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VENTURE GLOBAL LNG

Plaquemines Generation, LLC
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January 12, 2024

Assistant Secretary
Office of Environmental Services
Louisiana Department of Environmental Quality
P.O. Box 4313
Baton Rouge, LA 70821-4313

RE: Plaquemines Generation, LLC
Point Celeste, Plaquemines Parish, Louisiana
Initial Title V Permit and PSD Permit Application
Agency Interest No.: 241647

To whom it may concern,

Plaquemines Generation, LLC, a wholly owned subsidiary of Venture Global LNG, Inc., proposes to install a power generation facility for use at Plaquemines LNG, a liquefied natural gas (LNG) production storage, and export terminal, which is owned by Venture Global Plaquemines LNG, LLC (Plaquemines LNG) or at the proposed Delta LNG terminal, which will be owned and operated by Venture Global Delta LNG, LLC (Delta LNG).

Plaquemines LNG, which is under construction, is authorized under Title V Operating Permit No. 2240-00443-V2 and Prevention of Significant Deterioration (PSD) Permit No. PSD-LA-808(M-2) issued on May 28, 2021 by the Louisiana Department of Environmental Quality (LDEQ) (refer to EDMS Document Nos. 12738655 and 12738653). Delta LNG submitted an initial Title V and PSD Permit application to the LDEQ on November 26, 2019 (refer to EDMS Document Nos. 11961839 and 11961843). Plaquemines LNG will retain the permitted sources and emissions for the Plaquemines LNG terminal under its current Title V and PSD Permits. Similarly, Delta LNG will retain the permitted sources and emissions under its Title V and PSD permits.

Plaquemines Generation is submitting the enclosed Initial Title V Permit and PSD Permit Application in accordance with Louisiana Administrative Code (LAC) 33:III.507.C.2. and 509.

Pursuant to Louisiana Administrative Code (LAC) 33:III.223.A, Table 1, Fee No. 1712 and LAC 33:III.211.A, the permit fee of $16,593.46 is included with this submittal.

Plaquemines Generation requests an expedited review of the enclosed permit application. In accordance with LAC 33:I.Chapter 18, the Request for Expedited Permit Processing form is attached to this letter.

Should you have any questions or require additional information, please contact me at (202) 759-6738 or at fmusser@ventureglobalIng.com. You may also contact Rahul Pendse of Trinity Consultants at (225) 296-9857 or at rpendse@trinityconsultants.com.

Sincerely,

FLM

Fory Musser
Senior Vice President, Development
Plaquemines Generation, LLC.

Attachments

cc: EPA Region 6 – via email

ORIGINAL

PLAQUEMINE GENERATION, LLC

INITIAL TITLE V AND PREVENTION OF SIGNIFICANT DETERIORATION PERMIT APPLICATION

AI# 241647

January 2024

Trinity Project No. 234402.0185

Trinity Consultants

Louisiana Department of Environmental Quality

DEQ Online Payment Receipt

AI #	Reference #	Description	Type	Base Fee	Quantity	Line Total
241647	--	Fee Code 1712 - Minor Mod	Product	$1,452.00	12	$17,424.00

Payment Totals

Sub Total: $17,424.00
Fee: $339.77
Total: $17,763.77

Payee Information

Name: FORY MUSSER
Email: FMUSSER@VENTUREGLOBALLNG.COM

Transaction Information

Receipt Number: 55724
Authorization Code: N/A
Transaction Number: O25R1SZ0PC
Transaction Date: Friday, January 12, 2024 5:42 PM
Transaction Status: pro
Transaction Message: N/A

All Receipts

INITIAL TITLE V AND PREVENTION OF SIGNIFICANT DETERIORATION PERMIT APPLICATION

Plaquemines Generation, LLC

Prepared By:

TRINITY CONSULTANTS
1800 West Loop South
Suite 1000
Houston, TX 77027
(713) 552-1371

January 2024

Project 234402.0185

Trinity Consultants

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1. INTRODUCTION

Plaquemines Generation, LLC (Plaquemines Generation), a wholly owned subsidiary of Venture Global LNG, Inc. (Venture Global), proposes to install four (4) aeroderivative natural-gas fired combustion turbines and ancillary equipment for use at Plaquemines LNG, a liquefied natural gas (LNG) production, storage, and export terminal, which is owned and operated by Venture Global Plaquemines LNG, LLC (Plaquemines LNG) and/or at the proposed Delta LNG Project, which will be owned and operated by Venture Global Delta LNG, LLC (Delta LNG).

The Plaquemines LNG terminal, which is under construction, is currently authorized under Title V Operating Permit No. 2240-00443-V2 and Prevention of Significant Deterioration (PSD) Permit No. PSD-LA-808(M-2) issued on May 28, 2021[1] by the Louisiana Department of Environmental Quality (LDEQ). Delta LNG submitted an application to the LDEQ on November 26, 2019[2] to request authorization to construct and operate the Delta LNG Project in accordance with the LDEQ Title V Operating Permits Program and PSD Program. The Plaquemines LNG terminal and the proposed Delta LNG Project will be located on the west bank of the Mississippi River near river Mile Markers 55 and 54, respectively, in Plaquemines Parish, Louisiana and are both wholly owned subsidiaries of Venture Global LNG, Inc. The proposed Delta LNG Project will be located on property contiguous to the Plaquemines LNG terminal. Therefore, with respect to the LDEQ Title V Operating Permit and PSD Permit programs, the facilities will be contiguous and will be under common control; thus, they are considered one major stationary source. The Plaquemines Generation facility will be located within either the Plaquemines LNG terminal or the proposed Delta LNG Project. Because Plaquemines Generation is also owned by the same parent company as these two terminals, it will also be part of this single major stationary source. Plaquemines LNG will retain the permitted sources and emissions for the Plaquemines LNG terminal under its current Title V and PSD Permits. Similarly, Delta LNG will retain the permitted sources and emissions under its Title V and PSD permits.

Plaquemines Generation is submitting this Initial Title V and PSD Permit Application (Application) to permit the facility's sources and emissions under new and separate Title V and PSD Permits in accordance with Louisiana Administrative Code (LAC) 33:III.507.C.2 and LAC 33:III.509.

1.1 Project and Process Description

Plaquemines Generation proposes to install aeroderivative turbines and associated ancillary equipment for use at Plaquemines LNG and/or at the proposed Delta LNG Project in Plaquemines Parish, Louisiana. The primary purpose of the proposed power generation facility (Facility) is to support Plaquemines LNG and/or the proposed Delta LNG Project on an as-needed basis, including, but not limited to, during periods of maintenance, repair, or unplanned events when one or more of the Plaquemines LNG or Delta LNG electrical power sources are unavailable. The proposed power generation facility will include four (4) 37 megawatt (MW) aeroderivative simple combustion cycle gas turbines (ASCCTs) and associated ancillary equipment. The proposed turbines will have the state-of-the-art control technologies such as Dry Low Emission and selective catalytic reduction (SCR) to control the nitrogen oxides (NO_x) emissions and catalytic oxidizer to control the carbon monoxide (CO) and formaldehyde emissions.

[1] See EDMS Documents Nos. 12738653 and 12738655, available at: https://edms.deq.louisiana.gov/app/doc/view?doc=12738653 and https://edms.deq.louisiana.gov/app/doc/view?doc=12738655. Accessed January 2024.
[2] See EDMS Documents Nos. 11961839 and 11961843, available at: https://edms.deq.louisiana.gov/app/doc/view?doc=11961839 and https://edms.deq.louisiana.gov/app/doc/view?doc=11961843. Accessed January 2024.

It is important to recognize that Plaquemines LNG and Delta LNG do not share electrical interconnections. When the Plaquemines Generation turbines are at Plaquemines LNG, they will support only the Plaquemines LNG internal electrical system and when at Delta LNG, they will support only the Delta LNG internal electrical system. Plaquemines Generation will not provide electrical power for sale to the public utility grid.

1.2 Stationary Source Determination

The Plaquemines Generation, Plaquemines LNG, and Delta LNG facilities are wholly owned subsidiaries of Venture Global LNG, Inc. Because Plaquemines LNG and the proposed Delta LNG Project are contiguous and are under common control by the same parent company, they are considered one major stationary source as per the definitions of major stationary source as defined by LAC 33:III.502 and LAC 33:III.509. The Plaquemines Generation turbines will be located within the Plaquemines LNG terminal when supporting Plaquemines LNG and within the Delta LNG terminal when supporting Delta LNG.

Because Plaquemines Generation will independently own the proposed power generation facility and Plaquemines LNG and Delta LNG will own and operate their respective terminals, Plaquemines Generation desires its own Title V and PSD air permits. Both Plaquemines LNG and Delta LNG will be able to operate without Plaquemines Generation. However, Plaquemines Generation's turbines will enhance the stability of the power supply for the LNG terminals as previously described with feed and/or fuel gas, utilities, and operations and maintenance services for Plaquemines Generation provided by the LNG terminals.

Plaquemines Generation will be a major modification to an existing major stationary source for the PSD regulated pollutants NO_X, PM_{10}, $PM_{2.5}$, and CO_2e as the Facility will result in both a "significant increase" and a "significant net emissions increase" of each such pollutant, as determined in accordance with LAC 33:III.509.A.4.

1.3 Commissioning Emissions

Prior to the commencement of normal operations, Plaquemines Generation must perform required activities associated with the commissioning of the power generation facility. The commissioning activities are necessary to ensure turbines are in proper working order to safely produce electricity. It is important to note that the activities associated with the turbine commissioning are one-time activities for each turbine and are necessary for safe installation and testing of equipment.

Plaquemines Generation quantified the worst-case estimated emissions during the commissioning period from the turbines and requests authorization for additional emissions expected during the commissioning period. Plaquemines Generation requests that the LDEQ incorporate a Specific Requirement into its Title V Permit to authorize these one-time commissioning emissions to address the commissioning limits for the turbines.

Plaquemines Generation has determined that the proposed emissions under the Turbine Operations Emissions Cap are sufficient to accommodate annual (i.e., consecutive 12-month rolling period) emissions, but not maximum hourly (lb/hr) emissions during the commissioning period. Higher maximum hourly rates are sometimes needed during commissioning because of the nature of commissioning activities for the turbines. Therefore, Plaquemines Generation is requesting increased maximum hourly emissions for all turbines in order to ensure permitted emission rates will not be exceeded. However, Plaquemines Generation is not requesting any change to the NSPS KKKK limits that are applicable to each turbine at the end of its shakedown period. The commissioning period for the turbines will encompass the entire duration from first fire of the first turbine to the point when the last turbine completes and timely submits its performance test report.

Accordingly, to authorize the increased maximum hourly emissions during the one-time commissioning period, Plaquemines Generation is proposing a separate Specific Requirement that will apply only during the commissioning period as follows:

> *For Aeroderivative Simple Cycle Combustion Turbines 1 through 4 (ASCCT1 – ASCCT4): During initial startup, commissioning, and/or shakedown activities (not to exceed 180 days after each turbine commences operations), exceedances of the BACT limits shall not be considered violations of this permit or the current PSD permit. Maximum hourly (lb/hr) emissions that include initial startup, commissioning, and/or shakedown activities shall not exceed the emission rates provided below. This specific requirement does not authorize any exceedance of an applicable federal or state standard. Emissions from turbine operations during commissioning shall not be counted against permitted maximum hourly emission limits for the turbines, but they shall be included in the tons per year emissions reported to the LDEQ in accordance with LAC 33:III.919.*
>
> *Maximum Hourly Emissions: VOC, Total <= 3.20 lb/hr, CO <= 132.00 lb/hr, $PM_{10}/PM_{2.5}$ <= 16.00 lb/hr, NO_X <= 160.00 lb/hr, and SO_2 <= 1.92 lb/hr.*

1.4 Air Emissions Summary

The proposed air emission sources associated with Plaquemines Generation are provided in Table 1-1, and the proposed project-wide emission summary is provided in Table 1-2.

Table 1-1. Proposed Air Emission Sources

Emission Point ID	Source Description
ASCCT1 – ASCCT4	Aeroderivative Simple Cycle Combustion Turbines 1 through 4
ASCCTCAP	Turbine Operations Emissions Cap
AASTK1	Aqueous Ammonia Storage Tank 1
FUG	Fugitive Emissions
N/A	Insignificant Activities (Lube Oil Storage Tanks)

Table 1-2. Project-Wide Emission Summary

Pollutant	Proposed Emission (tpy)
Particulate Matter (PM_{10})	70.08
Particulate Matter ($PM_{2.5}$)	70.08
Nitrogen Oxides (NO_X)	71.64
Sulfur Dioxide (SO_2)	8.40
Carbon Monoxide (CO)	83.36
Volatile Organic Compounds (VOC)	12.22
Ammonia	47.84
Benzene	0.14
Formaldehyde	1.52
n-Hexane	0.18
Naphthalene	0.04
Toluene	0.95
PAH	0.016

Pollutant	Proposed Emission (tpy)
Acetaldehyde	0.28
Acrolein	0.044
Xylenes	0.46
Ethylbenzene	0.24
Propylene Oxide	0.20
Total HAPs	4.07
Total TAPs	51.91
Hydrogen Sulfide	0.04
Carbon Dioxide Equivalent	836,298

1.5 Air Quality Analysis

The Class II air dispersion modeling analysis in support of this Application is included in Appendix H. The Secondary $PM_{2.5}$ and Ozone Impacts Analysis is included in Appendix I. The modeling analysis reviewed the full potential to emit from the proposed Plaquemines Generation facility without consideration of any potential limitations. To the extent necessary, supplemental modeling will be provided consistent with such potential limitations.

1.6 Application Contents

Sections 2 and 3 of this Application contain the Regulatory Applicability Analysis and Best Available Control Technology (BACT) Analysis, respectively. Section 4 of this application contains the required Application for Approval of Emissions (AAE) which includes the Emission Inventory Questionnaire (EIQ) forms and the regulatory applicability tables (State and Federal). Section 5 provides the Environmental Assessment Statement (EAS or "IT" Question Responses). Appendix A provides an area map. Detailed emission calculations are included in Appendix B. Appendix C provides the emission calculations associated with Insignificant Activities that are being proposed as part of this application. The RACT/BACT/LAER Clearinghouse search results for all pollutants subject to BACT are provided in Appendix D with additional BACT supporting documentation (e.g., economic cost documentation) included in Appendix E. The Compliance Assurance Monitoring applicability analysis can be found in Appendix F. The Certificate of Good Standing is included as Appendix G. The Class II Area Air Dispersion Modeling Report is included as Appendix H. The Secondary $PM_{2.5}$ and Ozone Impacts Analysis is included as Appendix I. The EJScreen Community Report (EJScreen Report) is included as Appendix J.

2. REGULATORY APPLICABILITY

This section provides an overview of state and federal air quality regulations that are applicable to Plaquemines Generation. A detailed state and federal air quality regulatory analysis is provided in Section 22 of the AAE.

2.1 Applicable Regulations

Section 22 of the AAE provides citations and descriptions of applicable Louisiana and federal air quality regulations for all emission sources included in this application per LAC 33:III.517.D.10. Plaquemines Generation is subject to the indicated Louisiana and federal air quality regulations, including New Source Performance Standards (NSPS) and NESHAPS.

