combined Cycle Combustion Turbine without Duct Burner Firing ULSD	Oxidation Catalyst and good combustion practices	2	PPMVD @ 15% O2	3 H ROLLING AV BASED ON ONE H BLOCK	2
PA-0334	RENOVO ENERGY CENTER LLC/RENOVO PLT	4/29/2021	COMBUSTION TURBINE #2 (ULSD)	selective catalytic reduction (SCR) system, oxidation catalyst.	2	PPMVD	@ 15% O2 / 1 HR	2
PA-0334	RENOVO ENERGY CENTER LLC/RENOVO PLT	4/29/2021	COMBUSTION TURBINE #1 (ULSD)	SCR, Catalytic Oxidizer	2	PPMVD	@ 15% O2 / 1 HR	2
*PA-0336	YORK ENERGY CRT DELTA	12/14/2021	Combined Cycle Combustion Turbines	Oxidation Catalyst	2	PPMVD	>=90% LOAD	2

Table E-12: Distillate Oil-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, NEEDS and EIA-860Listings for CO

NEEDS: Commencing Commercial Operation in Past 5 Years; EIA-860: Facilities Listed as Planned and Under Construction

STATE	FACILITY NAME	UNIT CODE	APPLICATION/PERMIT DATE	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN PPMVD
NC	Asheville Combined Cycle Plant	Unit 5/7	1/11/2022	Oxidation Catalyst	260	tpy		NA
MN	Makato energy center	CT2 and DB2 EQUI 5/EQUI 6	2/14/2014	Oxidation Catalyst	4.8	PPMVD @ 15% O2	3 hour rolling avg for NG and capacity >=90% (normal baseload)	4.8
MN	Makato energy center	CT2 and DB2 EQUI 5/EQUI 6	2/14/2014	Oxidation Catalyst	10.2	PPMVD @ 15% O2	3 hour rolling avg for NG and capacity >=60% and <90% (below basedload)	10.2

Table E-13: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for VOC

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN PPMV	SECONDARY EMISSION LIMIT IN PPMV
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	FGCTGHRSG (EUCTGHRSG1 & EUCTGHRSG2)	Oxidation catalyst technology and good combustion practices.	0.0026	LB/MMBTU	EACH UNIT; HOURLY EXCEPT S.S.	1.0	2.0
*WV-0032	BROOKE COUNTY POWER PLANT	9/18/2018	GE 7HA.01 Turbine	Oxidation Catalyst, Good Combustion Practices	8.1	LB/HR		1.0	2.0
VA-0328	C4GT, LLC	4/26/2018	Siemens Combusion Turbine - Option 2 - Normal Operation	Oxidation catalyst and good combustion practice	1	PPMVD @ 15% O2	3 H AV/WITHOUT DB	1.0	2.0
VA-0328	C4GT, LLC	4/26/2018	GE Combustion Turbine - Option 1 - Normal Operation	Oxidation catalyst and good combustion practices	0.7	PPMVD @ 15% O2	3 HR AV/WITHOUT DB	0.7	1.4
LA-0331	CALCASIEU PASS LNG PROJECT	9/21/2018	Combined Cycle Combustion Turbines (CCCT1 to CCCT5)	Catalytic Oxidation, Proper Equipment Design and Good Combustion Practices.	1.1	PPMV	3 HOUR AVERAGE	1.1	1.1
VA-0332	CHICKAHOMINY POWER LLC	6/24/2019	Three (3) Mitsubishi Hitachi Power Systems combustion turbine generators	Controlled by an oxidation catalyst and good combustion practices (e.g. controlled fuel/air mixing, adequate temperature, and gas residence time)	0.7	PPMVD @ 15% O2	3 HR AVG	0.7	0.7
TX-0817	CHOCOLATE BAYOU STEAM GENERATING (CBSG) STATION	2/17/2017	Combined Cycle Cogeneration	OXIDATION CATALYST	1	PPMDV		1.0	1.0
OH-0366	CLEAN ENERGY FUTURE - LORDSTOWN, LLC	8/25/2015	Combined Cycle Combustion Turbines (two, identical) (P001 and P002)	Good combustion controls and oxidation catalyst	8.2	LB/H	WITH DUCT BURNER. SEE NOTES.	1.0	2.0
NJ-0088	COGEN TECH LINDEN VENTURE LP	7/30/2019	250 MW COMBINED CYCLE COMBUSTION TURBINE FIRING NATURAL GAS	Add on Oxidation Catalyst and use of Natural Gas as primary fuel for pollution prevention	3.2	LB/H	AV OF THREE ONE H STACK TESTS EVERY 5 YR	1.0	1.0
TX-0730	COLORADO BEND ENERGY CENTER	4/1/2015	Combined-cycle gas turbine electric generating facility	SCR and oxidation catalyst	4	PPMVD @ 15% O2	3-HR AVERAGE	4.0	4.0
TX-0672	CORPUS CHRISTI LIQUEFACTION PLANT	9/12/2014	Refrigeration compressor turbines	good combustion practices	0.6	LB/H	1 HOUR	NA	NA
PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Combustion turbine and HRSG with duct burner NG only	Oxidation catalyst and good combustion practices	1.5	PPMDV @ 15% O2		See below	1.5
PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Combustion turbine and HRSG without duct burner NG only		1	PPMDV @ 15% O2		1.0	See above
MD-0041	CPV ST. CHARLES	4/23/2014	2 COMBINED CYCLE COMBUSTION TURBINES, WITH DUCT FIRING	EXCLUSIVE USE OF NATURAL GAS, AND AN OXIDATION CATALYST	2	PPMVD @ 15% O2	3-HOUR BLOCK AVERAGE, EXCLUDING SU/SD	See below	2.0
MD-0041	CPV ST. CHARLES	4/23/2014	2 COMBINED-CYCLE COMBUSTION TURBINES	OXIDATION CATALYST AND GOOD COMBUSTION PRACTICES	1	PPMVD @ 15% O2	3-HOUR BLOCK AVERAGE, EXCLUDING SU/SD	1.0	See above
CT-0157	CPV TOWANTIC, LLC	11/30/2015	Combined Cycle Power Plant	Oxidation Catalyst	1	PPMVD @15% O2		1.0	2.0

Table E-13: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for VOC

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN PPMV	SECONDARY EMISSION LIMIT IN PPMV
CT-0158	CPV TOWANTIC, LLC	11/30/2015	Combined Cycle Power Plant	Oxidation Catalyst	1	PPMVD @15% O2		1.0	2.0
FL-0363	DANIA BEACH ENERGY CENTER	12/4/2017	2-on-1 combined cycle unit (GE 7HA)	Clean fuels	1	PPMVD@15% O2	FOR NATURAL GAS OPERATION	1.0	1.0
TX-0789	DECORDOVA STEAM ELECTRIC STATION	3/8/2016	Combined Cycle & Cogeneration	OXIDATION CATALYST	2	PPM		2.0	2.0
TX-0751	EAGLE MOUNTAIN STEAM ELECTRIC STATION	6/18/2015	Combined Cycle Turbines (>25 MW) â€“ natural gas	Oxidation catalyst	2	PPM		2.0	2.0
LA-0364	FG LA COMPLEX	1/6/2020	Cogeneration Units	Good combustion practices and catalytic oxidation	4	PPMVD		4.0	4.0
TX-0773	FGE EAGLE PINES PROJECT	11/4/2015	Combined Cycle Turbines (>25 MW)	Oxidation Catalyst	2	PPM		2.0	2.0
TX-0660	FGE TEXAS POWER I AND FGE TEXAS POWER II	3/24/2014	Alstom Turbine	Oxidation catalyst, good combustion practices	2	PPMVD	CORRECTED TO 15% O2, ROLLING 3 HR AVE	2.0	2.0
TX-0678	FREEPORT LNG PRETREATMENT FACILITY	7/16/2014	Combustion Turbine	oxidation catalyst	2	PPMVD	1 HOUR BASED ON STACK TEST	2.0	2.0
*PA-0298	FUTURE POWER PA/GOOD SPRINGS NGCC FACILITY	3/4/2014	Turbine, COMBINED CYCLE UNIT (Siemens 5000)	CO Catalyst	2	PPMVD	@ 15% OXYGEN	2.0	2.0
TX-0819	GAINES COUNTY POWER PLANT	4/28/2017	Combined Cycle Turbine with Heat Recovery Steam Generator, fired Duct Burners, and Steam Turbine Generator	Oxidation catalyst and good combustion practices	3.5	PPMVD	15% O2	3.5	3.5
AK-0085	GAS TREATMENT PLANT	8/13/2020	Six (6) Cogeneration Gas-Fired Turbines (Treated Gas Compressor Turbines)	Oxidation catalyst and good combustion practices	0.0022	LB/MMBTU	3-HOUR AVERAGE	1.7	1.7
AK-0085	GAS TREATMENT PLANT	8/13/2020	Six (6) Cogeneration Gas-Fired Turbines (CO2 Compressor Turbines))	Oxidation catalyst and good combustion control practices	0.0022	LB/MMBTU	3-HOUR AVERAGE	1.7	1.7
VA-0325	GREENSVILLE POWER STATION	6/17/2016	COMBUSTION TURBINE GENERATOR WITH DUCT-FIRED HEAT RECOVERY STEAM GENERATORS (3)	Oxidation Catalyst and good combustion practices	1.4	PPMVD		0.7	1.4
OH-0374	GUERNSEY POWER STATION LLC	10/23/2017	Combined Cycle Combustion Turbines (3, identical) (P001 to P003)	oxidation catalyst and good combustion practices as recommended by the manufacturer	11.73	LB/H	WITH DUCT BURNER. SEE NOTES.	1.0	2.0
*WV-0029	HARRISON COUNTY POWER PLANT	3/27/2018	GE 7HA.02 Turbine	Oxidation Catalyst, Good Combustion Practices	11.4	LB/HR		1.0	2.0
OH-0377	HARRISON POWER	4/19/2018	General Electric (GE) Combustion Turbines (P005 & P006)	Good combustion practices and oxidation catalyst	4.36	LB/H	WITH DUCT BURNER. SEE NOTES.	1.0	2.0

Table E-13: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for VOC

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN PPMV	SECONDARY EMISSION LIMIT IN PPMV
OH-0377	HARRISON POWER	4/19/2018	Mitsubishi Hitachi Power Systems (MHPS) Combustion Turbines (P007 & P008)	Good combustion practices and oxidation catalyst	9.8	LB/H	WITH DUCT BURNER. SEE NOTES.	1.0	2.0
*PA-0315	HILLTOP ENERGY CENTER, LLC	4/12/2017	Combustion Turbine With Duct Burner		2	PPMDV	CORRECTED TO 15% O2	See below	2.0
*PA-0315	HILLTOP ENERGY CENTER, LLC	4/12/2017	Combustion Turbine without Duct Burner		1	PPMDV	CORRECTED TO 15% O2	1.0	See above
MI-0424	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/5/2016	FGCTGHRSG (2 Combined cycle CTGs with HRSGs; EUCTGHRSG10 & EUCTGHRSG11)	Oxidation catalyst technology and good combustion practices.	4	PPM AT 15% O2	TEST PROTOCOL WILL SPECIFY AVG TIME	4.0	4.0
*MI-0445	INDECK NILES, LLC	11/26/2019	FGCTGHRSG	Good combustion practices, inlet air conditioning, and the use of pipeline quality natural gas.	4	PPM	PPMVD@15%O2, HOURLY; EACH	4.0	4.0
MI-0423	INDECK NILES, LLC	1/4/2017	FGCTGHRSG (2 Combined Cycle CTGs with HRSGs)	Oxidation Catalyst Technology and Good Combustion Practices	4	PPM	TEST PROTOCOL WILL SPECIFY	4.0	4.0
MD-0046	KEYS ENERGY CENTER	10/31/2014	2 COMBINED-CYCLE COMBUSTION TURBINES	OXIDATION CATALYST AND GOOD COMBUSTION PRACTICES	1	PPMVD @ 15% O2	W/OUT DUCT FIRING, 3-HR BLOCK AVG	1.0	2.0
CT-0161	KILLINGLY ENERGY CENTER	6/30/2017	Natural Gas w/Duct Firing	Oxidation Catalyst	1.6	PPMVD @15% O2		See below	1.6
CT-0161	KILLINGLY ENERGY CENTER	6/30/2017	Natural Gas w/o Duct Firing	Oxidation Catalyst	0.7	PPMVD @15% O2		0.7	See above
PA-0309	LACKAWANNA ENERGY CTR/JESSUP	12/23/2015	Combustion turbine with duct burner	Oxidation catalyst, combustion controls, exclusive natural gas	1.5	PPMDV @ 15% O2		See below	1.5
PA-0309	LACKAWANNA ENERGY CTR/JESSUP	12/23/2015	Combustion turbine without duct burner	Oxidation catalyst, combustion controls, exclusive natural gas	1	PPNDV @ 15% O2		1.0	See above
MI-0454	LBWL-ERICKSON STATION	12/20/2022	EUCTGHRSG1	An oxidation catalyst for VOC control for each CTG/HRSG unit, good combustion practices.	3	PPM	PPMVD AT 15%O2; HOURLY EXC SU/SD	3.0	3.0
MI-0454	LBWL-ERICKSON STATION	12/20/2022	EUCTGHRSG2	An oxidation catalyst for VOC control for each CTG/HRSG unit, good combustion practices.	3	PPM	PPMVD AT 15%O2; HOURLY EXC SU/SD. CC MOD	3.0	3.0

Table E-13: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for VOC

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN PPMV	SECONDARY EMISSION LIMIT IN PPMV
MI-0441	LBWL--ERICKSON STATION	12/21/2018	EUCTGHRSG2--A 667 MMBTU/H natural gas fired CTG with a HRSG.	An oxidation catalyst for VOC control and good combustion practices.	3	PPM	PPMVD@15%O2; HOURLY; SEE NOTES	3.0	3.0
MI-0441	LBWL--ERICKSON STATION	12/21/2018	EUCTGHRSG1--A 667 MMBTU/H NG fired combustion turbine generator coupled with a heat recovery steam generator (HRSG)	An oxidation catalyst for VOC control for each CTG/HRSG unit, good combustion practices.	3	PPM	PPMVD@15%O2; HOURLY EXC.START/SHUT; NOTE	3.0	3.0
MI-0447	LBWL--ERICKSON STATION	1/7/2021	EUCTGHRSG1	An oxidation catalyst for VOC control for each CTG/HRSG unit, good combustion practices.	3	PPM	HOURLY EXCEPT STARTUP SHUTDOWN	3.0	3.0
MI-0447	LBWL--ERICKSON STATION	1/7/2021	EUCTGHRSG2	An oxidation catalyst for VOC control for each CTG/HRSG unit, good combustion practices.	3	PPM	HOURLY; EXCEPT DURING STARTUP/SHUTDOWN	3.0	3.0
IL-0133	LINCOLN LAND ENERGY CENTER	7/29/2022	Combined-Cycle Combustion Turbines	Oxidation catalyst and good combustion practices.	1	PPMV, ADJ. TO 15% O2	ROLLING 3-OPERATING HOUR	1.0	1.1
AK-0088	LIQUEFACTION PLANT	7/7/2022	Four Combined Cycle Gas-Fired Turbines	Oxidation catalyst and good combustion practices	2	PPMV @ 15% O2	3-HOURS	2.0	2.0
TX-0878	LNG EXPORT TERMINAL	9/15/2022	Refrigeration Compression Turbines	good combustion practices.	2	PPM	3-HR AVG	2.0	2.0
TX-0767	LON C. HILL POWER STATION	10/2/2015	Combined Cycle Turbines (>25 MW)	oxidation catalyst	2	PPM		2.0	2.0
OH-0375	LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER	11/7/2017	General Electric Combustion Turbine (P004)	Oxidation catalyst and good combustion practices as recommended by the manufacturer.	4.54	LB/H	EXCEPT STARTUP AND SHUTDOWN. SEE NOTES	1.0	1.0
OH-0375	LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER	11/7/2017	Mitsubishi Combustion Turbine (P005)	oxidation catalyst and shall operate the emissions unit in accordance with good combustion practices as recommended by the manufacturer	8.8	LB/H	WITH DUCT BURNER. SEE NOTES.	1.0	2.0
OH-0375	LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER	11/7/2017	Siemens Combustion Turbine (P006)	oxidation catalyst and shall operate the emissions unit in accordance with good combustion practices as recommended by the manufacturer	9.5	LB/H	WITH DUCT BURNER. SEE NOTES.	1.0	2.0
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Combined Cycle Gas Turbine w/ Duct Burners and HRSG	Catalytic oxidation and good combustion practices.	1	PPMVD	3 1-HR TEST AVERAGE	1.0	2.0

Table E-13: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for VOC

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN PPMV	SECONDARY EMISSION LIMIT IN PPMV
*WV-0033	MAIDSVILLE	1/5/2022	Combustion Turbine & Duct Burner (CT-01/HRSG1 & CT-02/HRSG2)	good combustion practices and oxidation catalyst	1	PPMDV @ 15% O2	AVG OF 3 1-HR TEST RUNS (W/O DUCT FIRING	1.0	2.0
*WV-0033	MAIDSVILLE	1/5/2022	Combustion Turbine & Duct Burner (CT-01/HRSG1 & CT-02/HRSG2)	good combustion practices and oxidation catalyst	1	PPMDV @ 15% O2	AVG OF 3 1-HR TEST RUNS (W/O DUCT FIRING	1.0	2.0
*IN-0365	MAPLE CREEK ENERGY LLC	6/19/2023	Combined Cycle Turbine CTGA	Oxidation catalyst	0.0015	POUNDS PER MMBTU		1.2	1.2
*IN-0365	MAPLE CREEK ENERGY LLC	6/19/2023	Combined Cycle Turbine CTGB	catalytic oxidation	0.0013	POUNDS PER MMBTU		1.0	1.0
IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014	Combustion turbine #1 - combined cycle	catalytic oxidizer	1	PPM	AVG. OF 3 ONE HOUR TEST RUNS	1.0	No DB
IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014	Combustion turbine #2 -combined cycle		1	PPM	AVERAGE 0F 3 ONE-HOUR TEST RUNS	1.0	No DB
MD-0045	MATTAWOMAN ENERGY CENTER	11/13/2015	2 COMBINED-CYCLE COMBUSTION TURBINES	OXIDATION CATALYST AND GOOD COMBUSTION PRACTICES	1	PPMVD @ 15% O2	3-HR BLOCK AVG. W/OUT DUCT FIRING	1.0	1.9
MI-0451	MEC NORTH, LLC	6/23/2022	EUCTGHRSG (North Plant): A combined cycle natural gas fired combustion turbine generator with heat recovery steam generator	Oxidation catalyst technology and good combustion practices.	2	PPM	HOURLY	2.0	2.0
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUCTGHRSG (South Plant): A combined cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	Oxidation catalyst technology and good combustion practices.	4	PPMVD	AT 15%O2; NOT INCL. STARTUP/SHUTDOWN	4.0	4.0
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUCTGHRSG (North Plant): A combined-cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	Oxidation catalyst technology and good combustion practices.	4	PPMVD	AT 15%O2; HOURLY	4.0	4.0
MI-0452	MEC SOUTH, LLC	6/23/2022	EUCTGHRSG (South Plant): A combined-cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	Oxidation Catalyst Technology and Good Combustion Practices	2	PPM	HOURLY	2.0	2.0
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	Combined Cycle Combustion Turbine firing Natural Gas with Duct Burner	Oxidation Catalyst and good combustion practices	2	PPMVD@15%O2	AV OF THREE ONE H STACK TESTS EVERY 5 YR	See below	2.0

Table E-13: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for VOC

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN PPMV	SECONDARY EMISSION LIMIT IN PPMV
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	Combined Cycle Combustion Turbine firing Natural Gas without Duct Burner	Oxidation catalyst and good combustion practices	1	PPMVD@15%O2	AV OF THREE ONE H STACK TESTS EVERY 5 YR	1.0	See above
MI-0455	MIDLAND COGENERATION VENTURE LIMITED PARTNERSHIP	2/1/2023	EUCTGHRSG1	Oxidation catalyst	2.4	PPM	PPMVD AT 15%O2; HOURLY EXC SU/SD	2.4	2.4
TX-0834	MONTGOMERY COUNTY POWER STATIOIN	3/30/2018	Combined Cycle Turbine	Oxidation catalyst	2	PPMVD	15% O2 3 HOUR AVERAGE	2.0	2.0
WV-0025	MOUNDSVILLE COMBINED CYCLE POWER PLANT	11/21/2014	Combined Cycle Turbine/Duct Burner	Oxidation Catalyst & Good Combustion Practices	5.3	LB/H		1.0	2.0
PA-0311	MOXIE FREEDOM GENERATION PLANT	9/1/2015	Combustion Turbine without Duct Burner	Oxidation catalyst, and good engineering practice	1.5	LB/MMBTU		1169.8	See below
PA-0311	MOXIE FREEDOM GENERATION PLANT	9/1/2015	Combustion Turbine With Duct Burner	Oxidation catalyst and good engineering practice	1.5	PPMDV @ 15% O2		See above	1.5
TX-0788	NECHES STATION	3/24/2016	Combined Cycle & Cogeneration	OXIDATION CATALYST	2	PPM		2.0	2.0
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Natural-Gas-Fired Combined-Cycle Turbine (P01)	Oxidation Catalyst, good combustion control	2.7	PPM AT 15% O2	168-HR AVG., NAT. GAS, DUCT FIRING	0.6	2.7
MI-0432	NEW COVERT GENERATING FACILITY	7/30/2018	FG-TURB/DB1-3 (3 combined cycle combustion turbine and heat recovery steam generator trains)	An oxidation catalyst and good combustion practices.	1	PPMVD	HOURLY; EACH CT/HRSG TRAIN	1.0	1.0
TX-0908	NEWMAN POWER STATION	8/27/2021	Simple Cycle Turbine	Use of Natural gas, good combustion practices, and oxidation catalyst	2	PPMVD		2.0	2.0
FL-0356	OKEECHOBEE CLEAN ENERGY CENTER	3/9/2016	Combined-cycle electric generating unit	Complete combustion minimizes VOC	1	PPMVD@15%O2	GAS OPERATION	1.0	1.0
TX-0939	ORANGE COUNTY ADVANCED POWER STATION	3/13/2023	Combined Cycle Turbines	Oxidation Catalyst and good combustion practices	2	PPMVD	15% O2 3-HR AVERAGE	2.0	2.0
OH-0372	OREGON ENERGY CENTER	9/27/2017	Combined Cycle Combustion Turbines (two, identical) (P001 and P002)	oxidation catalyst and good combustion control	8.8	LB/H	WITH DUCT BURNER. SEE NOTES.	1.0	2.0
*VA-0335	PANDA STONEWALL LLC	12/18/2020	Combustion Turbines, Two (2) and HRSG Duct Burners	Catalytic Oxidizer	1.5	PPMVD AT 15% O2	NORMAL OPERATIONS W DUCT BURNER/W/O DB	1.0	1.5
AL-0328	PLANT BARRY	11/9/2020	Two 744 MW Combined Cycle Units	Oxidation Catalyst	13.6	LB/HR	3 HOUR AVG	2.3	2.3
TX-0790	PORT ARTHUR LNG EXPORT TERMINAL	2/17/2016	Refrigeration Compression Turbines	Dry low NOx burners and good combustion practices	2	PPM	3-HR AVG	2.0	2.0

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TX-0790	PORT ARTHUR LNG EXPORT TERMINAL	2/17/2016	Simple Cycle Electrical Generation Gas Turbines 15.210	OXIDATION CATALYST	2	PPM	3-HR AVERAGE	2.0	2.0
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - SIEMENS	Oxidation catalyst and pollution prevention (use of natural gas a clean burning fuel)	2	PPMVD	AVERAGE OF THREE ONE HOUR TESTS	See below	2.0
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - GENERAL ELECTRIC	CO Oxidation Catalyst and good combustion practices and use natural gas only as a clean burning fuel	2	PPMVD@15%O2	AVERAGE OF THREE ONE HOUR TESTS	See below	2.0
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	Combined Cycle Combustion Turbine -Siemens turbine without Duct Burner	Good Combustion Practices and use of Natural gas as a clean burning fuel	1	PPMVD@ 15%O2	AVERAGE OF THREE TESTS	1.0	See above
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITHOUT DUCT BURNER - GENERAL ELECTRIC	Oxidation Catalyst and use of natural gas a clean burning fuel	1	PPMVD@15%O2	AVERAGE OF THREE ONE-HOUR TESTS	1.0	See above
NJ-0084	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/10/2016	Combined Cycle Combustion Turbine with Duct Burner firing natural gas	Oxidation Catalyst and good combustion practices	2	PPMVD	3 H ROLLING AV BASED ON ONE H BLOCK	See below	2
NJ-0084	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/10/2016	Combined Cycle Combustion Turbine without Duct Burner Firing Natural Gas	OXIDATION CATALYST AND GOOD COMBUSTION PRACTICES	1	PPMVD@15%O2	3 H ROLLING AV BASED ON ONE H BLOCK	1	See above
*PA-0319	RENAISSANCE ENERGY CENTER	8/27/2018	COMBUSTION TURBINE UNIT with DUCT BURNERS UNIT		1.4	PPMDV	@15% O2	See below	1.4
*PA-0319	RENAISSANCE ENERGY CENTER	8/27/2018	COMBUSTION TURBINE UNIT w/o DUCT BURNERS UNIT	Oxidation Catalyst	1	PPMDV	@15% O2	1.0	See above
PA-0334	RENOVO ENERGY CENTER LLC/RENOVO PLT	4/29/2021	COMBUSTION TURBINE w DUCT BURNER #2 (Natural Gas)	SCR, CATALYTIC OXIDIZER	1.6	PPMVD	@ 15% O2 / 1 HR	1.6	1.6
PA-0334	RENOVO ENERGY CENTER LLC/RENOVO PLT	4/29/2021	COMBUSTION TURBINE w DUCT BURNER #1 (Natural Gas)	SCR, Catalytic Oxidizer	1.6	PPMVD	@ 15% O2 / 1 HR	1.6	1.6
*PA-0316	RENOVO ENERGY CENTER, LLC	1/26/2018	Combustion Turbine Firing NG		1	PPMDV	CORRTECTED TO 15% O2	1.0	1.0
OH-0365	ROLLING HILLS GENERATING, LLC	5/20/2015	Combustion Turbines, Scenario 1 (4, identical) (P001, P002, P004, P005)	good combustion practices along with clean fuels	611.38	T/YR	PER ROLLING 12 MONTH PERIOD. SEE NOTES.	1.4	3.1

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OH-0365	ROLLING HILLS GENERATING, LLC	5/20/2015	Combustion Turbines, Scenario 2 (4, identical) (P001, P002, P004, P005)	good combustion practices along with clean fuels	0			0.8	2.6
TX-0714	S R BERTRON ELECTRIC GENERATING STATION	12/19/2014	(2) combined cycle turbines	oxidation catalyst	1	PPMVD	@15% O2	1.0	1.0
MA-0039	SALEM HARBOR STATION REDEVELOPMENT	1/30/2014	Combustion Turbine with Duct Burner	Oxidation catalyst	1	PPMVD@15% O2	1 HR AVG EXCLUDING SS/NO DUCT FIRING	1.0	1.7
FL-0364	SEMINOLE GENERATING STATION	3/21/2018	2-on-1 natural gas combined-cycle unit (GE 7HA.02)	Oxidation catalyst	1	PPMVD@15% O2	WITHOUT DUCT BURNER FIRING	1.0	2.0
OH-0367	SOUTH FIELD ENERGY LLC	9/23/2016	Combined Cycle Combustion Turbines (two, identical) (P001 and P002)	Good combustion controls and oxidation catalyst	10.64	LB/H	WITH DUCT BURNER. SEE NOTES.	1.0	2.0
LA-0313	ST. CHARLES POWER STATION	8/31/2016	SCPS Combined Cycle Unit 1A	Catalytic oxidation and good combustion practices for normal operations, and good combustion practices for startup/shutdown operations.	61.27	LB/H	HOURLY MAXIMUM	2.0	2.0
LA-0313	ST. CHARLES POWER STATION	8/31/2016	SCPS Combined Cycle Unit 1B	Catalytic oxidation and good combustion practices during normal operations, and good combustion practices during startup/shutdown operations.	61.27	LB/H	HOURLY MAXIMUM	2.0	2.0
TX-0713	TENASKA BROWNSVILLE GENERATING STATION	4/29/2014	(2) combined cycle turbines	oxidation catalyst	2	PPMVD	@15% O2, 3-HR AVERAGE	2.0	2.0
PA-0306	TENASKA PA PARTNERS/WESTMORELAND GEN FAC	2/12/2016	Large combustion turbine	Ox Cat and good combustion practices	2.4	PPMDV@15% O2		2.4	2.4
MI-0442	THOMAS TOWNSHIP ENERGY, LLC	8/21/2019	FGCTGHRSG	Oxidation catalyst and good combustion practices.	0.004	LB/MMBTU	HOURLY; NOT STARTUP/SHUTDOWN;EACH UNIT	3.1	3.1
TX-0712	TRINIDAD GENERATING FACILITY	11/20/2014	combined cycle turbine	oxidation catalyst	4	PPMVD	@15% O2 1-HR	4.0	4.0

Table E-13: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for VOC

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN PPMV	SECONDARY EMISSION LIMIT IN PPMV
OR-0050	TROUTDALE ENERGY CENTER, LLC	3/5/2014	Mitsubishi M501-GAC combustion turbine, combined cycle configuration with duct burner.	Oxidation catalyst; Limit the time in startup or shutdown.	2	PPMDV AT 15% O2	3-HR ROLLING AVERAGE ON NG	2.0	2.0
OH-0370	TRUMBULL ENERGY CENTER	9/7/2017	Combined Cycle Combustion Turbines (two, identical) (P001 and P002)	Good combustion controls and oxidation catalyst	8.8	LB/H	WITH DUCT BURNER. SEE NOTES.	1.0	2.0
TX-0915	UNIT 5	3/17/2021	COMBINED CYCLE TURBINE	OXIDATION CATALYST	1	PPMVD	3-HR ROLLING	1.0	1.0
TX-0710	VICTORIA POWER STATION	12/1/2014	combined cycle turbine	oxidation catalyst	4	PPMVD	@15% O2, 3-HR ROLLING AVERAGE	4.0	4.0
NJ-0082	WEST DEPTFORD ENERGY STATION	7/18/2014	Combined Cycle Combustion Turbine with Duct Burner	Oxidation catalyst and use of natural gas a clean burning fuel	1	PPMVD@15%O2	AVERAGE OF THREE STACK TEST RUNS	See below	1.0
NJ-0082	WEST DEPTFORD ENERGY STATION	7/18/2014	Combined Cycle Combustion Turbine without Duct Burner	Oxidation catalysts and use of Natural gas a clean burning fuel	0.7	PPMVD215%O2	AVERAGE OF THREE ONE HOUR STACK TESTS	0.7	See above
MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	2 COMBINED CYCLE COMBUSTION TURBINES, WITH DUCT FIRING	USE OF PIPELINE NATURAL GAS, GOOD COMBUSTION PRACTICES, AND USE OF AN OXIDATION CATALYST	1.6	PPMVD @ 15% O2	3-HOUR BLOCK AVERAGE, EXCLUDING SU/SD	1.6	1.6
PA-0307	YORK ENERGY CENTER BLOCK 2 ELECTRICITY GENERATION PROJECT	6/15/2015	Two Combine Cycle Combustion Turbine with Duct Burner	Oxidation catalyst, good combustion practices and low sulfur fuels	1.9	PPMDV @ 15% O2		See below	1.9
PA-0307	YORK ENERGY CENTER BLOCK 2 ELECTRICITY GENERATION PROJECT	6/15/2015	Two combined cycle turbines with out duct burner	Oxidation catalyst, good combustion practices and low sulfur fuels	1.5	PPMDV @ 15% O2		1.5	See above

Table E-14: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, NEEDS and EIA-860Listings for VOC

NEEDS: Commencing Commercial Operation in Past 5 Years; EIA-860: Facilities Listed as Planned and Under Construction

STATE	FACILITY NAME	UNIT CODE	APPLICATION/PERMIT DATE	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN PPMVD
OH	Trumbull Energy Center	P001/P002	2/5/2020	Good combustion controls and oxidation catalys	2	PPMVD @ 15% O2	With DB	2
OH	Trumbull Energy Center	P001/P002	2/5/2020	Good combustion controls and oxidation catalys	1	PPMVD @ 15% O2	w/o DB	1
LA	Magnolia Power	CCGT-1 (EQTT001)	5/23/2024	Catalytic Oxidation and Good combustion practices	1	PPMVD @ 15% O2	Three 1-hour test average w/o duct firing	1
LA	Magnolia Power	CCGT-1 (EQTT001)	5/23/2024	Catalytic Oxidation and Good combustion practices	2	PPMVD @ 15% O2	Three 1-hour test average with duct firing	2
CA	Alamitos Energy Center	D165/D173	4/18/2017	Oxidation Catalyst	2	PPMVD @ 15% O2		2
CA	AES Huntington Beach	D115	3/14/2024	Oxidation Catalyst	2	PPMVD @ 15% O2	1-hour average	2
CA	AES Huntington Beach	D124	3/14/2024	Oxidation Catalyst	2	PPMVD @ 15% O2	1-hour average	2
PA	BIRDSBORO POWER LLC	PROC101	1/1/2021	Oxidation Catalyst	0.33	PPMVD @ 15% O2	3-hour block average	0.33
CT	Bridgeport Energy, LLC	Stack 5	3/24/2023	Oxidation Catalyst	3	PPMVW @ 15% O2	1 hour block	3
CT	Bridgeport Energy, LLC	Stack 6	3/24/2023	Oxidation Catalyst	3	PPMVW @ 15% O2	1 hour block	3
MS	R D Morrow Sr Generating Plant	AA-012/AA-13	12/20/2019	Oxidation Catalyst	1.8	PPMVD @ 15% O2	3 hour avg.	1.8
MS	R D Morrow Sr Generating Plant	AA-012/AA-13	12/20/2019	Oxidation Catalyst	9.4	lb/hr		
MS	R D Morrow Sr Generating Plant	AA-012/AA-13	12/20/2019	Oxidation Catalyst	135.4	tpy	including SUSD	
NY	Cricket Valley Energy	U-00001	12/5/2018	Oxidation Catalyst	0.7	PPMVD @ 15% O2	w/o duct firing 1 hour avg.	0.7
NY	Cricket Valley Energy	U-00001	12/5/2018	Oxidation Catalyst	1.8	PPMVD @ 15% O2	with duct firing 1 hour avg.	0.7

Table E-14: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, NEEDS and EIA-860Listings for VOC

NEEDS: Commencing Commercial Operation in Past 5 Years; EIA-860: Facilities Listed as Planned and Under Construction

STATE	FACILITY NAME	UNIT CODE	APPLICATION/PERMIT DATE	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN PPMVD
NY	Cricket Valley Energy	U-00002	12/5/2018	Oxidation Catalyst	0.7	PPMVD @ 15% O2	w/o duct firing 1 hour avg.	0.7
NY	Cricket Valley Energy	U-00002	12/5/2018	Oxidation Catalyst	1.8	PPMVD @ 15% O2	with duct firing 1 hour avg.	1.8
NY	Cricket Valley Energy	U-00003	12/5/2018	Oxidation Catalyst	0.7	PPMVD @ 15% O2	w/o duct firing 1 hour avg.	0.7
NY	Cricket Valley Energy	U-00003	12/5/2018	Oxidation Catalyst	1.8	PPMVD @ 15% O2	with duct firing 1 hour avg.	1.8
PA	Hickory Run Energy Station	CC1 and CC2	4/23/2013		2	PPMVD @ 15% O2		2
MN	Makato energy center	CT1 and DB1 EQUI 16/EQUI 17	2/14/2014	Oxidation Catalyst	3.4	PPMVD @ 15% O2	NG combustion, 3 hour block avg	3.4
MN	Makato energy center	CT2 and DB2 EQUI 5/EQUI 6	2/14/2014	Oxidation Catalyst	3.4	PPMVD @ 15% O2	3-hour block average	3.4
MN	Makato energy center	CT2 and DB2 EQUI 5/EQUI 6	2/14/2014	Oxidation Catalyst	7.1	PPMVD @ 15% O2	3-hour block average	7.1

Table E-15: Distillate Oil-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for VOC

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN PPMVD
NJ-0088	COGEN TECH LINDEN VENTURE LP	7/30/2019	250 MW COMBINED CYCLE COMBUSTION TURBINE FIRING ULTRA LOW SULFUR DISTILLATE OIL (ULSD)	Oxidation Catalyst and Clean burning fuel - ULSD	7	LB/H	AV OF THREE ONE H STACK TESTS EVERY 5 YR	2
PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Combustion turbine and HRSG without duct burner ULSD	Oxidation catalyst, water/steam injection, good combustion practices	2	PPMDV @ 15% O2		2
CT-0157	CPV TOWANTIC, LLC	11/30/2015	Combined Cycle Power Plant	Oxidation Catalyst	2	PPMVD @15% O2		2
CT-0158	CPV TOWANTIC, LLC	11/30/2015	Combined Cycle Power Plant	Oxidation Catalyst	2	PPMVD @15% O2		2
CT-0161	KILLINGLY ENERGY CENTER	6/30/2017	ULSD w/o Duct Firing	Oxidation Catalyst	2	PPMVD @15% O2		2
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	COMBINED CYCLE COMBUSTION TURBINE FIRING ULTRA LOW SULFUR DISTILLATE OIL	oxidation catalyst and good combustion practices	2	PPMVD@15%O2	AV OF THREE ONE H STACK TESTS EVERY 5 YR	2
NJ-0084	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/10/2016	Combined Cycle Combustion Turbine without Duct Burner Firing ULSD	Oxidation Catalyst and good combustion practices	2	PPMVD		2
*PA-0316	RENOVO ENERGY CENTER, LLC	1/26/2018	Combustion Turbine firing ULSD		2	PPMDV	CORRECTED TO 15% O2	2
PA-0307	YORK ENERGY CENTER BLOCK 2 ELECTRICITY GENERATION	6/15/2015	Two combined cycle combustion turbines ULSD fired with duct burner	Oxidation catalyst, good combustion practices and low sulfur fuels	1.9	PPMDV @ 15% O2		1.9

Table E-16: Distillate Oil-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, NEEDS and EIA-860Listings for VOC

NEEDS: Commencing Commercial Operation in Past 5 Years; EIA-860: Facilities Listed as Planned and Under Construction

STATE	FACILITY NAME	UNIT CODE	APPLICATION/PERMIT DATE	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN PPMVD
MN	Makato energy center	CT2 and DB2 EQUI 5/EQUI 6	2/14/2014	Oxidation Catalyst	7.1	PPMVD @ 15% O2	3-hour block average	7.1

Table E-17: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN LB/MMBTU
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	FGCTGHRSG (EUCTGHRSG1 & EUCTGHRSG2)	Good combustion practices, inlet air conditioning, and the use of pipeline quality natural gas.	16	LB/H	HOURLY; EACH UNIT	
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	FGCTGHRSG (EUCTGHRSG1 & EUCTGHRSG2)	Good combustion practices, inlet air conditioning and the use of pipeline quality natural gas.	16	LB/H	HOURLY; EACH UNIT	
*LA-0365	BIG CAJUN I POWER PLANT	6/27/2019	Combustion Turbine #1 (EQT0002, CTG-1)	Good Combustion Controls	19	LB/HR	HOURLY MAXIMUM	0.0113
*LA-0365	BIG CAJUN I POWER PLANT	6/27/2019	Combustion Turbine #2 (EQT0003, CTG-2)	Good Combustion Controls	19	LB/HR	HOURLY MAXIMUM	0.0113
*WV-0032	BROOKE COUNTY POWER PLANT	9/18/2018	GE 7HA.01 Turbine	Air Filter, Use of Natural Gas, Good Combustion Practices	16.9	LB/HR		0.008
VA-0328	C4GT, LLC	4/26/2018	GE Combustion Turbine - Option 1 - Normal Operation	good combustion practices and the use of pipeline quality natural gas with a maximum sulfur content of 0.4 gr/100 scf on a 12-month rolling average.	0.0069	LB/MMBTU WITHOUT DUC	AV OF 3 TEST RUNS	0.0069
VA-0328	C4GT, LLC	4/26/2018	GE Combustion Turbine - Option 1 - Normal Operation	good combustion practices and the use of pipeline quality natural gas with a maximum sulfur content of 0.4 gr/100 scf on a 12-month rolling average.	0.0069	LB/MMBTU WITHOUT DUC	AV OF 3 TEST RUNS	0.0069
VA-0328	C4GT, LLC	4/26/2018	Siemens Combusion Turbine - Option 2 - Normal Operation	good combustion practices and the use of pipeline quality natural gas with a maximum sulfur content of 0.4 gr/100 scf on a 12 mo rolling av.	0.0065	LB/MMBTU	AV OF 3 TEST RUNS/WITHOUT DUCT BURNING	0.0065
VA-0328	C4GT, LLC	4/26/2018	Siemens Combusion Turbine - Option 2 - Normal Operation	good combustion practices and the use of pipeline quality natural gas with a maximum sulfur content of 0.4 gr/100 scf on a 12-month rolling average.	0.0065	LB/MMBTU	AV OF 3 TEST RUNS/WITHOUT DUCT BURNING	0.0065
LA-0331	CALCASIEU PASS LNG PROJECT	9/21/2018	Combined Cycle Combustion Turbines (CCCT1 to CCCT5)	Exclusive Combustion of Fuel Gas and Good Combustion Practices.	9.53	LB/H	3 HOUR AVERAGE	0.0103
LA-0331	CALCASIEU PASS LNG PROJECT	9/21/2018	Combined Cycle Combustion Turbines (CCCT1 to CCCT5)	Exclusive Combustion of Fuel Gas and Good Combustion Practices.	9.53	LB/H	3 HOUR AVERAGE	0.0103

Table E-17: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN LB/MMBTU
VA-0332	CHICKAHOMINY POWER LLC	6/24/2019	Three (3) Mitsubishi Hitachi Power Systems combustion turbine generators	Controlled by good combustion practices (e.g. controlled fuel/air mixing, adequate temperature, and gas residence time) and the use of pipeline-quality natural gas with a maximum sulfur content of 0.4 grains per 100 scf, on a 12-month rolling average.	0.0052	LB/MMBTU	AVG OF 3 TEST RUNS	0.0052
VA-0332	CHICKAHOMINY POWER LLC	6/24/2019	Three (3) Mitsubishi Hitachi Power Systems combustion turbine generators	Controlled by good combustion practices (e.g. controlled fuel/air mixing, adequate temperature, and gas residence time) and the use of pipeline-quality natural gas with a maximum sulfur content of 0.4 grains per 100 scf, on a 12-month rolling average.	0.0052	LB/MMBTU	AVG OF 3 TEST RUNS	0.0052
TX-0817	CHOCOLATE BAYOU STEAM GENERATING (CBSG) STATION	2/17/2017	Combined Cycle Cogeneration		6.98	LB/H		
OH-0366	CLEAN ENERGY FUTURE - LORDSTOWN, LLC	8/25/2015	Combined Cycle Combustion Turbines (two, identical) (P001 and P002)	Low sulfur fuel	14.9	LB/H	WITH DUCT BURNER. SEE NOTES.	0.0049
OH-0366	CLEAN ENERGY FUTURE - LORDSTOWN, LLC	8/25/2015	Combined Cycle Combustion Turbines (two, identical) (P001 and P002)	Low sulfur fuel	14.9	LB/H	WITH DUCT BURNER. SEE NOTES.	0.0049
NJ-0088	COGEN TECH LINDEN VENTURE LP	7/30/2019	250 MW COMBINED CYCLE COMBUSTION TURBINE FIRING NATURAL GAS	USE OF NATURAL GAS AND ULSD; BOTH CLEAN BURNING FUELS	11.58	LB/H	AV OF THREE ONE H STACK TESTS EVERY 5 YR	0.0046
NJ-0088	COGEN TECH LINDEN VENTURE LP	7/30/2019	250 MW COMBINED CYCLE COMBUSTION TURBINE FIRING NATURAL GAS	USE OF NATURAL GAS AND ULSD; BOTH CLEAN BURNING FUELS	11.58	LB/H	AV OF THREE ONE H STACK TESTS EVERY 5 YR	0.0046
TX-0730	COLORADO BEND ENERGY CENTER	4/1/2015	Combined-cycle gas turbine electric generating facility	efficient combustion, natural gas fuel	43	LB/H		
TX-0730	COLORADO BEND ENERGY CENTER	4/1/2015	Combined-cycle gas turbine electric generating facility	efficient combustion, natural gas fuel	43	LB/H		
TX-0730	COLORADO BEND ENERGY CENTER	4/1/2015	Combined-cycle gas turbine electric generating facility	efficient combustion, natural gas fuel	43	LB/H		
TX-0672	CORPUS CHRISTI LIQUEFACTION PLANT	9/12/2014	Refrigeration compressor turbines		0.72	LB/H	1 HOUR	

Table E-17: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN LB/MMBTU
PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Combustion turbine and HRSG with duct burner NG only	Low sulfur fuel, good combustion practicies	0.005	LB/MMBTU		0.005
PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Combustion turbine and HRSG with duct burner NG only	Low sulfur fuel, good combustion practices	0.005	LB/MMBTU		0.005
PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Combustion turbine and HRSG with duct burner NG only	Low sulfur fuel, good combustion practices	0.005	LB/MMBTU		0.005
PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Combustion turbine and HRSG without duct burner NG only	Low sulfur fuels and good combustion practices	0.0068	LB/MMBTU		0.0068
PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Combustion turbine and HRSG without duct burner NG only	Low sulfur fuels and good combustion practices	0.0068	LB/MMBTU		0.0068
PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Combustion turbine and HRSG without duct burner NG only	Low sulfur fuels and good combustion practices	0.0068	LB/MMBTU		0.0068
MD-0041	CPV ST. CHARLES	4/23/2014	2 COMBINED-CYCLE COMBUSTION TURBINES	USE OF PIPELINE-QUALITY NATURAL GAS EXCLUSIVELY AND GOOD COMBUSTION PRACTICE	0.008	LB/MMBTU	AVERAGE OF THREE STACK TEST RUNS	0.008
IL-0129	CPV THREE RIVERS ENERGY CENTER	7/30/2018	Combined Cycle Combustion Turbines	Good combustion practice	0.0069	LB/MMBTU	3-HOUR BLOCK AVERAGE	0.0069
CT-0157	CPV TOWANTIC, LLC	11/30/2015	Combined Cycle Power Plant		9.73	LB/H		
CT-0158	CPV TOWANTIC, LLC	11/30/2015	Combined Cycle Power Plant		9.73	LB/H		
FL-0363	DANIA BEACH ENERGY CENTER	12/4/2017	2-on-1 combined cycle unit (GE 7HA)	Clean fuels	0			
FL-0363	DANIA BEACH ENERGY CENTER	12/4/2017	2-on-1 combined cycle unit (GE 7HA)	Clean fuels	0			
TX-0789	DECORDOVA STEAM ELECTRIC STATION	3/8/2016	Combined Cycle & Cogeneration	GOOD COMBUSTION PRACTICES AND LOW SULFUR FUEL	35.47	LB/H		
TX-0789	DECORDOVA STEAM ELECTRIC STATION	3/8/2016	Combined Cycle & Cogeneration	GOOD COMBUSTION PRACTICES AND LOW SULFUR FUEL	35.47	LB/H		
TX-0751	EAGLE MOUNTAIN STEAM ELECTRIC STATION	6/18/2015	Combined Cycle Turbines (>25 MW) â€“ natural gas		35.47	LB/H		

Table E-17: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN LB/MMBTU
TX-0751	EAGLE MOUNTAIN STEAM ELECTRIC STATION	6/18/2015	Combined Cycle Turbines (>25 MW) â€“ natural gas		35.47	LB/H		
LA-0364	FG LA COMPLEX	1/6/2020	Cogeneration Units	Use of pipeline quality natural gas or fuel gas and good combustion practices.	12.46	LB/H		0.0056
LA-0364	FG LA COMPLEX	1/6/2020	Cogeneration Units	Use of pipeline quality natural gas or fuel gas and good combustion practices.	12.46	LB/H		0.0056
TX-0773	FGE EAGLE PINES PROJECT	11/4/2015	Combined Cycle Turbines (>25 MW)		21.4	LB/H		
TX-0773	FGE EAGLE PINES PROJECT	11/4/2015	Combined Cycle Turbines (>25 MW)		21.4	LB/H		
TX-0660	FGE TEXAS POWER I AND FGE TEXAS POWER II	3/24/2014	Alstom Turbine	Low sulfur fuel, good combustion practices	2	PPMVD		
MI-0427	FILER CITY STATION	11/17/2017	EUCCT (Combined cycle CTG with unfired HRSG)	Good combustion practices and the use of pipeline quality natural gas, combustion inlet air filter.	0.0066	LB/MMBTU		0.0066
MI-0427	FILER CITY STATION	11/17/2017	EUCCT (Combined cycle CTG with unfired HRSG)	Good combustion practices and the use of pipeline quality natural gas, combustion inlet air filter.	0.0066	LB/MMBTU		0.0066
TX-0678	FREEPORT LNG PRETREATMENT FACILITY	7/16/2014	Combustion Turbine		15.22	LB/H		15.22
*PA-0298	FUTURE POWER PA/GOOD SPRINGS NGCC FACILITY	3/4/2014	Turbine, COMBINED CYCLE UNIT (Siemens 5000)		15.6	LB/H	WITH DUCT BURNER	0.0069
TX-0819	GAINES COUNTY POWER PLANT	4/28/2017	Combined Cycle Turbine with Heat Recovery Steam Generator, fired Duct Burners, and Steam Turbine Generator	Pipeline quality natural gas; good combustion practices	0			
TX-0819	GAINES COUNTY POWER PLANT	4/28/2017	Combined Cycle Turbine with Heat Recovery Steam Generator, fired Duct Burners, and Steam Turbine Generator	Pipeline quality natural gas; good combustion practices	0			
TX-0819	GAINES COUNTY POWER PLANT	4/28/2017	Combined Cycle Turbine with Heat Recovery Steam Generator, fired Duct Burners, and Steam Turbine Generator	Pipeline quality natural gas; good combustion practices	0			

Table E-17: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN LB/MMBTU
AK-0085	GAS TREATMENT PLANT	8/13/2020	Six (6) Cogeneration Gas-Fired Turbines (Treated Gas Compressor Turbines)	Good Combustion Practices and burning clean fuels (NG)	0.0063	LB/MMBTU	3-HOUR AVERAGE	0.0063
AK-0085	GAS TREATMENT PLANT	8/13/2020	Six (6) Cogeneration Gas-Fired Turbines (Treated Gas Compressor Turbines)	Good combustion practices and burning clean fuel (NG)	0.0063	LB/MMBTU	3-HOUR AVERAGE	0.0063
AK-0085	GAS TREATMENT PLANT	8/13/2020	Six (6) Cogeneration Gas-Fired Turbines (Treated Gas Compressor Turbines)	Good combustion practices and clean burning fuel (NG)	0.0063	LB/MMBTU	3-HOUR AVERAGE	0.0063
AK-0085	GAS TREATMENT PLANT	8/13/2020	Six (6) Cogeneration Gas-Fired Turbines (CO2 Compressor Turbines))	Good Combustion Practices and burning clean fuels (NG)	0.0063	LB/MMBTU	3-HOUR AVERAGE	0.0063
AK-0085	GAS TREATMENT PLANT	8/13/2020	Six (6) Cogeneration Gas-Fired Turbines (CO2 Compressor Turbines))	Good Combustion Practices and burning clean fuels (NG)	0.0063	LB/MMBTU	3-HOUR AVERAGE	0.0063
AK-0085	GAS TREATMENT PLANT	8/13/2020	Six (6) Cogeneration Gas-Fired Turbines (CO2 Compressor Turbines))	Good Combustion Practices and burning clean fuels (NG)	0.0063	LB/MMBTU	3-HOUR AVERAGE	0.0063
VA-0325	GREENSVILLE POWER STATION	6/17/2016	COMBUSTION TURBINE GENERATOR WITH DUCT-FIRED HEAT RECOVERY STEAM GENERATORS (3)	Low sulfur/carbon fuel and good combustion pratices	0.0039	LB/MMBTU	AVG OF 3 TEST RUNS	0.0039
OH-0374	GUERNSEY POWER STATION LLC	10/23/2017	Combined Cycle Combustion Turbines (3, identical) (P001 to P003)	pipeline quality natural gas	0.0073	LB/MMBTU	SEE NOTES.	0.0073
OH-0374	GUERNSEY POWER STATION LLC	10/23/2017	Combined Cycle Combustion Turbines (3, identical) (P001 to P003)	pipeline quality natural gas	0.0073	LB/MMBTU	SEE NOTES.	0.0073
OH-0374	GUERNSEY POWER STATION LLC	10/23/2017	Combined Cycle Combustion Turbines (3, identical) (P001 to P003)	pipeline quality natural gas	0.0073	LB/MMBTU	SEE NOTES.	0.0073
*WV-0029	HARRISON COUNTY POWER PLANT	3/27/2018	GE 7HA.02 Turbine	Air Filter, Use of Natural Gas, Good Combustion Practices	18.2	LB/HR		0.0052
OH-0377	HARRISON POWER	4/19/2018	General Electric (GE) Combustion Turbines (P005 & P006)	Good combustion practices and pipeline quality natural gas	0.0052	LB/MMBTU	WITH DUCT BURNER. SEE NOTES.	0.0052
OH-0377	HARRISON POWER	4/19/2018	General Electric (GE) Combustion Turbines (P005 & P006)	Good combustion practices and pipeline quality natural gas	0.0052	LB/MMBTU	WITH DUCT BURNER. SEE NOTES.	0.0052
OH-0377	HARRISON POWER	4/19/2018	General Electric (GE) Combustion Turbines (P005 & P006)	Good combustion practices and pipeline quality natural gas	0.0052	LB/MMBTU	WITH DUCT BURNER. SEE NOTES.	0.0052
OH-0377	HARRISON POWER	4/19/2018	Mitsubishi Hitachi Power Systems (MHPS) Combustion Turbines (P007 & P008)	Good combustion practices and pipeline quality natural gas	0.005	LB/MMBTU	WITH DUCT BURNER. SEE NOTES.	0.005

Table E-17: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN LB/MMBTU
OH-0377	HARRISON POWER	4/19/2018	Mitsubishi Hitachi Power Systems (MHPS) Combustion Turbines (P007 & P008)	Good combustion practices and pipeline quality natural gas	0.005	LB/MMBTU	WITH DUCT BURNER. SEE NOTES.	0.005
OH-0377	HARRISON POWER	4/19/2018	Mitsubishi Hitachi Power Systems (MHPS) Combustion Turbines (P007 & P008)	Good combustion practices and pipeline quality natural gas	0.005	LB/MMBTU	WITH DUCT BURNER. SEE NOTES.	0.005
*PA-0315	HILLTOP ENERGY CENTER, LLC	4/12/2017	Combustion Turbine without Duct Burner		0.0072	LB	MMBTU	0.0072
*PA-0315	HILLTOP ENERGY CENTER, LLC	4/12/2017	Combustion Turbine without Duct Burner		0.0072	LB	MMBTU	0.0072
*PA-0315	HILLTOP ENERGY CENTER, LLC	4/12/2017	Combustion Turbine without Duct Burner		0.0072	LB	MMBTU	0.0072
MI-0424	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/5/2016	FGCTGHRSG (2 Combined cycle CTGs with HRSGs; EUCTGHRSG10 & EUCTGHRSG11)	Good combustion practices and the use of pipeline quality natural gas.	0.014	LB/MMBTU	TEST PROTOCOL WILL SPECIFY AVG TIME	0.014
MI-0424	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/5/2016	FGCTGHRSG (2 Combined cycle CTGs with HRSGs; EUCTGHRSG10 & EUCTGHRSG11)	Good combustion practices and the use of pipeline quality natural gas.	0.014	LB/MMBTU	TEST PROTOCOL WILL SPECIFY AVG TIME	0.014
MI-0423	INDECK NILES, LLC	1/4/2017	FGCTGHRSG (2 Combined Cycle CTGs with HRSGs)	Good combustion practices, inlet air conditioning, and the use of pipeline quality natural gas.	19.8	LB/H	TEST PROTOCOL WILL SPECIFY AVG TIME	0.0024
MI-0423	INDECK NILES, LLC	1/4/2017	FGCTGHRSG (2 Combined Cycle CTGs with HRSGs)	Good Combustion Practices, inlet air conditioning, and the use of pipeline quality natural gas.	19.8	LB/H	TEST PROTOCOL WILL SPECIFY AVG TIME	0.0024
*MI-0445	INDECK NILES, LLC	11/26/2019	FGCTGHRSG	Good combustion practices, inlet air conditioning, and the use of pipeline quality natural gas.	19.8	LB/H	HOURLY; EACH CTGHRSG	0.0058
*MI-0445	INDECK NILES, LLC	11/26/2019	FGCTGHRSG	Good combustion practices, inlet air conditioning, and the use of pipeline quality natural gas.	19.8	LB/H	HOURLY; EACH CTGHRSG	0.0058
IL-0130	JACKSON ENERGY CENTER	12/31/2018	Combined-Cycle Combustion Turbine	Good combustion practices	0.0026	LB/MMBTU	3-HR BLOCK AVERAGE	0.0042
MI-0439	JACKSON GENERATING STATION	4/2/2019	FGLMDB1-6 (6 combined cycle natural gas fired CTG each equipped with a HRSG)	Combustion inlet air filters, good combustion practices and only combust natural gas.	4.9	LB/HR	24 HR AVG DET.EACH OPERATING HR; EACH	0.0078

Table E-17: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN LB/MMBTU
MI-0439	JACKSON GENERATING STATION	4/2/2019	FGLMDB1-6 (6 combined cycle natural gas fired CTG each equipped with a HRSG)	Combustion inlet air filters, good combustion practices and only combust natural gas.	4.9	LB/H	24-HR AVG, EACH HR UNIT OPERATES, EACH	0.0078
TN-0162	JOHNSONVILLE COGENERATION	4/19/2016	Natural Gas-Fired Combustion Turbine with HRSG	Good combustion design and practices	0.005	LB/MMBTU		0.005
MD-0046	KEYS ENERGY CENTER	10/31/2014	2 COMBINED-CYCLE COMBUSTION TURBINES	USE OF PIPELINE-QUALITY NATURAL GAS EXCLUSIVELY AND GOOD COMBUSTION PRACTICES.	11	LB/H	W/OUT DUCT FIRING, AVG. OF 3 STACK TESTS	
CT-0161	KILLINGLY ENERGY CENTER	6/30/2017	Natural Gas w/o Duct Firing	Good Combustion	0.044	LB/MMBTU		0.044
CT-0161	KILLINGLY ENERGY CENTER	6/30/2017	Natural Gas w/o Duct Firing	Good Combustion	0.0044	LB/MMBTU		0.0044
CT-0161	KILLINGLY ENERGY CENTER	6/30/2017	Natural Gas w/Duct Firing	Good Combustion	0.005	LB/MMBTU		0.005
CT-0161	KILLINGLY ENERGY CENTER	6/30/2017	Natural Gas w/Duct Firing	Good Combustion	0.005	LB/MMBTU		0.005
PA-0309	LACKAWANNA ENERGY CTR/JESSUP	12/23/2015	Combustion turbine with duct burner	Exclusive natural gas, high-efficiency inlet air filters and DLN	0.0059	LB/MMBTU		0.0059
PA-0309	LACKAWANNA ENERGY CTR/JESSUP	12/23/2015	Combustion turbine with duct burner	Exclusive natural gas, high-efficiency inlet air filters and DLN	0.0059	LB/MMBTU		0.0059
MI-0454	LBWL-ERICKSON STATION	12/20/2022	EUCTGHRSG1	Pipeline quality natural gas, inlet air conditioning, and good combustion practices.	6.02	LB/H	HOURLY; APPLIES DURING ALL OPER. MODES	0.0069
MI-0454	LBWL-ERICKSON STATION	12/20/2022	EUCTGHRSG1	Pipeline quality natural gas, inlet air conditioning, and good combustion practices.	6.02	LB/H	HOURLY; APPLIES DURING ALL OPERAT. MODES	0.0069
MI-0454	LBWL-ERICKSON STATION	12/20/2022	EUCTGHRSG2	Pipeline quality natural gas, inlet air conditioning, and good combustion practices.	6.02	LB/H	HOURLY; APPLIES DURING ALL MODES	0.0069
MI-0454	LBWL-ERICKSON STATION	12/20/2022	EUCTGHRSG2	Pipeline quality natural gas, inlet air conditioning, and good combustion practices.	6.02	LB/H	HOURLY, APPLY DURING ALL OPERATING MODES	0.0069

Table E-17: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN LB/MMBTU
MI-0441	LBWL--ERICKSON STATION	12/21/2018	EUCTGHRSG2--A 667 MMBTU/H natural gas fired CTG with a HRSG.	Pipeline quality natural gas, inlet air conditioning, and good combustion practices.	6.02	LB/H	HOURLY	0.0069
MI-0441	LBWL--ERICKSON STATION	12/21/2018	EUCTGHRSG2--A 667 MMBTU/H natural gas fired CTG with a HRSG.	Pipeline quality natural gas, inlet air conditioning, and good combustion practices.	6.02	LB/H	HOURLY	0.0069
MI-0441	LBWL--ERICKSON STATION	12/21/2018	EUCTGHRSG1--A 667 MMBTU/H NG fired combustion turbine generator coupled with a heat recovery steam generator (HRSG)	Pipeline quality natural gas, inlet air conditioning, and good combustion practices.	6.02	LB/H	HOURLY	0.0069
MI-0441	LBWL--ERICKSON STATION	12/21/2018	EUCTGHRSG1--A 667 MMBTU/H NG fired combustion turbine generator coupled with a heat recovery steam generator (HRSG)	Pipeline quality natural gas, inlet air conditioning and good combustion practices.	6.02	LB/H	HOURLY	0.0069
MI-0447	LBWL--ERICKSON STATION	1/7/2021	EUCTGHRSG1	Pipeline quality natural gas, inlet air conditioning, and good combustion practices.	6.02	LB/H	HOURLY; APPLIES DURING ALL OPERAT. MODES	0.0069
MI-0447	LBWL--ERICKSON STATION	1/7/2021	EUCTGHRSG1	Pipeline quality natural gas, inlet air conditioning, and good combustion practices.	6.02	LB/H	HOURLY; APPLIES DURING ALL OPERAT. MODES	0.0069
MI-0447	LBWL--ERICKSON STATION	1/7/2021	EUCTGHRSG2	Pipeline quality natural gas, inlet air conditioning, and good combustion practices.	6.02	LB/H	HOURLY; APPLIES DURING ALL OPERAT. MODES	0.0069
MI-0447	LBWL--ERICKSON STATION	1/7/2021	EUCTGHRSG2	Pipeline quality natural gas, inlet air conditioning, and good combustion practices.	6.02	LB/H	HOURLY; APPLIES DURING ALL OPERAT. MODES	0.0069
IL-0133	LINCOLN LAND ENERGY CENTER	7/29/2022	Combined-Cycle Combustion Turbines	Good combustion practices	0.0032	POUNDS/MMBTU	WITH DUCT BURNER; ROLLING 3-OPERATING HR	0.0032
IL-0133	LINCOLN LAND ENERGY CENTER	7/29/2022	Combined-Cycle Combustion Turbines	Good combustion practices.	0.0041	POUNDS/MMBTU	ROLLING 3-OPERATING HOUR	0.0041
AK-0088	LIQUEFACTION PLANT	7/7/2022	Four Combined Cycle Gas-Fired Turbines	Good combustion practices and burning clean fuel (natural gas)	0.007	LB/MMBTU	3-HOURS	0.007
AK-0088	LIQUEFACTION PLANT	7/7/2022	Four Combined Cycle Gas-Fired Turbines	Good combustion practices and burning clean fuel (natural gas)	0.007	LB/MMBTU	3-HOURS	0.007
AK-0088	LIQUEFACTION PLANT	7/7/2022	Four Combined Cycle Gas-Fired Turbines	Good combustion practices and burning clean fuel (natural gas)	0.007	LB/MMBTU	3-HOURS	0.007

Table E-17: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN LB/MMBTU
TX-0878	LNG EXPORT TERMINAL	9/15/2022	Refrigeration Compression Turbines	Dry low NOx burners and good combustion practices.	11	LB/HR		
TX-0878	LNG EXPORT TERMINAL	9/15/2022	Refrigeration Compression Turbines	Good combustion practices and use of pipeline quality natural gas	0			
TX-0878	LNG EXPORT TERMINAL	9/15/2022	Refrigeration Compression Turbines	Good combustion practices and use of pipeline quality natural gas	0			
TX-0767	LON C. HILL POWER STATION	10/2/2015	Combined Cycle Turbines (>25 MW)	Good combustion practices and use of pipeline quality natural gas	16	LB/HR		
TX-0767	LON C. HILL POWER STATION	10/2/2015	Combined Cycle Turbines (>25 MW)	Good combustion practices and use of pipeline quality natural gas	16	LB/HR		
OH-0375	LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER	11/7/2017	General Electric Combustion Turbine (P004)	natural gas or a natural gas and ethane mixture only	0.0036	LB/MMBTU		0.0036
OH-0375	LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER	11/7/2017	General Electric Combustion Turbine (P004)	natural gas or a natural gas and ethane mixture only	0.0036	LB/MMBTU		0.0036
OH-0375	LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER	11/7/2017	Mitsubishi Combustion Turbine (P005)	natural gas or a natural gas and ethane mixture only	0.004	LB/MMBTU	WITH DUCT BURNER. SEE NOTES.	0.004
OH-0375	LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER	11/7/2017	Mitsubishi Combustion Turbine (P005)	natural gas or a natural gas and ethane mixture only	0.004	LB/MMBTU	WITH DUCT BURNER. SEE NOTES.	0.004
OH-0375	LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER	11/7/2017	Siemens Combustion Turbine (P006)	natural gas or a natural gas and ethane mixture only	0.0057	LB/MMBTU	WITH DUCT BURNER. SEE NOTES.	0.0057
OH-0375	LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER	11/7/2017	Siemens Combustion Turbine (P006)	natural gas or a natural gas and ethane mixture only	0.0057	LB/MMBTU	WITH DUCT BURNER. SEE NOTES.	0.0057
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Combined Cycle Gas Turbine w/ Duct Burners and HRSG	Use of gaseous fuel (pipeline-quality natural gas) and good combustion practices.	0.008	LB/MM BTU	3 ONE-HOUR TEST AVERAGE	0.008
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Combined Cycle Gas Turbine w/ Duct Burners and HRSG	Use of gaseous fuel (pipeline-quality natural gas) and good combustion practices.	0.008	LB/MM BTU	3 ONE-HOUR TEST AVERAGE	0.008
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Combined Cycle Gas Turbine Startup and Shutdown	Good combustion practices.	18	LB/HR		0.0035

Table E-17: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN LB/MMBTU
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Combined Cycle Gas Turbine Startup and Shutdown	Good combustion practices	18	LB/HR		0.0035
*WV-0033	MAIDSVILLE	1/5/2022	Combustion Turbine & Duct Burner (CT-01/HRSG1 & CT-02/HRSG2)	Clean Fuels and Good Combustion Practice	0.006	LB/MMBTU	AVG OF 3 4-HR TEST RUNS	0.006
*WV-0033	MAIDSVILLE	1/5/2022	Combustion Turbine & Duct Burner (CT-01/HRSG1 & CT-02/HRSG2)	Good Combustion Practice and Clean Fuel	0.006	LB/MMBTU	AVG OF 3 4-HR TEST RUNS	0.006
*IN-0365	MAPLE CREEK ENERGY LLC	6/19/2023	Combined Cycle Turbine CTGB		0.0074	LB PER MMBTU		0.0074
*IN-0365	MAPLE CREEK ENERGY LLC	6/19/2023	Combined Cycle Turbine CTGB		0.0074	LB PER MMBTU		0.0074
*IN-0365	MAPLE CREEK ENERGY LLC	6/19/2023	Combined Cycle Turbine CTGB		0.0074	POUND PER MMBTU		0.0074
*IN-0365	MAPLE CREEK ENERGY LLC	6/19/2023	Combined Cycle Turbine CTGA		0.0049	POUND PER MMBTU		0.0049
*IN-0365	MAPLE CREEK ENERGY LLC	6/19/2023	Combined Cycle Turbine CTGA		0.0049	LB PER MMBTU		0.0049
*IN-0365	MAPLE CREEK ENERGY LLC	6/19/2023	Combined Cycle Turbine CTGA		0.0049	LB PER MMBTU		0.0049
IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014	Combustion turbine #1 - combined cycle		0.01	LB/MMBTU	AVG. OF 3 ONE HOUR TEST RUNS	0.01
IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014	Combustion turbine #2 -combined cycle		0.01	LB/MMBTU	AVERAGE OF 3 ONE-HOUR TEST RUNS	0.01
MD-0045	MATTAWOMAN ENERGY CENTER	11/13/2015	2 COMBINED-CYCLE COMBUSTION TURBINES	USE OF PIPELINE QUALITY NATURAL GAS EXCLUSIVELY AND GOOD COMBUSTION PRACTICES	17.9	LB/H	W/OUT DUCT FIRING, AVG. OF 3 STACK TESTS	
MD-0045	MATTAWOMAN ENERGY CENTER	11/13/2015	2 COMBINED-CYCLE COMBUSTION TURBINES	USE OF PIPELINE QUALITY NATURAL GAS EXCLUSIVELY AND GOOD COMBUSTION PRACTICES.	17.9	LB/H	W/OUT DUCT FIRING, AVG. OF 3 STACK TESTS	
MI-0451	MEC NORTH, LLC	6/23/2022	EUCTGHRSG (North Plant): A combined cycle natural gas fired combustion turbine generator with heat recovery steam generator	Good combustion practices, inlet air conditioning and the use of pipeline quality natural gas.	19.1	LB/H	HOURLY	0.005

Table E-17: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN LB/MMBTU
MI-0451	MEC NORTH, LLC	6/23/2022	EUCTGHRSG (North Plant): A combined cycle natural gas fired combustion turbine generator with heat recovery steam generator	Good combustion practices, inlet air conditioning, and the use of pipeline quality natural gas.	19.1	LB/H	HOURLY	0.005
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUCTGHRSG (South Plant): A combined cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	Good combustion practices, inlet air conditioning, and the use of pipeline quality natural gas.	19.1	LB/H	HOURLY	0.005
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUCTGHRSG (South Plant): A combined cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	Good combustion practices, inlet air conditioning and the use of pipeline quality natural gas.	19.1	LB/H	HOURLY	0.005
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUCTGHRSG (North Plant): A combined-cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	Good combustion practices, inlet air conditioning, and the use of pipeline quality natural gas.	19.1	LB/H	HOURLY	0.005
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUCTGHRSG (North Plant): A combined-cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	Good combustion practices, inlet air conditioning, and the use of pipeline quality natural gas.	19.1	LB/H	HOURLY	0.005
MI-0452	MEC SOUTH, LLC	6/23/2022	EUCTGHRSG (South Plant): A combined-cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	Good Combustion Practices, inlet air conditioning, and the use of pipeline quality natural gas	19.1	LB/H	HOURLY	0.005
MI-0452	MEC SOUTH, LLC	6/23/2022	EUCTGHRSG (South Plant): A combined-cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	Good Combustion Practices, inlet air conditioning, and the use of pipeline quality natural gas	19.1	LB/H	HOURLY	0.005
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	Combined Cycle Combustion Turbine firing Natural Gas with Duct Burner	COMPLIANCE BY STACK TESTING	18.3	LB/H	AV OF THREE ONE H STACK TESTS EVERY 5 YR	0.0045
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	Combined Cycle Combustion Turbine firing Natural Gas with Duct Burner	COMPLIANCE BY STACK TESTING	18.3	LB/H	AV OF THREE ONE H STACK TESTS EVERY 5 YR	0.0045
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	Combined Cycle Combustion Turbine firing Natural Gas without Duct Burner	USE OF NATURAL GAS A CLEAN BURNING FUEL	11.7	LB/H	AV OF THREE ONE H STACK TESTS EVERY 5 YR	0.0029