The summary provided in Section 22 of the AAE consists of Tables 1 through 4, which describe and cite applicable requirements. Table 1 is a matrix identifying applicable, potentially applicable, and non-applicable requirements. Table 2 describes applicable Louisiana and federal air quality requirements, including applicable compliance monitoring devices, activities, or methods and compliance testing requirements. Table 3 summarizes regulatory exemptions and statements of non-applicability. Table 4 lists equipment routed to control devices as well as proposed emission caps and their respective emission sources.

In addition to the specific requirements, there are general requirements for sources subject to NSPS and NESHAP standards. All sources subject to the NSPS and NESHAP standards are also subject to the applicable provisions of the relevant Subpart A for those rules as specified in individual applicable NSPS and NESHAP subparts. As discussed in the introduction, the Plaquemines Generation facility will be part of an existing major source under its own Title V designation upon issuance of this permit. Therefore, Plaquemines Generation will comply with all applicable requirements specified under the Louisiana Air Toxics Program (LAC 33:III.Chapter 51) and NESHAP standards, as required.

2.2 Prevention of Significant Deterioration

PSD applies both to new major stationary sources and to major modifications to existing major stationary sources with respect to each pollutant regulated under LAC 33:III.509 for which the area is designated as attainment/unclassified. Plaquemines Parish is currently designated as in attainment for all criteria pollutants. With this submittal, Plaquemines Generation is considered a major modification to an existing major stationary source based on the significant emissions increase of NO_x, PM_{10}, $PM_{2.5}$, and CO_2e as shown in Table 2-1.

Table 2-1. PSD Applicability Analysis Summary

Pollutant	Project Emissions Increase (tpy)	PSD Significant Emission Rate (SER) Level (tpy)	PSD SER Exceeded? (Yes/No)
CO	83.36	100	No
NO_x	71.64	40	Yes
PM_{10}	70.08	15	Yes
$PM_{2.5}$	70.08	10	Yes
SO_2	8.40	40	No
VOC	12.22	40	No

Pollutant	Project Emissions Increase (tpy)	PSD Significant Emission Rate (SER) Level (tpy)	PSD SER Exceeded? (Yes/No)
H_2S	0.04	10	No
CO_2e	836,298	75,000	Yes

2.3 Nonattainment New Source Review

Plaquemines Generation will be located in Plaquemines Parish, which is not classified as a non-attainment parish for any regulated pollutants under the NNSR program. Therefore, NNSR does not apply.

2.4 MACT and Louisiana Air Toxic Regulations

Louisiana TAP regulations are codified in LAC 33:III.Chapter 51 and apply to both HAPs under Section 112 of the federal Clean Air Act and TAPs, with certain exceptions. Under LAC 33:III.Chapter 51, a major source is defined as any stationary source that emits 10 tpy of any individual HAP/TAP or 25 tpy of combined HAPs/TAPs (aggregate of all HAPs/TAPs) listed in Table 51.1 of LAC 33:III.Chapter 51. Upon issuance of this permit to authorize construction, Plaquemines Generation, by itself, will be a major source of TAP due to the potential to emit (PTE) for ammonia being greater than 10 tpy. The facilities in which the Plaquemines Generation turbines will be operated, the Plaquemines LNG and Delta LNG terminals, constitute a major source for HAPs and TAPs.

The proposed aeroderivative simple cycle combustion turbines are subject to maximum achievable control technology (MACT) 40 CFR Part 63 Subpart YYYY – National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines. Applicable requirements for the aeroderivative simple cycle combustion turbines are outlined in detail in Section 22 of the AAE.

2.5 Chemical Accident Prevention Regulations

The accidental release prevention program is mandated by Section 112(r) of the Clean Air Act (CAA) and is codified in 40 CFR Part 68. The federal Part 68 regulation is incorporated by reference in LAC 33:III.5901. For 40 CFR Part 68 purposes, stationary sources do not include transportation sources, specifically, those facilities that are already being regulated under U.S. Department of Transportation regulations at 49 CFR Parts 192, 193, and 195. The Plaquemines Generation facility is regulated by 49 CFR Part 193; thus, the requirements of 40 CFR Part 68 do not apply.

2.6 Stratospheric Ozone Protection

Title VI of the Clean Air Act Amendments requires phase-out of ozone-depleting chemicals. The stratospheric ozone protection provisions have been codified under 40 CFR Part 82. Plaquemines Generation will comply with the applicable requirements of 40 CFR Part 82.

2.7 Compliance Monitoring Devices or Activities

All compliance monitoring devices or activities required under the applicable regulations are provided in Table 2 in Section 22 of the AAE. In accordance with LAC 33:III.517.D.4, compliance monitoring devices or activities have been identified for each applicable regulation and for each emission point. Table 2 in Section 22 of the AAE provides the compliance monitoring requirements, which will be followed by Plaquemines Generation in order to comply with the applicable requirements. In the event there are multiple options available in the regulation to demonstrate compliance, the specific option chosen by Plaquemines Generation has been clearly identified. Additionally, where alternative monitoring methods are allowed and have been used, they have been provided in Table 2 in Section 22 of the AAE.

2.8 Test Methods and Procedures

The test methods and procedures requiring implementation under the applicable regulations are provided in Table 2 in Section 22 of the AAE.

2.9 Compliance Assurance Monitoring

The purpose of the Compliance Assurance Monitoring (CAM) rule is to ensure that operators maintain control device performance at levels that assure compliance. The rule allows operators to design CAM plans based on current requirements and operating practices, to select representative parameters upon which compliance can be assured, to establish indicator ranges (or procedures for setting ranges) for the parameters, to use testing or other operating data to verify the parameters and ranges, and to correct control device performance problems as expeditiously as practicable.

The CAM rule requires monitoring plans (CAM plans) for every pollutant-specific emissions unit (PSEU) that is located at a facility where a Part 70 or 71 permit is required and that meet specific criteria:

- Is subject to an emission limitation or standard;
- Uses a control device to achieve compliance; and
- Has pre-control emissions that exceed or is equivalent to the major source threshold under the Title V Operating Permit program (i.e., 100 tpy of criteria pollutant, 10 tpy of a hazardous air pollutant (HAP), or 25 tpy of combined HAPs).

None of the proposed emission sources at the Plaquemines Generation facility are subject to CAM requirements as detailed in Appendix F.

2.10 Insignificant Activities

Planned and predictable activities generating minor emissions have been identified at the Plaquemines Generation facility. Twelve (12) storage tanks will meet the criteria to qualify as an Insignificant Activity as defined in LAC 33:III.501.B. Section 20 of the AAE provides the Insignificant Activities and Appendix C provides the supporting detailed emission calculations.

3. BEST AVAILABLE CONTROL TECHNOLOGY ANALYSIS

This section presents the Best Available Control Technology (BACT) analysis in support of this initial PSD/Title V Permit Application.

Pursuant to LAC 33:III.509.J., a BACT analysis is required for each new or physically modified emissions unit for each pollutant that is subject to PSD review. BACT is defined in LAC 33:III.509.B. (emphasis added) as:

a. *an emission limitation, including a visible emission standard, based on the maximum degree of reduction for each pollutant subject to regulation under this Section that would be emitted from any proposed major stationary source or major modification that the administrative authority, 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;*

b. *in no event shall application of best available control technology result in emissions of any pollutant would exceed the emissions allowed by any applicable standard under 40 CFR Parts 60 and 61. If the administrative authority 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 underlined terms in the BACT definition merit further discussion.

3.1 BACT Definition

3.1.1 Emission Limitation

BACT is "an emission limitation," not an emission reduction rate or a specific technology. While BACT is prefaced upon the application of technologies reflecting the maximum reduction rate achievable, the final result of BACT is an emission limit. Typically, when quantifiable and measurable[3], this limit would be expressed as an emission rate limit of a pollutant (e.g., lb/hr, tpy, kg/MMBtu, ppm, or lb/MW-hr)[4].

3.1.2 Each Pollutant

BACT is analyzed for each pollutant for which PSD review is triggered, not a combination of pollutants, even where the technology reduces emissions of more than one pollutant. Analyzing pollutants individually is particularly important when performing cost analyses.

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[3] The definition of BACT allows use of a work practice where emissions are not easily measured or enforceable. LAC 33:III.509.B. (definition of Best Available Control Technology (BACT)).

[4] Emission limits can be broadly differentiated as "rate-based" or "mass-based." For a boiler, a rate-based limit would typically be provided in units of lb/MMBtu (mass emissions per heat input). In contrast, a typical mass-based limit would be in units of lb/hr (mass emissions per time).

3.1.3 BACT Applies to the Proposed Source

BACT applies to the type of source proposed by the applicant. BACT does not redefine the source. The applicant defines the source (i.e., its goals, aims, and objectives). Although BACT is based on the type of source as proposed by the applicant, a key task for the reviewing agency is to determine which parts of the proposed process are inherent to the applicant's purpose and which parts may be changed without changing that purpose.[5]

3.1.4 Case-by-Case Basis

The PSD program's BACT evaluation is case-by-case. As noted by the United States Environmental Protection Agency (U.S. EPA):

> *The case-by-case analysis is far more complex than merely pointing to a lower emissions limit or higher control efficiency elsewhere in a permit or a permit application. The BACT determination must take into account all of the factors affecting the facility, such as the choice of [fuel]...The BACT analysis, therefore, involves judgment and balancing.*[6]

To assist applicants and regulators with the case-by-case process, in 1990 U.S. EPA issued a Draft Manual on New Source Review permitting which included a "top-down" BACT analysis.

The five steps in a top-down BACT evaluation can be summarized as follows:

- Step 1. Identify all possible control technologies;
- Step 2. Eliminate technically infeasible options;
- Step 3. Rank the technically feasible control technologies based upon emission reduction potential;
- Step 4. Evaluate ranked controls based on energy, environmental, and/or economic considerations; and
- Step 5. Select BACT.

3.1.5 Achievable

BACT is to be set at the lowest value that is "achievable." However, there is an important distinction between emission rates achieved at a specific time on a specific unit, and an emission limitation that a unit must be able to meet continuously over its operating life.

As discussed by the United States Court of Appeals for the District of Columbia Circuit when reviewing the equivalent federal PSD BACT requirements:

> *In National Lime Ass'n v. EPA, 627 F.2d 416, 431 n.46 (D.C. Cir. 1980), we said that where a statute requires that a standard be "achievable," it must be achievable "under most adverse circumstances which can reasonably be expected to recur."*[7]

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[5] U.S. Environmental Protection Agency, Environmental Appeals Board decision, In re: Prairie State Generating Company. PSD Appeal No. 05-05, decided August 24, 2006; Available at: https://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/CAA~Decisions/7414685644289CEB852571D4006785E2/$File/Prairie%20State.pdf. Accessed January 2024.

[6] U.S. Environmental Protection Agency. "New Source Review Workshop Manual, Prevention of Significant Deterioration and Nonattainment Area Permitting DRAFT," October 1990, Chapter B. Available at: https://www.epa.gov/sites/default/files/2015-07/documents/1990wman.pdf. Accessed January 2024.

[7] *Sierra Club v. EPA*, 167 F.3d 658 (D.C. Cir. 1999).

U.S. EPA Environmental Appeals Board reached a similar conclusion when reviewing a challenge to a PSD permit, stating as follows:

> *Agency guidance and our prior decisions recognize a distinction between, on the one hand, measured "emissions rates, " which are necessarily data obtained from a particular facility at a specific time, and on the other hand, the "emissions limitation" determined to be BACT and set forth in the permit, which the facility is required to continuously meet throughout the facility's life. Stated simply, if there is uncontrollable fluctuation or variability in the measured emission rate, then the lowest measured emission rate will necessarily be more stringent than the "emissions limitation" that is "achievable" for that pollution control method over the life of the facility. Accordingly, because the "emissions limitation" is applicable for the facility's life, it is wholly appropriate for the permit issuer to consider, as part of the BACT analysis, the extent to which the available data demonstrate whether the emissions rate at issue has been achieved by other facilities over a long term.*[8]

Thus, BACT must be set at an emission rate with which the facility can stay in compliance for the lifetime of the facility, on a continuous basis. As a result, while viewing individual unit performance can be instructive in evaluating what BACT might be, any actual performance data must be viewed carefully, as rarely will the data be adequate to truly assess the performance that a unit will achieve during its entire operating life.

To assist in meeting the BACT limit, the source must consider production processes or available methods, systems, or techniques, as long as those considerations do not redefine the source.[9]

3.1.6 Production Process

The definition of BACT lists both production processes and control technologies as possible means for reducing emissions.

3.1.7 Available

The term "available" in the definition of BACT is implemented through a feasibility analysis – a determination that the technology being evaluated is demonstrated or available and applicable.

3.2 BACT Methodology

In a memorandum dated December 1, 1987, the U.S. EPA stated its preference for a "top-down" BACT analysis. [10] After determining if any NSPS is applicable, the first step in this approach is to determine, for the emission unit in question, the most stringent control available for a similar or identical source or source category. If it can be shown that this level of control is technically, environmentally, or economically

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[8] U.S. Environmental Protection Agency, Environmental Appeals Board decision, *In re: Newmont Nevada Energy Investment L.L.C.*, PSD Appeal No. 05-04, decided December 21, 2005. Available at: https://yosemite.epa.gov/oa/eab_web_docket.nsf/Appeal~Number/E9DC0DB8E0AC5C5D852570DE00676081/$File/Newmont.pdf. Accessed January 2024.

[9] For criteria pollutants, the least stringent emission rate allowable for BACT is any applicable limit under either New Source Performance Standards (NSPS – Part 60) or National Emission Standards for Hazardous Air Pollutants (NESHAP – Part 61). Because no greenhouse gas (GHG) emissions limits have been incorporated into any existing NSPS or Part 61 NESHAPs, no floor for a GHG BACT analysis is available for consideration.

[10] U.S. Environmental Protection Agency, "Improving New Source Review (NSR) Implementation, Memorandum from J.C. Potter to the Regional Administrators," December 1, 1987. Available at: https://www.epa.gov/sites/production/files/2015-07/documents/establsh.pdf. Accessed January 2024.

infeasible for the unit in question, then the next most stringent level of control is determined and similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by any substantial or unique technical, environmental, or economic objections. Presented below are the five basic steps of a top-down BACT review as identified by the U.S. EPA.[11]

3.2.1 Step 1 – Identify All Control Technologies

Available control technologies are identified for each emission unit in question. The following methods are used to identify potential technologies: 1) researching the Reasonably Available Control Technology (RACT)/BACT/Lowest Achievable Emission Rate (LAER) Clearinghouse (RBLC) database, 2) surveying regulatory agencies, 3) drawing from previous engineering experience, 4) surveying air pollution control equipment vendors, and/or 5) surveying available literature. Historically, the U.S. EPA has not considered the BACT requirement as a means to redefine the design of a source when considering available control technologies.[12,13] A control technology or alternative production process that would be inconsistent with the fundamental objectives or basic design of a source would "redefine the source" and may be eliminated in Step 1 of the top-down BACT analysis.

3.2.2 Step 2 – Eliminate Technically Infeasible Options

After the identification of control options, an analysis is conducted to eliminate technically infeasible options. A control option is eliminated from consideration if there are process-specific conditions that prohibit the implementation of the control technology or if the highest control efficiency of the option would result in an emission level that is higher than any applicable regulatory limits, such as a New Source Performance Standard (NSPS).