Table E-17: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN LB/MMBTU
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	Combined Cycle Combustion Turbine firing Natural Gas without Duct Burner	USE OF NATURAL GAS A CLEAN BURNING FUEL	11.7	LB/H	AV OF THREE ONE H STACK TESTS EVERY 5 YR	0.0029
MI-0455	MIDLAND COGENERATION VENTURE LIMITED PARTNERSHIP	2/1/2023	EUCTGHRSG1	Use of pipeline quality natural gas and good combustion practices.	34.4	LB/H	HOURLY	0.0082
MI-0455	MIDLAND COGENERATION VENTURE LIMITED PARTNERSHIP	2/1/2023	EUCTGHRSG1	Use of pipeline quality natural gas and good combustion practices.	34.4	LB/H	HOURLY	0.0082
TX-0834	MONTGOMERY COUNTY POWER STATIOIN	3/30/2018	Combined Cycle Turbine	PIPELINE NATURAL GAS, GOOD COMBUSTION	125.7	TON/YR		
TX-0834	MONTGOMERY COUNTY POWER STATIOIN	3/30/2018	Combined Cycle Turbine	PIPELINE NATURAL GAS, GOOD COMBUSTION	125.7	TON/YR		
TX-0834	MONTGOMERY COUNTY POWER STATIOIN	3/30/2018	Combined Cycle Turbine	PIPELINE NATURAL GAS, GOOD COMBUSTION	125.7	TON/YR		
WV-0025	MOUNDSVILLE COMBINED CYCLE POWER PLANT	11/21/2014	Combined Cycle Turbine/Duct Burner	Good Combustion Practices, Inlet Air Filtration, & use of Natural Gas	8.9	LB/H		0.0037
PA-0311	MOXIE FREEDOM GENERATION PLANT	9/1/2015	Combustion Turbine With Duct Burner		0.0063	LB/MMBTU		0.0063
PA-0311	MOXIE FREEDOM GENERATION PLANT	9/1/2015	Combustion Turbine With Duct Burner		0.0063	LB/MMBTU		0.0063
PA-0311	MOXIE FREEDOM GENERATION PLANT	9/1/2015	Combustion Turbine With Duct Burner		0.0063	LB/MMBTU		0.0063
TX-0788	NECHES STATION	3/24/2016	Combined Cycle & Cogeneration	GOOD COMBUSTION PRACTICES, LOW SULFUR FUEL	19.35	LB/H		
TX-0788	NECHES STATION	3/24/2016	Combined Cycle & Cogeneration	GOOD COMBUSTION PRACTICES AND LOW SULFUR FUEL	19.35	LB/H		
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Natural-Gas-Fired Combined-Cycle Turbine (P01)	Only combust pipeline quality natural gas and diesel fuel oil and use good combustion control according to the manufacturerâ€™s recommendations.	36.3	LB/H	NATURAL GAS, DUCT FIRING	0.0078

Table E-17: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN LB/MMBTU
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Natural-Gas-Fired Combined-Cycle Turbine (P01)	Only pipeline quality natural gas and diesel fuel oil may be combusted and use good combustion control according to the manufacturerâ€™s recommendations.	36.3	LB/H	NATURAL GAS, DUCT FIRING	0.0078
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Natural-Gas-Fired Combined-Cycle Turbine (P01)	Only combust pipeline quality natural gas and diesel fuel oil and use good combustion control according to the manufacturerâ€™s recommendations.	36.3	LB/H	NATURAL GAS, DUCT FIRING	0.0078
MI-0432	NEW COVERT GENERATING FACILITY	7/30/2018	FG-TURB/DB1-3 (3 combined cycle combustion turbine and heat recovery steam generator trains)	Use clean fuel (natural gas) and good combustion practices.	10.7	LB/H	HOURLY; EACH CT/HRSG TRAIN	
MI-0432	NEW COVERT GENERATING FACILITY	7/30/2018	FG-TURB/DB1-3 (3 combined cycle combustion turbine and heat recovery steam generator trains)	Use clean fuel (natural gas) and good combustion practices.	10.7	LB/H	HOURLY; EACH CT/HRSG TRAIN	
OH-0363	NTE OHIO, LLC	11/5/2014	Turbine generator with HRSG and duct burners (P001)	Exclusive use of natural gas, high efficiency inlet air filters and low NOx burner.	20	LB/H	WITH DUCT BURNER. SEE NOTES.	0.0057
OH-0363	NTE OHIO, LLC	11/5/2014	Turbine generator with HRSG and duct burners (P001)	Exclusive use of natural gas, high efficiency inlet air filters and low NOx burner.	20	LB/H	WITH DUCT BURNER. SEE NOTES.	0.0057
FL-0356	OKEECHOBEE CLEAN ENERGY CENTER	3/9/2016	Combined-cycle electric generating unit	Use of clean fuels	2	GRAIN S/100 SCF GAS	FOR NATURAL GAS	
FL-0356	OKEECHOBEE CLEAN ENERGY CENTER	3/9/2016	Combined-cycle electric generating unit	Use of clean fuels	2	GR. S/100 SCF GAS	FOR NATURAL GAS	
FL-0356	OKEECHOBEE CLEAN ENERGY CENTER	3/9/2016	Combined-cycle electric generating unit	Use of clean fuels	2	GR. S/100 SCF GAS	FOR NATURAL GAS	
OH-0372	OREGON ENERGY CENTER	9/27/2017	Combined Cycle Combustion Turbines (two, identical) (P001 and P002)	good combustion practices and pipeline quality natural gas	15.4	LB/H	WITH DUCT BURNER. SEE NOTES.	0.0046
OH-0372	OREGON ENERGY CENTER	9/27/2017	Combined Cycle Combustion Turbines (two, identical) (P001 and P002)	good combustion practices and pipeline quality natural gas	15.4	LB/H	WITH DUCT BURNER. SEE NOTES.	0.0046
CA-1251	PALMDALE ENERGY PROJECT	4/25/2018	Combustion Turbines (GEN1 and GEN2)	Clean fuel and good combustion practices	0.0048	LB/MMBTU	TEST AVERAGE	0.0048

Table E-17: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN LB/MMBTU
CA-1251	PALMDALE ENERGY PROJECT	4/25/2018	Combustion Turbines (GEN1 and GEN2)	Clean fuel and good combustion practices	0.0048	LB/MMBTU	TEST AVERAGE	0.0048
*VA-0335	PANDA STONEWALL LLC	12/18/2020	Combustion Turbines, Two (2) and HRSG Duct Burners	Good combustion practices and use of low-sulfur fuels	0.0037	LB/MMBTU	AT FULL LOAD W & W/O DB	0.0037
AL-0328	PLANT BARRY	11/9/2020	Two 744 MW Combined Cycle Units		0.004	LB/MMBTU	3 HOUR AVG	0.004
TX-0790	PORT ARTHUR LNG EXPORT TERMINAL	2/17/2016	Refrigeration Compression Turbines		11.07	LB/H		
TX-0790	PORT ARTHUR LNG EXPORT TERMINAL	2/17/2016	Refrigeration Compression Turbines		11.07	LB/H		
TX-0790	PORT ARTHUR LNG EXPORT TERMINAL	2/17/2016	Simple Cycle Electrical Generation Gas Turbines 15.210	Equipment specifications & work practices - Good combustion practices and use of low carbon, low sulfur fuel	2.32	LB/H		
TX-0790	PORT ARTHUR LNG EXPORT TERMINAL	2/17/2016	Simple Cycle Electrical Generation Gas Turbines 15.210	Equipment specifications & work practices - Good combustion practices and use of low carbon, low sulfur fuel	2.32	LB/H		
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	Combined Cycle Combustion Turbine -Siemens turbine without Duct Burner	USE OF NATURAL GAS A CLEAN BURNING FUEL	13	LB/H	AVERAGE OF THREE ONE HOUR TESTS	0.0054
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	Combined Cycle Combustion Turbine -Siemens turbine without Duct Burner	USE OF NATURAL GAS A CLEAN BURNING FUEL	13	LB/H	AVERAGE OF THREE ONE HOUR TESTS	0.0054
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - SIEMENS	Use of natural gas a clean burning fuel	14	LB/H	AVERAGE OF THREE TESTS	0.0058
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - SIEMENS	Use of natural gas a clean burning fuel	14	LB/H	AVERAGE OF THREE ONE HOUR TESTS	0.0058
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - GENERAL ELECTRIC	Use of natural gas only as a clean burning fuel	14.6	LB/H	AVERAGE OF THREE ONE HOUR TESTS	0.0059
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - GENERAL ELECTRIC	Use of natural gas only as a clean burning fuel	14.6	LB/H	AVERAGE OF THREE ONE HOUR TESTS	0.0059

Table E-17: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN LB/MMBTU
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITHOUT DUCT BURNER - GENERAL ELECTRIC	Use of Natural Gas as a clean burning fuel	12.7	LB/H	AVERAGE OF THREE ONE HOUR TESTS	0.0051
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITHOUT DUCT BURNER - GENERAL ELECTRIC	Use of natural gas as a clean burning fuel	12.7	LB/H	AVERAGE OF THREE ONE-HOUR TESTS	0.0051
NJ-0084	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/10/2016	Combined Cycle Combustion Turbine with Duct Burner firing natural gas	Use of natural gas a clean burning fuel	22.6	LB/H	AV OF THREE ONE H STACK TESTS	
NJ-0084	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/10/2016	Combined Cycle Combustion Turbine without Duct Burner Firing Natural Gas	Use of natural gas a clean burning fuel	14.4	LB/H	AV OF THREE ONE H STACK TESTS	
NJ-0084	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/10/2016	Combined Cycle Combustion Turbine with Duct Burner firing natural gas	Use of natural gas a clean burning fuel	22.6	LB/H	AV OF THREE ONE H STACK TESTS	
NJ-0084	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/10/2016	Combined Cycle Combustion Turbine without Duct Burner Firing Natural Gas	Use of natural gas a clean burning fuel	14.4	LB/H	AV OF THREE ONE H STACK TESTS	
*PA-0319	RENAISSANCE ENERGY CENTER	8/27/2018	COMBUSTION TURBINE UNIT w/o DUCT BURNERS UNIT		0.0043	LB/MMBTU		0.0043
*PA-0319	RENAISSANCE ENERGY CENTER	8/27/2018	COMBUSTION TURBINE UNIT w/o DUCT BURNERS UNIT		0.0043	LB/MMBTU	HR	0.0043
*PA-0319	RENAISSANCE ENERGY CENTER	8/27/2018	COMBUSTION TURBINE UNIT w/o DUCT BURNERS UNIT		0.0043	LB/MMBTU	HR	0.0043
PA-0334	RENOVO ENERGY CENTER LLC/RENOVO PLT	4/29/2021	COMBUSTION TURBINE w DUCT BURNER #2 (Natural Gas)	SCR, CATALYTIC OXIDIZER	0.005	LB/MMBTU		0.005
PA-0334	RENOVO ENERGY CENTER LLC/RENOVO PLT	4/29/2021	COMBUSTION TURBINE w DUCT BURNER #1 (Natural Gas)	SCR, Catalytic Oxidizer	0.005	LB/MMBTU		0.005
OH-0365	ROLLING HILLS GENERATING, LLC	5/20/2015	Combustion Turbines, Scenario 1 (4, identical) (P001, P002, P004, P005)	good combustion practices along with clean fuels	0.0068	LB/MMBTU	HHV, 3 HR AVG. SEE NOTES.	0.0068
OH-0365	ROLLING HILLS GENERATING, LLC	5/20/2015	Combustion Turbines, Scenario 1 (4, identical) (P001, P002, P004, P005)	good combustion practices along with clean fuels	0.0068	LB/MMBTU	HHV, 3 HR AVG. SEE NOTES.	0.0068

Table E-17: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN LB/MMBTU
OH-0365	ROLLING HILLS GENERATING, LLC	5/20/2015	Combustion Turbines, Scenario 1 (4, identical) (P001, P002, P004, P005)	good combustion practices along with clean fuels	0.0068	LB/MMBTU	HHV, 3 HR AVG. SEE NOTES.	0.0068
OH-0365	ROLLING HILLS GENERATING, LLC	5/20/2015	Combustion Turbines, Scenario 2 (4, identical) (P001, P002, P004, P005)	good combustion practices along with clean fuels	0.0085	LB/MMBTU	HHV, 3 HR AVG. SEE NOTES.	0.0085
OH-0365	ROLLING HILLS GENERATING, LLC	5/20/2015	Combustion Turbines, Scenario 2 (4, identical) (P001, P002, P004, P005)	good combustion practices along with clean fuels	0.0085	LB/MMBTU	HHV, 3 HR AVG. SEE NOTES.	0.0085
OH-0365	ROLLING HILLS GENERATING, LLC	5/20/2015	Combustion Turbines, Scenario 2 (4, identical) (P001, P002, P004, P005)	good combustion practices along with clean fuels	0.0085	LB/MMBTU	HHV, 3 HR AVG. SEE NOTES.	0.0085
TX-0714	S R BERTRON ELECTRIC GENERATING STATION	12/19/2014	(2) combined cycle turbines		0			
MA-0039	SALEM HARBOR STATION REDEVELOPMENT	1/30/2014	Combustion Turbine with Duct Burner		0.0062	LB/MMBTU	1 HR AVG/DO NOT APPLY DURING SS	0.0062
MA-0039	SALEM HARBOR STATION REDEVELOPMENT	1/30/2014	Combustion Turbine with Duct Burner		0.0062	LB/MMBTU	1 HR AVG/DO NOT APPLY DURING SS	0.0062
FL-0367	SHADY HILLS COMBINED CYCLE FACILITY	7/27/2018	1-on-1 combined cycle unit (GE 7HA)	Clean fuels	0			
FL-0367	SHADY HILLS COMBINED CYCLE FACILITY	7/27/2018	1-on-1 combined cycle unit (GE 7HA)	Clean fuels	0			
FL-0371	SHADY HILLS COMBINED CYCLE FACILITY	6/7/2021	GE 7HA.02 Combustion Turbine and HRSG with Duct Firing	Clean fuels	1.4	GR. S/100 SCF NG		
FL-0371	SHADY HILLS COMBINED CYCLE FACILITY	6/7/2021	GE 7HA.02 Combustion Turbine and HRSG with Duct Firing	Clean fuels	1.4	GR. S/100 SCF NG		
OH-0367	SOUTH FIELD ENERGY LLC	9/23/2016	Combined Cycle Combustion Turbines (two, identical) (P001 and P002)	Good combustion controls	25	LB/H	NAT GAS, WITH DUCT BURNER. SEE NOTES.	0.0069
OH-0367	SOUTH FIELD ENERGY LLC	9/23/2016	Combined Cycle Combustion Turbines (two, identical) (P001 and P002)	Good combustion controls	25	LB/H	NAT GAS, WITH DUCT BURNER. SEE NOTES.	0.0069
TX-0713	TENASKA BROWNSVILLE GENERATING STATION	4/29/2014	(2) combined cycle turbines		0			

Table E-17: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN LB/MMBTU
PA-0306	TENASKA PA PARTNERS/WESTMORELAND GEN FAC	2/12/2016	Large combustion turbine	Good combustion practices with the use of low ash/sulfer fuels	0.0039	LB/MMBTU		0.0039
PA-0306	TENASKA PA PARTNERS/WESTMORELAND GEN FAC	2/12/2016	Large combustion turbine	Good combustion practices with the use of low ash/sulfer fuels	0.0039	LB/MMBTU		0.0039
PA-0306	TENASKA PA PARTNERS/WESTMORELAND GEN FAC	2/12/2016	Large combustion turbine	Good combustion practices	0.0039	LB/MMBTU		0.0039
KS-0029	THE EMPIRE DISTRICT ELECTRIC COMPANY	7/14/2015	Combined cycle combustion turbine	dry low NOx burners heat recovery steam generator (HRSG)	30.2	LB/H		
KS-0029	THE EMPIRE DISTRICT ELECTRIC COMPANY	7/14/2015	Combined cycle combustion turbine	dry low NOx burners heat recovery steam generator (HRSG)	30.2	LB/H		
KS-0029	THE EMPIRE DISTRICT ELECTRIC COMPANY	7/14/2015	Combined cycle combustion turbine	dry low NOx burners heat recovery steam generator (HRSG)	30.2	LB/H		
MI-0442	THOMAS TOWNSHIP ENERGY, LLC	8/21/2019	FGCTGHRSG	Low sulfur fuel and good combustion practices.	0.0034	LB/MMBTU	HOURLY; EACH UNIT	0.0034
MI-0442	THOMAS TOWNSHIP ENERGY, LLC	8/21/2019	FGCTGHRSG	Low sulfur fuel and good combustion practices.	0.006	LB/MMBTU	HOURLY; EACH UNIT	0.006
MI-0442	THOMAS TOWNSHIP ENERGY, LLC	8/21/2019	FGCTGHRSG	Low sulfur fuel and good combustion practices.	0.006	LB/MMBTU	HOURLY; EACH UNIT	0.006
TX-0712	TRINIDAD GENERATING FACILITY	11/20/2014	combined cycle turbine		0			
OR-0050	TROUTDALE ENERGY CENTER, LLC	3/5/2014	Mitsubishi M501-GAC combustion turbine, combined cycle configuration with duct burner.	Utilize only natural gas or ULSD fuel; Limit the time in startup or shutdown.	23.6	LB/H TOTAL PM	6-HR AVERAGE ON NG	
OH-0370	TRUMBULL ENERGY CENTER	9/7/2017	Combined Cycle Combustion Turbines (two, identical) (P001 and P002)	Good combustion controls and low sulfur fuel	15.2	LB/H	WITH DUCT BURNER. SEE NOTES.	0.0046
OH-0370	TRUMBULL ENERGY CENTER	9/7/2017	Combined Cycle Combustion Turbines (two, identical) (P001 and P002)	Good combustion controls and low sulfur fuel	15.2	LB/H	WITH DUCT BURNER. SEE NOTES.	0.0046
TX-0710	VICTORIA POWER STATION	12/1/2014	combined cycle turbine		0			

Table E-17: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN LB/MMBTU
NJ-0082	WEST DEPTFORD ENERGY STATION	7/18/2014	Combined Cycle Combustion Turbine without Duct Burner	Use of natural gas a clean burning fuel	10	LB/H	AVERAGE OF THREE ONE HOUR STACK TESTS	0.0033
NJ-0082	WEST DEPTFORD ENERGY STATION	7/18/2014	Combined Cycle Combustion Turbine without Duct Burner	Use of natural gas a clean burning fuel	10	LB/H	AVERAGE OF THREE ONE HOUR STACK TESTS	0.0033
NJ-0082	WEST DEPTFORD ENERGY STATION	7/18/2014	Combined Cycle Combustion Turbine with Duct Burner	Use of Natural gas a clean burning fuel	21.55	LB/H	AVERAGE OF THREE STACK TEST RUNS	0.0069
NJ-0082	WEST DEPTFORD ENERGY STATION	7/18/2014	Combined Cycle Combustion Turbine with Duct Burner	Use of Natural Gas a clean burning fuel	21.55	LB/H	AVERAGE OF THREE STACK TEST RUNS	0.0069
MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	2 COMBINED CYCLE COMBUSTION TURBINES, WITH DUCT FIRING	EXCLUSIVE USE OF PIPELINE QUALITY NATURAL GAS AND EFFICIENT TURBINE DESIGN	38	LB/H	AVERAGE OF 3 STACK TEST RUNS	
MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	2 COMBINED CYCLE COMBUSTION TURBINES, WITH DUCT FIRING	EXCLUSIVE USE OF PIPELINE QUALITY NATURAL GAS AND EFFICIENT TURBINE DESIGN	38	LB/H	AVERAGE OF 3 STACK TEST RUNS	
MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	2 COMBINED CYCLE COMBUSTION TURBINES, WITHOUT DUCT FIRING	EXCLUSIVE USE OF PIPELINE QUALITY NATURAL GAS AND EFFICIENT TURBINE DESIGN	25.1	LB/H	AVERAGE OF 3 STACK TEST RUNS	
MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	2 COMBINED CYCLE COMBUSTION TURBINES, WITHOUT DUCT FIRING	EXCLUSIVE USE OF PIPELINE QUALITY NATURAL GAS AND EFFICIENT TURBINE DESIGN	25.1	LB/H	AVERAGE OF 3 STACK TEST RUNS	
PA-0307	YORK ENERGY CENTER BLOCK 2 ELECTRICITY GENERATION PROJECT	6/15/2015	Two combined cycle turbines with out duct burner	Good combustion practices and low sulfur fuels	0.0068	LB/MMBTU		0.0068
PA-0307	YORK ENERGY CENTER BLOCK 2 ELECTRICITY GENERATION PROJECT	6/15/2015	Two combined cycle turbines with out duct burner	Good combustion practices and low sulfur fuels	0.0068	LB/MMBTU		0.0068
PA-0307	YORK ENERGY CENTER BLOCK 2 ELECTRICITY GENERATION PROJECT	6/15/2015	Two combined cycle turbines with out duct burner	Good combustion practices and low sulfur fuels	0.0068	LB/MMBTU		0.0068
PA-0307	YORK ENERGY CENTER BLOCK 2 ELECTRICITY GENERATION PROJECT	6/15/2015	Two Combine Cycle Combustion Turbine with Duct Burner	Good combustion practices and low sulfur fuels	0.0066	LB/MMBTU		0.0066
PA-0307	YORK ENERGY CENTER BLOCK 2 ELECTRICITY GENERATION PROJECT	6/15/2015	Two Combine Cycle Combustion Turbine with Duct Burner	Good combustion practices and low sulfur fuels	0.0066	LB/MMBTU		0.0066

Table E-17: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN LB/MMBTU
PA-0307	YORK ENERGY CENTER BLOCK 2 ELECTRICITY GENERATION PROJECT	6/15/2015	Two Combine Cycle Combustion Turbine with Duct Burner	Good combustion practices and low sulfur fuels	0.0066	LB/MMBTU		0.0066

Table E-18: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, NEEDS and EIA-860Listings for PM

NEEDS: Commencing Commercial Operation in Past 5 Years; EIA-860: Facilities Listed as Planned and Under Construction

STATE	FACILITY NAME	UNIT CODE	APPLICATION/PERMIT DATE	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN LB/MMBTU
LA	Magnolia Power	CCGT-1 (EQTT001)	5/23/2024	Use of gaseous fuels (pipeline quality NG or a blend of up to 50% H2 and pipeline quality NG) and good combustion practices	0.008	lb/MMBtu	Three 1-hour test average	0.008
FL	Shady Hills Combined Cycle Facility	EU001	2/15/2023	Clean fuels	1.4	grain Sulfur/100 SCF NG		
FL	Shady Hills Combined Cycle Facility	EU001	2/15/2023	Clean fuels	10	% VE	6-min block	
OH	Trumbull Energy Center	P001/P002	2/5/2020	Good combustion controls and low sulfur fuel	0.0046	lb/MMBtu	With DB	0.0046
OH	Trumbull Energy Center	P001/P002	2/5/2020	Good combustion controls and low sulfur fuel	0.006	lb/MMBtu	w/o DB	0.006
CA	AES Huntington Beach	D115	3/14/2024		0.01	grains/SCF		
CA	AES Huntington Beach	D124	3/14/2024		0.01	grains/SCF		
CA	AES Huntington Beach	D115	3/14/2024	Natural Gas fuel	8.5	lb/hr		0.004
CA	AES Huntington Beach	D124	3/14/2024	Natural Gas fuel	8.5	lb/hr		0.004
CA	AES Huntington Beach	D115	3/14/2024		11	lb/hr		0.005
CA	AES Huntington Beach	D124	3/14/2024		11	lb/hr		0.005
CA	Alamitos Energy Center	D165/D173	4/18/2017		0.01	grains/SCF		
CA	Alamitos Energy Center	D165/D173	4/18/2017		8.5	lb/hr		0.004
PA	BIRDSBORO POWER LLC	PROC101	1/1/2021		12	lb/hr	avg of 3 test runs	0.004
CT	Bridgeport Energy, LLC	Stack 5	3/24/2023		0.0086	lb/MMBtu	Trubine inlet temp <59F	0.0086
CT	Bridgeport Energy, LLC	Stack 6	3/24/2023		0.0086	lb/MMBtu	Trubine inlet temp <59F	0.0086

Table E-18: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, NEEDS and EIA-860Listings for PM

NEEDS: Commencing Commercial Operation in Past 5 Years; EIA-860: Facilities Listed as Planned and Under Construction

STATE	FACILITY NAME	UNIT CODE	APPLICATION/PERMIT DATE	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN LB/MMBTU
CT	Bridgeport Energy, LLC	Stack 5	3/24/2023		0.009	lb/MMBtu	Trubine inlet temp >=59F	0.009
CT	Bridgeport Energy, LLC	Stack 6	3/24/2023		0.009	lb/MMBtu	Trubine inlet temp >=59F	0.009
NY	Cricket Valley Energy	U-00001	12/5/2018		0.005	lb/MMBtu	w/o duct firing 1-hour avg	0.005
NY	Cricket Valley Energy	U-00002	12/5/2018		0.005	lb/MMBtu	w/o duct firing 1-hour avg	0.005
NY	Cricket Valley Energy	U-00003	12/5/2018		0.005	lb/MMBtu	w/o duct firing 1-hour avg	0.005
PA	Hickory Run Energy Station	CC1 and CC2	4/23/2013		18.5	lb/hr	w duct burner	0.005
MN	Makato energy center	CT2 and DB2 EQUI 5/EQUI 6	2/14/2014	Clean burning fuel	0.009	lb/MMBtu	3-hour block average	0.009
MN	Makato energy center	CT1 and DB1 EQUI 16/EQUI 17	2/14/2014	Clean burning fuel	0.0098	lb/MMBtu	NG combustion, 3 hour block avg	0.0098
MN	Makato energy center	CT1 and DB1 EQUI 16/EQUI 17	2/14/2014	Clean burning fuel	11.9	lb/hr	NG combustion, 3 hour block avg	Included above
MN	Makato energy center	CT2 and DB2 EQUI 5/EQUI 6	2/14/2014	Clean burning fuel	22	lb/hr	3-hour block average	Included above
MS	R D Morrow Sr Generating Plant	AA-012/AA-13	12/20/2019	NG and good combustion	36.3	lb/hr	3 hour basis	0.009
MS	R D Morrow Sr Generating Plant	AA-012/AA-13	12/20/2019	NG and good combustion	159	tpy		
WI	West Riverside Energy Center	P20/P21	4/13/2019		0.1	lb/MMBtu		0.1
WI	West Riverside Energy Center	P20/P21	4/13/2019		18.6	lb/hr	3 hour basis	Included above

Table E-19: Distillate Oil-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN LB/MMBTU
NJ-0088	COGEN TECH LINDEN VENTURE LP	7/30/2019	250 MW COMBINED CYCLE COMBUSTION TURBINE FIRING ULTRA LOW SULFUR DISTILLATE OIL (ULSD)	Use of clean burning fuel - ULSD	49.17	LB/H	AV OF THREE ONE H STACK TESTS EVERY 5 YR	
NJ-0088	COGEN TECH LINDEN VENTURE LP	7/30/2019	250 MW COMBINED CYCLE COMBUSTION TURBINE FIRING ULTRA LOW SULFUR DISTILLATE OIL (ULSD)	Use of clean burning fuel - ULSD	49.17	LB/H	AV OF THREE ONE H STACK TESTS EVERY 5 YR	
PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Combustion turbine and HRSG without duct burner ULSD	Water/steam injection, ULSD fuel (CCCT only - duct burner is not fired with ULSD), good combustion practices	0.0415	LB/MMBTU		0.0415
PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Combustion turbine and HRSG without duct burner ULSD	Water/steam injection, ULSD fuel (CCCT only - duct burner is not fired with ULSD), good combustion practices	0.0415	LB/MMBTU		0.0415
PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Combustion turbine and HRSG without duct burner ULSD	Water/steam injection, ULSD fuel (CCCT only - duct burner is not fired with ULSD), good combustion practices	0.0415	LB/MMBTU		0.0415
CT-0158	CPV TOWANTIC, LLC	11/30/2015	Combined Cycle Power Plant		42.6	LB/H		
CT-0161	KILLINGLY ENERGY CENTER	6/30/2017	ULSD w/o Duct Firing	Good Combustion	0.0168	LB/MMBTU		0.0168
CT-0161	KILLINGLY ENERGY CENTER	6/30/2017	ULSD w/o Duct Firing	Good Combustion	0.0168	LB/MMBTU		0.0168
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	COMBINED CYCLE COMBUSTION TURBINE FIRING ULTRA LOW SULFUR DISTILLATE OIL	use of ULSD a low sulfur and clean fuel	72	LB/H	AV OF THREE ONE H STACK TESTS EVERY 5 YR	0.0171
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	COMBINED CYCLE COMBUSTION TURBINE FIRING ULTRA LOW SULFUR DISTILLATE OIL	Use of ULSD a low sulfur and clean fuel	72	LB/H	AV OF THREE ONE H STACK TESTS EVERY 5 YR	0.0171
NJ-0084	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/10/2016	Combined Cycle Combustion Turbine without Duct Burner Firing ULSD	Use of Natural Gas a clean burning fuel	60.6	LB/H	AV OF THREE ONE HOUR STACK TESTS	
NJ-0084	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/10/2016	Combined Cycle Combustion Turbine without Duct Burner Firing ULSD	USE OF NATURAL GAS A CLEAN BURNING FUEL	60.6	LB/H	AV OF THREE ONE HOUR STACK TESTS	

Table E-19: Distillate Oil-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN LB/MMBTU
PA-0334	RENOVO ENERGY CENTER LLC/RENOVO PLT	4/29/2021	COMBUSTION TURBINE #2 (ULSD)	selective catalytic reduction (SCR) system, oxidation catalyst.	0.0122	LB/MMBTU		0.0122
PA-0334	RENOVO ENERGY CENTER LLC/RENOVO PLT	4/29/2021	COMBUSTION TURBINE #1 (ULSD)	SCR, Catalytic Oxidizer	0.0122	LB/MMBTU		0.0122
PA-0307	YORK ENERGY CENTER BLOCK 2 ELECTRICITY GENERATION PROJECT	6/15/2015	Two combined cycle combustion turbines ULSD fired with duct burner NG fired	Good combustion practices and low sulfur fuels	0.0152	LB/MMBTU		0.0152
PA-0307	YORK ENERGY CENTER BLOCK 2 ELECTRICITY GENERATION PROJECT	6/15/2015	Two combined cycle combustion turbines ULSD fired with duct burner NG fired	Good combustion practices and low sulfur fuels	0.0152	LB/MMBTU		0.0152
PA-0307	YORK ENERGY CENTER BLOCK 2 ELECTRICITY GENERATION PROJECT	6/15/2015	Two combined cycle combustion turbines ULSD fired with duct burner NG fired	Good combustion practices and low sulfur fuels	0.0152	LB/MMBTU		0.0152
PA-0307	YORK ENERGY CENTER BLOCK 2 ELECTRICITY GENERATION PROJECT	6/15/2015	Two combined cycle combustion turbines ULSD fired without duct burner	Good combustion practices and low sulfur fuels	0.0272	LB/MMBTU		0.0272
PA-0307	YORK ENERGY CENTER BLOCK 2 ELECTRICITY GENERATION PROJECT	6/15/2015	Two combined cycle combustion turbines ULSD fired without duct burner	Good combustion practices and low sulfur fuels	0.0272	LB/MMBTU		0.0272
PA-0307	YORK ENERGY CENTER BLOCK 2 ELECTRICITY GENERATION PROJECT	6/15/2015	Two combined cycle combustion turbines ULSD fired without duct burner	Good combustion practices and low sulfur fuels	0.0272	LB/MMBTU		0.0272

Table E-20: Distillate Oil-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, NEEDS and EIA-860Listings for PM

NEEDS: Commencing Commercial Operation in Past 5 Years; EIA-860: Facilities Listed as Planned and Under Construction

STATE	FACILITY NAME	UNIT CODE	APPLICATION/PERMIT DATE	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME	EMISSION LIMIT IN LB/MMBTU
MN	Makato energy center	CT2 and DB2 EQUI 5/EQUI 6	2/14/2014	Clean burning fuel	0.057	lb/MMBtu	3-hour block average	0.057
MN	Makato energy center	CT2 and DB2 EQUI 5/EQUI 6	2/14/2014	Clean burning fuel	72.8	lb/hr	3-hour block average	Included above

Table E-21: Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for H_2SO_4

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	FGCTGHRSG (EUCTGHRSG1 & EUCTGHRSG2)	Good combustion practices and the use of pipeline quality natural gas.	0.0013	LB/MMBTU	HOURLY; EACH UNIT
*WV-0032	BROOKE COUNTY POWER PLANT	9/18/2018	GE 7HA.01 Turbine	Use of Natural Gas	2.6	LB/HR	
VA-0328	C4GT, LLC	4/26/2018	GE Combustion Turbine - Option 1 - Normal Operation	use of natural gas with a sulfur content of no more than 0.4 gr/100scf, 12-mo rolling av	2.5	LB/H	3 H AV/WITHOUT DUCT BURNING
VA-0328	C4GT, LLC	4/26/2018	Siemens Combusion Turbine - Option 2 - Normal Operation	use of natural gas with a sulfur content of no more than 0.4 gr/100scf, 12 mo rolling av.	2.2	LB/H	3 H AV/WITHOUT DB
VA-0332	CHICKAHOMINY POWER LLC	6/24/2019	Three (3) Mitsubishi Hitachi Power Systems combustion turbine generators	Controlled by the use of pipeline-quality natural gas with a maximum sulfur content of 0.4 grains per 100 standard cubic feet (scf), on a 12-month rolling average.	0.0012	LB/MMBTU	3 HR AVG
OH-0366	CLEAN ENERGY FUTURE - LORDSTOWN, LLC	8/25/2015	Combined Cycle Combustion Turbines (two, identical) (P001 and P002)	Low sulfur fuel	3.4	LB/H	WITH DUCT BURNER. SEE NOTES.
NJ-0088	COGEN TECH LINDEN VENTURE LP	7/30/2019	250 MW COMBINED CYCLE COMBUSTION TURBINE FIRING NATURAL GAS	Use of clean burning fuels Natural gas	3.45	LB/H	
TX-0730	COLORADO BEND ENERGY CENTER	4/1/2015	Combined-cycle gas turbine electric generating facility	efficient combustion, natural gas fuel	2	GR/100 SCF	1-HOUR
PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Combustion turbine and HRSG with duct burner NG only	ULSD fuel (CCCT only - duct burner is not fired with ULSD), good combustion practices	0.0014	LB/MMBTU	
PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Combustion turbine and HRSG without duct burner NG only	Low sulfur fuels and good combustion practices	0.0014	LB/MMBTU	
MD-0041	CPV ST. CHARLES	4/23/2014	2 COMBINED-CYCLE COMBUSTION TURBINES	EXCLUSIVE USE OF PIPELINE QUALITY NATURAL GAS	2.2	LB/H	3 HR BLOCK AVG
IL-0129	CPV THREE RIVERS ENERGY CENTER	7/30/2018	Combined Cycle Combustion Turbines	No controls feasible for use of natural gas.	0		
CT-0157	CPV TOWANTIC, LLC	11/30/2015	Combined Cycle Power Plant		2.11	LB/H	
CT-0158	CPV TOWANTIC, LLC	11/30/2015	Combined Cycle Power Plant	Use of inherently low sulfur fuel	2.11	LB/H	