3.2.3 Step 3 – Rank Remaining Control Options by Effectiveness

Once technically infeasible options are removed from consideration, the remaining options are ranked based on their control effectiveness. Plaquemines Generation considered total control efficiency and/or outlet concentration of a pollutant to rank the control technologies. However, at this step of each BACT analysis in this section, Plaquemines Generation did not rank the remaining control options under any of the following scenarios:

- If there is only one remaining feasible control option;
- If all of the remaining feasible control options could achieve equivalent control efficiencies; or
- If all of the remaining feasible control options are selected as BACT

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[11] U.S. Environmental Protection Agency, "New Source Review Workshop Manual, Prevention of Significant Deterioration and Nonattainment Area Permitting DRAFT," October 1990, Chapter B. Available at: https://www.epa.gov/sites/default/files/2015-07/documents/1990wman.pdf. Accessed January 2024.
[12] U.S. Environmental Protection Agency, "New Source Review Workshop Manual: Permitting of Significant Deterioration and Nonattainment Area Permitting DRAFT," October 1990, pg. B.13. Available at: https://www.epa.gov/sites/default/files/2015-07/documents/1990wman.pdf. Accessed January 2024.
[13] U.S. Environmental Protection Agency, Environmental Appeals Board decision, *In Re Hillman Power Company, L.L.C.*, PSD Appeal Nos. 02-04, 02-05, and 02-06, Order Denying Review, July 31, 2002, pgs. 691-692. Available at: https://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/Decision~Date/55840631BCCE7E4185257069005F7D86/$File/hillman.pdf. Accessed January 2024.

3.2.4 Step 4 – Evaluate Most Effective Controls and Document Results

Beginning with the most efficient control option in the ranking, detailed economic, energy, and environmental impact evaluations are performed. If a control option is determined to be economically feasible without adverse energy or environmental impacts, it is not necessary to evaluate the remaining options with lower control efficiencies.

The economic evaluation focuses on the cost effectiveness of the control option. Costs of installing and operating control technologies are estimated and annualized following the methodologies outlined in the U.S. EPA Office of Air Quality Planning and Standards' Control Cost Manual (CCM) and other industry resources.[14,15]

3.2.5 Step 5 – Select BACT

In the final step, one pollutant-specific control option is proposed as BACT for each emission unit under review based on evaluations from the previous step. As provided in the subsequent sections of this BACT analysis, the proposed BACT limits, either concentration-based or mass-based, conform with the RBLC database search results from Step 1.

The U.S. EPA has consistently interpreted the statutory and regulatory BACT definitions as containing two core requirements that the agency believes must be met by any BACT determination, regardless of whether the "top-down" approach is used. First, the BACT analysis must include consideration of the most stringent available control technologies, i.e., those which provide the "maximum degree of emissions reduction." Second, any decision to require a lesser degree of emissions reduction must be justified by an objective analysis of "energy, environmental, and economic impacts."

3.3 BACT Analysis Requirement

As discussed in Section 2.2, BACT review was triggered for PM, PM_{10}, $PM_{2.5}$, NO_X, and GHG (CO_2e) for the proposed facility. Thus, BACT must be determined for each new emission unit from which these pollutants are emitted. The top-down BACT analysis performed has been summarized in Table 3-1 for the emission sources and their respective pollutants.

Table 3-1. Sources Requiring a BACT Analysis

Emission Unit	Emission Unit Description	Pollutant Requiring BACT	Group
ASCCT1 – ASCCT4	Aeroderivative Simple Cycle Combustion Turbines 1 - 4	PM, PM_{10}, $PM_{2.5}$, NO_X, and GHG	Simple Cycle Stationary Gas Turbines

[14] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, "EPA Air Pollution Control Cost Manual," Sixth Edition, EPA 452-02-001. Daniel C. Mussatti & William M. Vatavuk, January 2002. Available at: https://www3.epa.gov/ttn/ecas/docs/c_allchs.pdf. Accessed January 2024.
[15] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, "EPA Air Pollution Control Cost Manual," Seventh Edition. Available at: https://www.epa.gov/economic-and-cost-analysis-air-pollution-regulations/cost-reports-and-guidance-airpollution#cost%20manual. Accessed January 2024.

Emission Unit	Emission Unit Description	Pollutant Requiring BACT	Group
FUG	Fugitive Emissions	GHG	Fugitives

The aeroderivative simple cycle combustion turbines (ASCCTs) will combust either pipeline quality natural gas or HP fuel gas. Although the BACT definition includes reference to the use of "clean fuels" and other fuels (e.g., hydrogen and bio-fuels) exist that would generate minimal to no net CO_2 emissions, the U.S. EPA has indicated that:

> *the initial list of control options for a BACT analysis does not need to include "clean fuel" options that would fundamentally redefine the source. Such options include those that would require a permit applicant to switch to a primary fuel type (i.e., coal, natural gas, or biomass) other than the type of fuel that an applicant proposes to use for its primary combustion process.* [16]

Because the aforementioned emission sources are designed to combust low carbon content fuels, utilizing alternative fuels (e.g., biomass) would fundamentally alter or redefine the source. The combustion sources to which BACT applies are designed and are permitted to burn natural gas and fuel gas, which is considered a clean fuel with low GHG emissions. Thus, the top-down BACT analyses provided in the following sections will not discuss using clean fuels.

3.4 Aeroderivative Simple Cycle Combustion Turbines 1 through 4 (ASCCT1 – ASCCT4)

This project includes four (4) aeroderivative simple cycle combustion turbines (ASCCTs) to provide operational support to Plaquemines LNG and Delta LNG on an as-needed basis, including but not limited to, during the periods of maintenance, repair, or unplanned events when one or more of the Plaquemines LNG or Delta LNG electrical power sources are unavailable. This section addresses BACT for emissions of PM, PM_{10}, $PM_{2.5}$, NO_X, and GHG generated from the proposed ASCCTs. A search of the RBLC database was conducted for the last ten (10) years for turbines of various sizes and applications and is provided in Appendix D.

3.4.1 PM, PM_{10}, and $PM_{2.5}$ BACT Analysis for the ASCCTs

Natural gas particulate emissions are primarily products of incomplete combustion of natural gas fuel in the combustion chamber. These particulate emissions contain a mixture of soot, sulfates, dust, inorganic metals, trace metals, and a soluble organic fraction (SOF) that is composed of lube oil-derived hydrocarbons and unburned natural gas fuel. The proposed ASCCTs will exclusively combust natural gas and fuel gas which contains more than 90 percent methane by volume. Particulates formed by natural gas combustion are less than 1 micrometer in size.[17] For this reason, the control technology assessment for PM, PM_{10} and $PM_{2.5}$ will be considered the same for the ASCCTs.

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[16] U.S. Environmental Protection Agency, "PSD and Title V Permitting Guidance for Greenhouse Gases," March 2011. Available at: https://www.epa.gov/sites/default/files/2015-08/documents/ghgguid.pdf. Accessed January 2024.

[17] Based on Section 1.4, Natural Gas Combustion, U.S. Environmental Protection Agency, AP-42, Fifth Edition, Volume I, Chapter 1: External Combustion Sources, July 1998. Available at: https://www.epa.gov/sites/production/files/2020-09/documents/1.4_natural_gas_combustion.pdf. Accessed January 2024.

The proposed ASCCTs will be required to exclusively combust low sulfur gaseous fuels and to employ good combustion practices to minimize PM, PM_{10}, and $PM_{2.5}$ emissions as BACT. The ASCCTs are not subject to any federal standards for PM, PM_{10}, and $PM_{2.5}$ emissions. Regarding state emission standards, which are approved as part of the federally enforceable State Implementation Plan, the ASCCTs are subject to LAC 33:III.1311.C which prohibits greater than 20 percent opacity for more than one six-minute period in any 60 consecutive minutes. In addition, they are subject to LAC 33:III.1313.C. which limits particulate emissions to 0.6 lb/MMBtu of heat input for fuel burning sources.

The following technologies were identified in the RBLC search results and available literature (see Appendix D) as potentially applicable for controlling PM, PM_{10}, and $PM_{2.5}$ emissions from the ASCCTs:

- Exclusive Combustion of Low Sulfur Gaseous Fuels for Improved Combustion Efficiency;
- Good Combustion Practices Including Proper Burner Design;
- Baghouses; and
- Electrostatic Precipitator.

The top-down BACT analysis for PM, PM_{10}, and $PM_{2.5}$ from ASCCT1 through ASCCT4 is presented in Table 3-2.

Table 3-2. Aeroderivative Simple Cycle Combustion Turbines - Top-Down BACT Analysis for PM, PM_{10}, and $PM_{2.5}$

Process		Step 1. Identify Air Pollution Control Technologies		Step 2. Eliminate Technically Infeasible Options	Step 3. Rank Remaining Control Technologies	Step 4. Evaluate and Document Most Cost-Effective Controls	Step 5. Select BACT
Equipment	PSD Pollutant	Control Technology	Control Technology Description	Technical Feasibility			
Aeroderivative Simple Cycle Combustion Turbines 1 through 4 (ASCCT1 – ASCCT4)	PM, PM_{10}, and $PM_{2.5}$	Exclusive Combustion of Low Sulfur Gaseous Fuels for Improved Combustion Efficiency	Particulate emissions from gas-fired turbines are minimal because gas fuels have low ash content.[1] Natural gas has low sulfur contents as pipeline quality natural gas typically has a sulfur content of 2,000 grains per million cubic feet.[2] Low sulfur content results in lower particulate emissions.	**Feasible.**	N/A	N/A	**Selected as BACT**
		Good Combustion Practices	Good combustion practices, including good equipment design, use of gaseous fuels for good mixing, and proper combustion techniques such as optimizing the air to fuel ratio.	**Feasible.**	N/A	N/A	**Selected as BACT**
		Baghouses (Fabric Filters)	In a fabric filter, flue gas is passed through a tightly woven or felted fabric, causing PM in the flue gas to be collected on the fabric by sieving and other mechanisms. The dust cake that forms on the filter from the collected PM will further increase the collection.[3]	**Infeasible.** PM emissions from combustion of gaseous fuels contains particulates less than 1 μm.[2] However, the standard baghouse is designed to collect particulates greater than 1 μm.[5] Therefore, this technology is not applicable to this source type and is considered infeasible.	N/A	N/A	N/A
		Electrostatic Precipitator (ESP)	An ESP is a particulate control device that uses electrical forces to move particles entrained within an exhaust stream onto collector plates. The entrained particles are given an electrical charge when they pass through a corona, a region where gaseous ions flow. Electrodes in the center of the flow lane are maintained at high voltage and generate the electrical field that forces the particles to the collector walls.[4]	**Infeasible.** Typical inlet PM concentrations to ESPs are 1 to 50 gr/ft^3.[4] The inlet PM concentration from the turbines is significantly less than this range and therefore outside the typical design range. In addition, ESPs are typically used in coal, oil, wood, or liquid waste fired combustion units, or in the metals processing facilities.[4] Therefore, this technology is not applicable to this source type and is considered infeasible.	N/A	N/A	N/A

[1] Section 3.1, Stationary Gas Turbines, U.S. Environmental Protection Agency, AP-42, Fifth Edition, Volume I, Chapter 1: External Combustion Sources, Apr. 2000.
[2] Section 1.4, Natural Gas Combustion, U.S. Environmental Protection Agency, AP-42, Fifth Edition, Volume I, Chapter 1: External Combustion Sources, July 1998.
[3] U.S. Environmental Protection Agency, Air Pollution Control Technology Fact Sheet, Fabric Filter, EPA-452/F-03-024. Available at: https://www3.epa.gov/ttncatc1/dir1/ff-shaker.pdf. Accessed January 2024.
[4] U.S. Environmental Protection Agency, Air Pollution Control Technology Fact Sheet, Dry Electrostatic Precipitator (ESP), EPA-452/F-03-028. Available at: https://www3.epa.gov/ttn/catc/dir1/fdespwpl.pdf. Accessed January 2024.
[5] Bethea, R.M., *Air Pollution Control Technology: An Engineering Analysis Point of View*, Van Norstrand Reinhold (1978).

PM, PM_{10}, and $PM_{2.5}$ BACT Evaluation Summary for the ASCCTs

As detailed in Table 3-3, BACT is proposed to be the exclusive combustion of low sulfur gaseous fuel and good combustion practices. A summary of the proposed PM, PM_{10}, and $PM_{2.5}$ BACT emission limits for each ASCCT is provided in the table below.

Table 3-3. Proposed PM, PM_{10}, and $PM_{2.5}$ BACT Emission Limits for Aeroderivative Simple Cycle Combustion Turbines

Emission Unit	Proposed BACT	Proposed BACT Emission Limit		Proposed BACT Basis	Operating Mode	Compliance Demonstration
Aeroderivative Simple Cycle Combustion Turbines 1 through 4 (ASCCT1 – ASCCT4)	Exclusive Combustion of Low Sulfur Gaseous Fuel and Good Combustion Practices	4.00 lb/hr	Average of three 1-hour Stack Test Runs	Vendor Data	Normal / MSS	Stack Test [1]

[1] Based on initial stack testing (the average of three (3) 1-hour test runs) and periodic stack tests, as applicable.

3.4.2 NO_X BACT Analysis for the ASCCTs

All four ASCCTs are equipped with dry low NO_X burners and SCR system for advanced NO_X control. In addition, the facility uses good combustion practices to minimize NO_X emissions from the ASCCTs.

In all types of combustion processes, NO_X can be formed via three mechanisms, as discussed below:[18]

- ***Thermal NO_X***: Thermal NO_X emissions are controlled by the nitrogen and oxygen molar concentrations and the combustion temperature. Combustion at temperatures less than 2,370°F forms much lower concentrations of thermal NO_X;
- ***Fuel NO_X***: Fuel NO_X emissions are created from combustion of fuel that contains nitrogen that results from oxidation of the already-ionized nitrogen contained in the fuel; and
- ***Prompt NO_X***: Prompt NO_X is formed from molecular nitrogen in the air combining with fuel in fuel-rich conditions, which exist, to some extent, in all combustion scenarios.

The proposed ASCCTs will be subject to 40 CFR Part 60 Subpart KKKK, Standards of Performance for Stationary Combustion Turbines. Each ASCCT has a nominal generating capacity of approximately 37 MW, with a maximum heat input rating, based on the higher heating value (HHV) of fuel gas, of approximately 393 MMBtu/hr. In accordance with 40 CFR Part 60 Subpart KKKK, each turbine must meet the applicable NO_X emission limit established in Table 1 to 40 CFR Part 60 Subpart KKKK.

In accordance with Table 1 to 40 CFR Part 60 Subpart KKKK, for high load operations (>=75% load), new turbines with a maximum firing rate greater than 50 MMBtu/hr but less than or equal to 850 MMBtu/hr that

[18] See also, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, "Nitrogen Oxides (NO_X): Why and How They Are Controlled," EPA 456/F-99-006R. Research Triangle Park, North Carolina. November 1999. Available at: https://www3.epa.gov/ttncatc1/dir1/fnoxdoc.pdf. Accessed January 2024.

combust natural gas or fuel other than natural gas where the total heat input of the gas is greater than or equal to 50 percent of natural gas, the following NO_x emission limitation applies:

- 25 ppm at 15 percent oxygen; or
- 150 ng/J of useful output (1.2 lb/MWh).