Table E-21: Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for H_2SO_4

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
FL-0363	DANIA BEACH ENERGY CENTER	12/4/2017	2-on-1 combined cycle unit (GE 7HA)	Clean fuels	0		
TX-0789	DECORDOVA STEAM ELECTRIC STATION	3/8/2016	Combined Cycle & Cogeneration	GOOD COMBUSTION PRACTICES AND LOW SULFUR FUEL	5	GR/100 SCF	HOURLY
TX-0751	EAGLE MOUNTAIN STEAM ELECTRIC STATION	6/18/2015	Combined Cycle Turbines (>25 MW) â€“ natural gas		15.56	LB/H	
TX-0773	FGE EAGLE PINES PROJECT	11/4/2015	Combined Cycle Turbines (>25 MW)	low sulfur fuel	10.4	T/YR	
*PA-0298	FUTURE POWER PA/GOOD SPRINGS NGCC FACILITY	3/4/2014	Turbine, COMBINED CYCLE UNIT (Siemens 5000)		3.4	LB/H	WITH DUCT BURNER
VA-0325	GREENSVILLE POWER STATION	6/17/2016	COMBUSTION TURBINE GENERATOR WITH DUCT-FIRED HEAT RECOVERY STEAM GENERATORS (3)	Low Sulfur fuel	0.0006	LB/MMBTU	
OH-0374	GUERNSEY POWER STATION LLC	10/23/2017	Combined Cycle Combustion Turbines (3, identical) (P001 to P003)	pipeline quality natural gas with a maximum sulfur content not exceed 0.50 grain/100 scf	0.0011	LB/MMBTU	SEE NOTES.
*WV-0029	HARRISON COUNTY POWER PLANT	3/27/2018	GE 7HA.02 Turbine	Use of Natural Gas	3.8	LB/HR	
OH-0377	HARRISON POWER	4/19/2018	General Electric (GE) Combustion Turbines (P005 & P006)	Good combustion practices and pipeline quality natural gas	0.001	LB/MMBTU	WITH DUCT BURNER. SEE NOTES.
OH-0377	HARRISON POWER	4/19/2018	Mitsubishi Hitachi Power Systems (MHPS) Combustion Turbines (P007 & P008)	Good combustion practices and pipeline quality natural gas	0.0022	LB/MMBTU	
MI-0423	INDECK NILES, LLC	1/4/2017	FGCTGHRSG (2 Combined Cycle CTGs with HRSGs)	Good Combustion Practices and the use of pipeline quality natural gas.	4.6	LB/H	TEST PROTOCOL WILL SPECIFY AVG TIME
*MI-0445	INDECK NILES, LLC	11/26/2019	FGCTGHRSG	Good combustion practices and the use of pipeline quality natural gas.	4.6	LB/H	HOURLY; EACH CTGHRSG
IL-0130	JACKSON ENERGY CENTER	12/31/2018	Combined-Cycle Combustion Turbine		5	POUNDS/HOUR	3-HR BLOCK AVG
CT-0161	KILLINGLY ENERGY CENTER	6/30/2017	Natural Gas w/o Duct Firing	Low Sulfur content fuel	0.0005	LB/MMBTU	

Table E-21: Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for H_2SO_4

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
CT-0161	KILLINGLY ENERGY CENTER	6/30/2017	Natural Gas w/Duct Firing	Low Sulfur Fuels	0	LB/MMBTU	
PA-0309	LACKAWANNA ENERGY CTR/JESSUP	12/23/2015	Combustion turbine with duct burner	Exclusive natural gas	0.0009	LB/MMBTU	
IL-0133	LINCOLN LAND ENERGY CENTER	7/29/2022	Combined-Cycle Combustion Turbines	Good combustion practices and use of only natural gas with a sulfur content no greater than 0.5 grains (gr)/100 standard cubic feet (scf).	2	POUNDS/MMBTU	ROLLING 3-OPERATING HOUR
OH-0375	LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER	11/7/2017	General Electric Combustion Turbine (P004)	natural gas or a natural gas and ethane mixture only	0.0011	LB/MMBTU	
OH-0375	LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER	11/7/2017	Mitsubishi Combustion Turbine (P005)	natural gas or a natural gas and ethane mixture only	0.0009	LB/MMBTU	
OH-0375	LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER	11/7/2017	Siemens Combustion Turbine (P006)	natural gas or a natural gas and ethane mixture only	5.2	X10-4 LB/MMBTU	WITH DUCT BURNER. SEE NOTES.
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Combined Cycle Gas Turbine w/ Duct Burners and HRSG	Use of gaseous fuel (pipeline-quality natural gas) and good combustion practices.	0.0062	GR/DSCF	
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Combined Cycle Gas Turbine Startup and Shutdown	Good combustion practices.	2.28	LB/HR	
*WV-0033	MAIDSVILLE	1/5/2022	Combustion Turbine & Duct Burner (CT-01/HRSG1 & CT-02/HRSG2)	Low Sulfur Fuel	0.4	GR-S/100 SCF	SEE APPENDIX D OF 40CFR75
*WV-0033	MAIDSVILLE	1/5/2022	Combustion Turbine & Duct Burner (CT-01/HRSG1 & CT-02/HRSG2)	Low Sulfur Fuel	0.4	GR-S/100 SCF	SEE APPENDIX D OF 40CFR75
*IN-0365	MAPLE CREEK ENERGY LLC	6/19/2023	Combined Cycle Turbine CTGB		0.0013	LB PER MMBTU	
*IN-0365	MAPLE CREEK ENERGY LLC	6/19/2023	Combined Cycle Turbine CTGA		0.0004	POUND PER MMBTU	

Table E-21: Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for H_2SO_4

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014	Combustion turbine #1 - combined cycle		0.0032	LB/MMBTU	3 ONE-HOUR TEST RUNS
IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014	Combustion turbine #2 -combined cycle		0.0032	LB/MMBTU	AVERAGE OF 3 ONE-HOUR TEST RUNS
MD-0045	MATTAWOMAN ENERGY CENTER	11/13/2015	2 COMBINED-CYCLE COMBUSTION TURBINES	INITIAL AND ANNUAL PERFORMANCE TEST USING EPA METHOD 8 OR EQUIVALENT METHOD APPROVED BY MDE-ARMA	4.6	LB/H	3-HR BLOCK AVERAGE, W/OUT DUCT FIRING
MI-0451	MEC NORTH, LLC	6/23/2022	EUCTGHRSG (North Plant): A combined cycle natural gas fired combustion turbine generator with heat recovery steam generator	Good combustion practices and the use of pipeline quality natural gas.	2.6	LB/H	HOURLY
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUCTGHRSG (South Plant): A combined cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	Good combustion practices and the use of pipeline quality natural gas.	2.7	LB/H	HOURLY
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUCTGHRSG (North Plant): A combined-cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	Good combustion practices and the use of pipeline quality natural gas.	2.7	LB/H	HOURLY
MI-0452	MEC SOUTH, LLC	6/23/2022	EUCTGHRSG (South Plant): A combined-cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	Good Combustion Practices and the use of pipeline quality natural gas	2.6	LB/H	HOURLY
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	Combined Cycle Combustion Turbine firing Natural Gas with Duct Burner	USE OF NATURAL GAS A LOW SULFUR FUEL	4.26	LB/H	AV OF THREE ONE H STACK TESTS EVERY 5 YR
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	Combined Cycle Combustion Turbine firing Natural Gas without Duct Burner	USE OF NATURAL GAS A CLEAN BURNING FUEL	3.61	LB/H	AV OF THREE ONE H STACK TESTS EVERY 5 YR
TX-0834	MONTGOMERY COUNTY POWER STATIOIN	3/30/2018	Combined Cycle Turbine	PIPELINE QUALITY NATURAL GAS	1	GR/100 DSCF	
PA-0311	MOXIE FREEDOM GENERATION PLANT	9/1/2015	Combustion Turbine With Duct Burner		0.0009	LB/MMBTU	

Table E-21: Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for H_2SO_4

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
PA-0311	MOXIE FREEDOM GENERATION PLANT	9/1/2015	Combustion Turbine without Duct Burner		0.0009	LB/MMBTU	
TX-0788	NECHES STATION	3/24/2016	Combined Cycle & Cogeneration	GOOD COMBUSTION PRACTICES AND LOW SULFUR FUEL	1	GR/100 SCF	HOURLY
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Natural-Gas-Fired Combined-Cycle Turbine (P01)	Only use pipeline quality natural gas and diesel fuel and use good combustion control.	9.9	LB/H	NATURAL GAS, DUCT FIRING
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Natural Gas-Fired Combined-Cycle Turbine (P01) Start-up and Shutdown (Natural Gas)		15.6	LB/START-UP	
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Natural-Gas-Fired Combined-Cycle Turbine (P01) Start-Up and Shutdown (diesel)		14	LB/START-UP	
MI-0432	NEW COVERT GENERATING FACILITY	7/30/2018	FG-TURB/DB1-3 (3 combined cycle combustion turbine and heat recovery steam generator trains)	Use of clean fuel (natural gas) with a fuel sulfur limit of 0.8 grains per 100 standard cubic feet of natural gas.	1	LB/H	HOURLY; EACH CT/HRSG TRAIN
TX-0908	NEWMAN POWER STATION	8/27/2021	Simple Cycle Turbine	Use of natural gas and good combustion practices	0		
OH-0363	NTE OHIO, LLC	11/5/2014	Turbine generator with HRSG and duct burners (P001)	Used of natural gas.	4.3	LB/H	WITH DUCT BURNER. SEE NOTES.
FL-0356	OKEECHOBEE CLEAN ENERGY CENTER	3/9/2016	Combined-cycle electric generating unit	Use of low-sulfur fuels	2	GR. S/100 SCF GAS	FOR GAS
TX-0939	ORANGE COUNTY ADVANCED POWER STATION	3/13/2023	Combined Cycle Turbines	good combustion practices and low sulfur fuel	0.33	GR/100 DSCF	
OH-0372	OREGON ENERGY CENTER	9/27/2017	Combined Cycle Combustion Turbines (two, identical) (P001 and P002)	Low sulfur fuel	3.7	LB/H	WITH DUCT BURNER. SEE NOTES.
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	Combined Cycle Combustion Turbine - Siemens turbine without Duct Burner	USE OF NATURAL GAS A CLEAN BURNING FUEL	2.79	LB/H	
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - SIEMENS	Use of natural gas a clean burning fuel	2.79	LB/H	
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - GENERAL ELECTRIC	Use of natural gas a clean burning fuel and a low sulfur fuel	2.93	LB/H	
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITHOUT DUCT BURNER - GENERAL ELECTRIC	Use of natural gas a low sulfur fuel	2.74	LB/H	

Table E-21: Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for H_2SO_4

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
NJ-0084	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/10/2016	Combined Cycle Combustion Turbine with Duct Burner firing natural gas	Use of natural gas a low sulfur fuel	6.6	LB/H	AV OF THREE ONE H STACK TESTS
NJ-0084	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/10/2016	without Duct Burner Firing Natural Gas	Use of natural gas which is low sulfur fuel	5.5	LB/H	AV OF THREE ONE H STACK TESTS
*PA-0319	RENAISSANCE ENERGY CENTER	8/27/2018	COMBUSTION TURBINE UNIT w/o DUCT BURNERS UNIT		5.98	TPY	
PA-0334	RENOVO ENERGY CENTER LLC/RENOVO PLT	4/29/2021	COMBUSTION TURBINE w DUCT BURNER #2 (Natural Gas)	SCR, CATALYTIC OXIDIZER	0.0009	LB/MMBTU	
PA-0334	RENOVO ENERGY CENTER LLC/RENOVO PLT	4/29/2021	COMBUSTION TURBINE w DUCT BURNER #1 (Natural Gas)	SCR, Catalytic Oxidizer	0.0009	LB/MMBTU	
OH-0365	ROLLING HILLS GENERATING, LLC	5/20/2015	Combustion Turbines, Scenario 1 (4, identical) (P001, P002, P004, P005)	good combustion practices along with clean fuels. Firing only natural gas with a sulfur content of 0.25 grains per 100 standard cubic feet (gr/100 scf)	2	T/YR	PER ROLLING 12 MONTH PERIOD. SEE NOTES.
OH-0365	ROLLING HILLS GENERATING, LLC	5/20/2015	Combustion Turbines, Scenario 2 (4, identical) (P001, P002, P004, P005)	good combustion practices along with clean fuels. Firing only natural gas with a sulfur content of 0.25 grains per 100 standard cubic feet (gr/100 scf)	2.1	T/YR	PER ROLLING 12 MONTH PERIOD. SEE NOTES.
TX-0714	S R BERTRON ELECTRIC GENERATING STATION	12/19/2014	(2) combined cycle turbines		0.5	GR SULFUR/100 DSCF	
MA-0039	SALEM HARBOR STATION REDEVELOPMENT	1/30/2014	Combustion Turbine with Duct Burner		0.001	LB/MMBTU	1 HR AVG, DOES NOT APPLY DURING SUSD
FL-0367	SHADY HILLS COMBINED CYCLE FACILITY	7/27/2018	1-on-1 combined cycle unit (GE 7HA)	Clean fuels	0		
FL-0371	SHADY HILLS COMBINED CYCLE FACILITY	6/7/2021	GE 7HA.02 Combustion Turbine and HRSG with Duct Firing	Low sulfur fuel	1.4	GR. S/100 SCF NG	
OH-0367	SOUTH FIELD ENERGY LLC	9/23/2016	Combined Cycle Combustion Turbines (two, identical) (P001 and P002)	Low sulfur fuels	6.96	LB/H	WITH DUCT BURNER. SEE NOTES.
LA-0313	ST. CHARLES POWER STATION	8/31/2016	SCPS Combined Cycle Unit 1A	Use of low sulfur fuel	1.21	LB/H	HOURLY MAXIMUM

Table E-21: Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for H_2SO_4

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
LA-0313	ST. CHARLES POWER STATION	8/31/2016	SCPS Combined Cycle Unit 1B	Use of low sulfur fuels	1.21	LB/H	HOURLY MAXIMUM
PA-0306	TENASKA PA PARTNERS/WESTMORELAND GEN FAC	2/12/2016	Large combustion turbine	Low sulfur fuel and good combustion practices	0.0006	LB/MMBTU	HHV
MI-0442	THOMAS TOWNSHIP ENERGY, LLC	8/21/2019	FGCTGHRSG	The use of clean fuel (natural gas), with a fuel sulfur limit of 1 grain per 100 standard cubic feet of natural gas.	0.0013	LB/MMBTU	HOURLY; EACH UNIT
OR-0050	TROUTDALE ENERGY CENTER, LLC	3/5/2014	Mitsubishi M501-GAC combustion turbine, combined cycle configuration with duct burner.	Utilize only natural gas or ULSD fuel.	0		
OH-0370	TRUMBULL ENERGY CENTER	9/7/2017	Combined Cycle Combustion Turbines (two, identical) (P001 and P002)	Low sulfur fuel	3.7	LB/H	WITH DUCT BURNER. SEE NOTES.
NJ-0082	WEST DEPTFORD ENERGY STATION	7/18/2014	Combined Cycle Combustion Turbine without Duct Burner	Use of natural gas a clean burning fuel	0.74	LB/H	
NJ-0082	WEST DEPTFORD ENERGY STATION	7/18/2014	Combined Cycle Combustion Turbine with Duct Burner	Use of natural gas a clean burning fuel	0.98	LB/H	
MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	2 COMBINED CYCLE COMBUSTION TURBINES, WITH DUCT FIRING	EXCLUSIVE USE OF PIPELINE QUALITY NATURAL GAS	12.5	LB/H	3-HOUR BLOCK AVERAGE
MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	2 COMBINED CYCLE COMBUSTION TURBINES, WITHOUT DUCT FIRING	EXCLUSIVE USE OF PIPELINE QUALITY NATURAL GAS	9.7	LB/H	3-HOUR BLOCK AVERAGE
PA-0307	YORK ENERGY CENTER BLOCK 2 ELECTRICITY GENERATION	6/15/2015	Two Combine Cycle Combustion Turbine with Duct Burner		0.0011	LB/MMBTU	
NJ-0088	COGEN TECH LINDEN VENTURE LP	7/30/2019	250 MW COMBINED CYCLE COMBUSTION TURBINE FIRING ULTRA	USE OF NATURAL GAS AND ULSD; BOTH CLEAN BURNING FUELS	4.8	LB/H	
PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Combustion turbine and HRSG without duct burner ULSD	Water/steam injection, ULSD fuel (CCCT only - duct burner is not fired with ULSD),	0.0013	LB/MMBTU	
CT-0157	CPV TOWANTIC, LLC	11/30/2015	Combined Cycle Power Plant	Use of inherently low sulfur fuels	2.31	LB/H	
CT-0158	CPV TOWANTIC, LLC	11/30/2015	Combined Cycle Power Plant	Use of inherently low sulfur fuel	2.31	LB/H	
CT-0161	KILLINGLY ENERGY CENTER	6/30/2017	ULSD w/o Duct Firing	Low Sulfur Fuel	0.0005	LB/MMBTU	
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	COMBINED CYCLE COMBUSTION TURBINE FIRING ULTRA LOW SULFUR	use of ULSD a low sulfur fuel	4.27	LB/H	AV OF THREE ONE H STACK TESTS EVERY 5 YR
PA-0311	MOXIE FREEDOM GENERATION PLANT	9/1/2015	Combustion Turbine without Duct Burner		0.0009	LB/MMBTU	
NJ-0084	PSEG FOSSIL LLC SEWAREN GENERATING STATION	'10/2016 /	Combined Cycle Combustion Turbine without Duct Burner Firing ULSD		4.3	LB/H	AV OF THREE 1 HR STACK TESTS

Table E-21: Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for H_2SO_4

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
PA-0334	RENOVO ENERGY CENTER LLC/RENOVO PLT	4/29/2021	COMBUSTION TURBINE #2 (ULSD)		0.0012	LB/MMBTU	
PA-0334	RENOVO ENERGY CENTER LLC/RENOVO PLT	4/29/2021	COMBUSTION TURBINE #1 (ULSD)	SCR, Catalytic Oxidizer	0.0012	LB/MMBTU	
PA-0307	YORK ENERGY CENTER BLOCK 2 ELECTRICITY GENERATION	6/15/2015	Two combined cycle combustion turbines ULSD fired with duct burner	Good combustion practices and low sulfur fuels	0.0017	LB/MMBTU	

Table E-22: Natural Gas-Fired Combined Cycle Combustion Turbines, Greater than 25 MW, NEEDS and EIA-860Listings for H_2SO_4

NEEDS: Commencing Commercial Operation in Past 5 Years; EIA-860: Facilities Listed as Planned and Under Construction

STATE	FACILITY NAME	UNIT CODE	APPLICATION/PERMIT DATE	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
LA	Magnolia Power	CCGT-1 (EQTT001)	5/23/2024	Use of gaseous fuels (pipeline quality NG or a blend of up to 50% H2 and pipeline quality NG) and good combustion practices	0.00623	grains/dscf	NA
FL	Shady Hills Combined Cycle Facility	EU001	2/15/2023	Clean fuels	1.4	grain Sulfur/100 SCF NG	
PA	BIRDSBORO POWER LLC	PROC101	1/1/2021		0.000853	lb/MMBtu	avg of 3 test runs
OH	Trumbull Energy Center	P001/P002	2/5/2020	Low sulfur fuel	0.0011	lb/MMBtu	With or w/o DB
MS	R D Morrow Sr Generating Plant	AA-012/AA-13	12/20/2019	NG and good combustion	17.7	lb/hr	3 hour basis
MS	R D Morrow Sr Generating Plant	AA-012/AA-13	12/20/2019	NG and good combustion	77.7	tpy	
WI	West Riverside Energy Center	P20/P21	4/13/2019		0.0022	lb/MMBtu	
NY	Cricket Valley Energy	U-00001	12/5/2018		0.4	grain S/100 DSCF	
NY	Cricket Valley Energy	U-00002	12/5/2018		0.4	grain S/100 DSCF	
NY	Cricket Valley Energy	U-00003	12/5/2018		0.4	grain S/100 DSCF	
PA	Hickory Run Energy Station	CC1 and CC2	4/23/2013		1.08	lb/hr	w duct burner

Table E-23: Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO_2

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT
*IN-0365	MAPLE CREEK ENERGY LLC	6/19/2023	Combined Cycle Turbine CTGA		726	LB/MW-HR (GROSS)
*IN-0365	MAPLE CREEK ENERGY LLC	6/19/2023	Combined Cycle Turbine CTGB		826	LB/MW-HR (GROSS)
*MI-0445	INDECK NILES, LLC	11/26/2019	FGCTGHRSG	Good combustion practices, inlet air conditioning, and the use of pipeline quality natural gas.	1,911,481	T/YR
*PA-0315	HILLTOP ENERGY CENTER, LLC	4/12/2017	Combustion Turbine without Duct Burner		879	LB
*TN-0164	TVA - JOHNSONVILLE COGENERATION	2/1/2018	Dual-fuel CT and HRSG with duct burner	Good combustion design & practices	1,800	LB/MWH
*WV-0029	HARRISON COUNTY POWER PLANT	3/27/2018	GE 7HA.02 Turbine	Use of Natural Gas, Model GE7HA	528,543	LB/HR
*WV-0032	BROOKE COUNTY POWER PLANT	9/18/2018	GE 7HA.01 Turbine	Use of Natural Gas, Model GE7HA	417,382	LB/HR
*WV-0033	MAIDSVILLE	1/5/2022	Combustion Turbine & Duct Burner (CT-01/HRSG1 & CT-02/HRSG2)	Thermal efficiency/combustion air cooling and use of lower carbon fuels.	852	LB/MWH GROSS
*WV-0033	MAIDSVILLE	1/5/2022	Combustion Turbine & Duct Burner (CT-01/HRSG1 & CT-02/HRSG2)	Thermal efficiency/combustion air cooling and use of lower carbon fuels	852	LB/MWH GROSS
AL-0328	PLANT BARRY	11/9/2020	Two 744 MW Combined Cycle Units	Efficient Design	1,000	LB/MWH
CT-0158	CPV TOWANTIC, LLC	11/30/2015	Combined Cycle Power Plant		809	LB/MWH
CT-0161	KILLINGLY ENERGY CENTER	6/30/2017	Natural Gas w/o Duct Firing	Use of low carbon fuel	7,273	BTU/KW-HR
FL-0356	OKEECHOBEE CLEAN ENERGY CENTER	3/9/2016	Combined-cycle electric generating unit	Use of low-emitting fuels and technologies	850	LB/MWH
FL-0363	DANIA BEACH ENERGY CENTER	12/4/2017	2-on-1 combined cycle unit (GE 7HA)	Low-emitting fuels	850	LB/MWH

Table E-23: Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO_2

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT
FL-0367	SHADY HILLS COMBINED CYCLE FACILITY	7/27/2018	1-on-1 combined cycle unit (GE 7HA)	Low-emitting fuel	875	LB/MWH
FL-0371	SHADY HILLS COMBINED CYCLE FACILITY	6/7/2021	GE 7HA.02 Combustion Turbine and HRSG with Duct Firing	Low-emitting fuel	875	LB/MWH
IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014	Combustion turbine #1 - combined cycle		951	LB/MW-H
IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014	Combustion turbine #2 -combined cycle		951	LB/MW-HR GROSS
IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014	Combustion turbine #1 - combined cycle		1,318,647	TON/YR
IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014	Combustion turbine #2 -combined cycle		1,318,647	TON/YR
IL-0130	JACKSON ENERGY CENTER	12/31/2018	Combined-Cycle Combustion Turbine	Equipment design and proper operation	4,733,910	TONS/YEAR
IL-0133	LINCOLN LAND ENERGY CENTER	7/29/2022	Combined-Cycle Combustion Turbines	Inherently lower-polluting design, good combustion practices and operational	850	LB/MW-HR (GROSS)
KS-0029	THE EMPIRE DISTRICT ELECTRIC COMPANY	7/14/2015	Combined cycle combustion turbine		1,022,756	TONS PER YEAR
LA-0331	CALCASIEU PASS LNG PROJECT	9/21/2018	Combined Cycle Combustion Turbines (CCCT1 to CCCT5)	Combust low carbon fuel gas and good combustion practices	2,602,275	T/YR
LA-0364	FG LA COMPLEX	1/6/2020	Cogeneration Units	Use of natural gas as fuel, energy-efficient design options, and	1,096,666	TONS/YR
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Combined Cycle Gas Turbine w/ Duct Burners and HRSG	Use of gaseous fuel (pipeline-quality natural gas), thermally efficient turbines, and good combustion practices.	875	LB/MW-H

Table E-23: Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO_2

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Combined Cycle Gas Turbine Startup and Shutdown	Good combustion practices.	2,528,349	T/YR
MA-0039	SALEM HARBOR STATION REDEVELOPMENT	1/30/2014	Combustion Turbine with Duct Burner		825	LB/MW-H
MD-0041	CPV ST. CHARLES	4/23/2014	2 COMBINED-CYCLE COMBUSTION TURBINES		7,109	BTU/KWH
MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	2 COMBINED CYCLE COMBUSTION TURBINES, WITH DUCT FIRING	EXCLUSIVE USE OF PIPELINE-QUALITY NATURAL GAS, AND INSTALLATION OF HIGH-EFFICIENCY CT MODEL (MITSUBISHI ‘‘G‘‘ MODEL)	946	LB/MW-H (AS CO2)
MD-0045	MATTAWOMAN ENERGY CENTER	11/13/2015	2 COMBINED-CYCLE COMBUSTION TURBINES		865	LB/MW-H
MD-0046	KEYS ENERGY CENTER	10/31/2014	2 COMBINED-CYCLE COMBUSTION TURBINES	CO2 CEMS	869	LB/MW-H CO2
MI-0423	INDECK NILES, LLC	1/4/2017	FGCTGHRSG (2 Combined Cycle CTGs with HRSGs)	Energy efficiency measures and the use of a low carbon fuel (pipeline quality natural gas).	2,097,001	T/YR
MI-0424	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/5/2016	FGCTGHRSG (2 Combined cycle CTGs with HRSGs; EUCTGHRSG10 & EUCTGHRSG11)	Energy efficiency measures and the use of a low carbon fuel (pipeline quality natural gas).	312,321	T/YR
MI-0427	FILER CITY STATION	11/17/2017	EUCCT (Combined cycle CTG with unfired HRSG)	Energy efficiency measures and the use of a low carbon fuel (pipeline quality natural gas).	992,286	T/YR
MI-0432	NEW COVERT GENERATING FACILITY	7/30/2018	FG-TURB/DB1-3 (3 combined cycle combustion turbine and heat recovery steam generator trains)	Several energy efficiency measures and the use of natural gas.	1,425,081	T/YR

Table E-23: Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO_2

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUCTGHRSG (South Plant): A combined cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	Energy efficiency measures and the use of a low carbon fuel (pipeline quality natural gas).	1,978,297	T/YR
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUCTGHRSG (North Plant): A combined-cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	Energy efficiency measures and the use of a low carbon fuel (pipeline quality natural gas).	1,978,297	T/YR
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	FGCTGHRSG (EUCTGHRSG1 & EUCTGHRSG2)	Energy efficiency measures	2,042,773	T/YR
MI-0439	JACKSON GENERATING STATION	4/2/2019	FGLMDB1-6 (6 combined cycle natural gas fired CTG each equipped with a HRSG)	Use of low carbon fuel (natural gas), good combustion practices, and energy efficiency measures.	1,000,257	T/YR
MI-0441	LBWL--ERICKSON STATION	12/21/2018	EUCTGHRSG2--A 667 MMBTU/H natural gas fired CTG with a HRSG.	low carbon fuel (pipeline quality natural gas), good combustion practices and energy efficiency measures.	1,000	LB/MW-H
MI-0441	LBWL--ERICKSON STATION	12/21/2018	EUCTGHRSG1--A 667 MMBTU/H NG fired combustion turbine generator coupled with a heat recovery steam generator (HRSG)	Low carbon fuel (pipeline quality natural gas), good combustion practices and energy efficiency measures.	1,000	LB/MW-H
MI-0441	LBWL--ERICKSON STATION	12/21/2018	EUCTGHRSG2--A 667 MMBTU/H natural gas fired CTG with a HRSG.	low carbon fuel (pipeline quality natural gas), good combustion practices and energy efficiency measures.	430,349	T/YR
MI-0441	LBWL--ERICKSON STATION	12/21/2018	EUCTGHRSG1--A 667 MMBTU/H NG fired combustion turbine generator coupled with a heat recovery steam generator (HRSG)	Low carbon fuel (pipeline quality natural gas), good combustion practices and energy efficiency measures.	430,349	T/YR
MI-0442	THOMAS TOWNSHIP ENERGY, LLC	8/21/2019	FGCTGHRSG	Energy efficiency measures	2,739,722	T/YR
MI-0447	LBWL--ERICKSON STATION	1/7/2021	EUCTGHRSG1	Low carbon fuel (pipeline quality natural gas), good combustion practices, and energy efficiency measures.	430,349	T/YR

Table E-23: Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO_2

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT
MI-0447	LBWL--ERICKSON STATION	1/7/2021	EUCTGHRSG2	Low carbon fuel (pipeline quality natural gas), good combustion practices, and energy efficiency measures.	430,349	T/YR
MI-0451	MEC NORTH, LLC	6/23/2022	EUCTGHRSG (North Plant): A combined cycle natural gas fired combustion turbine generator with heat recovery steam generator	Energy efficiency measures and the use of a low carbon fuel (pipeline quality natural gas)	2,001,019	T/YR
MI-0452	MEC SOUTH, LLC	6/23/2022	EUCTGHRSG (South Plant): A combined-cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	Energy Efficiency Measures and the use of a low carbon fuel (pipeline quality natural gas)	2,001,019	T/YR
MI-0454	LBWL-ERICKSON STATION	12/20/2022	EUCTGHRSG2	Low carbon fuel (pipeline quality natural gas), good combustion practices, and energy efficiency measures.	1,000	LB/MWH
MI-0454	LBWL-ERICKSON STATION	12/20/2022	EUCTGHRSG1	low carbon fuel (pipeline quality natural gas), good combustion practices, and energy efficiency measures.	430,349	T/YR
MI-0454	LBWL-ERICKSON STATION	12/20/2022	EUCTGHRSG2	Low carbon fuel (pipeline quality natural gas), good combustion practices, and energy efficiency measures.	430,349	T/YR
MI-0455	MIDLAND COGENERATION VENTURE LIMITED PARTNERSHIP	2/1/2023	EUCTGHRSG1	Low carbon fuel, good combustion practices, energy efficiency measures.	2,375,313	T/YR
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - SIEMENS		925	LB/MW-H
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER -		925	LB/MW-H
NJ-0082	WEST DEPTFORD ENERGY STATION	7/18/2014	Combined Cycle Combustion Turbine with Duct Burner	Turbine efficiency and Use of Natural gas a clean burning fuel	1,237,923	TONS/YEAR

Table E-23: Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO_2

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT
NJ-0084	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/10/2016	Combined Cycle Combustion Turbine with Duct Burner firing natural gas	Use of natural gas which is a clean burning fuel	888	LB/MW-H
NJ-0084	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/10/2016	Combined Cycle Combustion Turbine without Duct Burner Firing Natural Gas		888	LB/MW-H
NJ-0084	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/10/2016	Combined Cycle Combustion Turbine without Duct Burner Firing ULSD	GOOD COMBUSTION PRACTICES.	888	LB/MW-H
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	Combined Cycle Combustion Turbine firing Natural Gas with Duct Burner	USE OS NATURAL GAS A CLEAN BURNING FUEL	888	LB/MW-H
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	Combined Cycle Combustion Turbine firing Natural Gas without Duct Burner	USE OF NATURAL GAS A CLEAN BURNING FUEL	888	LB/MW-H
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	COMBINED CYCLE COMBUSTION TURBINE FIRING ULTRA LOW SULFUR DISTILLATE OIL	use of ULSD a low sulfur fuel	888	LB/MW-H
OH-0363	NTE OHIO, LLC	11/5/2014	Turbine generator with HRSG and duct burners (P001)	Good combustion, oxidation catalysts, used of natural gas, energy efficiency.	880	LB/MW-H
OH-0365	ROLLING HILLS GENERATING, LLC	5/20/2015	Combustion Turbines, Scenario 1 (4, identical) (P001, P002, P004, P005)	high efficiency	7,471	BTU/KW-H
OH-0365	ROLLING HILLS GENERATING, LLC	5/20/2015	Combustion Turbines, Scenario 2 (4, identical) (P001, P002, P004, P005)	high efficiency	7,471	BTU/KW-H
OH-0366	CLEAN ENERGY FUTURE - LORDSTOWN, LLC	8/25/2015	Combined Cycle Combustion Turbines (two, identical) (P001 and P002)	High efficient combustion technology	833	LB/MW-H

Table E-23: Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO_2

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT
OH-0367	SOUTH FIELD ENERGY LLC	9/23/2016	Combined Cycle Combustion Turbines (two, identical) (P001 and P002)	High efficient combustion technology	481,301	LB/H
OH-0370	TRUMBULL ENERGY CENTER	9/7/2017	Combined Cycle Combustion Turbines (two, identical) (P001 and P002)	High efficient combustion technology	833	LB/MW-H
OH-0372	OREGON ENERGY CENTER	9/27/2017	Combined Cycle Combustion Turbines (two, identical) (P001 and P002)	high efficiency combustion design	401,921	LB/H
OH-0374	GUERNSEY POWER STATION LLC	10/23/2017	Combined Cycle Combustion Turbines (3, identical) (P001 to P003)	high efficiency combustion practices as recommended by the manufacturer	846	LB/MW-H
OH-0375	LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER	11/7/2017	General Electric Combustion Turbine (P004)	high efficiency combustion practices as recommended by the manufacturer	775	LB/MW-H
OH-0375	LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER	11/7/2017	Mitsubishi Combustion Turbine (P005)	high efficiency combustion practices as recommended by the manufacturer	1,000	LB/MW-H
OH-0375	LONG RIDGE ENERGY GENERATION LLC - HANNIBAL	11/7/2017	Siemens Combustion Turbine (P006)	high efficiency combustion practices as recommended by the manufacturer	1,000	LB/MW-H
OH-0377	HARRISON POWER	4/19/2018	General Electric (GE) Combustion Turbines (P005 & P006)	High efficient combustion technology	1,000	LB/MW-H
OH-0377	HARRISON POWER	4/19/2018	Mitsubishi Hitachi Power Systems (MHPS) Combustion Turbines (P007 & P008)	High efficient combustion technology	1,000	LB/MW-H
OR-0050	TROUTDALE ENERGY CENTER, LLC	3/5/2014	Mitsubishi M501-GAC combustion turbine, combined cycle configuration with duct burner.	Thermal efficiency Clean fuels	1,000	PER GROSS MWH
PA-0306	TENASKA PA PARTNERS/WESTMORELAND GEN FAC	2/12/2016	Large combustion turbine	Good combustion practices	1,881,905	TPY

Table E-23: Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO_2

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT
PA-0307	YORK ENERGY CENTER BLOCK 2 ELECTRICITY GENERATION PROJECT	6/15/2015	Two Combine Cycle Combustion Turbine with Duct Burner	Good combustion practices and oxidation catalyst	883	LB/MW-HR
PA-0309	LACKAWANNA ENERGY CTR/JESSUP	12/23/2015	Combustion turbine with duct burner		1,629,115	TONS
PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Combustion turbine and HRSG with duct burner NG only	low sulfur fuel and good combustion practices	3,352,086	TONS
PA-0311	MOXIE FREEDOM GENERATION PLANT	9/1/2015	Combustion Turbine With Duct Burner		1,000	LB CO2/MWH
TN-0162	JOHNSONVILLE COGENERATION	4/19/2016	Natural Gas-Fired Combustion Turbine with HRSG	Good combustion design and practices	1,800	LB/MWH
TX-0664	LON C. HILL POWER STATION	10/28/2014	Large Combustion Turbine		920	LB/MW-H
TX-0679	CORPUS CHRISTI LIQUEFACTION PLANT	2/27/2015	Refrigeration Compressor Turbine	install efficient turbines, follow the turbine manufacturerâ€™s emission-related written instructions for maintenance activities including prescribed maintenance intervals to assure good combustion and efficient operation. Compressors shall be inspected and maintained according to a written maintenance plan to maintain efficiency.	146,754	TPY
TX-0730	COLORADO BEND ENERGY CENTER	4/1/2015	Combined-cycle gas turbine electric generating facility	efficient processes, practices, and designs	879	LB/MWH
TX-0743	AUSTIN ENERGY, SAND HILL ENERGY CENTER	9/29/2014	Combustion Turbine with HRSG, Duct Burners, and SCR		930	LB CO2/MWH