Per Table 1 of 40 CFR Part 60 Subpart KKKK, for turbines (> 30 MW output) operating at less than 75 percent of peak load, the following NO_x emission limitation applies:

- 96 ppm at 15 percent oxygen; or
- 590 ng/J of useful output (4.7 lb/MWh).

The following technologies were identified in the RBLC search results and available literature (see Appendix D) as potentially applicable for controlling NO_x emissions from the turbine:

- Water/Steam Injection;
- Dry Low-NO_x Combustor Design or SOLONO_x;
- Catalytic Combustion Controls (XONON™);
- Selective Non-Catalytic Reduction (SNCR);
- Non-Selective Catalytic Reduction (NSCR);
- Selective Catalytic Reduction (SCR);
- EM_x™ (formerly referred to as SCONO_x™); and
- Good Combustion Practices.

The top-down BACT analysis for NO_x from ASCCT1 through ASCCT4 is presented in Table 3-4.

Table 3-4. Aeroderivative Simple Cycle Combustion Turbines - Top-Down BACT Analysis for NO_x

Process		Step 1. Identify Air Pollution Control Technologies		Step 2. Eliminate Technically Infeasible Options	Step 3. Rank Remaining Control Technologies	Step 4. Evaluate and Document Most Cost-Effective Controls	Step 5. Select BACT
Equipment	**PSD Pollutant**	**Control Technology**	**Control Technology Description**	**Technical Feasibility**			
Aeroderivative Simple Cycle Combustion Turbines 1 through 4 (ASCCT1 – ASCCT4)	NO_x	Water/Steam Injection	Water/steam injection technology has been demonstrated to effectively lower NO_x emissions from gas turbines. The water injection increases the thermal mass by dilution, thereby reducing the peak temperatures in the flame zone. Steam injection employs the same mechanisms to reduce the peak flame temperature with the exclusion of heat absorbed due to vaporization because the heat of vaporization has been added to the steam prior to injection. In addition, the latent heat of vaporization is absorbed from the flame zone, which reduces the NO_x formation due to combustion.[1]	**Feasible.**	3 (~25 ppmv @ 15% O_2)[6]	Higher ranked control technologies selected as BACT. No further analysis is required.	N/A
		Dry Low-NO_x Combustor Design	Gas turbines using staged combustion are referred to as Dry Low-NO_x combustors. This technology will either lower the combustor temperature using lean mixtures of air and/or fuel staging or decrease the residence time for the combustor. Two-stage lean/lean combustors are essentially fuel-staged, premixed combustors in which each stage burns lean. This configuration allows the turbine to operate with a significantly lean mixture and ensures a stable flame. Low NO_x emissions result through cooler flame temperatures associated with lean combustion and avoidance of localized "hot spots" by premixing the fuel and air. Two stage rich/lean combustors are essentially air-staged, premixed combustors in which the primary zone is operated fuel rich, and the secondary zone is operated fuel lean.[1] Current Dry Low-NO_x combustor technology can typically achieve NO_x concentrations of 25 ppmvd or less using natural gas fuel, depending on the vendor.	**Feasible.**	2 (~9 to 25 ppmv @ 15% O_2)[6]	N/A	**Selected as BACT**
		Catalytic Combustion Controls (XONON™)	Catalytic combustion technology is potentially capable of reducing NO_x emissions from gas turbines. However, based on vendor literature, this technology is only available for turbines smaller than those of the proposed aeroderivative simple cycle combustion turbines.	**Infeasible.** Based on vendor literature, catalytic combustion is not commercially available for turbine of the size that is being proposed at the Plaquemines Generation facility.	N/A	N/A	N/A
		Selective Non-Catalytic Reduction (SNCR)	Selective Non-Catalytic Reduction achieves NO_x emissions reductions via the injection of ammonia or urea into specific temperature zones in the exhaust gas. SNCR requires a higher operating temperature than SCR, sufficient residence time in the exhaust gas within a specific temperature range, and does not use a catalyst. The operating temperature range required for effective operation is 1,600°F to 2,100°F.[3]	**Infeasible.** The exhaust temperature of the proposed turbines (1,000°F) is below the required temperature for using this technology.	N/A	N/A	N/A
		Non-Selective Catalytic Reduction (NSCR)	In non-selective catalytic reduction (NSCR) systems (also referred to as three-way catalysts), a catalyst is used to control NO_x and CO emissions under fuel-rich (less than 3 percent oxygen) conditions. It is effective only to rich burn engines that are capable of a simultaneous reduction of NO_x, CO, and unburned hydrocarbons in a single catalyst due to the stoichiometric nature of the combustion process.[4]	**Infeasible.** The oxygen concentration in the exhaust of typical gas-fired turbines is 15 percent due to the lean burn nature of gas-fired turbines.[5] To successfully remove NO_x, the exhaust stream must contain less than 0.5 percent oxygen upstream of the catalyst.[4] Because the	N/A	N/A	N/A

Process		Step 1. Identify Air Pollution Control Technologies		Step 2. Eliminate Technically Infeasible Options	Step 3. Rank Remaining Control Technologies	Step 4. Evaluate and Document Most Cost-Effective Controls	Step 5. Select BACT
Equipment	**PSD Pollutant**	**Control Technology**	**Control Technology Description**	**Technical Feasibility**			
				oxygen concentration in the turbine exhaust stream is outside the design range of an NSCR system, this control technology is eliminated as BACT for NOx.			
		Selective Catalytic Reduction (SCR)	SCR reduces NOx emissions by injecting ammonia into the exhaust gas stream upstream of a catalyst. Nitrogen oxides, ammonia, and oxygen react on the surface of the catalyst to form nitrogen and water.[1]	**Feasible.**	1 (~2.5 to 5 ppmv @ 15% O_2)[6]	N/A	**Selected as BACT**
		EMx™	EMx™ (formerly referred to as SCONOx™) is a post-combustion technology that utilizes a proprietary oxidation catalyst and absorption technology using a single catalyst (potassium carbonate) for removal of NOx, CO, and VOCs without the use of ammonia. While EMx™ achieves permitted NOx emission levels, it is a challenge to operate due to high operating expenses and maintenance issues.	**Infeasible.** This technology has been successfully installed on small gas-fired turbines, sized from 5 to 45 MW.[2] However, according to the US EPA, EMx™ systems operate at temperatures ranging from 300°F to 700°F.[5] During normal operation, the exhaust temperature from the aeroderivative turbine is approximately 1,000°F which exceeds the maximum design range for EMx™; therefore, this technology is eliminated.	N/A	N/A	N/A
		Good Combustion Practices	Good combustion practices, including good equipment design, use of gaseous fuels for good mixing, and proper combustion techniques such as optimizing the air to fuel ratio.	**Feasible.**	4 (N/A)[6]	N/A	**Selected as BACT**

[1] Based on Section 3.1, Stationary Gas Turbines, U.S. Environmental Protection Agency, AP-42, Fifth Edition, Volume I, Chapter 1: External Combustion Sources, April 2000.
[2] EmeraChem. *Multi-Pollutant Emission Reduction Technology for Stationary Gas Turbines and IC Engines*, January 5, 2004.
[3] U.S. Environmental Protection Agency, *Air Pollution Control Fact Sheet*, Selective Non-Catalytic Reduction (SNCR), EPA-452/F-03-031. Available at: https://www3.epa.gov/ttncatc1/dir1/fsncr.pdf. Accessed January 2024.
[4] Sasadeusz, L. and Arney, G., *Operating Catalytic Emission Reduction Systems*, Presentation for Gas/Electric Partnership 2008 Workshop, Houston, TX, Jan. 30-31, 2008 (hereinafter "Gas/Electric Partnership 2008 Workshop").
[5] U.S. EPA, Combined Heat and Power Partnership, Catalog of CHP Technologies, Section 3. Technology Characterization – Combustion Turbines. Available at: https://www.epa.gov/sites/production/files/2015-07/documents/catalog_of_chp_technologies_section_3._technology_characterization_-_combustion_turbines.pdf. Accessed January 2024.
[6] Values are based on RBLC database search results provided in Appendix D.

NO_x BACT Evaluation Summary for the ASCCTs

As discussed in the following NO_x control technologies are proposed as BACT:

- Selective Catalytic Reduction;
- Dry-Low NO_x (DLN) Combustor Design; and
- Good Combustion Practices.

During periods of startup and shutdown, NO_x BACT for the ASCCTs is based on the vendor provided emission estimates associated with the startup and shutdown activities. Thus, during periods of startup and shutdown, emissions will be controlled with good combustion practices, which involve ensuring proper operation and maintenance of the turbines.

A summary of the proposed NO_x BACT limits for each ASCCT is provided in the table below.

Table 3-5. Proposed NO_x BACT Emission Limits for Aeroderivative Simple Cycle Combustion Turbines

Emission Unit	Proposed BACT	Proposed BACT Emission Limit		Proposed BACT Basis	Operating Mode	Compliance Demonstration
Aeroderivative Simple Cycle Combustion Turbines 1 through 4 (ASCCT1 – ASCCT4) [2]	Selective Catalytic Reduction, DLN Combustor Design, and Good Combustion Practices	4.91 lb/hr	Average of three 1-hr Stack Tests	Vendor Data	Normal	Stack Test [1]
	Good Combustion Practices	39.72 lb/hr	Max Hourly		MSS	Vendor Data

[1] Based on initial performance test and comply with the subsequent performance test requirements under NSPS KKKK for continuous compliance demonstration.
[2] Plaquemines Generation will use periodic stack tests, continuous emission monitoring systems (CEMS), or continuous parametric monitoring systems (CPMS) to demonstrate continuous compliance with NSPS KKKK.

3.4.3 GHG BACT Analysis for the ASCCTs

For PSD permitting purposes, GHGs are considered to be a single air pollutant (i.e., CO_2e), comprised of carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). GHG emissions from a natural gas-fired turbine are due to the combustion of the natural gas and are directly correlated with the amount of fuel burned. Therefore, the less fuel burned per unit of energy produced or greater energy efficiency established, the lower the GHG emissions.

The proposed ASCCTs are not subject to any federal or state requirements that establish GHG emission standards. Thus, the uncontrolled emissions from the proposed ASCCTs are the baseline CO_2e emissions.

The following technologies were identified in the RBLC search results and available literature (see Appendix D) as potentially applicable for controlling GHG emissions from the proposed ASCCTs:

- Exclusively Combust Low Carbon Gaseous Fuel;
- Good Combustion Practices;
- Proper Operation and Maintenance (O&M) Practices;
- Insulation Properly Implemented for Surface Above 120°F; and
- Carbon Capture and Sequestration/Storage.

The top-down BACT analysis for GHG is presented in Table 3-6.

Table 3-6. Aeroderivative Simple Cycle Combustion Turbines - Top-Down BACT Analysis for GHG Emissions (CO_2e)

Process		Step 1. Identify Air Pollution Control Technologies		Step 2. Eliminate Technically Infeasible Options	Step 3. Rank Remaining Control Technologies	Step 4. Evaluate and Document Most Cost-Effective Controls	Step 5. Select BACT
Equipment	**PSD Pollutant**	**Control Technology**	**Control Technology Description**	**Technical Feasibility**			
Aeroderivative Simple Cycle Combustion Turbines 1 through 4 (ASCCT1 – ASCCT4)	GHG (CO_2e)	Exclusively Combust Low Carbon Gaseous Fuel	Use of gaseous fuels, in preference over other fossil fuels such as fuel oil or coal, results in lower GHG emissions per unit of energy output. 40 CFR Part 98, Table C-1 (U.S. EPA's Mandatory GHG Reporting Rule) lists gaseous fuel (e.g., natural gas or fuel gas) as having one of the lowest CO_2 generation rates of any of the fuels listed	**Feasible.**	1[2]	N/A	**Selected as BACT**
		Good Combustion Practices	Good combustion practices, including good equipment design, use of gaseous fuels for good mixing, and proper combustion techniques such as optimizing the air to fuel ratio. It also includes maintaining the proper level of oxygen in the exhaust such that combustion efficiency is maximized, resulting in reduced fuel consumption and lower GHG emissions.	**Feasible.**	1[2]	N/A	**Selected as BACT**
		Proper O&M Practices	Implementing good O&M practices to improve the combustion efficiency of the unit. Increasing combustion efficiency reduces fuel consumption, which results in lower GHG emissions.	**Feasible.**	1[2]	N/A	**Selected as BACT**
		Insulation Properly Implemented for Surfaces Above 120°F	Insulation will be properly implemented for surfaces above 120°F to prevent heat loss and improve combustion efficiency.	**Feasible.**	1[2]	N/A	**Selected as BACT**
		Carbon Capture and Sequestration/Storage (CCS)	Refer to Section 3.4.3.1 for additional information.	**Infeasible.**	N/A	**Economically Infeasible.** Refer to Section 3.4.3.1.1 [1,3]	N/A

[1] See Table E-1 of Appendix E for detailed cost analysis.
[2] Except for CCS, all other technically feasible control technologies are assumed to achieve equivalent control efficiencies.
[3] Section 3.4.3.1.1 provides the CCS economic infeasibility analysis. Note that the control technology was deemed technically infeasible. Hence, economic analysis was not warranted; however, Plaquemines Generation performed an economic assessment as a conservative approach.

3.4.3.1 CCS Control Technology Description

CCS requires three separate and distinct activities: (i) separating and capturing CO_2 from a combustion unit's exhaust gas, (ii) pressurizing the captured CO_2 and transporting the compressed CO_2 for injection, and (iii) injecting the CO_2 into an available and permanent geologic storage structure. ***If any one of the three CCS activities is unavailable or technically infeasible, CCS is not viable as BACT for the ASCCTs.***

Step 1: Capture of CO_2:

There are three different types of CO_2 capture systems: post-combustion, pre-combustion, and oxyfuel combustion. The important factors to select the appropriate CO_2 capture system are the concentration of CO_2 in the gas stream, the pressure of the gas stream, and the fuel type (solid or fuel).

- Post-combustion Capture System
  - Post-combustion capture system separates CO_2 from the flue gases produced by the combustion of the primary fuel in air. Typically, these systems use a liquid solvent to capture the small fraction of CO_2 (3 percent by volume to 15 percent by volume) present in the flue gas stream in which the main constituent is nitrogen. These systems would typically use an organic solvent such as monoethanolamine (MEA) to separate CO_2 from the flue gas stream.[19]
- Pre-combustion Capture
  - The first stage of a pre-combustion capture process reaction produces a mixture of hydrogen and carbon monoxide (syngas) from the primary fuel. This reaction can be achieved by either "steam reforming" or "partial oxidation" based on the primary fuel (gaseous, solid, and liquid fuels). CO_2 is removed from the CO/H_2 mixture by the "shift" reaction by the addition of steam (waste gas shift reaction).[20]
- Oxy-combustion Capture
  - The oxy-fuel combustion process eliminates nitrogen from the flue gas by combusting a hydrocarbon or carbonaceous fuel in either pure oxygen or a mixture of pure oxygen and a CO_2-rich recycled flue gas. The flue gas consists mainly of CO_2 and water vapor together with excess oxygen required to ensure complete combustion of the fuel. The flue gas, after cooling to condense water vapor, contains about 80 percent to 98 percent CO_2 depending on the fuel used. This concentrated CO_2 stream can be compressed, dried and further purified before delivery into a pipeline for storage.[21]

Step 2: Transport of CO_2:

CO_2 can be transported in three states: gas, liquid, and solid. Typically, commercial-scale transport uses tanks, pipelines, and ships for gaseous and liquid CO_2. Gaseous CO_2 transported at atmospheric pressure occupies a large volume. Therefore, gaseous CO_2 must be compressed, and compressed CO_2 is then transported by pipeline. The volume of CO_2 can be further reduced by liquefaction, solidification or hydration for transportation.

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[19] Intergovernmental Panel on Climate Change, "Carbon Dioxide Capture and Storage," 2005, p. 25. Available at https://www.ipcc.ch/site/assets/uploads/2018/03/srccs_wholereport-1.pdf. Accessed January 2024.
[20] *Ibid.*
[21] *Ibid.*

Step 3: Storage of CO_2:

CO_2 storage potentially can be accomplished by:

- Underground geological storage;
- Ocean storage;
- Mineral carbonation; and
- Industrial uses of CO_2 such as Enhanced Oil Recovery (EOR) fields.

3.4.3.1.1 CCS BACT Evaluation of ASCCTs

Plaquemines Generation evaluated the technical feasibility and the economic impact assessment for the CCS technology below.

Technical Feasibility Analysis:

The determination of technical feasibility of CCS is highly dependent upon the nature of the source and there may be different feasibility analysis for each of the three elements – capture, compression, and storage/sequestration. EPA previously provided guidance on the feasibility of CCS in a project. The 2011 U.S. EPA guidance for PSD and Title V Permitting of Greenhouse Gases (GHG Guidance)[22] states:

> *"For the purposes of a BACT analysis for GHGs, EPA classifies CCS as an add-on pollution control technology that is 'available' for facilities emitting CO_2 in large amounts, including fossil fuel-fired power plants, and for industrial facilities with high-purity CO_2 streams (e.g., hydrogen production, ammonia production, natural gas processing, ethanol production, ethylene oxide production, cement production, and iron and steel manufacturing). For these types of facilities, CCS should be listed in Step 1 of a top-down BACT analysis for GHGs."*

Note that the "industrial facilities with high-purity CO_2 stream" identified in the U.S. EPA guidance document refers to process streams and process vent streams that contain substantially higher CO_2 concentrations than expected from the exhaust stream of the natural gas-fired ASCCTs. None of those "high-purity CO_2 streams" mentioned in GHG Guidance is generated from combustion of a natural gas. Typically, the flue gas from a natural gas fired combustion turbine contains approximately 4.1 percent of CO_2.[23] Based on the data provided by the vendor, the exhaust flue gas from the ASCCTs contains approximately 3.5 percent of CO_2.[24] Because the exhaust gas from a natural gas-fired ASCCT contains a low percentage of CO_2, capturing CO_2 from this stream is technically challenging.[25] Additionally, the exhaust gas from a natural gas-fired ASCCT will have higher oxygen concentrations, which leads to degradation of the solvents.[26]

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[22] U.S. Environmental Protection Agency, "PSD and Title V Permitting Guidance for Greenhouse Gases," Research Triangle Park, North Carolina, March 2011. Available at: https://www.epa.gov/sites/default/files/2015-07/documents/ghgguid.pdf. Accessed January 2024.
[23] U.S. Department of Energy, National Energy Technology Laboratory. "Cost and Performance Baseline for Fossil Energy Plants, Volume 1: Bituminous Coal and Natural Gas to Electricity," October 14, 2022, DOE/NETL-2023/4320. Available at: https://www.netl.doe.gov/projects/files/CostAndPerformanceBaselineForFossilEnergyPlantsVolume1BituminousCoalAndNaturalGasToElectricity_101422.pdf. Accessed January 2024.
[24] Based on vendor data (October 2023).
[25] U.S. Department of Energy, Quadrennial Technology Review 2015, "Carbon Dioxide Capture for Natural Gas and Industrial Applications, Chapter 4: Technology Assessment." Available at: https://www.energy.gov/sites/default/files/2015/12/f27/QTR2015-4D-Carbon-Dioxide-Capture-for-Natural-Gas-and-Industrial-Applications.pdf. Accessed January 2024.
[26] *Ibid.*

EPA studied and identified these technical barriers for the application of CCS on natural gas-fired turbines. On January 8, 2014, EPA published a NSPS proposed rule for the control of CO_2 for new fossil fuel-fired electric generating units ("New Unit EGU NSPS"), which was finalized on October 23, 2015 (80 Fed. Reg. 64,510). As part of the rulemaking process, EPA conducted the best system of emission reduction ("BSER") analysis for natural gas-fired turbines. In this rulemaking, EPA concluded that CCS was not technically feasible for Natural Gas Combined Cycle (NGCC) plants, stating as follows:[27]

> *We considered two alternatives in evaluating the BSER for new fossil fuel-fired stationary combustion turbines: (1) modern, efficient NGCC units and (2) modern, efficient NGCC units with CCS. NGCC units are the most common type of new fossil fuel-fired units being planned and built today. The technology is in wide use. Nearly all new fossil fuel-fired EGUs being constructed today are using this advanced, efficient system for generating intermediate and base load power. Importantly, NGCC is an inherently lower CO_2-emitting technology. Almost every natural gas-fired stationary combined cycle unit built in the U.S. in the last five years emits approximately 50 percent less CO_2 per MWh than a typical new coal-fired plant of the same size. The design is technically feasible, and evidence shows that NGCC units are currently the lowest cost, most efficient option for new fossil fuel-fired power generation.*
>
> *NGCC with CCS is not a configuration that is being built today. The EPA considered whether NGCC with CCS could be identified as the BSER adequately demonstrated for new stationary combustion turbines, and we decided that it could not. At this time, CCS has not been implemented for NGCC units, and we believe there is insufficient information to make a determination regarding the technical feasibility of implementing CCS at these types of units.*
>
> *The EPA is not aware of any demonstrations of NGCC units implementing CCS technology that would justify setting a national standard. Further, the EPA does not have sufficient information on the prospects of transferring the coal-based experience with CCS to NGCC units. In fact, CCS technology has primarily been applied to gas streams that have a relatively high to very high concentration of CO_2 (such as that from a coal combustion or coal gasification unit). The concentration of CO_2 in the flue gas stream of a coal combustion unit is normally about four times higher than the concentration of CO_2 in a natural gas-fired unit. Natural gas-fired stationary combustion turbines also operate differently from coal-fired boilers and IGCC units of similar size. The NGCC units are more easily cycled (i.e., ramped up and down as power demands increase and decrease). Adding CCS to a NGCC may limit the operating flexibility in particular during the frequent start-ups/shut-downs and the rapid load change requirements. This cyclical operation, combined with the already low concentration of CO_2 in the flue gas stream, means that we cannot assume that the technology can be easily transferred to NGCC without larger scale demonstration projects on units operating more like a typical NGCC. This would be true for both partial and full capture.*

Although the discussion is with respect to combined cycle combustion turbines, the technically infeasible conclusion could apply to ASCCTs as they don't differ much, and both have low CO_2 concentration in the flue gas stream. The primary difference in simple cycle mode of operation versus the combined cycle mode of operation is the exhaust gas temperature, which can be in excess of 1,000°F in simple cycle mode and approximately 197°F in combined cycle mode, due to the latter's use of waste exhaust gas heat to supply additional power to the steam turbines.

[27] U.S. Environmental Protection Agency, "Standards of Performance for Greenhouse Gas Emissions from New Stationary Sources: Electric Utility Generating Units" (footnotes omitted), Codified at 40 CFR Parts 60, 70, 71, and 98. Federal Register, Vol. 79, No. 5, pp. 1430, 1436, Wednesday, January 8, 2014. Available at: https://www.govinfo.gov/content/pkg/FR-2014-01-08/pdf/2013-28668.pdf. Accessed January 2024.

Plaquemines Generation reviewed more recent data on the development and implementation of the CCS technology on natural gas-fired turbines in the US and around the world based on the National Energy Technology Laboratory's (NETL) Carbon Capture and Storage (CCS) Database and the Global CCS Institute's Facilities Database.[28] This review indicates that CO_2 capture using solvents, solid sorbents or membranes has only been used on a full-scale basis at coal-fired power plants, natural gas processing, ethanol production, chemical fertilizer plants, refineries, cement production, hydrogen production, etc., that have high concentrations of CO_2 in the flue gas.

Per NETL's CCS Database, as of January 2023 (the latest available data), none of the post-combustion CO_2 capture technologies have been demonstrated for full-scale natural gas-fired simple cycle facilities. Plaquemines Generation identified only two projects that are in development stage for CCS with respect to gas fired turbines in the NETL's database:

- Masdar CCS Project (Ruwais, Abu Dhabi, United Arab Emirates) includes capture of CO_2 from a gas-fired power plant, an aluminum smelter, and a steel mill.[29] The captured CO_2 from this project will be sold, piped, and used for EOR. Phase 1 of the project includes the capture of CO_2 from the steel mill, which is complete and operational. Phase 2 of the project include CO_2 capture from a natural gas processing plant, which is in advanced development stage. However, this project has not yet implemented CCS technology for the gas fired power plant[30]; and
- A Carbon Capture Plant Retrofit to a Natural Gas-Fired Gas Turbine Combined Cycle Power Plant (Sherman, Texas, United States), a proposed project to capture CO_2 using MEA solvent-based post-combustion CO_2 capture technology at an existing natural gas-fired combined cycle power plant. The project is undertaking Front-End Engineering Design (FEED) Study, including cost and schedule estimates.[31]

Per the Global CCS Institute's Facilities Database,[32] as of May 2023 (the latest available data), none of the post-combustion CO_2 capture technologies have been demonstrated for full-scale natural gas-fired combustion turbine facilities. Plaquemines Generation identified the following proposed projects within the Facilities Database in advanced development (with FEED):

- Plant Daniel Carbon Capture Project (Moss Point, Mississippi, United States), a proposed project to capture CO_2 using a Linde-BASF aqueous amine solvent-based post-combustion CO_2 capture technology at an existing natural gas-fired combined cycle power plant. The project is undertaking FEED studies, including cost and schedule estimates.[33]
- Deer Park Carbon Capture Project (Deer Park Energy Center, Texas, United States), a proposed project to capture CO_2 using Shell's Cansolv CO_2 technology for the natural gas combined cycle power plant. The project is undertaking Front-End Engineering and Design (FEED) studies, including cost and schedule estimates.[34]

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[28] NETL's CCS Database. Available at: https://netl.doe.gov/carbon-management/carbon-storage/worldwide-ccs-database. Accessed January 2024.
[29] *Ibid.*
[30] Global Carbon Capture and Storage Institute, Facilities Database. Available at: https://co2re.co/FacilityData. Accessed January 2024.
[31] NETL's CCS Database. Available at: https://netl.doe.gov/carbon-management/carbon-storage/worldwide-ccs-database. Accessed January 2024.
[32] Global Carbon Capture and Storage Institute, Facilities Database. Available at: https://co2re.co/FacilityData. Accessed January 2024.
[33] *Ibid.*
[34] https://www.shell.com/business-customers/catalysts-technologies/resources-library/trade-release-shell-catalysts-and-technologies-and-calpine-deer-park-energy-center.html. Accessed January 2024.

- CalCapture Project (Elk Hills, California, United States), a proposed project to capture CO_2 from an existing 550-megawatt (MW) natural gas-fired combined cycle power plant which would use the CO_2 and inject the CO_2 for either storage or EOR in the co-located Elk Hills Field. The project is currently under FEED study based on Flour's amine-based Econamine FG Plus Process.[35]
- James M. Barry Electric Generating Plant CCS Project (Bucks, Alabama, United States), a proposed project to capture and store CO_2 from the existing James M. Barry Electric Generating Plant. The plant operates two GE 7F.04 gas turbines. GE will complete a US DOE-sponsored FEED study for capturing carbon while the storage component is still under evaluation. Commercial deployment is planned for 2030.[36]
- Mustang Station of Golden Spread Electric Cooperative Carbon Capture (Denver City, Texas, United States), a proposed project to capture CO_2 from the existing 450 MWe natural gas-fired combine cycle power plant. The University of Texas at Austin is conducting a FEED study for CO_2 capture using Piperazine Advanced Stripper (PZAS) process.[37]
- Coyote Clean Power Project (Southern Ute Indian Reservation, Colorado, United States), a proposed project to capture CO_2 from a proposed 280-megawatt (MW) natural gas-fired power plant which would combust natural gas with oxygen, in lieu of air, and utilize a semi-closed loop technology to recycle the CO_2 through the combustor, turbine, heat exchanger, and compressor with subsequent CO_2 capture for that can be sequestered or sold to industry. The project's status regarding FEED and FID was not readily available; however, production is expected to begin in 2025.[38]

In conclusion, globally, CO_2 capture has been implemented only on a pilot-scale basis for natural gas-fired turbines and is not yet implemented on a full-scale basis.[39,40] The New Source Review Manual[41] states:

> *"...technologies in the pilot scale testing stages of development would not be considered available for BACT review."*

In order to be an "available" technology, the use of the technology must have been advanced beyond a conceptual stage and pilot tested; it must have been demonstrated to be properly functioning at full commercial scale for a reasonable period of time. The technology must have advanced beyond the point where government subsidies are needed in order to evaluate its performance and use. Because it has been implemented only on a pilot-scale basis, the capture element of CCS technology is an undemonstrated technology and cannot be considered to be "available" to control CO_2 emissions from the natural gas-fired turbines.

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35 Global Carbon Capture and Storage Institute, Facilities Database. Available at: https://co2re.co/FacilityData. Accessed January 2024.
36 GE, "U.S. Department of Energy Awards $5.7 Million for GE-Led Carbon Capture Technology Integration Project Targeting to Achieve 95% Reduction of Carbon Emissions." Available at: https://www.ge.com/news/press-releases/us-department-of-energy-awards-57-million-for-ge-led-carbon-capture-technology. Accessed January 2024.
37 Mustang Station of Golden Spread Electric Cooperative Carbon Capture. Available at: https://www.epa.gov/system/files/documents/2023-05/TSD%20-%20GHG%20Mitigation%20Measures%20for%20Combustion%20Turbines.pdf. Accessed January 2024.
38 Coyote Clean Power. Available at https://coyote.energy/. Accessed January 2024.
39 NETL's CCS Database. Available at: https://netl.doe.gov/carbon-management/carbon-storage/worldwide-ccs-database. Accessed January 2024.
40 Global Carbon Capture and Storage Institute, Facilities Database. Available at: https://co2re.co/FacilityData. Accessed January 2024.
41 U.S. Environmental Protection Agency, "New Source Review Workshop Manual, Prevention of Significant Deterioration and Nonattainment Area Permitting DRAFT," October 1990. Available at: https://www.epa.gov/sites/default/files/2015-07/documents/1990wman.pdf. Accessed January 2024.