Table E-23: Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO_2

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT
TX-0748	FGE POWER, FGE TEXAS PROJECT	4/28/2014	Combined Cycle Combustion Turbine with DB, HRSG and SCR		889	LB CO2/MWH, GROSS
TX-0761	SR BERTRON ELECTRIC GENERATING STATION	9/15/2015	Combined cycle and cogeneration turbines greater than 25 MW firing natural gas		825	LB /MW H
TX-0762	CEDAR BAYOU ELECTRIC GENERATING STATION	9/15/2015	Combined cycle and cogeneration turbines greater than 25 MW		825	LB CO2/MWH
TX-0766	GOLDEN PASS LNG EXPORT TERMINAL	9/11/2015	Refrigeration Compression Turbines	Equipment specifications & work practices - Good combustion practices and use of low carbon fuel	614,533	TPY
TX-0773	FGE EAGLE PINES PROJECT	11/4/2015	Combined Cycle Turbines (>25 MW)	Low carbon fuel, good combustion, efficient combined cycle design	886	LB/MW H
TX-0787	929-965	3/1/2016	Combined Cycle & Cogeneration	Good Combustion Practices	937	LB/MW HR
TX-0788	NECHES STATION	3/24/2016	Combined Cycle & Cogeneration	GOOD COMBUSTION PRACTICES	924	LB/MWH
TX-0790	PORT ARTHUR LNG EXPORT TERMINAL	2/17/2016	Simple Cycle Electrical Generation Gas Turbines 15.210	Equipment specifications & work practices - Good combustion practices and use of low carbon, low sulfur fuel	156,912	T/YR
TX-0790	PORT ARTHUR LNG EXPORT TERMINAL	2/17/2016	Refrigeration Compression Turbines	Equipment specifications & work practices - Good combustion practices and use of low carbon fuel	504,517	T/YR

Table E-23: Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO_2

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT
TX-0791	ROCKWOOD ENERGY CENTER	3/18/2016	Combined Cycle & Cogeneration (> 25 MW)	Good combustion practices	865	LB/MWH
TX-0791	ROCKWOOD ENERGY CENTER	3/18/2016	Combined Cycle & Cogeneration (> 25 megawatts (MW))	Good combustion practices	901	LB/MWH
TX-0791	ROCKWOOD ENERGY CENTER	3/18/2016	Combined Cycle & Cogeneration (> 25 MW)	good combustion practices	929	LB/MWH
TX-0791	ROCKWOOD ENERGY CENTER	3/18/2016	Combined Cycle & Cogeneration (> 25 MW)	good combustion practices	929	LB/MWH
TX-0791	ROCKWOOD ENERGY CENTER	3/18/2016	Combined Cycle & Cogeneration (> 25 MW)	Good combustion practices	944	LB/MWH
TX-0791	ROCKWOOD ENERGY CENTER	3/18/2016	Combined Cycle & Cogeneration (> 25 MW)	good combustion practices	965	LB/MWH
TX-0805	EAGLE MOUNTAIN STEAM ELECTRIC STATION	7/19/2016	Combined Cycle & Cogeneration	Good Combustion Practices	917	LB/MW H
TX-0810	DECORDOVA STEAM ELECTRIC STATION (DECORDOVA STATION)	10/4/2016	Combined Cycle and Cogeneration (>25 MW)	good combustion practices and firing low carbon fuel.	966	LB/MW H
TX-0817	CHOCOLATE BAYOU STEAM GENERATING (CBSG) STATION	2/17/2017	Combined Cycle Cogeneration		1,000	LB/MW H
TX-0819	GAINES COUNTY POWER PLANT	4/28/2017	Combined Cycle Turbine with Heat Recovery Steam Generator, fired Duct Burners, and Steam Turbine Generator	Pipeline quality natural gas	960	LB / MW H
TX-0834	MONTGOMERY COUNTY POWER STATIOIN	3/30/2018	Combined Cycle Turbine	PIPELINE QUALITY NATURAL GAS, GOOD COMBUSTION PRACTICES	884	LB/MWH
TX-0878	LNG EXPORT TERMINAL	9/15/2022	Refrigeration Compression Turbines	Equipment specifications & work practices -	504,000	TON/Y
VA-0325	GREENSVILLE POWER STATION	6/17/2016	COMBUSTION TURBINE GENERATOR WITH DUCT-FIRED HEAT RECOVERY STEAM GENERATORS (3)		890	LB/MWH

Table E-23: Combined Cycle Combustion Turbines, Greater than 25 MW, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO_2

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT
VA-0328	C4GT, LLC	4/26/2018	Siemens Combustion Turbine - Option 2 - Normal Operation	Energy efficient combustion practices and low GHG fuels	883	LB CO2E/MW H
VA-0328	C4GT, LLC	4/26/2018	GE Combustion Turbine - Option 1 - Normal Operation	Energy efficient combustion practices and low GHG fuels	883	LB CO2E/MW-H
VA-0332	CHICKAHOMINY POWER LLC	6/24/2019	Three (3) Mitsubishi Hitachi Power Systems combustion turbine generators	Energy efficient combustion practices and low GHG fuels	812	LB/CO2E/MW-H net
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Natural-Gas-Fired Combined-Cycle Turbine (P01)	Efficient turbine design, only combust pipeline quality natural gas and diesel fuel oil, Oxidation Catalyst	850	LB CO2/MW-H
WV-0025	MOUNDSVILLE COMBINED CYCLE POWER PLANT	11/21/2014	Combined Cycle Turbine/Duct Burner	Use of GE Frame 7EA CT Low Carbon Fuel	272,556	LB/H

Table E-24: Combined Cycle Combustion Turbines, Greater than 25 MW, NEEDS and EIA-860Listings for CO_2e

NEEDS: Commencing Commercial Operation in Past 5 Years; EIA-860: Facilities Listed as Planned and Under Construction

STATE	FACILITY NAME	UNIT CODE	APPLICATION/PERMIT DATE	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
CA	AES Huntington Beach	D115	3/14/2024		1,000	lb/gross MWH NG	
CA	AES Huntington Beach	D124	3/14/2024		1,000	lb/gross MWH NG	
NC	Asheville Combined Cycle Plant	Unit 5/7	1/11/2022		1,000	lb/gross MWH	NG>90% annual heat input
PA	BIRDSBORO POWER LLC	PROC101	1/1/2021		1,000	lb/gross MWH	
CA	Alamitos Energy Center	D165/D173	4/18/2017		1,000	lb/gross MW11 NG	
CA	Alamitos Energy Center	D165/D173	4/18/2017		120	lbs/MMBtu NG	
CA	Alamitos Energy Center	D165/D173	4/18/2017		610,480	tpy per turbine	
LA	Magnolia Power	CCGT-1 (EQTT001)	5/23/2024	Use of gaseous fuels (pipeline quality NG or a blend of up to 50% H2 and pipeline quality NG), yhermal efficient turbine, good combustion, combustion air cooling, and insulation.	875	lb/MW-hr	
LA	Magnolia Power	CCGT-1 (EQTT001)	5/23/2024	Use of gaseous fuels (pipeline quality NG or a blend of up to 50% H2 and pipeline quality NG), yhermal efficient turbine, good combustion, combustion air cooling, and insulation.	2,528,349	tpy total w and w/o DB	
FL	Big Bend Station	060/061	4/10/2024		1,000	lb CO2/MWh (Gross)	12-month-operating-rolling
FL	Big Bend Station	060/061	4/10/2024		120	lb/MMBtu	12-month-operating-rolling
CT	Bridgeport Energy, LLC	Stack 5	3/24/2023		2,188,572	tpy	Entire CC unit
CT	Bridgeport Energy, LLC	Stack 6	3/24/2023		2,188,572	tpy	Entire CC unit
FL	Shady Hills Combined Cycle Facility	EU001	2/15/2023	Methane Measurements and Energy Efficiency	875	lb/MWh	12-month rolling avg.
FL	Shady Hills Combined Cycle Facility	EU001	2/15/2023	Methane Measurements and Energy Efficiency	1,000	lb/MWh	12-month rolling avg. w/ SUSD

Table E-24: Combined Cycle Combustion Turbines, Greater than 25 MW, NEEDS and EIA-860Listings for CO_2e

NEEDS: Commencing Commercial Operation in Past 5 Years; EIA-860: Facilities Listed as Planned and Under Construction

STATE	FACILITY NAME	UNIT CODE	APPLICATION/PERMIT DATE	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
OH	Trumbull Energy Center	P001/P002	2/5/2020	High efficient combustion technology	833	lb/MW-hr gross energy output	w/o DB
OH	Trumbull Energy Center	P001/P002	2/5/2020	High efficient combustion technology	884	lb/MW-hr gross energy output	With DB
OH	Trumbull Energy Center	P001/P002	2/5/2020	High efficient combustion technology	1,683,213	tpy per turbine	Indluding SUSD
MS	R D Morrow Sr Generating Plant	AA-012/AA-13	12/20/2019		850	lb/MW-hr (gross)	12-month rolling avg
MS	R D Morrow Sr Generating Plant	AA-012/AA-13	12/20/2019		2,114,111	tpy	
WI	West Riverside Energy Center	P20/P21	4/13/2019		936	lb/MWh gross	12-month rolling avg including SUSD
WI	West Riverside Energy Center	P20/P21	4/13/2019		1,000	lb/MWh gross	=>50%or >design efficiency (lowest of two)
WI	West Riverside Energy Center	P20/P21	4/13/2019		250	tons for each startup and shutdown	
NY	Cricket Valley Energy	U-00001	12/5/2018	high effciency combustion and natural gas	7,604	Btu/KWhr HHV net	Anually
NY	Cricket Valley Energy	U-00002	12/5/2018	high effciency combustion and natural gas	7,604	Btu/KWhr HHV net	Anually
NY	Cricket Valley Energy	U-00003	12/5/2018	high effciency combustion and natural gas	7,604	Btu/KWhr HHV net	Anually
MN	Makato energy center	CT1 and DB1 EQUI 16/EQUI 17	2/14/2014		1,000	BTU/KWh	
PA	Hickory Run Energy Station	CC1 and CC2	4/23/2013		3,665,974	TPY	

Table E-25: Cooling Towers (Varius Process Types), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY_NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	EUCOOLINGTWR: Cooling Tower	High efficiency drift/mist eliminators	0.48	LB/H	HOURLY
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	EUCOOLINGTWR: Cooling Tower	High efficiency drift/mist eliminators	0.48	LB/H	HOURLY
OH-0366	CLEAN ENERGY FUTURE - LORDSTOWN, LLC	8/25/2015	Wet Cooling Tower (P005)	Drift eliminator with a maximum drift rate of 0.0005% and total dissolved solids (TDS) concentration of the cooling water less than or equal to 3,075 milligrams per liter.	1.27	LB/H	
OH-0366	CLEAN ENERGY FUTURE - LORDSTOWN, LLC	8/25/2015	Wet Cooling Tower (P005)	Drift eliminator with a maximum drift rate of 0.0005% and total dissolved solids (TDS) concentration of the cooling water less than or equal to 3,075 milligrams per liter.	0.51	LB/H	
PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Cooling Tower		0.8	LB/HR	
PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Cooling Tower		0.8	LB/HT	
PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Cooling Tower		0.4	LB/HR	
LA-0364	FG LA COMPLEX	1/6/2020	Cooling Towers	High efficiency drift eliminators and low TDS cooling water.	0.001	%	
LA-0364	FG LA COMPLEX	1/6/2020	Cooling Towers	High efficiency drift eliminators and low TDS cooling water.	0.001	%	
MI-0427	FILER CITY STATION	11/17/2017	EUCOOLTWR (Cooling Tower--Wet Mechanical Drift)	Mist/Drift Eliminators	0.0006	%	VENDOR-CERTIF. MAX. DRIFT RATE
MI-0427	FILER CITY STATION	11/17/2017	EUCOOLTWR (Cooling Tower--Wet Mechanical Drift)	Mist/Drift Eliminators	0.0006	%	VENDOR-CERTIF. MAX DRIFT RATE
MI-0424	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/5/2016	EUCOOLTWR (Cooling Tower--Wet Mechanical Draft)	Mist/drift eliminators	2.37	T/YR	12-MONTH ROLLING TIME PERIOD
MI-0424	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/5/2016	EUCOOLTWR (Cooling Tower--Wet Mechanical Draft)	Mist/drift eliminators	2.37	T/YR	12-MONTH ROLLING TIME PERIOD
OH-0375	LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER	11/7/2017	Wet Mechanical Draft Cooling Tower (P003)	High efficiency drift eliminator designed to achieve a 0.0005% drift rate and total dissolved solids (TDS) content not to exceed 5,000 mg/l.	6.58	T/YR	PER ROLLING 12 MONTH PERIOD
OH-0375	LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER	11/7/2017	Wet Mechanical Draft Cooling Tower (P003)	High efficiency drift eliminator designed to achieve a 0.0005% drift rate and total dissolved solids (TDS) content not to exceed 5,000 mg/l.	4.24	T/YR	PER ROLLING 12 MONTH PERIOD

Table E-25: Cooling Towers (Varius Process Types), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY_NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
OH-0375	LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER	11/7/2017	Wet Mechanical Draft Cooling Tower (P003)	High efficiency drift eliminator designed to achieve a 0.0005% drift rate and total dissolved solids (TDS) content not to exceed 5,000 mg/l.	1.58	T/YR	PER ROLLING 12 MONTH PERIOD
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Cooling Tower	High-efficiency drift eliminators.	0.0005	%	
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Cooling Tower	High-efficiency drift eliminators.	0.0005	%	
*WV-0033	MAIDSVILLE	1/5/2022	Cooling Tower	Drift Eliminator to 0.0005%	2.16	LB/HR	
IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014	cooling tower	mist eliminator	1.2	LB/H	3-HOUR AVERAGE
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUCOOLTOWER (North Plant): Cooling Tower	High efficiency drift/mist eliminators	2.85	T/YR	12-MONTH ROLLING TIME PERIOD
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUCOOLTOWER (North Plant): Cooling Tower	High efficiency drift/mist eliminators	2.85	T/YR	12-MONTH ROLLING TIME PERIOD
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUCOOLTOWER (South Plant): Cooling Tower	High efficiency drift/mist eliminators.	2.85	T/YR	12-MO ROLLING TIME PERIOD
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUCOOLTOWER (South Plant): Cooling Tower	High efficiency drift/mist eliminators.	2.85	T/YR	12-MO ROLLING TIME PERIOD
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	Cooling Tower	High Efficiency Drift Eliminators	0.535	LB/H	
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	Cooling Tower	High Efficiency Drift Eliminators	0.223		
TX-0834	MONTGOMERY COUNTY POWER STATIOIN	3/30/2018	COOLING TOWER	DRIFT ELIMINATORS	0		
TX-0834	MONTGOMERY COUNTY POWER STATIOIN	3/30/2018	COOLING TOWER	DRIFT ELIMINATORS	0		
TX-0834	MONTGOMERY COUNTY POWER STATIOIN	3/30/2018	COOLING TOWER	DRIFT ELIMINATORS	0		
WV-0025	MOUNDSVILLE COMBINED CYCLE POWER PLANT	11/21/2014	Cooling Tower	Drift Eliminator	0.72	LB/H	
WV-0025	MOUNDSVILLE COMBINED CYCLE POWER PLANT	11/21/2014	Cooling Tower		0.5	LB/H	
WV-0025	MOUNDSVILLE COMBINED CYCLE POWER PLANT	11/21/2014	Cooling Tower		0.01	LB/H	
OH-0363	NTE OHIO, LLC	11/5/2014	Cooling Tower (P004)	High efficiency drift eliminators and minimize total dissolved solid (TDS)	2.685	LB/H	
OH-0363	NTE OHIO, LLC	11/5/2014	Cooling Tower (P004)	High efficiency drift eliminators and minimize total dissolved solid (TDS)	1.7	LB/H	
OH-0363	NTE OHIO, LLC	11/5/2014	Cooling Tower (P004)	High efficiency drift eliminators and minimize total dissolved solid (TDS)	0.006	LB/H	
FL-0356	OKEECHOBEE CLEAN ENERGY CENTER	3/9/2016	Mechanical draft cooling tower	Must have certified drift rate no more than 0.0005%.	0		

Table E-25: Cooling Towers (Varius Process Types), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY_NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
TX-0939	ORANGE COUNTY ADVANCED POWER STATION	3/13/2023	COOLING TOWER	0.001% DRIFT ELIMINATORS	0		
TX-0939	ORANGE COUNTY ADVANCED POWER STATION	3/13/2023	COOLING TOWER	0.001% DRIFT ELIMINATORS	0		
TX-0939	ORANGE COUNTY ADVANCED POWER STATION	3/13/2023	COOLING TOWER	0.001% DRIFT ELIMINATORS	0		
OH-0372	OREGON ENERGY CENTER	9/27/2017	Wet Cooling Tower (P005)	drift eliminator with a maximum drift rate of 0.0005% and total dissolved solids (TDS) concentration of the cooling water less than or equal to 3,500 milligrams per liter (mg/l).	0.93	LB/H	
OH-0372	OREGON ENERGY CENTER	9/27/2017	Wet Cooling Tower (P005)	drift eliminator with a maximum drift rate of 0.0005% and total dissolved solids (TDS) concentration of the cooling water less than or equal to 3,500 milligrams per liter (mg/l).	0.36	LB/H	
TX-0714	S R BERTRON ELECTRIC GENERATING STATION	12/19/2014	cooling tower	drift eliminators	0.0005	%	DRIFT
OH-0367	SOUTH FIELD ENERGY LLC	9/23/2016	Cooling Towers (2 identical, P005 and P006)	High efficiency drift eliminators and minimize total dissolved solid (TDS)	1.33	LB/H	
OH-0367	SOUTH FIELD ENERGY LLC	9/23/2016	Cooling Towers (2 identical, P005 and P006)	High efficiency drift eliminators and minimize total dissolved solid (TDS)	0.534	LB/H	
TX-0713	TENASKA BROWNSVILLE GENERATING STATION	4/29/2014	cooling tower	mist eliminators	0.0005	%	DRIFT
KS-0029	THE EMPIRE DISTRICT ELECTRIC COMPANY	7/14/2015	Mechanical draft cooling tower	high efficiency drift eliminators (integral part of the design)	0.0005	% DRIFT RATE	
KS-0029	THE EMPIRE DISTRICT ELECTRIC COMPANY	7/14/2015	Mechanical draft cooling tower	high efficiency drift eliminators (integral part of the design)	0.0005	% DRIFT RATE	
KS-0029	THE EMPIRE DISTRICT ELECTRIC COMPANY	7/14/2015	Mechanical draft cooling tower	high efficiency drift eliminators (integral part of the design)	0.0005	% DRIFT RATE	
TX-0712	TRINIDAD GENERATING FACILITY	11/20/2014	cooling tower	mist eliminators	0.001	%	DRIFT
OH-0370	TRUMBULL ENERGY CENTER	9/7/2017	Wet Cooling Tower (P005)	drift eliminator with a maximum drift rate of 0.0005% and total dissolved solids (TDS) concentration of the cooling water less than or equal to 3,500 milligrams per liter (mg/l).	1.36	LB/H	
OH-0370	TRUMBULL ENERGY CENTER	9/7/2017	Wet Cooling Tower (P005)	drift eliminator with a maximum drift rate of 0.0005% and total dissolved solids (TDS) concentration of the cooling water less than or equal to 3,500 milligrams per liter (mg/l).	0.54	LB/H	

Table E-25: Cooling Towers (Varius Process Types), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY_NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
TX-0915	UNIT 5	3/17/2021	COOLING TOWER	Drift eliminators â€" 0.0005%	60000	PPM	TDS
TX-0915	UNIT 5	3/17/2021	COOLING TOWER	Drift eliminators â€" 0.0005%	60000	PPM	TDS
TX-0915	UNIT 5	3/17/2021	COOLING TOWER	Drift eliminators â€" 0.0005%	60000	PPM	TDS
TX-0710	VICTORIA POWER STATION	12/1/2014	cooling tower	mist eliminators	0.001	%	DRIFT

Table E-26: Natural Gas Fired Heaters, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for NOx

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
AL-0329	COLBERT COMBUSTION TURBINE PLANT	9/21/2021	Three Gas Heaters		0.011	LB/MMBTU	
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	EUFUELHTR1: Natural gas fired fuel heater	Low NOx burner	0.75	LB/H	HOURLY
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	EUFUELHTR2: Natural gas fired fuel heater	Low NOx burner	0.14	LB/H	HOURLY
VA-0328	C4GT, LLC	4/26/2018	Dew Point Heater	Ultra Low NOx burners	0.8	T/YR	
LA-0331	CALCASIEU PASS LNG PROJECT	9/21/2018	Hot Oil Heaters (HOH1 to HOH6)	Ultra Low NOx Burners and Good Combustion Practices	0.038	LB/MM BTU	3-HOUR AVERAGE
VA-0332	CHICKAHOMINY POWER LLC	6/24/2019	Three (3) Fuel Gas Heaters	: Low NOx burners	0.011	LBS/MMBTU	
PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Dew point heater 13.8		0.011	LB/MMBTU	
PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Dew point heater 3.2		0.035	LB/MMBTU	
MD-0041	CPV ST. CHARLES	4/23/2014	FUEL GAS HEATER	USE OF PIPELINE QUALITY NATURAL GAS AND GOOD COMBUSTION PRACTICES	0.035	LB/MMBTU	
IL-0129	CPV THREE RIVERS ENERGY CENTER	7/30/2018	Fuel Heater	Low-NOx burners	0.011	LB/MMBTU	
FL-0363	DANIA BEACH ENERGY CENTER	12/4/2017	Two natural gas heaters	Manufacturer certification	0.1	LB/MMBTU	DESIGN VALUE
LA-0364	FG LA COMPLEX	1/6/2020	PR Reactor Charge Heater	SCR and LNB	0.01	LB/MMBTU	12-MONTH ROLLING AVERAGE
LA-0364	FG LA COMPLEX	1/6/2020	Hot Oil Heaters 1 and 2	LNB	0.06	LB/MMBTU	
TX-0678	FREEPORT LNG PRETREATMENT FACILITY	7/16/2014	Heating Medium Heaters	ultra-low NOx burners	5	PPMVD	@3% O2, 1 HOUR BASED ON STACK TEST
AK-0085	GAS TREATMENT PLANT	8/13/2020	Three (3) Building Heat Medium Heaters	Low NOx Burners and Good Combustion Practices	0.036	LB/MMBTU	3-HOUR AVERAGE

Table E-26: Natural Gas Fired Heaters, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for NOx

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
AK-0085	GAS TREATMENT PLANT	8/13/2020	Two (2) Buyback Gas Bath Heaters and Three (3) Operations Camp Heaters	Low NOx Burners, Good Combustion Practices, Limited Operation of 500 hours per year per heater.	0.036	LB/MMBTU	3-HOUR AVERAGE
VA-0325	GREENSVILLE POWER STATION	6/17/2016	AUXILIARY BOILER (1) AND FUEL GAS HEATERS (6)	ultra low-NOâ€ž burners	0.011	LB/MMBTU	

Table E-26: Natural Gas Fired Heaters, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for NOx

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
OH-0374	GUERNSEY POWER STATION LLC	10/23/2017	Fuel Gas Heaters (2 identical, P007 and P008)	Low-NOx gas burner	0.3	LB/H	
*PA-0315	HILLTOP ENERGY CENTER, LLC	4/12/2017	Flue Gas Heater	good combustion and operating practices	0.011	LB	MMBTU
MI-0424	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/5/2016	EUFUELHTR (Fuel pre-heater)	Good combustion practices.	0.55	LB/H	TEST PROTOCOL WILL SPECIFY AVG TIME.
MI-0423	INDECK NILES, LLC	1/4/2017	FGFUELHTR (Two fuel pre-heaters identified as EUFUELHTR1 & EUFUELHTR2)	Good combustion practices.	2.65	LB/H	HOURLY; EACH UNIT
*MI-0445	INDECK NILES, LLC	11/26/2019	FGFUELHTR (2 fuel pre-heaters)	Good combustion practices	1.32	LB/H	HOURLY; EACH FUEL HEATER
IL-0130	JACKSON ENERGY CENTER	12/31/2018	Fuel Heater	Low-NOx combustion technology	0.011	LB/MMBTU	
IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014	dew point heater		0.013	LB/MMBTU	3-HOUR AVERAGE
MD-0045	MATTAWOMAN ENERGY CENTER	11/13/2015	FUEL GAS HEATER	USE OF PIPELINE QUALITY NATURAL GAS AND GOOD COMBUSTION PRACTICES	0.035	LB/MMBTU	3-HOUR BLOCK AVERAGE
PA-0311	MOXIE FREEDOM GENERATION PLANT	9/1/2015	Fuel Gas Heater		0.011	LB/MMBTU	
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Natural Gas-Fired Heater (P04)	Low-NOx burners, only use pipeline quality natural gas, maintain and operate according to manufacturerâ€™s recommendations.	0.049	LB/MMBTU	
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Natural Gas-Fired Heater (P05)	Low-NOx burners, only combust pipeline quality natural gas, and operate and maintain the heater according to the manufacturerâ€™s recommendations.	0.049	LB/MMBTU	
TX-0908	NEWMAN POWER STATION	8/27/2021	LINE HEATER	Low NOx burner, pipeline natural gas and goo combustion practices.	0.03	LB/MMBTU	

Table E-26: Natural Gas Fired Heaters, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for NOx

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
FL-0356	OKEECHOBEE CLEAN ENERGY CENTER	3/9/2016	Two natural gas heaters	Must have NOx emission design value less than 0.1 lb/MMBtu	0.1	LB/MMBTU	
*PA-0316	RENOVO ENERGY CENTER, LLC	1/26/2018	Water Bath Heater		0.01	LB	MMBTU
*IN-0371	WABASH VALLEY RESOURCES, LLC	1/11/2024	Dewpoint Heater	Low NOx burners and good combustion practices	50	LB/MMSCF	
*IN-0371	WABASH VALLEY RESOURCES, LLC	1/11/2024	Ammonia Catalyst Startup Heater	Low NOx Burners	50	LB/MMSCF	
MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	DEW POINT HEATER	USE OF EFFICIENT DESIGN OF THE HEATER, EXCLUSIVE USE OF PIPELINE QUALITY NATURAL GAS ONLY, AND APPLICATION OF GOOD COMBUSTION PRACTICES	0.049	LB/MMBTU	3-HOUR BLOCK AVERAGE
WI-0299	WPL- RIVERSIDE ENERGY CENTER	8/20/2020	Natural Gas-Fired Space and Unit Heater (P30)	Only use natural gas in each heater.	0.098	LB/MMBTU	

Table E-27: Natural Gas Fired Heaters, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for SO_2

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
VA-0328	C4GT, LLC	4/26/2018	Dew Point Heater	Pipeline quality natural gas with a maximum sulfur content of 0.4 gr/100 scf	0		
LA-0331	CALCASIEU PASS LNG PROJECT	9/21/2018	Hot Oil Heaters (HOH1 to HOH6)	Exclusive Use Low Sulfur Fuel Gas and Proper Engineering Practices	0.0006	LB/MM BTU	3 HOUR AVERAGE
VA-0332	CHICKAHOMINY POWER LLC	6/24/2019	Three (3) Fuel Gas Heaters	Pipeline quality natural gas with a maximum sulfur content of 0.4 gr/100 scf	0		
LA-0364	FG LA COMPLEX	1/6/2020	PR Reactor Charge Heater	Use of pipeline quality natural gas or fuel gas.	0.04	LB/H	
TX-0678	FREEPORT LNG PRETREATMENT FACILITY	7/16/2014	Heating Medium Heaters		0.01	LB/H	1 HOUR
AK-0085	GAS TREATMENT PLANT	8/13/2020	Three (3) Building Heat Medium Heaters	Good Combustion Practices and Clean Fuel (NG)	96	PPMV SULFUR IN FUEL	PRIOR TO COMPLETING TREATMENT TRAINS
AK-0085	GAS TREATMENT PLANT	8/13/2020	Two (2) Buyback Gas Bath Heaters and Three (3) Operations Camp Heaters	Good Combustion Practices, Clean Fuels (NG), and Limited Operation of 500 hours per year per heater.	96	PPMV SULFUR IN FUEL	PRIOR TO COMPLETING TREATMENT TRAINS
VA-0325	GREENSVILLE POWER STATION	6/17/2016	AUXILIARY BOILER (1) AND FUEL GAS HEATERS (6)	Low sulfur fuel	0.0011	LB/MMBTU	
OH-0374	GUERNSEY POWER STATION LLC	10/23/2017	Fuel Gas Heaters (2 identical, P007 and P008)	Pipeline natural gas fuel	0.023	LB/H	
KS-0041	HOLLYFRONTIER EL DORADO REFINERY	10/30/2019	FCCU Charge Heater	Low Sulfur Fuel Gas	162	PPMV	3-HOUR ROLLING AVERAGE
KS-0041	HOLLYFRONTIER EL DORADO REFINERY	10/30/2019	Cogen Auxiliary Air Heater	Low Sulfur Fuel Gas	162	PPMV	3 HR ROLLING AVERAGE
KS-0041	HOLLYFRONTIER EL DORADO REFINERY	10/30/2019	New Crude Heater	Low Sulfur Fuel Gas	162	PPMV	3 HR ROLLING AVERAGE
*MI-0445	INDECK NILES, LLC	11/26/2019	FGFUELHTR (2 fuel pre-heaters)	Good combustion practices and the use of pipeline quality natural gas.	2000	GR/MMSCF	BASED UPON FUEL RECEIPT RECORDS
MI-0423	INDECK NILES, LLC	1/4/2017	FGFUELHTR (Two fuel pre-heaters identified as EUFUELHTR1 & EUFUELHTR2)	Good combustion practices and the use of pipeline quality natural gas.	2000	GR/MMSCF	BASED UPON FUEL RECEIPT RECORDS.

Table E-27: Natural Gas Fired Heaters, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for SO_2

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
TX-0908	NEWMAN POWER STATION	8/27/2021	LINE HEATER	Good combustions practices and pipeline natural gas. Fuel to contain less than 5 grains of sulfur per dscf	5	GR/DSCF	
MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	DEW POINT HEATER	USE OF EFFICIENT DESIGN OF THE HEATER, EXCLUSIVE USE OF PIPELINE QUALITY NATURAL GAS ONLY, AND APPLICATION OF GOOD COMBUSTION PRACTICES	0.0006	LB/MMBTU	3-HOUR BLOCK AVERAGE

Table E-28: Natural Gas Fired Heaters, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
AL-0329	COLBERT COMBUSTION TURBINE PLANT	9/21/2021	Three Gas Heaters		0.08	LB/MMBTU	3 HOUR AVG
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	EUFUELHTR1: Natural gas fired fuel heater	Good combustion controls.	0.77	LB/H	HOURLY
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	EUFUELHTR2: Natural gas fired fuel heater	Good combustion controls	0.14	LB/H	HOURLY
VA-0328	C4GT, LLC	4/26/2018	Dew Point Heater	good combustion practices	2.6	T/YR	
LA-0331	CALCASIEU PASS LNG PROJECT	9/21/2018	Hot Oil Heaters (HOH1 to HOH6)	Exclusive Combustion of Fuel Gas and Good Combustion Practices.	0.082	LB/ MM BTU	3 HOUR AVERAGE
VA-0332	CHICKAHOMINY POWER LLC	6/24/2019	Three (3) Fuel Gas Heaters	good combustion practices, operator training, and proper emissions unit design, construction and maintenance.	0.037	LB/MMBTU	
PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Dew point heater 13.8		0.08	LB/MMBTU	
PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Dew point heater 3.2		0.08	LB/MMBTU	
MD-0041	CPV ST. CHARLES	4/23/2014	FUEL GAS HEATER	GOOD COMBUSTION PRACTICES	0.08	LB/MMBTU	
IL-0129	CPV THREE RIVERS ENERGY CENTER	7/30/2018	Fuel Heater	Good combustion practice	0.08	LB/HR	
LA-0364	FG LA COMPLEX	1/6/2020	PR Reactor Charge Heater	Good combustion practices and compliance with the applicable provisions of 40 CFR 63 Subpart DDDDD.	0.037	LB/MMBTU	
LA-0364	FG LA COMPLEX	1/6/2020	Hot Oil Heaters 1 and 2	Good combustion practices and compliance with the applicable provisions of 40 CFR 63 Subpart DDDDD.	0.037	LB/MMBTU	
TX-0678	FREEPORT LNG PRETREATMENT FACILITY	7/16/2014	Heating Medium Heaters	ultra-low NOx burners	25	PPMVD	@3% O2 AND 1 HOUR BASED ON STACK TEST
AK-0085	GAS TREATMENT PLANT	8/13/2020	Three (3) Building Heat Medium Heaters	Oxidation Catalyst and Good Combustion Practices	0.007	LB/MMBTU	3-HOUR AVERAGE

Table E-28: Natural Gas Fired Heaters, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
AK-0085	GAS TREATMENT PLANT	8/13/2020	Two (2) Buyback Gas Bath Heaters and Three (3) Operations Camp Heaters	Good Combustion Practices, Clean Fuels, and Limited Operation of 500 hours per year per heater.	0.087	LB/MMBTU	3-HOUR AVERAGE
VA-0325	GREENSVILLE POWER STATION	6/17/2016	AUXILIARY BOILER (1) AND FUEL GAS HEATERS (6)	Clean fuel and good combustion practices	0.035	LBS/MMBTU	
OH-0374	GUERNSEY POWER STATION LLC	10/23/2017	Fuel Gas Heaters (2 identical, P007 and P008)	Combustion control	0.83	LB/H	
*PA-0315	HILLTOP ENERGY CENTER, LLC	4/12/2017	Flue Gas Heater		0.037	LB	MMBTU
MI-0424	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/5/2016	EUFUELHTR (Fuel pre-heater)	Good combustion practices.	0.41	LB/H	TEST PROTOCOL WILL SPECIFY AVG TIME
MI-0423	INDECK NILES, LLC	1/4/2017	FGFUELHTR (Two fuel pre-heaters identified as EUFUELHTR1 & EUFUELHTR2)	Good combustion practices.	2.22	LB/H	HOURLY; EACH UNIT
*MI-0445	INDECK NILES, LLC	11/26/2019	FGFUELHTR (2 fuel pre-heaters)	Good combustion practices	1.11	LB/H	HOURLY; EACH FUEL HEATER
IL-0130	JACKSON ENERGY CENTER	12/31/2018	Fuel Heater	Good combustion practice	0.08	LB/MMBTU	
IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014	dew point heater		0.041	LB/MMBTU	3-HOUR AVERAGE
MD-0045	MATTAWOMAN ENERGY CENTER	11/13/2015	FUEL GAS HEATER	GOOD COMBUSTION PRACTICES	0.021	LB/MMBTU	3-HOUR BLOCK AVERAGE
PA-0311	MOXIE FREEDOM GENERATION PLANT	9/1/2015	Fuel Gas Heater		0.037	LB/MMBTU	
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Natural Gas-Fired Heater (P04)	Only combust pipeline quality natural gas and operate and maintain the process according to manufacturerâ€™s recommendations.	0.08	LB/MMBTU	
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Natural Gas-Fired Heater (P05)	Only combust pipeline quality natural gas and operate and maintain heater according to the manufacturerâ€™s recommendations.	0.08	LB/MMBTU	

Table E-28: Natural Gas Fired Heaters, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
TX-0908	NEWMAN POWER STATION	8/27/2021	LINE HEATER	Good combustions practices and pipeline natural gas	50	PPMVD	
TX-0939	ORANGE COUNTY ADVANCED POWER STATION	3/13/2023	Water Bath Heater	Good combustion practices	50	PPMVD	3% O2
MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	DEW POINT HEATER	USE OF EFFICIENT DESIGN OF THE HEATER, EXCLUSIVE USE OF PIPELINE QUALITY NATURAL GAS ONLY, AND APPLICATION OF GOOD COMBUSTION PRACTICES	0.083	LB/MMBTU	3-HOUR BLOCK AVERAGE
WI-0299	WPL- RIVERSIDE ENERGY CENTER	8/20/2020	Natural Gas-Fired Space and Unit Heater (P30)	Only combust natural gas in each heater.	0.082	LB/MMBTU	

Table E-29: Natural Gas Fired Heaters, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for VOC