In addition, beyond the issues with the unavailability of demonstrated capture technology, the GHG Guidance[42] notes additional challenges associated with a CCS system as discussed below:

> *EPA recognizes the significant logistical hurdles that the installation and operation of a CCS system presents and that sets it apart from other add-on controls that are typically used to reduce emissions of other regulated pollutants and already have an existing reasonably accessible infrastructure in place to address waste disposal and other offsite needs. Logistical hurdles for CCS may include obtaining contracts for offsite land acquisition (including the availability of land), the need for funding (including, for example, government subsidies), timing of available transportation infrastructure, and developing a site for secure long term storage. . . . Based on these considerations, a permitting authority may conclude that CCS is not applicable to a particular source, and consequently not technically feasible, even if the type of equipment needed to accomplish the compression, capture, and storage of GHGs are determined to be generally available from commercial vendors.*

In summary, in 2015 EPA did not require CCS for as a part of the New Unit EGU NSPS for NGCC units because the agency found that CCS was not a technically feasible control technology in that rulemaking. While technological developments have advanced for capture systems on some high purity CO_2 streams, there is no full-scale capture system on any natural gas-fired turbines presently operating. ***The CCS control technology has not been installed and operated successfully on the type of source under review and has only been implemented on a pilot-scale basis, such that it is not demonstrated technology. Thus, Plaquemines Generation concludes that the CCS control technology is not feasible for the ASCCTs.***

The second element of a CCS system, compression and CO_2 transport via a pipeline is technically feasible based on physical, chemical, and engineering principles.

The third element of a CCS system involves permanent storage of CO_2 either through injection into oilfields for EOR or underground injection for sequestration in deep geological formations. There are currently no commercially available underground injection wells for CCS available to the Project. For EOR, availability is dependent on the market in areas with a need by oilfield operators in close enough proximity. EOR has been used in some areas of Texas and Mississippi and is believed to be technically feasible, but, as discussed below, is not economically feasible. Sequestration via a Class VI Underground Injection Well has not been demonstrated in Louisiana. One company, Gulf Coast Sequestration (GCS) has publicly announced the development of an injection well system to sequester CO_2 in a 10,000-foot-deep strata located onshore between the Sabine River and Lake Charles. It has reportedly filed an application for a federal Safe Drinking Water Act (SDWA) Underground Injection Control (UIC) Class VI permit with EPA and the Louisiana Department of Natural Resources but has not yet received a permit. GCS has not provided any public information concerning its schedule for construction and commencement of operation. Thus, the GCS facility cannot be considered to be commercially available let alone approved. Similarly, Venture Global CCS Cameron, LLC submitted in July 2023 an application for a Class VI Underground Injection Well to the U.S. EPA. This CO_2 sequestration project has not yet received a notice that the application has been deemed complete and, therefore, cannot be considered commercially available. If approved, the Venture Global CCS

[42] U.S. Environmental Protection Agency, "PSD and Title V Permitting Guidance for Greenhouse Gases," March 2011. Available at: https://www.epa.gov/sites/default/files/2015-07/documents/ghgguid.pdf. Accessed January 2024.

Cameron CO_2 Sequestration Project would capture, compress, and sequester CO_2 from both the Calcasieu Pass LNG terminal and CP2 LNG terminal as a voluntary "beyond BACT" mitigation measure.[43]

Although CCS technology is economically infeasible and technically infeasible for the ASCCTs for Plaquemines Generation, as a voluntary "beyond BACT" mitigation measure, Plaquemines LNG plans to capture and sequester an estimated 500,000 tpy of CO_2 emissions from the facility. Plaquemines LNG plans to capture CO_2 downstream of the acid gas removal unit (AGRU) (i.e., upstream of AGTOs).[44] In 2024, an application for a Class VI Underground Injection Well is anticipated to be filed.

As there are no available permitted UIC sequestration sites reasonably near the proposed Plaquemines Generation facility, Plaquemines Generation would be required to develop its own injection system. Because there are no known wells actually employed in carbon sequestration systems in the area, the technology, while promising cannot be considered to be technically "available" in the area. Further, as discussed below, a full-scale CCS system for the emissions from the turbines is not economically feasible.

Economic Impact Analysis:

Even though CCS technology is deemed to be technically infeasible for the natural gas-fired turbines, Plaquemines Generation considered the economic impacts from the implementation of CCS technology for the natural gas-fired turbines as conservative approach for two of the potentially cost-effective storage alternatives: transportation for use in an existing EOR operation or storage in an underground geological formation.

Industrial Uses of CO_2 such as Enhanced Oil Recovery (EOR) Fields

The "Regional Carbon Capture Deployment Initiative" evaluated carbon capture deployment across numerous industrial and power facilities and the associated impact on jobs and the economy of Louisiana. One of the conclusions from the study was the need for CO_2 transport infrastructure requiring an estimated $1.3 billion in private investment.[45] The privately owned and operated Denbury Resources (Denbury) pipeline system is currently the only CO_2 pipeline system in south Louisiana. This pipeline runs from Jackson Dome in Mississippi through southeastern Louisiana to Hastings in southeastern Texas.[46] Due to a lack of other readily available transportation options, this technology could not be considered as widely available for commercial use.

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[43] Venture Global Calcasieu Pass, LLC plans to capture an estimated 250,000 tpy of CO_2 emissions (for the BACT Analysis, see EDMS Document No. 13730261, available at: https://edms.deq.louisiana.gov/app/doc/view?doc=13730261, accessed January 2024). Venture Global CP2 LNG, LLC plans to capture 500,000 tpy of CO_2 emissions (for the BACT Analysis,see EDMS Document No. 13411196, available at https://edms.deq.louisiana.gov/app/doc/view?doc=13411196, accessed January 2024). Both BACT analyses concluded that CCS as a control technology for CO_2 emissions from the acid gas thermal oxidizers (AGTOs) is potentially technically feasible, but economically infeasible.

[44] Venture Global performed a detailed BACT analysis in the Initial Title V Permit PSD Permit Application for the CP2 LNG Terminal, a facility owned and operated by Venture Global CP2 LNG, LLC, This analysis concluded that CCS as a control technology for CO_2 emissions from the AGTOs is potentially technically feasible, but economically infeasible (see EDMS Document No. 13411196, available at: https://edms.deq.louisiana.gov/app/doc/view?doc=13411196. Accessed January 2024).

[45] Great Plains Institute, "Regional Carbon Capture Deployment Initiative – Jobs and Economic Impcat of Carbon Capture Deployment Louisiana." Available at: https://carboncaptureready.betterenergy.org/wp-content/uploads/2020/10/LA_Jobs.pdf. Accessed January 2024.

[46] Denbury, Gulf Coast CO_2 Pipelines. Available at: https://www.denbury.com/operations/pipeline-network/. Accessed January 2024.

Plaquemines Generation considered an alternative including capture, compression, and construction of approximately 33 miles of pipeline to connect to the Denbury pipeline system for transportation to an EOR site. However, a primary concern with utilization of the Denbury pipeline system is that it is operated by an independent, unregulated energy company. Further, Denbury filed for Chapter 11 bankruptcy reorganization relief which ended in September 2020 with the restructuring of over $2.1 million in debt.[47] While the company successfully reorganized, the amount of debt and the necessity of bankruptcy proceedings illustrate the risks associated with dealing with an unregulated entity in this field.

Further, due to Denbury being the only available CO_2 pipeline for transport to EOR facilities, Plaquemines Generation would be reliant on a single, independent operator (i.e., Denbury) for maintaining compliance with its CCS requirements. Additionally, this alternative would place Plaquemines Generation at an extreme economic disadvantage because Denbury would not be regulated by the Louisiana Public Service Commission and, therefore, would have complete control over how much to charge Plaquemines Generation for transportation. Finally, it is unclear that Denbury would have sufficient pipeline capacity for the transportation of Plaquemines Generation's CO_2. For these reasons, Plaquemines Generation did not conduct a detailed cost estimate analysis of the Denbury pipeline alternative.

Underground Geological Storage of CO_2

The Plaquemines Generation facility is located near a deep saline aquifer of sufficient capacity which could be used for long-term geologic storage.[48] While sequestration of CO_2 in a saline aquifer has not been demonstrated in Southwest Louisiana, Plaquemines Generation believes that such injection and sequestration is possible, at least for some volume of CO_2, depending upon detailed geological investigation prior to any such project. Therefore, Plaquemines Generation has conservatively conducted a cost estimate analysis for CO_2 storage via a local Class VI Underground Injection Well connected to the Plaquemines Generation facility by a pipeline.

Table 3-7 provides the summary of the estimated costs required to capture, compress, transport, and store CO_2 emissions from the ASCCTs (with the caveat that capture and sequestration are unproven technologies for the specific source and at the scale involved). The detailed cost-estimate for CCS control technology for ASCCTs is provided in Table E-1 of Appendix E.

Table 3-7 Cost Estimate for Capture, Compression, Transportation, and Storage of CO_2 from Turbines

Activity	Annualized Cost Estimate ($)[1]	$ / ton of CO_2 Reduction
Cost to Capture and Compress CO_2	$114,822,811	$140.72
Cost to Transport CO_2	$139,200,000	$170.59
Cost to Store CO_2	$96,181,062	$117.87
Total	**$350,203,873**	**$429.18**

[1] The annualized cost estimate is based on all four proposed ASCCTs.

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47 See *docket In Re: Denbury Reesources Inc.*, Case No HO20-33801 (DRJ), U.S. Bankruptcy Court for the Southern District of Texas, Houston Division. See also https://www.reuters.com/article/bankruptcy-denbury/in-brief-denburyresources-bankruptcy-judge-oks-2-1-billion-debt-for-equity-swap-plan-idUSL1N2FZ2HG. Accessed January 2024. ExxonMobil acquired Denbury Inc. on November 2, 2023. See https://corporate.exxonmobil.com/news/news-releases/2023/1102_exxonmobil-completes-acquisition-of-denbury. Accessed January 2024.

48 U.S. Department of Energy Office of Fossil Energy, NETL Carbon Storage Atlas, Fifth Edition, 2015, p. 28. Available at: https://www.netl.doe.gov/sites/default/files/2018-10/ATLAS-V-2015.pdf. Accessed January 2024.

Based on the information provided above, ***CCS technology is also eliminated as a technology that is cost prohibitive***.

GHG BACT Evaluation Summary for the ASCCTs

As discussed in Table 3-6, the following CO_2e control technologies are proposed as BACT for GHG emissions from the ASCCTs:

- Exclusively Combust Low Carbon Gaseous Fuel;
- Good Combustion Practices;
- Proper O&M Practices; and
- Insulation Properly Implemented for Surfaces Above 120°F.

The table below provides the proposed GHG BACT emission limitations for each ASCCT.

Table 3-8. Proposed GHG BACT Emission Limits for Aeroderivative Simple Cycle Combustion Turbines

Emission Unit	Proposed BACT	Proposed BACT Emission Limit		Proposed BACT Basis	Operating Mode
Aeroderivative Simple Cycle Combustion Turbines 1 through 4 (ASCCT1 – ASCCT4)	Exclusively Combust Low Carbon Gaseous Fuel, Good Combustion Practices, Proper O&M Practices, and Insulation Properly Implemented for Surfaces Above 120°F	121.38 lb CO_2e/MMBtu	Annual Average	Mass Balance and 40 CFR Part 98 Subparts A and C	Normal

3.5 Fugitive Emissions (FUG)

The Plaquemines Generation facility will emit fugitive GHG emissions. These emissions will originate from piping components. Accordingly, the data obtained from the RBLC database for the last 10 years (refer to Appendix D) has been reviewed for fugitive emissions. The control technology analysis for GHG emissions from fugitive emissions is discussed in the sections below.

3.5.1 GHG BACT Analysis for Fugitive Emissions

Plaquemines Generation will have the potential to emit GHG fugitive emissions from process equipment (e.g., piping components such as valves and flanges). The majority of the emissions will be methane, which is the primary component of natural gas and HP fuel gas.

Fugitive components are not subject to any federal or state emission standards for GHGs. Therefore, the baseline CO_2e emissions are the uncontrolled emissions from the fugitive components.

The following technologies were identified in the RBLC search results and available literature (see Appendix D) as potentially applicable for controlling GHG emissions from fugitive components:

- Proper Piping Design and Installation;
- Leak Detection and Repair (LDAR) Program; and

- Good Work Practices.

The top-down BACT analysis for GHG emissions from fugitive emissions is presented in Table 3-9.

Table 3-9. Fugitive Emissions - Top-Down BACT Analysis for GHG Emissions (CO_2e)

Process		Step 1. Identify Air Pollution Control Technologies		Step 2. Eliminate Technically Infeasible Options	Step 3. Rank Remaining Control Technologies	Step 4. Evaluate and Document Most Cost-Effective Controls	Step 5. Select BACT
Equipment	**PSD Pollutant**	**Control Technology**	**Control Technology Description**	**Technical Feasibility**			
Fugitive Emissions (FUG)	GHG (CO_2e)	Proper Piping Design and Installation	This control technology assists with ensuring a leak-tight system to reduce GHG fugitive emissions due to equipment leaks.[1]	**Feasible.**	2[2]	N/A	**Selected as BACT**
		Leak Detection and Repair (LDAR) Program	A LDAR program's primary purpose is to identify unintentional equipment leaks and subsequent repair. Several types of LDAR Programs may be utilized to detect leaks to minimize emissions of VOCs and GHGs.	**Feasible.**	1[2]	Economically Infeasible[3]	N/A
		Good Work Practices	Development and implementation of good work practices such as Auditory/Visual/Olfactory (AVO) inspection can minimize leaks. AVO is an LDAR monitoring method involving visual inspections and observations (e.g., fluids dripping, spraying, etc. from or around components), sound (e.g., hissing), and smell. If detected, such leaks require immediate repair. Unless mandated by state and/or federal regulations, AVO does not require specific monitoring frequencies.	**Feasible.**	3[2]	N/A	**Selected as BACT**

[1] U.S. Environmental Protection Agency, OECA. Leak Detection and Repair A Best Practices Guide. Available at: https://www.epa.gov/sites/default/files/2014-02/documents/ldarguide.pdf. Accessed January 2024.
[2] Rankings based on qualitative analysis of RBLC database search (see Appendix D) and available literature.
[3] GHG emissions are low and implementation of a LDAR program would provide minimal emissions benefits at a high cost. Therefore, LDAR Program is deemed economically infeasible.

GHG BACT Evaluation Summary for Fugitive Emissions (CO_2e)

Based on the analysis provided in Table 3-9, GHG BACT for the fugitive emissions due to equipment leaks is proposed as follows:

- Proper Piping Design and Installation; and
- Good Work Practices.

Table 3-10 provides the proposed GHG BACT for fugitive emissions due to equipment leaks.