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
*MI-0445	INDECK NILES, LLC	11/26/2019	FGFUELHTR (2 fuel pre-heaters)	Good combustion practices	0.07	LB/H	HOURLY; EACH FUEL HEATER
*PA-0316	RENOVO ENERGY CENTER, LLC	1/26/2018	Water Bath Heater		0.005	LB	MMBTU
AK-0085	GAS TREATMENT PLANT	8/13/2020	Three (3) Building Heat Medium Heaters	Oxidation Catalyst and Good Combustion Practices	0.0029	LB/MMBTU	3-HOUR AVERAGE
AK-0085	GAS TREATMENT PLANT	8/13/2020	Two (2) Buyback Gas Bath Heaters and Three (3) Operations Camp Heaters	Good Combustion Practices, Clean Fuels, and Limited Operation of 500 hours per year per heater.	0.0057	LB/MMBTU	3-HOUR AVERAGE
LA-0331	CALCASIEU PASS LNG PROJECT	9/21/2018	Hot Oil Heaters (HOH1 to HOH6)	Proper Equipment Design and Operation, Good Combustion Practices, and Exclusive Combustion of Fuel Gas	0.0054	LB/MM BTU	3 HOUR AVERAGE
LA-0364	FG LA COMPLEX	1/6/2020	PR Reactor Charge Heater	Good combustion practices and compliance with applicable provisions of 40 CFR 63 Subpart DDDDD.	0.005	LB/MMBTU	
LA-0364	FG LA COMPLEX	1/6/2020	Hot Oil Heaters 1 and 2	Good combustion practices and compliance with the applicable provisions of 40 CFR 63 Subpart DDDDD.	4.02	LB/H	
MD-0041	CPV ST. CHARLES	4/23/2014	FUEL GAS HEATER	EXCLUSIVE USE OF NATURAL GAS AND GOOD COMBUSTION PRACTICES	0.005	LB/MMBTU	
MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	DEW POINT HEATER	USE OF EFFICIENT DESIGN OF THE HEATER, EXCLUSIVE USE OF PIPELINE QUALITY NATURAL GAS ONLY, AND APPLICATION OF GOOD COMBUSTION PRACTICES	0.005	LB/MMBTU	3-HOUR BLOCK AVERAGE
MD-0045	MATTAWOMAN ENERGY CENTER	11/13/2015	FUEL GAS HEATER	EXCLUSIVE USE OF PIPELINE QUALITY NATURAL GAS AND GOOD COMBUSTION PRACTICES	0.0054	LB/MMBTU	3-HOUR BLOCK AVERAGE
MI-0423	INDECK NILES, LLC	1/4/2017	FGFUELHTR (Two fuel pre-heaters identified as EUFUELHTR1 & EUFUELHTR2)	Good combustion practices.	0.15	LB/H	HOURLY; EACH FUEL HEATER
MI-0424	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/5/2016	EUFUELHTR (Fuel pre-heater)	Good combustion practices.	0.03	LB/H	TEST PROTOCOL WILL SPECIFY AVG TIME

Table E-29: Natural Gas Fired Heaters, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for VOC

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	EUFUELHTR1: Natural gas fired fuel heater	Good combustion controls	0.17	LB/H	HOURLY
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	EUFUELHTR2: Natural gas fired fuel heater	Good combustion controls.	0.03	LB/H	HOURLY
OH-0374	GUERNSEY POWER STATION LLC	10/23/2017	Fuel Gas Heaters (2 identical, P007 and P008)	Combustion control	0.075	LB/H	
PA-0311	MOXIE FREEDOM GENERATION PLANT	9/1/2015	Fuel Gas Heater		0.005	LB/MMBTU	
TX-0678	FREEPORT LNG PRETREATMENT FACILITY	7/16/2014	Heating Medium Heaters	good combustion practices	0.26	LB/H	1 HOUR
TX-0908	NEWMAN POWER STATION	8/27/2021	LINE HEATER	Good combustions practices and pipeline natural gas	0		
TX-0939	ORANGE COUNTY ADVANCED POWER STATION	3/13/2023	Water Bath Heater	Good combustion practices	0.005	LB/MMBTU	
VA-0325	GREENSVILLE POWER STATION	6/17/2016	AUXILIARY BOILER (1) AND FUEL GAS HEATERS (6)	Good combustion pratices	0.5	T/12 MO ROLL AVG	12 MONTH ROLLING TOTAL
VA-0328	C4GT, LLC	4/26/2018	Dew Point Heater	good combustion practices	0		
VA-0332	CHICKAHOMINY POWER LLC	6/24/2019	Three (3) Fuel Gas Heaters	good combustion practices, operator training, and proper emissions unit design, construction and maintenance.	0.3	T/YR	12 MO ROLLING AVG
WI-0299	WPL- RIVERSIDE ENERGY CENTER	8/20/2020	Natural Gas-Fired Space and Unit Heater (P30)	Only combust natural gas in each heater.	0.0054	LB/MMBTU	
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Natural Gas-Fired Heater (P04)	Only combust pipeline quality natural gas, operate and maintain process according to manufacturerâ€™s recommendations.	0.005	LB/MMBTU	
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Natural Gas-Fired Heater (P05)	Only combust pipeline quality natural gas and operate and maintain according to manufacturerâ€™s recommendations.	0.005	LB/MMBTU	

Table E-29: Natural Gas Fired Heaters, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for VOC

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
TX-0939	ORANGE COUNTY ADVANCED POWER STATION	3/13/2023	Water Bath Heater	Good combustion practices	0.005	LB/MMBTU	
*PA-0316	RENOVO ENERGY CENTER, LLC	1/26/2018	Water Bath Heater		0.005	LB	MMBTU
FL-0364	SEMINOLE GENERATING STATION	3/21/2018	Two natural gas heaters (< 10 MMBtu/hr each)		0.005	LB/MMBTU	
MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	DEW POINT HEATER	USE OF EFFICIENT DESIGN OF THE HEATER, EXCLUSIVE USE OF PIPELINE QUALITY NATURAL GAS ONLY, AND APPLICATION OF GOOD COMBUSTION PRACTICES	0.005	LB/MMBTU	3-HOUR BLOCK AVERAGE
WI-0299	WPL- RIVERSIDE ENERGY CENTER	8/20/2020	Natural Gas-Fired Space and Unit Heater (P30)	Only combust natural gas in each heater.	0.0054	LB/MMBTU	

Table E-30: Natural Gas Fired Heaters, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	EUFUELHTR1: Natural gas fired fuel heater	Low sulfur fuel	0.15	LB/H	HOURLY
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	EUFUELHTR1: Natural gas fired fuel heater	Low sulfur fuel	0.15	LB/H	HOURLY
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	EUFUELHTR1: Natural gas fired fuel heater	Low sulfur fuel	0.15	LB/H	HOURLY
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	EUFUELHTR2: Natural gas fired fuel heater	Low sulfur fuel	0.03	LB/H	HOURLY
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	EUFUELHTR2: Natural gas fired fuel heater	Low sulfur fuel	0.03	LB/H	HOURLY
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	EUFUELHTR2: Natural gas fired fuel heater	Low sulfur fuel	0.03	LB/H	HOURLY
VA-0328	C4GT, LLC	4/26/2018	Dew Point Heater	Good combustion practices and the use of pipeline quality natural gas with a maximum sulfur content of 0.4 gr/100 scf on a 12-mo rolling av	0.5	T/YR	
VA-0328	C4GT, LLC	4/26/2018	Dew Point Heater	Good combustion practices and the use of pipeline quality natural gas with a maximum sulfur content of 0.4 gr/100 scf on a 12-mo rolling av	0.5	T/YR	
LA-0331	CALCASIEU PASS LNG PROJECT	9/21/2018	Hot Oil Heaters (HOH1 to HOH6)	Exclusive Combustion of Fuel Gas and Good Combustion Practices	0.0075	LB/MM BTU	3 HOUR AVERAGE
LA-0331	CALCASIEU PASS LNG PROJECT	9/21/2018	Hot Oil Heaters (HOH1 to HOH6)	Exclusive Combustion of Fuel Gas and Good Combustion Practices	0.0075	LB/MM BTU	3 HOUR AVERAGE
VA-0332	CHICKAHOMINY POWER LLC	6/24/2019	Three (3) Fuel Gas Heaters	Good combustion practices and the use of pipeline quality natural gas with a maximum sulfur content of 0.4 gr/100 scf on a 12-month rolling average	0.5	T/YR (EACH)	
VA-0332	CHICKAHOMINY POWER LLC	6/24/2019	Three (3) Fuel Gas Heaters	Good combustion practices and the use of pipeline quality natural gas with a maximum sulfur content of 0.4 gr/100 scf on a 12-month rolling average	0.4	T/YR	
MD-0041	CPV ST. CHARLES	4/23/2014	FUEL GAS HEATER	USE OF PIPELINE QUALITY NATURAL GAS AND GOOD COMBUSTION PRACTICES	0.007	LB/MMBTU	
MD-0041	CPV ST. CHARLES	4/23/2014	FUEL GAS HEATER	USE OF PIPELINE QUALITY NATURAL GAS AND GOOD COMBUSTION PRACTICES	0.007	LB/MMBTU	

Table E-30: Natural Gas Fired Heaters, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
LA-0364	FG LA COMPLEX	1/6/2020	PR Reactor Charge Heater	Use of pipeline quality natural gas or fuel gas and good combustion practices.	0.91	LB/H	
LA-0364	FG LA COMPLEX	1/6/2020	PR Reactor Charge Heater	Use of pipeline quality natural gas or fuel gas and good combustion practices.	0.91	LB/H	
LA-0364	FG LA COMPLEX	1/6/2020	Hot Oil Heaters 1 and 2	Use of pipeline quality natural gas or fuel gas and good combustion practices.	0.03	LB/H	
LA-0364	FG LA COMPLEX	1/6/2020	Hot Oil Heaters 1 and 2	Use of pipeline quality natural gas or fuel gas and good combustion practices.	0.03	LB/H	
TX-0678	FREEPORT LNG PRETREATMENT FACILITY	7/16/2014	Heating Medium Heaters		0.91	LB/H	1 HOUR
AK-0085	GAS TREATMENT PLANT	8/13/2020	Three (3) Building Heat Medium Heaters	Good Combustion Practices and Clean Fuel (NG)	0.0079	LB/MMBTU	3-HOUR AVERAGE
AK-0085	GAS TREATMENT PLANT	8/13/2020	Three (3) Building Heat Medium Heaters	Good Combustion Practices and Clean Fuel (NG)	0.0079	LB/MMBTU	3-HOUR AVERAGE
AK-0085	GAS TREATMENT PLANT	8/13/2020	Two (2) Buyback Gas Bath Heaters and Three (3) Operations Camp Heaters	Good Combustion Practices, Clean Fuels, and Limited Operation of 500 hours per year per heater.	0.0079	LB/MMBTU	3-HOUR AVERAGE
AK-0085	GAS TREATMENT PLANT	8/13/2020	Two (2) Buyback Gas Bath Heaters and Three (3) Operations Camp Heaters	Good Combustion Practices, Clean Fuels, and Limited Operation of 500 hours per year per heater.	0.0079	LB/MMBTU	3-HOUR AVERAGE
VA-0325	GREENSVILLE POWER STATION	6/17/2016	AUXILIARY BOILER (1) AND FUEL GAS HEATERS (6)	Low sulfur/carbon fuel and good combustion practices	0.007	LB/MMBTU	
OH-0374	GUERNSEY POWER STATION LLC	10/23/2017	Fuel Gas Heaters (2 identical, P007 and P008)	Combustion control	0.075	LB/H	
OH-0374	GUERNSEY POWER STATION LLC	10/23/2017	Fuel Gas Heaters (2 identical, P007 and P008)	Combustion control	0.075	LB/H	
MI-0424	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/5/2016	EUFUELHTR (Fuel pre-heater)	Good combustion practices.	0.007	LB/MMBTU	TEST PROTOCOL WILL SPECIFY AVG TIME

Table E-30: Natural Gas Fired Heaters, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
MI-0424	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/5/2016	EUFUELHTR (Fuel pre-heater)	Good combustion practices.	0.0075	LB/MMBTU	TEST PROTOCOL WILL SPECIFY AVG TIME
MI-0424	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/5/2016	EUFUELHTR (Fuel pre-heater)	Good combustion practices.	0.0075	LB/MMBTU	TEST PROTOCOL WILL SPECIFY AVG TIME.
MI-0423	INDECK NILES, LLC	1/4/2017	FGFUELHTR (Two fuel pre-heaters identified as EUFUELHTR1 & EUFUELHTR2)	Good combustion practices.	0.002	LB/MMBTU	TEST PROTOCOL WILL SPECIFY AVG TIME.
MI-0423	INDECK NILES, LLC	1/4/2017	FGFUELHTR (Two fuel pre-heaters identified as EUFUELHTR1 & EUFUELHTR2)	Good combustion practices.	0.2	LB/H	HOURLY; EACH FUEL HEATER
MI-0423	INDECK NILES, LLC	1/4/2017	FGFUELHTR (Two fuel pre-heaters identified as EUFUELHTR1 & EUFUELHTR2)	Good combustion practices.	0.2	LB/H	HOURLY; EACH FUEL HEATER
*MI-0445	INDECK NILES, LLC	11/26/2019	FGFUELHTR (2 fuel pre-heaters)	Good combustion practices	0.002	LB/MMBTU	HOURLY; EACH FUEL HEATER
*MI-0445	INDECK NILES, LLC	11/26/2019	FGFUELHTR (2 fuel pre-heaters)	Good combustion practices	0.1	LB/H	HOURLY; EACH FUEL HEATER
*MI-0445	INDECK NILES, LLC	11/26/2019	FGFUELHTR (2 fuel pre-heaters)	Good combustion practices	0.1	LB/H	HOURLY; EACH FUEL HEATER
MD-0045	MATTAWOMAN ENERGY CENTER	11/13/2015	FUEL GAS HEATER	USE OF PIPELINE QUALITY NATURAL GAS AND GOOD COMBUSTION PRACTICES	0.0019	LB/MMBTU	
MD-0045	MATTAWOMAN ENERGY CENTER	11/13/2015	FUEL GAS HEATER	USE OF PIPELINE QUALITY NATURAL GAS AND GOOD COMBUSTION PRACTICES	0.0075	LB/MMBTU	3-HOUR BLOCK AVERAGE
MD-0045	MATTAWOMAN ENERGY CENTER	11/13/2015	FUEL GAS HEATER	USE OF PIPELINE QUALITY NATURAL GAS AND GOOD COMBUSTION PRACTICES	0.0075	LB/MMBTU	3-HOUR BLOCK AVERAGE
PA-0311	MOXIE FREEDOM GENERATION PLANT	9/1/2015	Fuel Gas Heater		0.007	LB/MMBTU	
PA-0311	MOXIE FREEDOM GENERATION PLANT	9/1/2015	Fuel Gas Heater		0.007	LB/MMBTU	
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Natural Gas-Fired Heater (P04)	Operate and maintain according to manufacturerâ€™s recommendations. Only combust pipeline quality natural gas.	0.01	LB/MMBTU	

Table E-30: Natural Gas Fired Heaters, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Natural Gas-Fired Heater (P04)	Operate and maintain heater according to manufacturerâ€™s recommendations. Only combust pipeline quality natural gas.	0.01	LB/MMBTU	
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Natural Gas-Fired Heater (P05)	Operate and maintain heater according to the manufacturerâ€™s recommendations and only combust pipeline quality natural gas.	0.01	LB/MMBTU	
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Natural Gas-Fired Heater (P05)	Operate and maintain heater according to the manufacturerâ€™s recommendations and only combust pipeline quality natural gas.	0.01	LB/MMBTU	
TX-0908	NEWMAN POWER STATION	8/27/2021	LINE HEATER	Good combustions practices and pipeline natural gas to limit opacity to 5%	0		
TX-0939	ORANGE COUNTY ADVANCED POWER STATION	3/13/2023	Water Bath Heater	Good combustion practices	0.007	LB/MMBTU	
MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	DEW POINT HEATER	EXCLUSIVE USE OF PIPELINE QUALITY NATURAL GAS AND GOOD	0.0075	LB/MMBTU	3-HOUR AVERAGE BASIS
MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	DEW POINT HEATER	EXCLUSIVE USE OF PIPELINE QUALITY NATURAL GAS AND GOOD COMBUSTION PRACTICES	0.0075	LB/MMBTU	3-HOUR BLOCK AVERAGE
MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	DEW POINT HEATER	EXCLUSIVE USE OF PIPELINE QUALITY NATURAL GAS AND GOOD COMBUSTION PRACTICES	0.0075	LB/MMBTU	3-HOUR BLOCK AVERAGE
WI-0299	WPL- RIVERSIDE ENERGY CENTER	8/20/2020	Natural Gas-Fired Space and Unit Heater (P30)	Only combust natural gas in each heater.	0.0075	LB/MMBTU	
WI-0299	WPL- RIVERSIDE ENERGY CENTER	8/20/2020	Natural Gas-Fired Space and Unit Heater (P30)	Only combust natural gas in each heater.	0.0075	LB/MMBTU	

Table E-31: Natural Gas Fired Heaters, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO_2e

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	EUFUELHTR1: Natural gas fired fuel heater	Natural gas fuel	6310	T/YR	12-MO ROLLING TIME PERIOD
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	EUFUELHTR2: Natural gas fired fuel heater	Natural gas fuel	6310	T/YR	12-MONTH ROLLING TIME PERIOD
VA-0328	C4GT, LLC	4/26/2018	Dew Point Heater	use of natural gas and high efficiency design and operation	8208	T/YR	
LA-0331	CALCASIEU PASS LNG PROJECT	9/21/2018	Hot Oil Heaters (HOH1 to HOH6)	Exclusive combustion of Low-Carbon Fuel Gas, Good Combustion Practices, Good Operation & Maintenance Practices and Insulation	354456	T/YR	
VA-0332	CHICKAHOMINY POWER LLC	6/24/2019	Three (3) Fuel Gas Heaters	use of natural gas and high efficiency design and operation	6261	T/YR	
IL-0129	CPV THREE RIVERS ENERGY CENTER	7/30/2018	Fuel Heater	Good combustion practice	6600	TON/YR	12-MONTH ROLLING AVERAGE
LA-0364	FG LA COMPLEX	1/6/2020	PR Reactor Charge Heater	Use of fuel gas as fuel, energy-efficient design options, and operational/maintenance practices.	171980	T/YR	
LA-0364	FG LA COMPLEX	1/6/2020	Hot Oil Heaters 1 and 2	Use of fuel gas as fuel, energy-efficient design options, and operational/maintenance practices.	5858	TONS/YR	
AK-0085	GAS TREATMENT PLANT	8/13/2020	Three (3) Building Heat Medium Heaters	Good combustion practices and clean burning fuel (NG)	117.1	LB/MMBTU	3-HOUR AVERAGE
AK-0085	GAS TREATMENT PLANT	8/13/2020	Two (2) Buyback Gas Bath Heaters and Three (3) Operations Camp Heaters	Good Combustion Practices, Clean Fuels, and Limited Operation of 500 hours per year per heater.	117.1	LB/MMBTU	3-HOUR AVERAGE
VA-0325	GREENSVILLE POWER STATION	6/17/2016	AUXILIARY BOILER (1) AND FUEL GAS HEATERS (6)	Natural gas and fuel and high efficiency design and operation.	117.1	LB/MMBTU	
OH-0374	GUERNSEY POWER STATION LLC	10/23/2017	Fuel Gas Heaters (2 identical, P007 and P008)	Natural gas, low-emitting fuel	7695	T/YR	PER ROLLING 12 MONTH PERIOD
MI-0424	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/5/2016	EUFUELHTR (Fuel pre-heater)	Good combustion practices.	1934	T/YR	12-MO ROLLING TIME PERIOD

Table E-31: Natural Gas Fired Heaters, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO_2e

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
MI-0423	INDECK NILES, LLC	1/4/2017	FGFUELHTR (Two fuel pre-heaters identified as EUFUELHTR1 & EUFUELHTR2)	Energy efficiency measures and the use of a low carbon fuel (pipeline quality natural gas).	13848	T/YR	12-MO ROLLING TIME PERIOD; COMBINED LIMI
*MI-0445	INDECK NILES, LLC	11/26/2019	FGFUELHTR (2 fuel pre-heaters)	Energy Efficiency Measures and the use of a low carbon fuel (pipeline quality natural gas)	13848	T/YR	12-MO ROLLING TIME PERIOD
IL-0130	JACKSON ENERGY CENTER	12/31/2018	Fuel Heater	Good combustion practice	6700	TONS/YEAR	12-MONTH ROLLING AVERAGE
IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014	dew point heater		6860	TONS	12-MONTH ROLLING TOTAL
IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014	dew point heater		6860	TONS	12-MONTH ROLLING TOTAL
PA-0311	MOXIE FREEDOM GENERATION PLANT	9/1/2015	Fuel Gas Heater		7845	TPY	12-MONTH ROLLING BASIS
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Natural Gas-Fired Heater (P04)	Low-NOx burners, only combust pipeline quality natural gas, and operate and maintain heater according to manufacturerâ€™s recommendations.	0		
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Natural Gas-Fired Heater (P05)	Low-NOx burners, only combust pipeline quality natural gas, and operate and maintain according to manufacturerâ€™s recommendations.	0		
TX-0908	NEWMAN POWER STATION	8/27/2021	LINE HEATER	Good combustions practices and properly maintaining the unit	0		
TX-0939	ORANGE COUNTY ADVANCED POWER STATION	3/13/2023	Water Bath Heater	Good combustion practices	0		
*IN-0371	WABASH VALLEY RESOURCES, LLC	1/11/2024	Dewpoint Heater	Good Combustion Practices	117	LB/MMBTU	
*IN-0371	WABASH VALLEY RESOURCES, LLC	1/11/2024	Ammonia Catalyst Startup Heater	Good Combustion Practices	117	LB/MMBTU	

Table E-32: Distillate Oil Storage Tank, Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for VOC

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
TX-0756	CCI CORPUS CHRISTI CONDENSATE SPLITTER FACILITY	6/19/2015	Storage Tanks, TK-107, TK-108, TK-109, 42.005 (jet fuel, gas oil, and diesel)	Material w/vapor press < 0.5 psia. Tanks are required to be painted white and be equipped with submerged fill pipes	4.2	LB/HR	
TX-0756	CCI CORPUS CHRISTI CONDENSATE SPLITTER FACILITY	6/19/2015	Storage Tanks, TK-110, TK-111, TK-112 (jet fuel, gas oil, and diesel)	Tanks are required to be painted white and be equipped with submerged fill pipes	3.07	LB/HR	
TX-0756	CCI CORPUS CHRISTI CONDENSATE SPLITTER FACILITY	6/19/2015	Storage Tanks, TK-113, TK-114, and TK-115 (jet fuel, gas oil, and diesel)	Tanks are required to be painted white and be equipped with submerged fill pipes	0.85	LB/HR	
LA-0364	FG LA COMPLEX	1/6/2020	DEG, EG, PEG, MEG, and Diesel Storage Tanks	Storage vessels equipped with fixed roofs.	0		
AK-0085	GAS TREATMENT PLANT	8/13/2020	Fuel Tanks	Submerged Fill	0.59	TPY	YEAR
MD-0046	KEYS ENERGY CENTER	10/31/2014	FUEL OIL STORAGE TANKS	PERIODIC MAINTENANCE ON THE TANKS TO MINIMIZE FUGITIVE EMISSIONS	0.1	TON	12-MONTH ROLLING AVG
AK-0088	LIQUEFACTION PLANT	7/7/2022	Three Diesel Storage Tanks	Submerged Fill	0.01	TPY COMBINED	
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Diesel Fuel Day Tank (T01)		0		
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Diesel Fuel Generator Tank (T02)		0		
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Diesel Fuel Fire Pump Tank (T03)		0		
TX-0939	ORANGE COUNTY ADVANCED POWER STATION	3/13/2023	STORAGE TANKS (store chemicals below 0.5 psia TVP or are below 25,000 gallons in size)	Bottom fill, exterior surfaces are painted white, unpainted stainless steel, or unpainted aluminum.	0		
OR-0050	TROUTDALE ENERGY CENTER, LLC	3/5/2014	Storage tank (USLD)	Submerged fill line; Vapor balancing during tank filling.	0		
MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	FUEL OIL STORAGE TANKS	PERIODIC MAINTENANCE ON THE TANKS TO MINIMIZE FUGITIVE EMISSIONS	0.001	TONS	12-MONTH ROLLING PERIOD

Table E-33: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for NOx

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
VA-0328	C4GT, LLC	4/26/2018	Emergency Diesel GEN	good combustion practices and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw.	4.8	G/HP H	
*IN-0365	MAPLE CREEK ENERGY LLC	6/19/2023	Emergency generator		4.8	G/HP-HR	
*WV-0033	MAIDSVILLE	1/5/2022	Emergency Generator	Combustion Control (retarded timing and/or lean burn)	24.6	LB/HR	
LA-0313	ST. CHARLES POWER STATION	8/31/2016	SCPS Emergency Diesel Generator 1	Compliance with NESHAP 40 CFR 63 Subpart ZZZZ and NSPS 40 CFR 60 Subpart IIII, and good combustion practices (use of ultra-low sulfur diesel fuel).	27.34	LB/H	HOURLY MAXIMUM
LA-0331	CALCASIEU PASS LNG PROJECT	9/21/2018	Large Emergency Engines (>50kW)	Good Combustion and Operating Practices	5.6	G/KW-H	
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Emergency Diesel Generator Engine	Compliance with 40 CFR 60 Subpart IIII, good combustion practices, and use of ultra-low sulfur diesel fuel.	4.8	G/HP-HR	
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUEMENGINE (North Plant): Emergency Engine	Good combustion practices and meeting NSPS Subpart IIII requirements.	6.4	G/KW-H	HOURLY
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUEMENGINE (South Plant): Emergency Engine	Good combustion practices and meeting NSPS IIII requirements.	6.4	G/KW-H	HOURLY
MI-0441	LBWL--ERICKSON STATION	12/21/2018	EUEMGD1--A 1500 HP diesel fueled emergency engine	Good combustion practices and will be NSPS compliant.	6.4	G/KW-H	HOURLY
MI-0451	MEC NORTH, LLC	6/23/2022	EUEMENGINE (North Plant): Emergency engine	Good combustion practices and meeting NSPS Subpart IIII requirements.	6.4	G/KW-H	HOURLY
MI-0452	MEC SOUTH, LLC	6/23/2022	EUEMENGINE (South Plant): Emergency engine	Good Combustion Practices and meeting NSPS Subpart IIII requirements	6.4	G/KW-H	HOURLY
OH-0366	CLEAN ENERGY FUTURE - LORDSTOWN, LLC	8/25/2015	Emergency generator (P003)	State-of-the-art combustion design	21.6	LB/H	
OH-0367	SOUTH FIELD ENERGY LLC	9/23/2016	Emergency generator (P003)	State-of-the-art combustion design	27.18	LB/H	

Table E-33: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for NOx

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
OH-0370	TRUMBULL ENERGY CENTER	9/7/2017	Emergency generator (P003)	State-of-the-art combustion design	16.07	LB/H	
OH-0372	OREGON ENERGY CENTER	9/27/2017	Emergency generator (P003)	State-of-the-art combustion design	16.1	LB/H	
OH-0374	GUERNSEY POWER STATION LLC	10/23/2017	Emergency Generators (2 identical, P004 and P005)	Certified to the meet the emissions standards in 40 CFR 89.112 and 89.113 pursuant to 40 CFR 60.4205(b) and 60.4202(a)(2). Good combustion practices per the manufacturerâ€™s operating manual.	23.21	LB/H	NMHC+NOX. SEE NOTES.
OH-0375	LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER	11/7/2017	Emergency Diesel Generator Engine (P001)	Good combustion design	24.71	LB/H	NMHC+NOX. SEE NOTES.
OH-0377	HARRISON POWER	4/19/2018	Emergency Diesel Generator (P003)	Good combustion practices (ULSD) and compliance with 40 CFR Part 60, Subpart IIII	19.68	LB/H	NMHC+NOX. SEE NOTES.
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Emergency Diesel Generator (P07)	Operation limited to 500 hours/year and operate and maintain according to the manufacturerâ€™s recommendations.	4.8	G/HP-H	
WV-0025	MOUNDSVILLE COMBINED CYCLE POWER PLANT	11/21/2014	Emergency Generator		0		
*IN-0371	WABASH VALLEY RESOURCES, LLC	1/11/2024	Emergency Generator (2000 kW)	Good Combustion Practices and meeting NSPS Subpart IIII requirements.	3.81	G/HP-HR	
MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	EMERGENCY GENERATOR 1	LIMITED OPERATING HOURS, USE OF ULTRA- LOW SULFUR FUEL AND GOOD COMBUSTION PRACTICES	4.8	G/HP-H	
*MI-0445	INDECK NILES, LLC	11/26/2019	EUEMENGINE (diesel fuel emergency engine)	Good Combustion Practices and meeting NSPS Subpart IIII requirements	6.4	G/KW-H	HOURLY
MI-0423	INDECK NILES, LLC	1/4/2017	EUEMENGINE (Diesel fuel emergency engine)	Good combustion practices and meeting NSPS IIII requirements.	6.4	G/KW-H	TEST PROTOCOL WILL SPECIFY AVG TIME

Table E-33: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for NOx

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	EUEMENGINE: Emergency engine	State of the art combustion design.	6.4	G/KW-H	HOURLY
PA-0309	LACKAWANNA ENERGY CTR/JESSUP	12/23/2015	2000 kW Emergency Generator		5.45	GM/HP-HR	
PA-0311	MOXIE FREEDOM GENERATION PLANT	9/1/2015	Emergency Generator		4.93	G/HP-HR	
VA-0325	GREENSVILLE POWER STATION	6/17/2016	DIESEL-FIRED EMERGENCY GENERATOR 3000 kW (1)	Good Combustion Practices/Maintenance	6.4	G/KW	PER HR
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	EMERGENCY GENERATOR DIESEL	Use of Ultra Low Sulfur Diesel (ULSD) Oil a clean burning fuel and limited hours of operation	20.6	LB/H	
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	EUFPENGINE: Fire pump engine	State of the art combustion design.	4	G/KW-H	HOURLY
PA-0309	LACKAWANNA ENERGY CTR/JESSUP	12/23/2015	Fire pump engine		3	GM/HP-HR	
AK-0088	LIQUEFACTION PLANT	7/7/2022	Auxiliary Air Compressor Engine	Good Combustion Practices; Limited Operation; 40 CFR 60 Subpart IIII	0.45	G/HP-HR	
FL-0367	SHADY HILLS COMBINED CYCLE FACILITY	7/27/2018	Emergency Fire Pump Engine (347 HP)	Operate and maintain the engine according to the manufacturer's written instructions	4	G/KW-HR	
AK-0085	GAS TREATMENT PLANT	8/13/2020	Three (3) Firewater Pump Engines and two (2) Emergency Diesel Generators	Good combustion practices, limit operation to 500 hours per year per engine	3.6	G/HP-HR	3-HOUR AVERAGE
MI-0424	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/5/2016	EUFPENGINE (Emergency engine--diesel fire pump)	Good combustion practices.	3	G/HP-H	TEST PROTOCOL WILL SPECIFY AVG TIME
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	EMERGENCY DIESEL FIRE PUMP	Use of Ultra Low Sulfur Diesel (ULSD) Oil a clean burning fuel and limited hours of operation	2.05	LB/H	
IL-0130	JACKSON ENERGY CENTER	12/31/2018	Firewater Pump Engine		4	G/KW-HR	
IL-0133	LINCOLN LAND ENERGY CENTER	7/29/2022	Fire Water Pump Engine		4	GRAMS	KILOWATT-HOUR
OH-0366	CLEAN ENERGY FUTURE - LORDSTOWN, LLC	8/25/2015	Emergency fire pump engine (P004)	State-of-the-art combustion design	0.81	LB/H	

Table E-33: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for NOx

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
MD-0041	CPV ST. CHARLES	4/23/2014	EMERGENCY DIESEL ENGINE FOR FIRE WATER PUMP	EXCLUSIVE USE OF ULSD FUEL, GOOD COMBUSTION PRACTICES, AND LIMITING THE HOURS OF OPERATION	3	G/HP-H	N/A
OH-0374	GUERNSEY POWER STATION LLC	10/23/2017	Emergency Fire Pump (P006)	Certified to the meet the emissions standards in Table 4 of 40 CFR Part 60, Subpart IIII. Good combustion practices per the manufacturerâ€™s operating manual	2.7	LB/H	NMHC+NOX. SEE NOTES.
OH-0377	HARRISON POWER	4/19/2018	Emergency Fire Pump (P004)	Good combustion practices (ULSD) and compliance with 40 CFR Part 60, Subpart IIII	2.12	LB/H	NMHC+NOX. SEE NOTES.
MD-0046	KEYS ENERGY CENTER	10/31/2014	DIESEL-FIRED FIRE PUMP ENGINE	EXCLUSIVE USE OF ULTRA LOW SULFUR DIESEL FUEL AND GOOD COMBUSTION PRACTICES	4	G/KW-H	
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Emergency Diesel Fired Water Pump Engine	Compliance with 40 CFR 60 Subpart IIII, good combustion practices, and use of ultra-low sulfur diesel fuel.	3	G/HP-HR	
MD-0045	MATTAWOMAN ENERGY CENTER	11/13/2015	EMERGENCY DIESEL ENGINE FOR FIRE WATER PUMP	EXCLUSIVE USE OF ULTRA LOW SULFUR FUEL AND GOOD COMBUSTION	4	G/KW-H	
MI-0451	MEC NORTH, LLC	6/23/2022	EUFPENGINE (North Plant): Fire Pump Engine	Good combustion practices and meeting NSPS Subpart IIII requirements.	3	G/B-HP-H	HOURLY
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUFPENGINE (South Plant): Fire pump engine	Good combustion practices and meeting NSPS Subpart IIII requirements.	3	G/BHP-H	HOURLY
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUFPENGINE (North Plant): Fire pump engine	Good combustion practices and meeting NSPS Subpart IIII requirements.	3	G/BHP-H	HOURLY
MI-0452	MEC SOUTH, LLC	6/23/2022	EUFPENGINE (South Plant): Fire pump engine	Good Combustion Practices and meeting NSPS Subpart IIII requirements	3	G/B-HP-H	HOURLY
WV-0025	MOUNDSVILLE COMBINED CYCLE POWER PLANT	11/21/2014	Fire Pump Engine		0		
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Emergency Diesel Fire Pump (P06)	Operation limited to 500 hours/year and shall be operated and maintained according to the manufacturerâ€™s recommendations.	3	G/HP-H	
OH-0363	NTE OHIO, LLC	11/5/2014	Emergency Fire Pump Engine (P003)	Emergency operation only, < 500 hours/year each for maintenance checks and readiness testing designed to meet NSPS Subpart IIII	1.72	LB/H	

Table E-33: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for NOx

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
OH-0372	OREGON ENERGY CENTER	9/27/2017	Emergency fire pump engine (P004)	State-of-the-art combustion design	1.97	LB/H	
OH-0367	SOUTH FIELD ENERGY LLC	9/23/2016	Emergency fire pump engine (P004)	State-of-the-art combustion design	1.79	LB/H	
LA-0313	ST. CHARLES POWER STATION	8/31/2016	SCPS Emergency Diesel Firewater Pump 1	Compliance with NESHAP 40 CFR 63 Subpart ZZZZ and NSPS 40 CFR 60 Subpart IIII, and good combustion practices (use of ultra-low sulfur diesel fuel).	1.87	LB/H	HOURLY MAXIMUM
OH-0370	TRUMBULL ENERGY CENTER	9/7/2017	Emergency fire pump engine (P004)	State-of-the-art combustion design	1.97	LB/H	
MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	EMERGENCY DIESEL ENGINE FOR FIRE WATER PUMP	LIMITED OPERATING HOURS, USE OF ULTRA- LOW SULFUR FUEL AND GOOD COMBUSTION PRACTICES	3	G/HP-H	
VA-0328	C4GT, LLC	4/26/2018	Emergency Fire Water Pump	Good combustion practices and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw.	3	G/HP-HR	
VA-0332	CHICKAHOMINY POWER LLC	6/24/2019	Emegency Fire Water Pump	good combustion practices, high efficiency design, and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw.	3	G/HP-HR	
MI-0423	INDECK NILES, LLC	1/4/2017	EUFPENGINE (Emergency engine--diesel fire pump)	Good combustion practices and meeting NSPS Subpart IIII requirements.	3	G/BHP-H	TEST PROTOCOL WILL SPECIFY AVG TIME
*MI-0445	INDECK NILES, LLC	11/26/2019	EUFPENGINE (Emergency engine-diesel fire pump	Good Combustion Practices and meeting NSPS Subpart IIII requirements	3	G/BHP-H	HOURLY
MI-0454	LBWL-ERICKSON STATION	12/20/2022	EUFPRICE--A 315 HP diesel-fueled emergency engine	Good combustion practices.	3	G/HP-H	HOURLY
MA-0039	SALEM HARBOR STATION REDEVELOPMENT	1/30/2014	Fire Pump Engine		3	GM/BHP-H	1 HR BLOCK AVG
FL-0371	SHADY HILLS COMBINED CYCLE FACILITY	6/7/2021	Emergency Fire Pump Engine (347 HP)		4	G/KW-HOUR	NMHC + NOX STANDARD
PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Emergency Fire Pump Engine		3	G/BHP-HR	

Table E-33: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for NOx

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
IL-0129	CPV THREE RIVERS ENERGY CENTER	7/30/2018	Firewater Pump Engine		0		
VA-0325	GREENSVILLE POWER STATION	6/17/2016	DIESEL-FIRED WATER PUMP 376 bph (1)	Good Combustion Practices/Maintenance	0		
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	Emergency diesel fire pump		1.75	LB/H	

Table E-34: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for SO_2

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
VA-0328	C4GT, LLC	4/26/2018	Emergency Diesel GEN	good combustion practices and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw.	0		
*IN-0365	MAPLE CREEK ENERGY LLC	6/19/2023	Emergency generator		0.0016	LB PER MMBTU	
LA-0331	CALCASIEU PASS LNG PROJECT	9/21/2018	Large Emergency Engines (>50kW)	Ultra-low sulfur diesel fuel with sulfur content of 15 ppmv.	0	LB/HP-H	
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUEMENGINE (North Plant): Emergency Engine	Good combustion practices and meeting NSPS Subpart IIII requirements.	15	PPM	FUEL SUPPLIER CERTIF. RECORDS
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUEMENGINE (South Plant): Emergency Engine	Good combustion practices and meeting NSPS Subpart IIII requirements.	15	PPM	FUEL SUPPLIER RECORDS OR SMPLE TEST DATA
MI-0451	MEC NORTH, LLC	6/23/2022	EUEMENGINE (North Plant): Emergency engine	Good combustion practices and meeting NSPS Subpart IIII requirements.	15	PPM	FUEL SUPPLIER RECORDS OR SAMPLE TEST
MI-0452	MEC SOUTH, LLC	6/23/2022	EUEMENGINE (South Plant): Emergency engine	Good Combustion Practices and meeting NSPS Subpart IIII requirements	15	PPM	FUEL SUPPLIER RECORDS OR SAMPLE TEST
OH-0367	SOUTH FIELD ENERGY LLC	9/23/2016	Emergency generator (P003)	Ultra low sulfur diesel fuel	0.03	LB/H	
OH-0370	TRUMBULL ENERGY CENTER	9/7/2017	Emergency generator (P003)	Ultra low sulfur diesel fuel	0.016	LB/H	
OH-0372	OREGON ENERGY CENTER	9/27/2017	Emergency generator (P003)	Ultra low sulfur diesel fuel	0.016	LB/H	
OH-0374	GUERNSEY POWER STATION LLC	10/23/2017	Emergency Generators (2 identical, P004 and P005)	ultra-low sulfur diesel (ULSD) fuel with a sulfur content of less than 15 ppm (0.0015 percent by weight)	0.0015	LB/MMBTU	
OH-0377	HARRISON POWER	4/19/2018	Emergency Diesel Generator (P003)	ultra-low sulfur diesel (ULSD) fuel with a sulfur content of less than 15 ppm (0.0015 percent by weight)	0.0015	LB/MMBTU	

Table E-34: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for SO_2

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	EMERGENCY GENERATOR 1	USE OF ULTRA-LOW DIESEL SULFUR FUEL, LIMITED HOURS OF OPERATION AND DESIGNED TO MEET NSPS SUBPART IIII LIMITS	0.006	G/B-HP-H	3-HOUR BLOCK AVERAGE
*MI-0445	INDECK NILES, LLC	11/26/2019	EUEMENGINE (diesel fuel emergency engine)	Good Combustion Practices and meeting NSPS Subpart IIII requirements	15	PPM	FUEL SUPPLIER CERT. RECORDS OR TEST DATA
MI-0423	INDECK NILES, LLC	1/4/2017	EUEMENGINE (Diesel fuel emergency engine)	Good combustion practices and meeting NSPS Subpart IIII requirements.	15	PPM	FUEL SUPPLIER CERTIFICATION RECORDS
FL-0356	OKEECHOBEE CLEAN ENERGY CENTER	3/9/2016	Three 3300-kW ULSD emergency generators	Use of ULSD	0.0015	% S IN ULSD	
FL-0363	DANIA BEACH ENERGY CENTER	12/4/2017	Two 3300 kW emergency generators	Clean fuel	15	PPM S IN FUEL	
VA-0325	GREENSVILLE POWER STATION	6/17/2016	DIESEL-FIRED EMERGENCY GENERATOR 3000 kW (1)	Ultra Low Sulfur Diesel/Fuel (15 ppm max)	0.0015	LB/MMBTU	
AK-0088	LIQUEFACTION PLANT	7/7/2022	Auxiliary Air Compressor Engine	Good Combustion Practices; ULSD; Limited Operation;	15	PPMW SULFUR IN FUEL	
FL-0367	SHADY HILLS COMBINED CYCLE FACILITY	7/27/2018	Emergency Fire Pump Engine (347 HP)	Clean fuel	15	PPM S IN FUEL	
AK-0085	GAS TREATMENT PLANT	8/13/2020	Three (3) Firewater Pump Engines and two (2) Emergency Diesel Generators	Good combustion practices, ULSD, and limit operation to 500 hours per year.	15	PPMW SULFUR IN FUEL	
IL-0133	LINCOLN LAND ENERGY CENTER	7/29/2022	Fire Water Pump Engine	Use of ultra-low sulfur diesel, with a sulfur content < 15 ppm sulfur.	0		
OH-0374	GUERNSEY POWER STATION LLC	10/23/2017	Emergency Fire Pump (P006)	Certified to the meet the emissions standards in Table 4 of 40 CFR Part 60, Subpart IIII. Good combustion practices per the manufacturerâ€™s operating manual.	0.0015	LB/MMBTU	

Table E-34: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for SO_2

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
OH-0377	HARRISON POWER	4/19/2018	Emergency Fire Pump (P004)	ultra-low sulfur diesel (ULSD) fuel with a sulfur content of less than 15 ppm (0.0015 percent by weight)	0.0015	LB/MMBTU	
MI-0451	MEC NORTH, LLC	6/23/2022	EUFPENGINE (North Plant): Fire Pump Engine	Good combustion practices and meeting NSPS Subpart IIII requirements.	15	PPM	FUEL SUPPLIER RECORDS OR SAMPLE TEST
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUFPENGINE (South Plant): Fire pump engine	Good combustion practices and meeting NSPS Subpart IIII requirements.	15	PPM	FUEL SUPPLIER RECORDS OR FUEL SAMPL DATA
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUFPENGINE (North Plant): Fire pump engine	Good combustion practices and meeting NSPS Subpart IIII requirements.	15	PPM	FUEL SUPPLIER RECORDS
MI-0452	MEC SOUTH, LLC	6/23/2022	EUFPENGINE (South Plant): Fire pump engine	Good Combustion Practices and meeting NSPS Subpart IIII requirements	15	PPM	FUEL SUPPLIER RECORDS OR SAMPLE TEST
OH-0372	OREGON ENERGY CENTER	9/27/2017	Emergency fire pump engine (P004)	Ultra low sulfur diesel fuel	3.2	X10-3 LB/H	
OH-0367	SOUTH FIELD ENERGY LLC	9/23/2016	Emergency fire pump engine (P004)	Ultra low sulfur diesel fuel	0.004	LB/H	
OH-0370	TRUMBULL ENERGY CENTER	9/7/2017	Emergency fire pump engine (P004)	Ultra low sulfur diesel fuel	3.2	X10-3 LB/H	
MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	EMERGENCY DIESEL ENGINE FOR FIRE WATER PUMP	FUEL, LIMITED HOURS OF OPERATION AND DESIGNED TO MEET SUBPART IIII	0.0049	G/B-HP-H	3-HOUR BLOCK AVERAGE
VA-0328	C4GT, LLC	4/26/2018	Emergency Fire Water Pump	good combustion practices and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw.	0		
VA-0332	CHICKAHOMINY POWER LLC	6/24/2019	Emegency Fire Water Pump	good combustion practices, high efficiency design, and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw.	0.0015	LB/MMBTU	
MI-0423	INDECK NILES, LLC	1/4/2017	EUFPENGINE (Emergency engine--diesel fire pump)	Good combustion practices and meeting NSPS Subpart IIII requirements.	15	PPM	FUEL SUP. CERT. RECORDS OR SAMPLE TEST
*MI-0445	INDECK NILES, LLC	11/26/2019	EUFPENGINE (Emergency engine-diesel fire pump	Good Combustion Practices and meeting NSPS Subpart IIII requirements	15	PPM	FUEL SUPPLIER CERT. RECORDS OR TEST DATA

Table E-34: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for SO_2

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
MA-0039	SALEM HARBOR STATION REDEVELOPMENT	1/30/2014	Fire Pump Engine		0.004	LB/H	1 HR BLOCK AVG
FL-0371	SHADY HILLS COMBINED CYCLE FACILITY	6/7/2021	Emergency Fire Pump Engine (347 HP)		15	PPM S IN FUEL	
FL-0363	DANIA BEACH ENERGY CENTER	12/4/2017	Emergency Fire Pump Engine (422 hp)	Clean fuel	15	PPM S IN FUEL	
VA-0325	GREENSVILLE POWER STATION	6/17/2016	DIESEL-FIRED WATER PUMP 376 bph (1)	Ultra Low Sulfur Diesel/Fuel (15 ppm max)	0.0015	LB/MMBTU	
FL-0356	OKEECHOBEE CLEAN ENERGY CENTER	3/9/2016	One 422-hp emergency fire pump engine	Use of ULSD	0.0015	% S IN ULSD	
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	Emergency diesel fire pump	Use of Ultra low sulfur fuel oil	0.002	LB/MMBTU	

Table E-35: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
VA-0328	C4GT, LLC	4/26/2018	Emergency Diesel GEN	good combustion practices and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw.	2.6	G/HP H	
*IN-0365	MAPLE CREEK ENERGY LLC	6/19/2023	Emergency generator		2.6	G/HP-HR	
*WV-0033	MAIDSVILLE	1/5/2022	Emergency Generator	Good Combustion Practices w/ OxCat. Applicant did not justify why an oxcat is infeasible for an emergency engine	1.94	LB/HR	
LA-0313	ST. CHARLES POWER STATION	8/31/2016	SCPS Emergency Diesel Generator 1	Compliance with NESHAP 40 CFR 63 Subpart ZZZZ and NSPS 40 CFR 60 Subpart IIII, and good combustion practices (use of ultra-low sulfur diesel fuel).	14.81	LB/H	HOURLY MAXIMUM
LA-0331	CALCASIEU PASS LNG PROJECT	9/21/2018	Large Emergency Engines (>50kW)	Good Combustion and Operating Practices.	3.5	G/KW-H	
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Emergency Diesel Generator Engine	Compliance with 40 CFR 60 Subpart IIII, good combustion practices, and the use of ultra-low sulfur diesel fuel.	2.6	G/HP-HR	
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUEMENGINE (North Plant): Emergency Engine	Good combustion practices and meeting NSPS Subpart IIII requirements.	3.5	G/KW-H	HOURLY
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUEMENGINE (South Plant): Emergency Engine	Good combustion practices and meeting NSPS IIII requirements.	3.5	G/KW-H	HOURLY
MI-0441	LBWL--ERICKSON STATION	12/21/2018	EUEMGD1--A 1500 HP diesel fueled emergency engine	Good combustion practices and will be NSPS compliant.	3.5	G/KW-H	HOURLY
MI-0451	MEC NORTH, LLC	6/23/2022	EUEMENGINE (North Plant): Emergency engine	Good combustion practices and meeting NSPS IIII requirements.	3.5	G/KW-H	HOURLY
MI-0452	MEC SOUTH, LLC	6/23/2022	EUEMENGINE (South Plant): Emergency engine	Good Combustion Practices and meeting NSPS Subpart IIII requirements	3.5	G/KW-H	HOURLY
OH-0366	CLEAN ENERGY FUTURE - LORDSTOWN, LLC	8/25/2015	Emergency generator (P003)	State-of-the-art combustion design	13.5	LB/H	
OH-0367	SOUTH FIELD ENERGY LLC	9/23/2016	Emergency generator (P003)	State-of-the-art combustion design	16.96	LB/H	

Table E-35: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
OH-0370	TRUMBULL ENERGY CENTER	9/7/2017	Emergency generator (P003)	State-of-the-art combustion design	8.8	LB/H	
OH-0372	OREGON ENERGY CENTER	9/27/2017	Emergency generator (P003)	State-of-the-art combustion design	8.8	LB/H	
OH-0374	GUERNSEY POWER STATION LLC	10/23/2017	Emergency Generators (2 identical, P004 and P005)	Certified to the meet the emissions standards in 40 CFR 89.112 and 89.113 pursuant to 40 CFR 60.4205(b) and 60.4202(a)(2). Good combustion practices per the manufacturerâ€™s operating manual.	12.69	LB/H	
OH-0375	LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER	11/7/2017	Emergency Diesel Generator Engine (P001)	Good combustion design	12.64	LB/H	
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Emergency Diesel Generator (P07)	Operation limited to 500 hours/year, and operate and maintain generator according to the manufacturerâ€™s recommendations.	2.6	G/HP-H	
WV-0025	MOUNDSVILLE COMBINED CYCLE POWER PLANT	11/21/2014	Emergency Generator		0		
MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	EMERGENCY GENERATOR 1	USE OF ULSD FUEL, GOOD COMBUSTION PRACTICES AND HOURS OF OPERATION LIMITED TO 100 HOURS PER YEAR	2.6	G/HP-H	
MI-0447	LBWL--ERICKSON STATION	1/7/2021	EUEMGD--emergency engine	Good combustion practices and will be NSPS compliant.	3.5	G/KW-H	HOURLY
*MI-0445	INDECK NILES, LLC	11/26/2019	EUEMENGINE (diesel fuel emergency engine)	Good Combustion Practices and meeting NSPS Subpart IIII requirements	3.5	G/KW-H	HOURLY
MI-0423	INDECK NILES, LLC	1/4/2017	EUEMENGINE (Diesel fuel emergency engine)	Good combustion practices and meeting NSPS Subpart IIII requirements.	3.5	G/KW-H	TEST PROTOCOL SHALL SPECIFY AVG TIME
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	EUEMENGINE: Emergency engine	State of the art combustion design.	3.5	G/KW-H	HOURLY
FL-0356	OKEECHOBEE CLEAN ENERGY CENTER	3/9/2016	Three 3300-kW ULSD emergency generators	Use of clean engine	3.5	G / KW-HR	
FL-0363	DANIA BEACH ENERGY CENTER	12/4/2017	Two 3300 kW emergency generators	Certified engine	3.5	GRAMS PER KWH	

Table E-35: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
PA-0309	LACKAWANNA ENERGY CTR/JESSUP	12/23/2015	2000 kW Emergency Generator		0.6	GM/HP-HR	
PA-0311	MOXIE FREEDOM GENERATION PLANT	9/1/2015	Emergency Generator		0.26	G/HP-HR	
VA-0325	GREENSVILLE POWER STATION	6/17/2016	DIESEL-FIRED EMERGENCY GENERATOR 3000 kW (1)	Good Combustion Practices/Maintenance	3.5	G/KW	PER HR
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	EMERGENCY GENERATOR DIESEL	Use of Ultra Low Sulfur Diesel (ULSD) Oil a clean burning fuel and limited hours of operation (<= 100 H/YR)	11.6	LB/H	
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	EUFPENGINE: Fire pump engine	State of the art combustion design.	3.5	G/KW-H	HOURLY
PA-0309	LACKAWANNA ENERGY CTR/JESSUP	12/23/2015	Fire pump engine		0.5	GM/HP-HR	
AK-0088	LIQUEFACTION PLANT	7/7/2022	Auxiliary Air Compressor Engine	Good Combustion Practices; Limited Operation; 40 CFR 60 Subpart IIII	3.3	G/HP-HR	
FL-0367	SHADY HILLS COMBINED CYCLE FACILITY	7/27/2018	Emergency Fire Pump Engine (347 HP)	Operate and maintain the engine according to the manufacturer's written instructions	3.5	G/KW-HOUR	
AK-0085	GAS TREATMENT PLANT	8/13/2020	Three (3) Firewater Pump Engines and two (2) Emergency Diesel Generators	Good combustion practices, limit operation to 500 hours per year per engine	3.3	G/HP-HR	3-HOUR AVERAGE
MI-0424	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/5/2016	EUFPENGINE (Emergency engine--diesel fire pump)	Good combustion practices.	3.7	G/HP-H	TEST PROTOCOL WILL SPECIFY AVG TIME
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	EMERGENCY DIESEL FIRE PUMP	Use of Ultra Low Sulfur Diesel (ULSD) Oil a clean burning fuel and limited hours of operation	1.87	LB/H	
IL-0130	JACKSON ENERGY CENTER	12/31/2018	Firewater Pump Engine		3.5	G/KW-HR	
IL-0133	LINCOLN LAND ENERGY CENTER	7/29/2022	Fire Water Pump Engine		3.5	GRAMS	KILOWATT-HOUR
OH-0366	CLEAN ENERGY FUTURE - LORDSTOWN, LLC	8/25/2015	Emergency fire pump engine (P004)	State-of-the-art combustion design	1.15	LB/H	
MD-0041	CPV ST. CHARLES	4/23/2014	EMERGENCY DIESEL ENGINE FOR FIRE WATER PUMP	USE OF ULTRA LOW SULFUR DIESEL AND GOOD COMBUSTION PRACTICES	2.6	G/HP-H	N/A

Table E-35: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
OH-0374	GUERNSEY POWER STATION LLC	10/23/2017	Emergency Fire Pump (P006)	Certified to the meet the emissions standards in Table 4 of 40 CFR Part 60, Subpart IIII. Good combustion practices per the manufacturerâ€™s operating manual.	2.36	LB/H	
OH-0377	HARRISON POWER	4/19/2018	Emergency Fire Pump (P004)	Good combustion practices (ULSD) and compliance with 40 CFR Part 60, Subpart IIII	1.83	LB/H	
MD-0046	KEYS ENERGY CENTER	10/31/2014	DIESEL-FIRED FIRE PUMP ENGINE	EXCLUSIVE USE OF ULTRA LOW SULFUR DIESEL FUEL AND GOOD COMBUSTION PRACTICES	3.5	G/KW-H	
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Emergency Diesel Fired Water Pump Engine	Compliance with 40 CFR 60 Subpart IIII, good combustion practices, and the use of ultra-low sulfur diesel fuel.	2.6	G/HP-HR	
MD-0045	MATTAWOMAN ENERGY CENTER	11/13/2015	EMERGENCY DIESEL ENGINE FOR FIRE WATER PUMP	USE OF ULTRA LOW SULFUR DIESEL AND GOOD COMBUSTION PRACTICES	3.5	G/KW-H	
MI-0451	MEC NORTH, LLC	6/23/2022	EUFPENGINE (North Plant): Fire Pump Engine	Good combustion practices and meeting NSPS Subpart IIII requirements	2.6	G/B-HP-H	HOURLY
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUFPENGINE (South Plant): Fire pump engine	Good combustion practices and meeting NSPS Subpart IIII requirements.	2.6	G/BPH-H	HOURLY
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUFPENGINE (North Plant): Fire pump engine	Good combustion practices and meeting NSPS Subpart IIII requirements.	2.6	G/BHP-H	HOURLY
MI-0452	MEC SOUTH, LLC	6/23/2022	EUFPENGINE (South Plant): Fire pump engine	Good Combustion Practices and meeting NSPS Subpart IIII requirements	2.6	G/B-HP-H	HOURLY
WV-0025	MOUNDSVILLE COMBINED CYCLE POWER PLANT	11/21/2014	Fire Pump Engine		1.44	LB/H	
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Emergency Diesel Fire Pump (P06)	Operation limited to 500 hours/year and shall be operated and maintained according to the manufacturerâ€™s recommendations.	2.6	G/HP-H	

Table E-35: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
OH-0363	NTE OHIO, LLC	11/5/2014	Emergency Fire Pump Engine (P003)	Emergency operation only, < 500 hours/year each for maintenance checks and readiness testing designed to meet NSPS Subpart IIII	0.69	LB/H	
OH-0372	OREGON ENERGY CENTER	9/27/2017	Emergency fire pump engine (P004)	state of the art combustion design	1.73	LB/H	
OH-0367	SOUTH FIELD ENERGY LLC	9/23/2016	Emergency fire pump engine (P004)	State-of-the-art combustion design	1.79	LB/H	
LA-0313	ST. CHARLES POWER STATION	8/31/2016	SCPS Emergency Diesel Firewater Pump 1	Compliance with NESHAP 40 CFR 63 Subpart ZZZZ and NSPS 40 CFR 60 Subpart IIII, and good combustion practices (use of ultra-low sulfur diesel fuel).	1.62	LB/H	HOURLY MAXIMUM
OH-0370	TRUMBULL ENERGY CENTER	9/7/2017	Emergency fire pump engine (P004)	State-of-the-art combustion design	1.73	LB/H	
MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	EMERGENCY DIESEL ENGINE FOR FIRE WATER PUMP	USE OF ULSD FUEL, GOOD COMBUSTION PRACTICES AND HOURS OF OPERATION LIMITED TO 100 HOURS	2.6	G/HP-H	
VA-0328	C4GT, LLC	4/26/2018	Emergency Fire Water Pump	good combustion practices and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw.	2.6	G/HP HR	
VA-0332	CHICKAHOMINY POWER LLC	6/24/2019	Emegency Fire Water Pump	good combustion practices, high efficiency design, and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw.	2.6	G/HP-H	
MI-0423	INDECK NILES, LLC	1/4/2017	EUFPENGINE (Emergency engine--diesel fire pump)	Good combustion practices and meeting NSPS Subpart IIII requirements.	2.6	G/BHP-H	TEST PROTOCOL WILL SPECIFY AVG. TIME
*MI-0445	INDECK NILES, LLC	11/26/2019	EUFPENGINE (Emergency engine-diesel fire pump	Good Combustion Practices and meeting NSPS Subpart IIII requirements	2.6	G/BHP-H	HOURLY
MI-0454	LBWL-ERICKSON STATION	12/20/2022	EUFPRICE--A 315 HP diesel-fueled emergency engine	Good combustion practices.	2.6	G/HP-H	HOURLY
MI-0441	LBWL--ERICKSON STATION	12/21/2018	EUFPRICE--A 315 HP diesel fueled emergency engine	Good combustion practices.	2.6	G/HP-H	HOURLY

Table E-35: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
MI-0447	LBWL--ERICKSON STATION	1/7/2021	EUFPRICE--A 315 HP diesel fueled emergency engine	Good combustion practices	2.6	G/HP-H	HOURLY
MA-0039	SALEM HARBOR STATION REDEVELOPMENT	1/30/2014	Fire Pump Engine		2.6	GM/BHP-H	1 HR BLOCK AVG
FL-0371	SHADY HILLS COMBINED CYCLE FACILITY	6/7/2021	Emergency Fire Pump Engine (347 HP)		3.5	G/KW-HOUR	
PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Emergency Fire Pump Engine		2.61	G/BHP-HR	
IL-0129	CPV THREE RIVERS ENERGY CENTER	7/30/2018	Firewater Pump Engine		0		
FL-0363	DANIA BEACH ENERGY CENTER	12/4/2017	Emergency Fire Pump Engine (422 hp)	Certified engine	3.5	G / KWH	
VA-0325	GREENSVILLE POWER STATION	6/17/2016	DIESEL-FIRED WATER PUMP 376 bph (1)	Good Combustion Practices/Maintenance	2.6	G/HP-H	HR
FL-0356	OKEECHOBEE CLEAN ENERGY CENTER	3/9/2016	One 422-hp emergency fire pump engine	Use of clean engine technology	3.5	G / KW-HR	
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	Emergency diesel fire pump		0.079	LB/H	

Table E-36: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for VOC

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
*WV-0033	MAIDSVILLE	1/5/2022	Emergency Generator	Good Combustion Practices w/ OxCat. Applicant did not justify why an oxcat is infeasible for an emergency engine	0.46	LB/HR	
LA-0313	ST. CHARLES POWER STATION	8/31/2016	SCPS Emergency Diesel Generator 1	Good combustion practices	27.34	LB/H	HOURLY MAXIMUM
LA-0331	CALCASIEU PASS LNG PROJECT	9/21/2018	Large Emergency Engines (>50kW)	Good combustion and operating practices.	0.79	G/KW-H	
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Emergency Diesel Generator Engine	Compliance with 40 CFR 60 Subpart IIII standards, good combustion practices, and the use of ultra-low sulfur diesel fuel.	4.8	G/HP-HR	
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUEMENGINE (North Plant): Emergency Engine	Good combustion practices.	0.86	LB/H	HOURLY
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUEMENGINE (South Plant): Emergency Engine	Good combustion practices	0.86	LB/H	HOURLY
MI-0451	MEC NORTH, LLC	6/23/2022	EUEMENGINE (North Plant): Emergency engine	Good combustion practices	0.86	LB/H	HOURLY
MI-0452	MEC SOUTH, LLC	6/23/2022	EUEMENGINE (South Plant): Emergency engine	Good combustion practices.	0.86	LB/H	HOURLY
OH-0366	CLEAN ENERGY FUTURE - LORDSTOWN, LLC	8/25/2015	Emergency generator (P003)		3.1	LB/H	
OH-0367	SOUTH FIELD ENERGY LLC	9/23/2016	Emergency generator (P003)	State-of-the-art combustion design	3.84	LB/H	
OH-0370	TRUMBULL ENERGY CENTER	9/7/2017	Emergency generator (P003)	State-of-the-art combustion design	2	LB/H	
OH-0372	OREGON ENERGY CENTER	9/27/2017	Emergency generator (P003)	State-of-the-art combustion design	2	LB/H	
OH-0374	GUERNSEY POWER STATION LLC	10/23/2017	Emergency Generators (2 identical, P004 and P005)	Certified to the meet the emissions standards in 40 CFR 89.112 and 89.113 pursuant to 40 CFR 60.4205(b) and 60.4202(a)(2). Good combustion practices per the manufacturerâ€™s operating manual.	23.21	LB/H	NMHC+NOX. SEE NOTES.
OH-0375	LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER	11/7/2017	Emergency Diesel Generator Engine (P001)	Good combustion design	24.71	LB/H	NMHC+NOX. SEE NOTES.

Table E-36: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for VOC

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
OH-0377	HARRISON POWER	4/19/2018	Emergency Diesel Generator (P003)	Good combustion practices (ULSD) and compliance with 40 CFR Part 60, Subpart IIII	19.68	LB/H	NMHC+NOX. SEE NOTES.
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Emergency Diesel Generator (P07)	Operation limited to 500 hours/year and operate and maintain generator according to the manufacturerâ€™s recommendations	0.32	G/HP-H	
WV-0025	MOUNDSVILLE COMBINED CYCLE POWER PLANT	11/21/2014	Emergency Generator		1.24	LB/H	
MI-0423	INDECK NILES, LLC	1/4/2017	EUEMENGINE (Diesel fuel emergency engine)	Good combustion practices.	1.87	LB/H	TEST PROTOCOL WILL SPECIFY AVG TIME
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	EUEMENGINE: Emergency engine	State of the art combustion design.	1.89	LB/H	HOURLY
PA-0309	LACKAWANNA ENERGY CTR/JESSUP	12/23/2015	2000 kW Emergency Generator		0.22	GM/HP-HR	
PA-0311	MOXIE FREEDOM GENERATION PLANT	9/1/2015	Emergency Generator		0.02	G/HP-HR	
VA-0325	GREENSVILLE POWER STATION	6/17/2016	DIESEL-FIRED EMERGENCY GENERATOR 3000 kW (1)	Good Combustion Practices/Maintenance	6.4	G/KW	PER HR
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	EMERGENCY GENERATOR DIESEL	Use of Ultra Low Sulfur Diesel (ULSD) Oil a clean burning fuel and limited hours of operation	0.557	LB/H	
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	EUFPENGINE: Fire pump engine	State of the art combustion design.	0.13	LB/H	HOURLY
PA-0309	LACKAWANNA ENERGY CTR/JESSUP	12/23/2015	Fire pump engine		0.12	GM/HP-HR	
AK-0088	LIQUEFACTION PLANT	7/7/2022	Auxiliary Air Compressor Engine	Good Combustion Practices; Limited Operation; 40 CFR 60 Subpart IIII	0.22	G/HP-HR	
AK-0085	GAS TREATMENT PLANT	8/13/2020	Three (3) Firewater Pump Engines and two (2) Emergency Diesel Generators	Good combustion practices, ULSD, and limit operation to 500 hours per year.	0.19	G/HP-HR	3-HOUR AVERAGE

Table E-36: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for VOC

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
MI-0424	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/5/2016	EUFPENGINE (Emergency engine--diesel fire pump)	Good combustion practices	0.47	LB/H	TEST PROTOCOL WILL SPECIFY AVG TIME
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	EMERGENCY DIESEL FIRE PUMP	Use of Ultra Low Sulfur Diesel (ULSD) Oil a clean burning fuel and limited hours of operation	0.117	LB/H	
OH-0366	CLEAN ENERGY FUTURE - LORDSTOWN, LLC	8/25/2015	Emergency fire pump engine (P004)	State-of-the-art combustion design	0.11	LB/H	
OH-0374	GUERNSEY POWER STATION LLC	10/23/2017	Emergency Fire Pump (P006)	Certified to the meet the emissions standards in Table 4 of 40 CFR Part 60, Subpart IIII. Good combustion practices per the manufacturerâ€™s operating manual.	2.7	LB/H	NMHC+NOX. SEE NOTES.
OH-0377	HARRISON POWER	4/19/2018	Emergency Fire Pump (P004)	Good combustion practices (ULSD) and compliance with 40 CFR Part 60, Subpart IIII	2.12	LB/H	NMHC+NOX. SEE NOTES.
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Emergency Diesel Fired Water Pump Engine	Compliance with 40 CFR 60 Subpart IIII, good combustion practices, and the use of ultra-low sulfur diesel fuel.	3	G/HP-HR	
MI-0451	MEC NORTH, LLC	6/23/2022	EUFPENGINE (North Plant): Fire Pump Engine	Good combustion practices.	0.75	LB/H	HOURLY
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUFPENGINE (South Plant): Fire pump engine	Good combustion practices.	0.75	LB/H	HOURLY
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUFPENGINE (North Plant): Fire pump engine	Good combustion practices	0.75	LB/H	HOURLY
MI-0452	MEC SOUTH, LLC	6/23/2022	EUFPENGINE (South Plant): Fire pump engine	Good Combustion Practices	0.75	LB/H	HOURLY
WV-0025	MOUNDSVILLE COMBINED CYCLE POWER PLANT	11/21/2014	Fire Pump Engine		0.17	LB/H	
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Emergency Diesel Fire Pump (P06)	Operation limited to 500 hours/year and operate and maintain according to the manufacturerâ€™s recommendations.	1.1	G/HP-H	
OH-0372	OREGON ENERGY CENTER	9/27/2017	Emergency fire pump engine (P004)	State-of-the-art combustion design	0.24	LB/H	

Table E-36: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for VOC

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
OH-0367	SOUTH FIELD ENERGY LLC	9/23/2016	Emergency fire pump engine (P004)	State-of-the-art combustion design	0.25	LB/H	
LA-0313	ST. CHARLES POWER STATION	8/31/2016	SCPS Emergency Diesel Firewater Pump 1	Good combustion practices	1.87	LB/H	HOURLY MAXIMUM
OH-0370	TRUMBULL ENERGY CENTER	9/7/2017	Emergency fire pump engine (P004)	State-of-the-art combustion design	0.24	LB/H	
VA-0328	C4GT, LLC	4/26/2018	Emergency Fire Water Pump	good combustion practices and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw.	0		
VA-0332	CHICKAHOMINY POWER LLC	6/24/2019	Emegency Fire Water Pump	good combustion practices, high efficiency design, and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw.	0.11	G/HP-HR	
MI-0423	INDECK NILES, LLC	1/4/2017	EUFPENGINE (Emergency engine--diesel fire pump)	Good combustion practices	0.64	LB/H	TEST PROTOCOL WILL SPECIFY AVG TIME
VA-0325	GREENSVILLE POWER STATION	6/17/2016	DIESEL-FIRED WATER PUMP 376 bph (1)	Good Combustion Practices/Maintenance	3	G/HP-H	PER HR
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	Emergency diesel fire pump		0.119	LB/H	

Table E-37: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
VA-0328	C4GT, LLC	4/26/2018	Emergency Diesel GEN	good combustion practices and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw.	0.15	G/HP H	
VA-0328	C4GT, LLC	4/26/2018	Emergency Diesel GEN	Good combustion practices and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw.	0.15	G/HP H	
*IN-0365	MAPLE CREEK ENERGY LLC	6/19/2023	Emergency generator		0.15	G PER HP-HR	
*IN-0365	MAPLE CREEK ENERGY LLC	6/19/2023	Emergency generator		0.15	G PER HP-HR	
*IN-0365	MAPLE CREEK ENERGY LLC	6/19/2023	Emergency generator		0.15	G/HP-HR	
*WV-0033	MAIDSVILLE	1/5/2022	Emergency Generator	Clean Fuels and Good Combustion Practices.	0.23	LB/HR	
LA-0331	CALCASIEU PASS LNG PROJECT	9/21/2018	Large Emergency Engines (>50kW)	Good combustion and operating practices.	0.2	G/KW-H	
LA-0331	CALCASIEU PASS LNG PROJECT	9/21/2018	Large Emergency Engines (>50kW)	Good combustion and operating practices.	0.2	G/KW-H	
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Emergency Diesel Generator Engine	Compliance with 40 CFR 60 Subpart IIII, good combustion practices, and use of ultra-low sulfur diesel fuel.	0.15	G/HP-HR	
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Emergency Diesel Generator Engine	Compliance with 40 CFR 60 Subpart IIII (Tier 2 non-road engines) standards, good combustion practices, and the use of ultra-low sulfur diesel fuel.	0.15	G/HP-HR	
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUEMENGINE (North Plant): Emergency Engine	Diesel particulate filter, good combustion practices and meeting NSPS Subpart IIII requirements.	0.54	LB/H	HOURLY
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUEMENGINE (North Plant): Emergency Engine	Diesel particulate filter, good combustion practices and meeting NSPS Subpart IIII requirements.	0.52	LB/H	HOURLY
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUEMENGINE (South Plant): Emergency Engine	Diesel particulate filter, good combustion practices and meeting NSPS Subpart IIII requirements.	0.54	LB/H	HOURLY