Table 3-10 Proposed GHG BACT Emission Limits for Fugitive Emissions

Emission Unit	Proposed BACT	Proposed BACT Emission Limit		Proposed BACT Basis	Operating Mode
Fugitive Emissions (FUG)	Proper Piping Design and Installation; and Good Work Practices	222 tpy CO_2e	Annual Average	Engineering Judgment, U.S. EPA's Protocol for Equipment Leak Emission Estimates, (Table 2-4), and 40 CFR Part 98 Subparts A	Normal

4. APPLICATION FOR APPROVAL OF EMISSIONS OF AIR POLLUTANTS

Department of Environmental Quality Office of Environmental Services Air Permits Division P.O. Box 4313 Baton Rouge, LA 70821-4313 (225) 219-3417	**LOUISIANA** **Application for Approval of Emissions of Air Pollutants from Part 70 Sources**	DEQ LOUISIANA

PLEASE TYPE OR PRINT

1. Facility Information [LAC 33:III.517.D.1]

Facility Name or Process Unit Name (if any) Plaquemines Generation, LLC	☐ All Process Units ☒ Process Unit-specific Permit
Agency Interest Number (A.I. Number) 241647	**Currently Effective Permit Number(s)**
Company - Name of Owner Plaquemines Generation, LLC	
Company - Name of Operator (if different from Owner)	
Parent Company (if Company – Name of Owner given above is a division)	
Federal Tax-ID 93-3177068	

☒ corporation, partnership, or sole proprietorship ☐ regulated utility ☐ municipal government

☐ state government ☐ federal government ☐ other, specify ____________

2. Physical Location and Process Description [LAC 33:III.517.D.18, unless otherwise stated]

What does this facility produce? Add more rows as necessary.

Refer to Section 1 of this application.

What modifications/changes are proposed in this application? Add more rows as necessary.

Refer to Section 1 of this application.

Nearest town (in the same parish as the facility): Point Celeste

Parish(es) where facility is located: Plaquemines

Distance To (mi):	240 Texas	250 Arkansas	45 Mississippi	105 Alabama
Latitude of Facility Front Gate:	29 Deg	35 Min	39 Sec	81 Hundredths
Longitude of Facility Front Gate:	-89 Deg	53 Min	45 Sec	92 Hundredths
Distance from nearest Class I Area:	95	kilometers		

Add physical address and description of location of the facility below. If the facility has no address, provide driving directions. Add more rows as necessary.

Location of the project site is on the west side of the Mississippi River near river Mile Marker 55 in Plaquemines Parish, Louisiana.

☒ Map attached (required per LAC 33:III.517.D.1)
☒ Description of processes and products attached (required per LAC 33:III.517.D.2)
☒ Introduction/Description of the proposed project attached (required per LAC 33:III.517.D.5)

3. Confidentiality [LAC 33.I.Chapter 5]

Are you requesting confidentiality for any information except air pollutant emission rates? ☐ Yes ☒ No

If "yes," list the sections for which confidentiality is requested below. Add rows as necessary. Confidentiality requests require a submittal that is separate from this application. Information for which confidentiality is requested should not be submitted with this application. Consult instructions.

4. Type of Application [LAC 33:III.517.D]

Check all that apply.

☐ Renewal
Select one, if applicable: ☐ Entirely new facility ☒ Significant modification of existing facility (may also include reconciliations) [LAC 33:III.527] ☐ Minor modification of existing facility (may also include reconciliations) [LAC 33:III.525] ☐ Reconciliation only
NSR Analysis: ☒ Prevention of Significant Deterioration (PSD) ☐ Nonattainment New Source Review (NNSR)

Does this submittal update or replace an application currently under review? ☐ Yes ☒ No

If yes, provide date that the prior application was submitted: __________

Select one if this application is for an existing facility that does not have an air quality permit:

☐ Previously Grandfathered (LAC 33:III.501.B.6)
☐ Previously Exempted (e.g., Small Source Exemption; LAC 33:III.501.B.2.d)
☐ Previously Unpermitted

5. Fee Information [LAC 33:III.517.D.17]

Fee Parameter: If the fee code is based on an operational parameter (such as number of employees or capital cost), enter that parameter here.

Industrial Category: Enter the Standard Industrial Classification (SIC) and North American Industry Classification (NAICS) Codes that apply to the facility.

Primary SICC: 4925 **NAICS Code:** 221210

Secondary SICC(s): ____________________

Project Fee Calculation: Enter fee code, permit type, production capacity/throughput, and fee amount pursuant to LAC 33:III.Chapter 2. Add rows to this table as needed. Include with the application the amount in the Grand Total blank as the permit application fee.

FEE CODE	TYPE	EXISTING CAPACITY	INCREMENTAL CAPACITY INCREASE	*SURCHARGES*				TOTAL AMOUNT
				MULTIPLIER	NSPS	PSD	AIR TOXICS	
1712	New	N/A	-	-	☐	☒	☒	$16,593.46
					☐	☐	☐	$
					GRAND TOTAL			$16,593.46

Optional **Fee Explanation:** Use the space provided to give an explanation of the fee determination displayed above. Using this area will help to avoid confusion.

Per LAC 33:III:223.A Table 1 - Fee Schedule Listing, Fee No. 1712 Negotiated Fee for Part 70 Sources, the new permit application fee is $1,452.00 + $36.30 per ton of the permitted total of criteria pollutants, excluding $PM_{2.5}$, with a minimum application fee of $7,260.00. The change in emissions due to this application is 245.70 tons. In accordance with LAC 33:III.211.A, the total application fee includes a surcharge of 10% of the permit application fee for toxics and a surcharge of 50% of the permit application fee for a PSD permit application. Additionally, per LAC 33:III.211.B.12, NSPS fees may be waived when a PSD application fee is imposed. The detailed fee calculations are provided below:

Detailed Fee Calculations

New Permit Application Fee	=	$1,452.00 + $36.30/ton x (245.70 tons) = $10,370.91
10% Toxics Surcharge	=	10% x $10,370.91= $1,037.09
50% PSD Surcharge	=	50% x $10,370.91= $5,185.46
Total Fee	=	$10,370.91 + $1,037.09 + $5,185.46 = $16,593.46

The total fee was paid electronically via credit card. The DEQ Online Payment Receipt is provided after the cover letter of this application.

Electronic Fund Transfer (EFT): If paying the permit application fee using an Electronic Fund Transfer (EFT), please include the EFT Transaction Number, the Date that the EFT was made, and the total dollar amount submitted in the EFT. If not paying the permit application fee using EFT, leave blank.

EFT Transaction Number	Date of Submittal	Total Dollar Amount
N/A	N/A	N/A

6. Key Dates

Estimated date construction will commence: As soon as permit is issued *Estimated date operation will commence:* Q2 2024

7. Pending Permit Applications – For Process Unit-Specific Permits Only [LAC 33:III.517.D.18]

List all other process units at this facility for which Part 70 permit applications have been submitted, but have not been acted upon by LDEQ as of the date of submittal of this application. If none, state "none" in the table. *****It is not necessary to update this table during the permit review process, unless requested by LDEQ.*****

Process Unit Name	Permit Number	Date Submitted
N/A		

8. LAC 33:I.1701 Requirements – Answer all below for new sources and permit renewals - ☒ Yes ☐ No

Does the company or owner have federal or state environmental permits identical to, or of a similar nature to, the permit for which you are applying in Louisiana or other states? (This requirement applies to all individuals, partnerships, corporations, or other entities who own a controlling interest of 50% or more in your company, or who participate in the environmental management of the facility for an entity applying for the permit or an ownership interest in the permit.)
☐ **Yes** ☒ **No**

If yes, list States: ______________________

Do you owe any outstanding fees or final penalties to the Department? ☐ **Yes** ☒ **No**
If yes, explain below. Add rows if necessary.

Is your company a corporation or limited liability company? ☒ **Yes** ☐ **No**
If yes, attach a copy of your company's Certificate of Registration and/or Certificate of Good Standing from the Secretary of State. The appropriate certificate(s) should be attached to the end of this application as an appendix.
Attached in Appendix G.

9. Permit Shield Request [LAC 33:III.517.E.7] - ☐ Yes ☒ No

If yes, check the appropriate boxes to indicate the type of permit shield being sought. Include the specific regulatory citation(s) for which the shield is being requested. Give an explanation of the circumstances that will justify the permit shield request. Attach additional pages if necessary. If additional pages are used, attach them directly behind this page and enter "See Attached Pages" into the Explanation field.

Type of Permit Shield request (check all that apply):

Non-applicability determination for:	Specific Citation(s)	Explanation
☐ 40 CFR 60		
☐ 40 CFR 61		
☐ 40 CFR 63		
☐ Prevention of Significant Deterioration		
☐ Nonattainment New Source Review		

Interpretation of monitoring, recordkeeping, and/or reporting requirements, and/or means of compliance for:	Specific Citation(s)	Explanation
☐ 40 CFR 60		
☐ 40 CFR 61		
☐ 40 CFR 63		
☐ Prevention of Significant Deterioration		
☐ Nonattainment New Source Review		
☐ State Implementation Plan (SIP) Regulation(s) referenced in 40 CFR 52 Subpart T		

10. Certification of Compliance With Applicable Requirements

Statement for Applicable Requirements for Which the Company and Facility Referenced In This Application Is In Compliance

Based on information and belief, formed after reasonable inquiry, the company and facility referenced in this application is in compliance with and will continue to comply with all applicable requirements pertaining to the sources covered by the permit application, as outlined in Tables 1 and 2 in the permit application. For requirements promulgated as of the date of this certification with compliance dates effective during the permit term, I further certify that the company and facility referenced in this application will comply with such requirements on a timely basis and will continue to comply with such requirements.

For corporations only: By signing this form, I certify that, in accordance with the definition of Responsible Official found in LAC 33:III.502, **(1)** I am a president, secretary, treasurer, or vice-president in charge of a principal business function, or other person who performs similar policy or decision-making functions; or **(2)** I am a duly authorized representative of such person; am responsible for the overall operation of one or more manufacturing, production, or operating facilities addressed in this permit application; and either the facilities employ more than 250 persons or have gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars); or the delegation of authority has been approved by LDEQ prior to this certification.*

CERTIFICATION: I certify, under provisions in Louisiana and United States law which provide criminal penalties for false statements, that based on information and belief formed after reasonable inquiry, the statements and information contained in this Application for Approval of Emissions of Air Pollutants from Part 70 Sources, including all attachments thereto and the compliance statement above, are true, accurate, and complete.

a. Responsible Official		
Name Fory Musser		
Title Senior Vice President, Development		
Company Plaquemines Generation, LLC		
Suite, mail drop, or division Suite 1500		
Street or P.O. Box 1001 19th Street North		
City Arlington	State VA	Zip 22209
Business phone (202) 759-6738		
Email Address fmusser@ventureglobalIng.com		

Signature of responsible official (See 40 CFR 70.2):	
Date:	January 12, 2024

*Approval of a delegation of authority can be requested by completing a Duly Authorized Representative Designation Form (Form_7218) available on LDEQ's website at http://deq.louisiana.gov/page/air-permit-applications

CERTIFICATION: I certify that the engineering calculations, drawings, and design are true and accurate to the best of my knowledge.

b. Professional Engineer		
Name Ed Lee, P.E.		
Title Managing Consultant		
Company Trinity Consultants, Inc.		
Suite, mail drop, or division Suite 1030		
Street or P.O. Box One Galleria Boulevard		
City Metairie	State LA	Zip 70001
Business phone (504) 445-7907		
Email Address elee@trinityconsultants.com		

Signature of Professional Engineer:	
Date:	
Louisiana Registration No.	20113

10. Certification of Compliance With Applicable Requirements

Statement for Applicable Requirements for Which the Company and Facility Referenced In This Application Is In Compliance

Based on information and belief, formed after reasonable inquiry, the company and facility referenced in this application is in compliance with and will continue to comply with all applicable requirements pertaining to the sources covered by the permit application, as outlined in Tables 1 and 2 in the permit application. For requirements promulgated as of the date of this certification with compliance dates effective during the permit term, I further certify that the company and facility referenced in this application will comply with such requirements on a timely basis and will continue to comply with such requirements.

For corporations only: By signing this form, I certify that, in accordance with the definition of Responsible Official found in LAC 33:III.502, **(1)** I am a president, secretary, treasurer, or vice-president in charge of a principal business function, or other person who performs similar policy or decision-making functions; or **(2)** I am a duly authorized representative of such person; am responsible for the overall operation of one or more manufacturing, production, or operating facilities addressed in this permit application; and either the facilities employ more than 250 persons or have gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars); or the delegation of authority has been approved by LDEQ prior to this certification.*

CERTIFICATION: I certify, under provisions in Louisiana and United States law which provide criminal penalties for false statements, that based on information and belief formed after reasonable inquiry, the statements and information contained in this Application for Approval of Emissions of Air Pollutants from Part 70 Sources, including all attachments thereto and the compliance statement above, are true, accurate, and complete.

a. Responsible Official		
Name Fory Musser		
Title Senior Vice President, Development		
Company Plaquemines Generation, LLC		
Suite, mail drop, or division Suite 1500		
Street or P.O. Box 1001 19th Street North		
City Arlington	State VA	Zip 22209
Business phone (202) 759-6738		
Email Address fmusser@venturegloballng.com		

Signature of responsible official (See 40 CFR 70.2):	
Date:	

*Approval of a delegation of authority can be requested by completing a Duly Authorized Representative Designation Form (Form_7218) available on LDEQ's website at http://deq.louisiana.gov/page/air-permit-applications

CERTIFICATION: I certify that the engineering calculations, drawings, and design are true and accurate to the best of my knowledge.

b. Professional Engineer		
Name Ed Lee, P.E.		
Title Managing Consultant		
Company Trinity Consultants, Inc.		
Suite, mail drop, or division Suite 1030		
Street or P.O. Box One Galleria Boulevard		
City Metairie	State LA	Zip 70001
Business phone (504) 445-7907		
Email Address elee@trinityconsultants.com		

Signature of Professional Engineer: Edward Lee	
Date: 1/12/24	
Louisiana Registration No. 20113	

STATE OF LOUISIANA
EDWARD LEE
REG. No. 20113
REGISTERED
Professional Engineer
IN
CHEMICAL ENGINEERING

11. Personnel [LAC 33:III.517.D.1]

a. Manager of Facility who is located at plant site		
Name To Be Determined	☐Primary contact	
Title		
Company		
Suite, mail drop, or division		
Street or P.O. Box		
City	State	Zip
Business phone		
Email address		

b. On-site contact regarding air pollution control		
Name To Be Determined	☐Primary contact	
Title		
Company		
Suite, mail drop, or division		
Street or P.O. Box		
City	State	Zip
Business phone		
Email address		

c. Person to contact with written correspondence		
Name Fory Musser	☐Primary contact	
Title Senior Vice President, Development		
Company Plaquemines Generation, LLC		
Suite, mail drop, or division Suite 1500		
Street or P.O. Box 1001 19th Street North		
City Arlington	State VA	Zip 22209
Business phone (202) 759-6738		
Email address fmusser@ventureglobalng.com		

d. Person who prepared this report		
Name Rahul Pendse	☒Primary contact	
Title Principal Consultant		
Company Trinity Consultants, Inc.		
Suite, mail drop, or division Suite 350		
Street or P.O. Box 8545 United Plaza		
City Baton Rouge	State LA	Zip 70809
Business phone (225) 296-9857		
Email address rpendse@trinityconsultants.com		

e. Person to contact about Annual Maintenance Fees		☐ a ☐ b ☒ c ☐ d ☐ other (specify below)		
Name	☐Primary contact	Suite, mail drop, or division		
Title		Street or P.O. Box		
Company		City	State	Zip
Business Phone		Email Address		

12. Proposed Project Emissions [LAC 33:III.517.D.3]

List the total emissions following the proposed project for this facility or process unit (for process unit-specific permits). Speciate all criteria pollutants, TAP, and HAP for the proposed project.