Table E-37: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUEMENGINE (South Plant): Emergency Engine	Diesel particulate filter, good combustion practices and meeting NSPS Subpart IIII requirements.	0.52	LB/H	HOURLY
MI-0441	LBWL--ERICKSON STATION	12/21/2018	EUEMGD1--A 1500 HP diesel fueled emergency engine	Good combustion practices, burn ultra-low sulfur diesel fuel and be NSPS compliant.	0.69	LB/H	HOURLY
MI-0441	LBWL--ERICKSON STATION	12/21/2018	EUEMGD1--A 1500 HP diesel fueled emergency engine	Ultra low-sulfur diesel fuel.	0.69	LB/H	HOURLY
MI-0451	MEC NORTH, LLC	6/23/2022	EUEMENGINE (North Plant): Emergency engine	Diesel particulate filter, good combustion practices and meeting NSPS Subpart IIII requirements.	0.54	LB/H	HOURLY
MI-0451	MEC NORTH, LLC	6/23/2022	EUEMENGINE (North Plant): Emergency engine	Diesel particulate filter, good combustion practices and meeting NSPS Subpart IIII requirements.	0.52	LB/H	HOURLY
MI-0452	MEC SOUTH, LLC	6/23/2022	EUEMENGINE (South Plant): Emergency engine	Diesel particulate filter, Good Combustion Practices and meeting NSPS Subpart IIII requirements	0.54	LB/H	HOURLY
MI-0452	MEC SOUTH, LLC	6/23/2022	EUEMENGINE (South Plant): Emergency engine	Diesel particulate filter, Good Combustion Practices and meeting NSPS Subpart IIII requirements	0.52	LB/H	HOURLY
OH-0366	CLEAN ENERGY FUTURE - LORDSTOWN, LLC	8/25/2015	Emergency generator (P003)	State-of-the-art combustion design	0.77	LB/H	
OH-0366	CLEAN ENERGY FUTURE - LORDSTOWN, LLC	8/25/2015	Emergency generator (P003)	State-of-the-art combustion design	0.77	LB/H	
OH-0367	SOUTH FIELD ENERGY LLC	9/23/2016	Emergency generator (P003)	State-of-the-art combustion design	0.97	LB/H	
OH-0367	SOUTH FIELD ENERGY LLC	9/23/2016	Emergency generator (P003)	State-of-the-art combustion design	0.97	LB/H	
OH-0370	TRUMBULL ENERGY CENTER	9/7/2017	Emergency generator (P003)	Ultra low sulfur diesel fuel	0.5	LB/H	
OH-0370	TRUMBULL ENERGY CENTER	9/7/2017	Emergency generator (P003)	Ultra low sulfur diesel fuel	0.5	LB/H	
OH-0372	OREGON ENERGY CENTER	9/27/2017	Emergency generator (P003)	Ultra low sulfur diesel fuel	0.5	LB/H	
OH-0372	OREGON ENERGY CENTER	9/27/2017	Emergency generator (P003)	Ultra low sulfur diesel fuel	0.5	LB/H	

Table E-37: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
OH-0374	GUERNSEY POWER STATION LLC	10/23/2017	Emergency Generators (2 identical, P004 and P005)	Certified to the meet the emissions standards in 40 CFR 89.112 and 89.113 pursuant to 40 CFR 60.4205(b) and 60.4202(a)(2). Good combustion practices per the manufacturerâ€™s operating manual.	0.73	LB/H	
OH-0374	GUERNSEY POWER STATION LLC	10/23/2017	Emergency Generators (2 identical, P004 and P005)	Certified to the meet the emissions standards in 40 CFR 89.112 and 89.113 pursuant to 40 CFR 60.4205(b) and 60.4202(a)(2). Good combustion practices per the manufacturerâ€™s operating manual.	0.73	LB/H	
OH-0374	GUERNSEY POWER STATION LLC	10/23/2017	Emergency Generators (2 identical, P004 and P005)	Certified to the meet the emissions standards in 40 CFR 89.112 and 89.113 pursuant to 40 CFR 60.4205(b) and 60.4202(a)(2). Good combustion practices per the manufacturerâ€™s operating manual.	0.73	LB/H	
OH-0375	LONG RIDGE ENERGY GENERATION LLC - HANNIBAL	11/7/2017	Emergency Diesel Generator Engine (P001)	Good combustion design	0.73	LB/H	
OH-0375	LONG RIDGE ENERGY GENERATION LLC - HANNIBAL	11/7/2017	Emergency Diesel Generator Engine (P001)	Good combustion design	0.73	LB/H	
OH-0375	LONG RIDGE ENERGY GENERATION LLC - HANNIBAL	11/7/2017	Emergency Diesel Generator Engine (P001)	Good combustion design	0.73	LB/H	
OH-0377	HARRISON POWER	4/19/2018	Emergency Diesel Generator (P003)	Good combustion practices (ULSD) and compliance with 40 CFR Part 60, Subpart IIII	0.62	LB/H	
OH-0377	HARRISON POWER	4/19/2018	Emergency Diesel Generator (P003)	Good combustion practices (ULSD) and compliance with 40 CFR Part 60, Subpart IIII	0.62	LB/H	
OH-0377	HARRISON POWER	4/19/2018	Emergency Diesel Generator (P003)	Good combustion practices (ULSD) and compliance with 40 CFR Part 60, Subpart IIII	0.62	LB/H	

Table E-37: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Emergency Diesel Generator (P07)	Limited to operate 500 hours/year, sulfur content of the diesel fuel oil fired may not exceed 15 ppm, and operate and maintain according to the manufacturerâ€™s recommendations.	0.15	G/HP-H	
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Emergency Diesel Generator (P07)	Limited to operate 500 hours/year, sulfur content of the diesel fuel oil fired may not exceed 15 ppm, and operate and maintain according to the manufacturerâ€™s recommendations.	0.15	G/HP-H	
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Emergency Diesel Generator (P07)	Limited to operate 500 hours/year, sulfur content of the diesel fuel oil fired may not exceed 15 ppm, and operate and maintain according to the manufacturerâ€™s recommendations.	0.15	G/HP-H	
MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	EMERGENCY GENERATOR 1	EXCLUSIVE USE OF ULSD FUEL, GOOD COMBUSTION PRACTICES, LIMITED HOURS OF OPERATION, AND DESIGNED TO ACHIEVE EMISSION LIMITS	0.15	G/HP-H	
MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	EMERGENCY GENERATOR 1	EXCLUSIVE USE OF ULSD FUEL, GOOD COMBUSTION PRACTICES, LIMITED HOURS OF OPERATION, AND DESIGNED TO ACHIEVE EMISSION LIMITS	0.15	G/HP-H	
MI-0447	LBWL--ERICKSON STATION	1/7/2021	EUEMGD--emergency engine	Good combustion practices, burn ultra-low diesel fuel and be NSPS compliant.	1	LB/H	HOURLY
MI-0447	LBWL--ERICKSON STATION	1/7/2021	EUEMGD--emergency engine	ultra-low sulfur diesel fuel	1	LB/H	HOURLY
*MI-0445	INDECK NILES, LLC	11/26/2019	EUEMENGINE (diesel fuel emergency engine)	Good combustion practices	1.58	LB/H	HOURLY
*MI-0445	INDECK NILES, LLC	11/26/2019	EUEMENGINE (diesel fuel emergency engine)	Good combustion practices	1.58	LB/H	HOURLY
MI-0423	INDECK NILES, LLC	1/4/2017	EUEMENGINE (Diesel fuel emergency engine)	Good combustion practices.	1.58	LB/H	HOURLY
MI-0423	INDECK NILES, LLC	1/4/2017	EUEMENGINE (Diesel fuel emergency engine)	Good combustion practices.	1.58	LB/H	HOURLY
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	EUEMENGINE: Emergency engine	State of the art combustion design	1.18	LB/H	HOURLY

Table E-37: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	EUEMENGINE: Emergency engine	State of the art combustion design.	1.18	LB/H	HOURLY
FL-0356	OKEECHOBEE CLEAN ENERGY CENTER	3/9/2016	Three 3300-kW ULSD emergency generators	Use of clean fuel	0.2	G / KW-HR	
PA-0309	LACKAWANNA ENERGY CTR/JESSUP	12/23/2015	2000 kW Emergency Generator		0.025	GM/HP-HR	
PA-0309	LACKAWANNA ENERGY CTR/JESSUP	12/23/2015	2000 kW Emergency Generator		0.025	GM/HP-HR	
PA-0311	MOXIE FREEDOM GENERATION PLANT	9/1/2015	Emergency Generator		0.04	G/HP-HR	
PA-0311	MOXIE FREEDOM GENERATION PLANT	9/1/2015	Emergency Generator		0.04	G/HP-HR	
PA-0311	MOXIE FREEDOM GENERATION PLANT	9/1/2015	Emergency Generator		0.04	G/HP-HR	
VA-0325	GREENSVILLE POWER STATION	6/17/2016	DIESEL-FIRED EMERGENCY GENERATOR 3000 kW (1)	Ultra Low Sulfur Diesel/Fuel (15 ppm max)	0.4	G/KW	PER HR
VA-0325	GREENSVILLE POWER STATION	6/17/2016	DIESEL-FIRED EMERGENCY GENERATOR 3000 kW (1)	Ultra Low Sulfur Diesel/Fuel (15 ppm max)	0.4	G/KR	PER HR
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	EMERGENCY GENERATOR DIESEL	Use of Ultra Low Sulfur Diesel (ULSD) Oil a clean burning fuel and limited hours of operation	0.661	LB/H	
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	EMERGENCY GENERATOR DIESEL	Use of Ultra Low Sulfur Diesel (ULSD) Oil a clean burning fuel and limited hours of operation	0.661	LB/H	
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	EUFPENGINE: Fire pump engine	State of the art combustion design.	0.13	LB/H	HOURLY
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	EUFPENGINE: Fire pump engine	State of the art combustion design.	0.13	LB/H	HOURLY
PA-0309	LACKAWANNA ENERGY CTR/JESSUP	12/23/2015	Fire pump engine		0.11	GM/HP-HR	
PA-0309	LACKAWANNA ENERGY CTR/JESSUP	12/23/2015	Fire pump engine		0.11	GM/HP-HR	
AK-0088	LIQUEFACTION PLANT	7/7/2022	Auxiliary Air Compressor Engine	Good Combustion Practices; Limited Operation; 40 CFR 60 Subpart IIII	0.022	G/HP-HR	
AK-0088	LIQUEFACTION PLANT	7/7/2022	Auxiliary Air Compressor Engine	Good Combustion Practices; Limited Operation; 40 CFR 60 Subpart IIII	0.022	G/HP-HR	
AK-0088	LIQUEFACTION PLANT	7/7/2022	Auxiliary Air Compressor Engine	Good Combustion Practices; Limited Operation; 40 CFR 60 Subpart IIII	0.022	G/HP-HR	

Table E-37: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
AK-0085	GAS TREATMENT PLANT	8/13/2020	Three (3) Firewater Pump Engines and two (2) Emergency Diesel Generators	Good combustion practices, ULSD, and limit operation to 500 hours per year per engine	0.19	G/HP-HR	3-HOUR AVERAGE
AK-0085	GAS TREATMENT PLANT	8/13/2020	Three (3) Firewater Pump Engines and two (2) Emergency Diesel Generators	Good combustion practices, ULSD, and limit operation to 500 hours per year per engine	0.19	G/HP-HR	3-HOUR AVERAGE
AK-0085	GAS TREATMENT PLANT	8/13/2020	Three (3) Firewater Pump Engines and two (2) Emergency Diesel Generators	Good combustion practices, ULSD, and limit operation to 500 hours per year per engine	0.19	G/HP-HR	3-HOUR AVERAGE
MI-0424	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/5/2016	EUFPENGINE (Emergency engine--diesel fire pump)	Good combustion practices.	0.09	LB/MMBTU	TEST PROTOCOL WILL SPECIFY AVG TIME
MI-0424	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/5/2016	EUFPENGINE (Emergency engine--diesel fire pump)	Good combustion practices.	0.09	LB/MMBTU	TEST PROTOCOL WILL SPECIFY AVG TIME
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	EMERGENCY DIESEL FIRE PUMP	Use of Ultra Low Sulfur Diesel (ULSD) Oil a clean burning fuel and limited hours of operation	0.108	LB/H	
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	EMERGENCY DIESEL FIRE PUMP	Use of ULSD a clean burning fuel and limited hours of operation	0.108	LB/H	
IL-0130	JACKSON ENERGY CENTER	12/31/2018	Firewater Pump Engine		0.2	G/KW-HR	
IL-0133	LINCOLN LAND ENERGY CENTER	7/29/2022	Fire Water Pump Engine		0.2	GRAMS	KILOWATT-HOUR
OH-0366	CLEAN ENERGY FUTURE - LORDSTOWN, LLC	8/25/2015	Emergency fire pump engine (P004)	State-of-the-art combustion design	0.07	LB/H	
OH-0366	CLEAN ENERGY FUTURE - LORDSTOWN, LLC	8/25/2015	Emergency fire pump engine (P004)	State-of-the-art combustion design	0.07	LB/H	
MD-0041	CPV ST. CHARLES	4/23/2014	EMERGENCY DIESEL ENGINE FOR FIRE WATER PUMP	EXCLUSIVE USE OF ULTRA LOW SULFUR FUEL AND GOOD COMBUSTION PRACTICES	0.15	G/HP-H	N/A
OH-0374	GUERNSEY POWER STATION LLC	10/23/2017	Emergency Fire Pump (P006)	Certified to the meet the emissions standards in Table 4 of 40 CFR Part 60, Subpart IIII. Good combustion practices per the manufacturerâ€™s operating manual.	0.13	LB/H	
OH-0374	GUERNSEY POWER STATION LLC	10/23/2017	Emergency Fire Pump (P006)	Certified to the meet the emissions standards in Table 4 of 40 CFR Part 60, Subpart IIII. Good combustion practices per the manufacturerâ€™s operating manual.	0.13	LB/H	

Table E-37: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
OH-0374	GUERNSEY POWER STATION LLC	10/23/2017	Emergency Fire Pump (P006)	Certified to the meet the emissions standards in Table 4 of 40 CFR Part 60, Subpart IIII. Good combustion practices per the manufacturerâ€™s operating manual.	0.13	LB/H	
OH-0377	HARRISON POWER	4/19/2018	Emergency Fire Pump (P004)	Good combustion practices (ULSD) and compliance with 40 CFR Part 60, Subpart IIII	0.11	LB/H	
OH-0377	HARRISON POWER	4/19/2018	Emergency Fire Pump (P004)	Good combustion practices (ULSD) and compliance with 40 CFR Part 60, Subpart IIII	0.11	LB/H	
OH-0377	HARRISON POWER	4/19/2018	Emergency Fire Pump (P004)	Good combustion practices (ULSD) and compliance with 40 CFR Part 60, Subpart IIII	0.11	LB/H	
MD-0046	KEYS ENERGY CENTER	10/31/2014	DIESEL-FIRED FIRE PUMP ENGINE	EXCLUSIVE USE OF ULTRA LOW SULFUR DIESEL FUEL AND GOOD COMBUSTION PRACTICES	0.18	G/HP-H	
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Emergency Diesel Fired Water Pump Engine	Compliance with 40 CFR 60 Subpart IIII standards, good combustion practices, and the use of ultra-low sulfur diesel fuel.	0.15	G/HP-HR	
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Emergency Diesel Fired Water Pump Engine	Compliance with 40 CFR 60 Subpart IIII, good combustion practices, and the use of ultra-low sulfur diesel fuel.	0.15	G/HP-HR	
MD-0045	MATTAWOMAN ENERGY CENTER	11/13/2015	EMERGENCY DIESEL ENGINE FOR FIRE WATER PUMP	EXCLUSIVE USE OF ULTRA LOW SULFUR FUEL AND GOOD COMBUSTION PRACTICES.	0.18	G/HP-H	
MD-0045	MATTAWOMAN ENERGY CENTER	11/13/2015	EMERGENCY DIESEL ENGINE FOR FIRE WATER PUMP	EXCLUSIVE USE OF ULTRA LOW SULFUR FUEL AND GOOD COMBUSTION PRACTICES	0.18	G/HP-H	
MI-0451	MEC NORTH, LLC	6/23/2022	EUFPENGINE (North Plant): Fire Pump Engine	Diesel particulate filter, good combustion practices and meeting NSPS Subpart IIII requirements.	0.66	LB/H	HOURLY

Table E-37: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
MI-0451	MEC NORTH, LLC	6/23/2022	EUFPENGINE (North Plant): Fire Pump Engine	Diesel particulate filter, good combustion practices and meeting NSPS Subpart IIII requirements.	0.66	LB/H	HOURLY
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUFPENGINE (South Plant): Fire pump engine	Diesel particulate filter, good combustion practices and meeting NSPS Subpart IIII requirements.	0.66	LB/H	HOURLY
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUFPENGINE (South Plant): Fire pump engine	Diesel particulate filter, good combustion practices and meeting NSPS Subpart IIII requirements.	0.66	LB/H	HOURLY
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUFPENGINE (North Plant): Fire pump engine	Diesel particulate filter, good combustion practices and meeting NSPS Subpart IIII requirements.	0.66	LB/H	HOURLY
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUFPENGINE (North Plant): Fire pump engine	Diesel particulate filter, good combustion practices and meeting NSPS Subpart IIII requirements.	0.66	LB/H	HOURLY
MI-0452	MEC SOUTH, LLC	6/23/2022	EUFPENGINE (South Plant): Fire pump engine	Diesel particulate filter, Good Combustion Practices and meeting NSPS Subpart IIII requirements	0.66	LB/H	HOURLY
MI-0452	MEC SOUTH, LLC	6/23/2022	EUFPENGINE (South Plant): Fire pump engine	Diesel particulate filter, Good Combustion Practices and meeting NSPS Subpart IIII requirements	0.66	LB/H	HOURLY
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Emergency Diesel Fire Pump (P06)	Operation limited to 500 hours/year, sulfur content of diesel fuel oil fired may not exceed 15 ppm, and shall be operated and maintained according to the manufacturerâ€™s recommendations.	0.15	G/HP-H	
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Emergency Diesel Fire Pump (P06)	Operation limited to 500 hours/year, sulfur content of diesel fuel oil fired may not exceed 15 ppm, and operate and maintain according to the manufacturerâ€™s recommendations.	0.15	G/HP-H	

Table E-37: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Emergency Diesel Fire Pump (P06)	Operation limited to 500 hours/year, sulfur content of diesel fuel oil fired may not exceed 15 ppm, and shall be operated and maintained according to the manufacturerâ€™s recommendations.	0.15	G/HP-H	
OH-0363	NTE OHIO, LLC	11/5/2014	Emergency Fire Pump Engine (P003)	Emergency operation only, < 500 hours/year each for maintenance checks and readiness testing designed to meet NSPS Subpart IIII	0.09	LB/H	
OH-0363	NTE OHIO, LLC	11/5/2014	Emergency Fire Pump Engine (P003)	Emergency operation only, < 500 hours/year each for maintenance checks and readiness testing designed to meet NSPS Subpart IIII	0.09	LB/H	
OH-0363	NTE OHIO, LLC	11/5/2014	Emergency Fire Pump Engine (P003)	Emergency operation only, < 500 hours/year each for maintenance checks and readiness testing designed to meet NSPS Subpart IIII	0.09	LB/H	
OH-0372	OREGON ENERGY CENTER	9/27/2017	Emergency fire pump engine (P004)	Ultra low sulfur diesel fuel	0.1	LB/H	
OH-0372	OREGON ENERGY CENTER	9/27/2017	Emergency fire pump engine (P004)	Ultra low sulfur diesel fuel	0.1	LB/H	
OH-0367	SOUTH FIELD ENERGY LLC	9/23/2016	Emergency fire pump engine (P004)	State-of-the-art combustion design	0.1	LB/H	
OH-0367	SOUTH FIELD ENERGY LLC	9/23/2016	Emergency fire pump engine (P004)	State-of-the-art combustion design	0.1	LB/H	
OH-0370	TRUMBULL ENERGY CENTER	9/7/2017	Emergency fire pump engine (P004)	Ultra low sulfur diesel fuel	0.1	LB/H	
OH-0370	TRUMBULL ENERGY CENTER	9/7/2017	Emergency fire pump engine (P004)	Ultra low sulfur diesel fuel	0.1	LB/H	
MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	EMERGENCY DIESEL ENGINE FOR FIRE WATER PUMP	EXCLUSIVE USE OF ULSD FUEL, GOOD COMBUSTION PRACTICES, LIMITED HOURS OF OPERATION, AND DESIGNED TO ACHIEVE EMISSION LIMITS	0.15	G/HP-H	
MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	EMERGENCY DIESEL ENGINE FOR FIRE WATER PUMP	EXCLUSIVE USE OF ULSD FUEL, GOOD COMBUSTION PRACTICES, LIMITED HOURS OF OPERATION, AND DESIGNED TO ACHIEVE EMISSION LIMITS	0.15	G/HP-H	

Table E-37: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
VA-0328	C4GT, LLC	4/26/2018	Emergency Fire Water Pump	good combustion practices and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw.	0.15	G/HP HR	
VA-0328	C4GT, LLC	4/26/2018	Emergency Fire Water Pump	good combustion practices and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw.	0.15	G/HP HR	
VA-0332	CHICKAHOMINY POWER LLC	6/24/2019	Emegency Fire Water Pump	good combustion practices, high efficiency design, and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw.	0.15	G/HP-HR	
VA-0332	CHICKAHOMINY POWER LLC	6/24/2019	Emegency Fire Water Pump	good combustion practices, high efficiency design, and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw.	0.15	G/HP-HR	
MI-0423	INDECK NILES, LLC	1/4/2017	EUFPENGINE (Emergency engine--diesel fire pump)	Good combustion practices	0.57	LB/H	HOURLY
MI-0423	INDECK NILES, LLC	1/4/2017	EUFPENGINE (Emergency engine--diesel fire pump)	Good combustion practices	0.57	LB/H	HOURLY
*MI-0445	INDECK NILES, LLC	11/26/2019	EUFPENGINE (Emergency engine-diesel fire pump	Good combustion practices	0.57	LB/H	HOURLY
*MI-0445	INDECK NILES, LLC	11/26/2019	EUFPENGINE (Emergency engine-diesel fire pump	Good combustion practices	0.57	LB/H	HOURLY
MI-0454	LBWL-ERICKSON STATION	12/20/2022	EUFPRICE--A 315 HP diesel-fueled emergency engine	Ultra low sulfur diesel fuel and good combustion practices.	0.69	LB/H	HOURLY
MI-0454	LBWL-ERICKSON STATION	12/20/2022	EUFPRICE--A 315 HP diesel-fueled emergency engine	Ultra low sulfur diesel fuel and good combustion practices.	0.69	LB/H	HOURLY
MI-0441	LBWL--ERICKSON STATION	12/21/2018	EUFPRICE--A 315 HP diesel fueled emergency engine	Ultra low sulfur diesel fuel and good combustion practices.	0.12	LB/H	HOURLY
MI-0441	LBWL--ERICKSON STATION	12/21/2018	EUFPRICE--A 315 HP diesel fueled emergency engine	Ultra low sulfur diesel fuel and good combustion practices.	0.12	LB/H	HOURLY
MI-0447	LBWL--ERICKSON STATION	1/7/2021	EUFPRICE--A 315 HP diesel fueled emergency engine	Ultra low sulfur diesel fuel and good combustion practices	0.12	LB/H	HOURLY
MI-0447	LBWL--ERICKSON STATION	1/7/2021	EUFPRICE--A 315 HP diesel fueled emergency engine	Ultra low sulfur diesel fuel and good combustion practices.	0.12	LB/H	HOURLY

Table E-37: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for PM

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
MA-0039	SALEM HARBOR STATION REDEVELOPMENT	1/30/2014	Fire Pump Engine		0.15	GM/BHP-H	1 HR BLOCK AVERAGE
MA-0039	SALEM HARBOR STATION REDEVELOPMENT	1/30/2014	Fire Pump Engine		0.15	GM/BHP-H	1 HR BLOCK AVERAGE
FL-0371	SHADY HILLS COMBINED CYCLE FACILITY	6/7/2021	Emergency Fire Pump Engine (347 HP)		0.2	G/KW-HOUR	
PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Emergency Fire Pump Engine		0.15	G/BHP-HR	
IL-0129	CPV THREE RIVERS ENERGY CENTER	7/30/2018	Firewater Pump Engine		0		
VA-0325	GREENSVILLE POWER STATION	6/17/2016	DIESEL-FIRED WATER PUMP 376 bph (1)	Ultra Low Sulfur Diesel/Fuel (15 ppm max)	0.3	G/HP-H	PER HR
VA-0325	GREENSVILLE POWER STATION	6/17/2016	DIESEL-FIRED WATER PUMP 376 bph (1)	Ultra Low Sulfur Diesel/Fuel (15 ppm max)	0.3	G/HP-H	HR
FL-0356	OKEECHOBEE CLEAN ENERGY CENTER	3/9/2016	One 422-hp emergency fire pump engine	Use of clean fuel	0.2	G / KW-HR	
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	Emergency diesel fire pump	Use of ultra low sulfur distillate oil	0.15	G/B-HP-H	
NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	Emergency diesel fire pump	Use of Ultra low sulfur distillate oil	0.15	G/B-HP-H	

Table E-38: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO_2e

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
VA-0328	C4GT, LLC	4/26/2018	Emergency Diesel GEN	use of S15 ULSD and high efficiency design and operation	981	T/YR	12 MO ROLLING TOTAL
*IN-0365	MAPLE CREEK ENERGY LLC	6/19/2023	Emergency generator		625	TONS PER YEAR	
LA-0313	ST. CHARLES POWER STATION	8/31/2016	SCPS Emergency Diesel Generator 1	Good combustion practices	0		
LA-0331	CALCASIEU PASS LNG PROJECT	9/21/2018	Large Emergency Engines (>50kW)	Good Combustion of Practices and Good Operation and Maintenance Practices	1481	T/YR	ANNUAL TOTAL
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Emergency Diesel Generator Engine	Compliance with 40 CFR 60 Subpart IIII, good combustion practices, and the use of ultra-low sulfur diesel fuel.	74.21	KG/MM BTU	
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUEMENGINE (North Plant): Emergency Engine	Good combustion practices.	383	T/YR	12-MO. ROLLING TIME PERIOD
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUEMENGINE (South Plant): Emergency Engine	Good combustion practices.	383	T/YR	12-MO ROLLING TIME PERIOD
MI-0441	LBWL--ERICKSON STATION	12/21/2018	EUEMGD1--A 1500 HP diesel fueled emergency engine	Good combustion practices and energy efficiency measures.	406	T/YR	12-MONTH ROLLING TIME PERIOD
MI-0451	MEC NORTH, LLC	6/23/2022	EUEMENGINE (North Plant): Emergency engine	Good combustion practices	383	T/YR	12-MO ROLLING TIME PERIOD
MI-0452	MEC SOUTH, LLC	6/23/2022	EUEMENGINE (South Plant): Emergency engine	Good combustion practices	383	T/YR	12-MO ROLLING TIME PERIOD
OH-0366	CLEAN ENERGY FUTURE - LORDSTOWN, LLC	8/25/2015	Emergency generator (P003)	Efficient design	683	T/YR	PER ROLLING 12 MONTH PERIOD
OH-0367	SOUTH FIELD ENERGY LLC	9/23/2016	Emergency generator (P003)	Efficient design	858	T/YR	PER ROLLING 12 MONTH PERIOD
OH-0370	TRUMBULL ENERGY CENTER	9/7/2017	Emergency generator (P003)	Efficient design	445	T/YR	PER ROLLING 12 MONTH PERIOD
OH-0372	OREGON ENERGY CENTER	9/27/2017	Emergency generator (P003)	state of the art combustion design	445	T/YR	PER ROLLING 12 MONTH PERIOD

Table E-38: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO_2e

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
OH-0374	GUERNSEY POWER STATION LLC	10/23/2017	Emergency Generators (2 identical, P004 and P005)	good operating practices (proper maintenance and operation)	120	T/YR	PER ROLLING 12 MONTH PERIOD
OH-0375	LONG RIDGE ENERGY GENERATION LLC - HANNIBAL POWER	11/7/2017	Emergency Diesel Generator Engine (P001)	Efficient design	116.8	T/YR	PER ROLLING 12 MONTH PERIOD
OH-0377	HARRISON POWER	4/19/2018	Emergency Diesel Generator (P003)	Efficient design and proper maintenance and operation	109.2	T/YR	PER ROLLING 12 MONTH PERIOD
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Emergency Diesel Generator (P07)	Certified to at least meet EPAâ€™s criteria for Tier 2 reciprocating internal combustion engines and the 40 CFR 60, Subpart IIII emission limitations, operation limited to 500 hours/year, and operate and maintain generator according to the manufacturerâ€™s recommendations.	0		
WV-0025	MOUNDSVILLE COMBINED CYCLE POWER PLANT	11/21/2014	Emergency Generator		2416	LB/H	
*IN-0371	WABASH VALLEY RESOURCES, LLC	1/11/2024	Emergency Generator (2000 kW)	Good Combustion Practices	778	TONS	PER TWELVE (12) CONSECUTIVE MONTH PERIOD
MI-0447	LBWL--ERICKSON STATION	1/7/2021	EUEMGD--emergency engine	low carbon fuel (pipeline quality natural gas), good combustion practices, and energy efficiency measures.	590	T/YR	12-MO ROLLING TIME PERIOD
*MI-0445	INDECK NILES, LLC	11/26/2019	EUEMENGINE (diesel fuel emergency engine)	Good combustion practices	928	T/YR	12-MO ROLLING TIME PERIOD
MI-0423	INDECK NILES, LLC	1/4/2017	EUEMENGINE (Diesel fuel emergency engine)	Good combustion practices	928	T/YR	12-MO. ROLLING TIME PERIOD
TX-0939	ORANGE COUNTY ADVANCED POWER STATION	3/13/2023	EMERGENCY GENERATOR	GOOD COMBUSTION PRACTICES, LIMITED TO 100 HR/YR	0		
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	EUEMENGINE: Emergency engine	Energy efficient design.	161	T/YR	12-MO ROLLING TIME PERIOD
PA-0309	LACKAWANNA ENERGY CTR/JESSUP	12/23/2015	2000 kW Emergency Generator		81	TONS	12-MONTH ROLLING BASIS

Table E-38: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO_2e

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
PA-0311	MOXIE FREEDOM GENERATION PLANT	9/1/2015	Emergency Generator		44	TPY	12-MONTH ROLLING BASIS
VA-0325	GREENSVILLE POWER STATION	6/17/2016	DIESEL-FIRED EMERGENCY GENERATOR 3000 kW (1)	Good Combustion Practices/Maintenance	163.6	LB/MMBTU	
MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	EUFPENGINE: Fire pump engine	Energy efficient design	86	T/YR	12-MO ROLLING TIME PERIOD
PA-0309	LACKAWANNA ENERGY CTR/JESSUP	12/23/2015	Fire pump engine		9	TON	12-MONTH ROLLING BASIS
AK-0088	LIQUEFACTION PLANT	7/7/2022	Auxiliary Air Compressor Engine	Good Combustion Practices; Limited Operation	163.6	LB/MMBTU	3-HOURS
AK-0085	GAS TREATMENT PLANT	8/13/2020	Three (3) Firewater Pump Engines and two (2) Emergency Diesel Generators	Good combustion practices and limit operation to 500 hours per year per engine	163.6	LB/MMBTU	3-HOUR AVERAGE
MI-0424	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/5/2016	EUFPENGINE (Emergency engine--diesel fire pump)	Good combustion practices.	55.6	T/YR	12-MONTH ROLLING TIME PERIOD
IL-0130	JACKSON ENERGY CENTER	12/31/2018	Firewater Pump Engine		241	TONS/YEAR	12-MONTH ROLLING AVERAGE
IL-0133	LINCOLN LAND ENERGY CENTER	7/29/2022	Fire Water Pump Engine		92	TONS/YEAR	
OH-0366	CLEAN ENERGY FUTURE - LORDSTOWN, LLC	8/25/2015	Emergency fire pump engine (P004)	Efficient design	41	T/YR	PER ROLLING 12 MONTH PERIOD
OH-0374	GUERNSEY POWER STATION LLC	10/23/2017	Emergency Fire Pump (P006)	good operating practices (proper maintenance and operation)	29	T/YR	PER ROLLING 12 MONTH PERIOD
OH-0377	HARRISON POWER	4/19/2018	Emergency Fire Pump (P004)	Efficient design and proper maintenance and operation	18.67	T/YR	PER ROLLING 12 MONTH PERIOD
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	6/3/2022	Emergency Diesel Fired Water Pump Engine	Compliance with 40 CFR 60 Subpart IIII, good combustion practices, and the use of ultra-low sulfur diesel fuel.	74.21	KG/MM BTU	
MI-0451	MEC NORTH, LLC	6/23/2022	EUFPENGINE (North Plant): Fire Pump Engine	Good combustion practices	85.6	T/YR	12-MO ROLLING TIME PERIOD
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUFPENGINE (South Plant): Fire pump engine	Good combustion practices.	85.6	T/YR	12-MO ROLLING TIME PERIOD

Table E-38: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO_2e

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUFPENGINE (North Plant): Fire pump engine	Good combustion practices.	85.6	T/YR	12-MONTH ROLLING TIME PERIOD
MI-0452	MEC SOUTH, LLC	6/23/2022	EUFPENGINE (South Plant): Fire pump engine	Good combustion practices.	85.6	T/YR	12-MO ROLLING TIME PERIOD
WV-0025	MOUNDSVILLE COMBINED CYCLE POWER PLANT	11/21/2014	Fire Pump Engine		309	LB/H	
WI-0300	NEMADJI TRAIL ENERGY CENTER	9/1/2020	Emergency Diesel Fire Pump (P06)	Be certified by manufacturer to EPAâ€™s criteria for Tier 3 reciprocating internal combustion engines and to the 40 CFR 60, Subpart IIII emission limitations, operation limited to 500 hours/year, and operate and maintain according to the manufacturerâ€™s recommendations.	0		
OH-0363	NTE OHIO, LLC	11/5/2014	Emergency Fire Pump Engine (P003)	Emergency operation only, < 500 hours/year each for maintenance checks and readiness testing designed to meet NSPS Subpart IIII	75	T/YR	PER ROLLING 12 MONTH PERIOD
OH-0372	OREGON ENERGY CENTER	9/27/2017	Emergency fire pump engine (P004)	State-of-the-art combustion design	87	T/YR	PER ROLLING 12 MONTH PERIOD
OH-0367	SOUTH FIELD ENERGY LLC	9/23/2016	Emergency fire pump engine (P004)	Efficient design	90	T/YR	PER ROLLING 12 MONTH PERIOD
LA-0313	ST. CHARLES POWER STATION	8/31/2016	SCPS Emergency Diesel Firewater Pump 1	Good combustion practices	0		
OH-0370	TRUMBULL ENERGY CENTER	9/7/2017	Emergency fire pump engine (P004)	Efficient design	87	T/YR	PER ROLLING 12 MONTH PERIOD
VA-0328	C4GT, LLC	4/26/2018	Emergency Fire Water Pump	good combustion practices and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw.	1040	T/YR	12 MO ROLLING TOTAL
VA-0332	CHICKAHOMINY POWER LLC	6/24/2019	Emegency Fire Water Pump	good combustion practices, high efficiency design, and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw.	106	T/YR	12 MO ROLLING TOTAL

Table E-38: Emergency Diesel Generators (1341–5364 hp) and Fire Pump Engines (100-500 hp), Permit Dates from 1/1/2014 Through 9/20/2024, RBLC Listings for CO_2e

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	CONTROL METHOD DESCRIPTION	EMISSION LIMIT	EMISSION LIMIT UNIT	EMISSION LIMIT AVG TIME
MI-0423	INDECK NILES, LLC	1/4/2017	EUFPENGINE (Emergency engine--diesel fire pump)	Good combustion practices	13.58	T/YR	12 MO. ROLLING TIME PERIOD
*MI-0445	INDECK NILES, LLC	11/26/2019	EUFPENGINE (Emergency engine-diesel fire pump	Good combustion practices	13.58	T/YR	12-MO ROLLING TIME PERIOD
MI-0454	LBWL-ERICKSON STATION	12/20/2022	EUFPRICE--A 315 HP diesel-fueled emergency engine	Low carbon fuel (pipeline quality natural gas), good combustion practices, and energy efficiency measures.	20	T/YR	12-MO ROLLING TIME PERIOD
MI-0441	LBWL--ERICKSON STATION	12/21/2018	EUFPRICE--A 315 HP diesel fueled emergency engine	Good combustion practices and energy efficiency measures.	20	T/YR	12-MO ROLLING TIME PERIOD
MI-0447	LBWL--ERICKSON STATION	1/7/2021	EUFPRICE--A 315 HP diesel fueled emergency engine	Low carbon fuel (pipeline quality natural gas), good combustion practices and energy efficiency measures.	20	T/YR	12-MO ROLLING TIME PERIOD
MA-0039	SALEM HARBOR STATION REDEVELOPMENT	1/30/2014	Fire Pump Engine		162.85	LB/MMBTU	
IL-0129	CPV THREE RIVERS ENERGY CENTER	7/30/2018	Firewater Pump Engine		0		
VA-0325	GREENSVILLE POWER STATION	6/17/2016	DIESEL-FIRED WATER PUMP 376 bph (1)	Good Combustion Practices/Maintenance	104	T/YR	12 MO ROLLING TOTAL