Pollutant	Proposed Emission Rate (tons/yr)
Particulate Matter (PM_{10})	70.08
Particulate Matter ($PM_{2.5}$)	70.08
Nitrogen Oxides (NO_x)	71.64
Sulfur Dioxide (SO_2)	8.40
Carbon Monoxide (CO)	83.36
Volatile Organic Compounds (VOC)	12.22
Ammonia	47.84
Benzene	0.14
Formaldehyde	1.52
n-Hexane	0.18
Naphthalene	0.04
Toluene	0.95
PAH	0.016
Acetaldehyde	0.28
Acrolein	0.044
Xylenes	0.46
Ethylbenzene	0.24
Propylene Oxide	0.20
Total HAPs	4.07
Total TAPs	51.91
Hydrogen Sulfide	0.04
Carbon Dioxide Equivalent	836,298

13. History of Permitted Emissions [LAC 33:III.517.D.18]

List each of the following in chronological order:

- The Permit Number and Date Action Issued for each air quality permit that has been issued to this facility or process unit (for process unit-specific permits) within the last ten (10) years.
- All small source exemptions, authorizations to construct, administrative amendments, case-by-case insignificant activities, and changes of tank service that have been approved since the currently effective Title V Operating Permit or State Operating Permit was issued to this facility or process unit (for process unit-specific permits). It is not necessary to list any such activities issued prior to the issuance of the currently effective Title V Operating Permit or State Operating Permit, if one exists.

Permit Number	Date Action Issued
N/A	N/A

14.a. Enforcement Actions [LAC 33:III.517.D.18] - ☐ Yes ☒ No

If yes, list all federal and state air quality enforcement actions, settlement agreements, and consent decrees received for this facility and/or process unit (for process unit-specific permits) since the issuance of the currently effective Title V Operating Permit or State Operating Permit. For each action, list the type of action (or its tracking number), the regulatory authority or authorities that issued the action, and the date that the action was issued. Summarize the conditions imposed by the enforcement action, settlement agreement, and consent decree in Section 22, Table 2. It is not necessary to submit a copy of the referenced action. Add rows to table as necessary.

Type of Action or Tracking Number	Issuing Authority	Date Action Issued	Summary of Conditions Included?
N/A			☐ Yes ☐ No
			☐ Yes ☐ No

14.b. Schedule for Compliance [LAC 33:III.517.E.4] ☐ Yes ☒ No

If the facility or process unit for which application is being made is not in full compliance with all applicable regulations, give a description of how compliance will be achieved, including a schedule for compliance below. Add rows as necessary. See instructions.

N/A

15. Letters of Approval for Alternate Methods of Compliance - ☐ Yes ☒ No

If yes, list all correspondence with LDEQ, EPA, or other regulatory bodies that provides for or supports a request for alternate methods of compliance with any applicable regulations for this facility or process unit (for process unit-specific permits). List the date of issuance of the letter and the regulation referenced by the letter. **Attach as an appendix a copy of all documents referenced in this table.** Letters that are not included may not be incorporated into a final permit. Add rows to table as necessary.

Date Letter Issued	Issuing Authority	Referenced Regulation(s)	Copy of Letter Attached?
N/A			☐ Yes ☐ No
			☐ Yes ☐ No
			☐ Yes ☐ No
			☐ Yes ☐ No

16. Initial Notifications and Performance Tests [LAC 33:III.517.D.18] - ☐ Yes ☒ No

If yes, list any initial notifications that have been submitted or one-time performance tests that have been performed for this facility or process unit (for process unit-specific permits) since the issuance of the currently effective Title V Operating Permit or State Operating Permit in order to satisfy regulatory requirements. Any initial notification or one-time performance test requirements that have not been satisfied should be listed in Section 22, Table 2 of this application. Any notifications or performance tests that recur periodically should also be properly noted in Section 22, Table 2 of this application. Add rows to table as necessary.

Initial Notification or One-time Performance Test?	Regulatory Citation Satisfied	Applicable Source(s)	Date Completed/Approved
N/A			

17. Existing Prevention of Significant Deterioration or Nonattainment New Source Review Limitations [LAC 33:III.517.D.18]

Do one or more emissions sources represented in this permit application currently operate under one or more NSR permits?
☐ Yes ☒ No

If "yes," summarize the limitations from such permit(s) in the following table. Add rows to table as necessary. Be sure to note any annual emissions limitations from such permit(s) in Section 13 of this application.

Permit Number	Date Issued	Emission Point ID No.	Pollutant	BACT/LAER Limit[1]	Averaging Period	Description of Control Technology/Work Practice Standards
N/A						

[1]For example, lb/MM Btu, ppmvd @ 15% O_2, lb/ton, lb/hr

18. Air Quality Dispersion Modeling [LAC 33:III.517.D.15]

Was Air Quality Dispersion Modeling as required by LAC 33:III performed in support of this permit application? (Air Quality Dispersion Modeling is only required when applying for PSD permits and as requested by LDEQ.)
☒ Yes ☐ No

*Has Air Quality Dispersion Modeling completed in accordance with LAC 33:III ever been performed for this facility in support of an air permit application previously submitted for this facility or process unit (for process unit-specific permits) or as required by other regulations **AND** approved by LDEQ?*
☐ Yes ☒ No

If yes, enter the date the most recent Air Quality Dispersion Modeling results as required by LAC 33:III were submitted: Included in Appendix H of this application.

If the answer to either question above is "yes," enter a summary of the most recent results in the following table. If the answer to both questions is "no," enter "none" in the table. Add rows to table as necessary.

Pollutant	Time Period	Calculated Maximum Ground Level Concentration	Louisiana Toxic Air Pollutant Ambient Air Standard or (National Ambient Air Quality Standard {NAAQS})
$PM_{2.5}$	24-hour	Please refer to Appendix H of this application.	
	Annual		
PM_{10}	24-hour		
SO_2	1-hour		
	3-hour		
	24-hour		
	Annual		
NO_2	1-hour		
	Annual		
CO	1-hour		
	8-hour		

19. General Condition XVII Activities- ☐ Yes ☒ No

Enter all activities that qualify as Louisiana Air Emissions Permit General Condition XVII Activities.

- Expand this table as necessary to include all such activities.
- See instructions to determine what qualifies as a General Condition XVII Activity.
- Do not include emissions from General Condition XVII Activities in the proposed emissions totals for the permit application.

		Emission Rates – TPY					
Work Activity	**Schedule**	**PM_{10}**	**SO_2**	**NO_x**	**CO**	**VOC**	**Other**
N/A							

20. Insignificant Activities [LAC 33:III.501.B.5] - ☒ Yes ☐ No

Enter all activities that qualify as Insignificant Activities.

- Expand this table as necessary to include all such activities.
- For sources claimed to be insignificant based on size or emission rate (LAC 33:III.501.B.5.A), information must be supplied to verify each claim. This may include but is not limited to operating hours, volumes, and heat input ratings.
- If aggregate emissions from all similar pieces of equipment claimed to be insignificant are greater than 5 tons per year for any pollutant, then the activities can not be claimed as insignificant and must be represented as permitted emission sources. Aggregate emissions shall mean the total emissions from a particular insignificant activity or group of similar insignificant activities (e.g., A.1, A.2, etc.) within a permit per year.

Emission Point ID No.	Description	Physical/Operating Data	Citation
--	Eight (8) Lube Oil Storage Tanks	<500 gallons each	LAC 33:III.501.B.5.A.2
--	Four (4) Lube Oil Storage Tanks	<10,000 gallons each	LAC 33:III.501.B.5.A.3

21. Regulatory Applicability for Commonly Applicable Regulations – Answer all below [LAC 33:III.517.D.10]

Does this facility contain asbestos or asbestos containing materials? ☐ **Yes** ☒ **No**
If "yes," the facility or any portion thereof may be subject to 40 CFR 61, Subpart M, LAC 33:III.Chapter 27, and/or LAC 33:III.5151, and this application must address compliance as stated in Section 22 of this application

Is the facility or process unit represented in this permit subject to 40 CFR 68, or is any other process unit located at the same facility as the process unit represented in this application subject to 40 CFR 68? ☐ **Yes** ☒ **No**
If "yes," the entire facility is subject to 40 CFR 68 and LAC 33:III.Chapter 59, and this application must address compliance as stated in Section 22 of this application.

Is the facility listed in LAC 33:III.5611?

Table 5 ☒ **Yes** ☐ **No**

Table 6 ☒ **Yes** ☐ **No**

Table 7 ☒ **Yes** ☐ **No**

Does the applicant own or operate commercial refrigeration equipment normally containing more than 50 pounds of refrigerant at this facility or process unit? ☒ **Yes** ☐ **No**
If "yes," the entire facility is subject to 40 CFR 82, Subpart F, and this application must address compliance as stated in Section 22 of this application.

22. Applicable Regulations, Air Pollution Control Measures, Monitoring, and Recordkeeping

Important points for Table 1 [LAC 33:III.517.D.10]:

- List in Table 1, by Emission Point ID Number and Descriptive Name of the Equipment, state and federal pollution abatement programs and note the applicability or non-applicability of the regulations to each source.
- Adjust the headings for the columns in Table 1 as necessary to reflect all applicable regulations, in addition to any regulations that do not apply but require an explanation to substantiate this fact.
- For each piece of equipment, enter "1" for each regulation that applies. Enter "2" for each regulation that applies to this type of source, but from which this source of emissions is exempt. Enter "3" for equipment that is subject to a regulation, but does not have any applicable requirements. Also, enter "3" for each regulation that has applicable requirements that apply to the particular emission source, but the regulations currently do not apply due to meeting a specific criterion, such as it has not been constructed, modified, or reconstructed since the regulations have been in place.
- Leave the spaces blank when the regulations clearly would not apply under any circumstances to the source. For example, LAC 33:III.2103 – Storage of Volatile Organic Compounds would never apply to a steam generating boiler, no matter the circumstances.
- Consult instructions.

Important points for Table 2 [LAC 33:III.517.D.4; LAC 33:III.517.D.7; LAC 33:III.517.D.10]:

- For each piece of equipment listed in Table 2, include all applicable limitations, recordkeeping, reporting, monitoring, and testing requirements. Also, include any one-time notification or one-time performance test requirements that have not been fulfilled.
- Each of these regulatory aspects (limitations, recordkeeping, reporting, etc.) should be addressed for each regulation that is applicable to each emissions source or emissions point.
- For each regulation that provides a choice regarding the method of compliance, indicate the method of compliance that will be employed. It is not sufficient to state that all compliance options will be employed, though multiple compliance options may be approved as alternative operating scenarios.
- Consult instructions.

Important points for Table 3 [LAC 33:III.517.D.16]:

- Each time a 2 or a 3 is used to describe applicability of a source in Table 1, an entry should be made in Table 3 that explains the exemption or non-applicability status of the regulation to that source.
- Fill in all requested information in the table.
- The exact regulatory citation that provides for the specific exemption or non-applicability determination should be entered into the "Citation Providing for Exemption or Non-applicability" column.
- Consult Instructions.

Important points for Table 4 [LAC 33:III.517.D.18]

- List any single emission source that routes its emissions to another point where these emissions are commingled with the emissions of other sources before being released to the atmosphere. Do not list any single emission source in this table that does not route its emissions in this manner.
- List any and all emission sources that are routed as described above. This includes emission sources that do not otherwise appear in this permit application.
- Consult instructions.

TABLE 1: APPLICABLE LOUISIANA AND FEDERAL AIR QUALITY REQUIREMENTS																			
Emission Point	Description	LAC 33.III									LAC 33.III Chapter								
		509	2103	2107	2108	2111	2113	2115	2121	2122	2	5	9	11	13	15	51	56	59
UNF001	Facility Wide	1					1	3			1	1	1	1	1		1	1	3
ASCCT1 - ASCCT4	Aeroderivative Simple Cycle Combustion Turbines	1												3	1	3	1		
AASTK1	Aqueous Ammonia Storage Tank		3														1		
ASCCTCAP	Turbine Operations Emissions CAP											1							
FUG	Fugitive Emissions	1							3								1		

KEY TO MATRIX

1 (Applicable) The regulations have applicable requirements that apply to this particular emissions source. This includes any monitoring, recordkeeping, or reporting requirements.
2 (Exempt) The regulations apply to this general type of emission source (i.e. vents, furnaces, towers, and fugitives) but do not apply to this particular emission source.
3 (Does Not Apply) The regulations do not apply to this emissions source. The regulations may have applicable requirements that could apply to this emissions source but the requirements do not currently apply to the source due to meeting a specific criterion, such as it has not been constructed, modified or reconstructed since the regulations have been in place.

Blank – The regulations clearly do not apply to this type of emission source.

TABLE 1: APPLICABLE LOUISIANA AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point	Description	40 C.F.R. Part 60 NSPS											40 C.F.R. Part 63 NESHAP								40 C.F.R. Part				
		A	D	Db	Dc	K	Ka	Kb	GG	IIII	KKKK	OOOOa	A	Y	HHH	EEEE	YYYY	ZZZZ	DDDDD	JJJJJ	52	64	68	72	82
UNF001	Facility Wide	1										3	1		3								3	3	1
ASCCT1 - ASCCT4	Aeroderivative Simple Cycle Combustion Turbines	1	2	2	2				2	3	1		1				1					2			
AASTK1	Aqueous Ammonia Storage Tank							3																	
ASCCTCAP	Turbine Operations Emissions CAP																								
FUG	Fugitive Emissions											3				3									

KEY TO MATRIX

1 (Applicable) The regulations have applicable requirements that apply to this particular emissions source. This includes any monitoring, recordkeeping, or reporting requirements.

2 (Exempt) The regulations apply to this general type of emission source (i.e. vents, furnaces, towers, and fugitives) but do not apply to this particular emission source.

3 (Does Not Apply) The regulations do not apply to this emissions source. The regulations may have applicable requirements that could apply to this emissions source but the requirements do not currently apply to the source due to meeting a specific criterion, such as it has not been constructed, modified or reconstructed since the regulations have been in place.

Blank – The regulations clearly do not apply to this type of emission source.

TABLE 2: STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
UNF001	40 C.F.R. Part 60 Subpart A - General Provisions	**Requirements that limit emissions or operations-**			
		Comply with all applicable requirements to limit emissions or operations specified in 40 C.F.R. Part 60 Subpart A.	40 C.F.R. § 60.11 and § 60.18	N/A	No
		Requirements that specify monitoring-			
		Comply with all applicable monitoring requirements of 40 C.F.R. Part 60 Subpart A.	40 C.F.R. § 60.13	N/A	No
		Requirements that specify records to be kept and requirements that specify record retention time-			
		Maintain all applicable records as required by 40 C.F.R Part 60 Subpart A.	40 C.F.R. § 60.7	N/A	No
		Requirements that specify reports to be submitted-			
		Submit all applicable reports as required by 40 C.F.R. Part 60 Subpart A.	40 C.F.R § 60.7 and § 60.19	N/A	No
		Requirements that specify performance testing-			
		Conduct applicable tests according to 40 C.F.R. § 60.8.	40 C.F.R. § 60.8	N/A	No
	40 C.F.R. Part 63 Subpart A - General Provisions	**Requirements that limit emissions or operations-**			
		Comply with all applicable requirements to limit emissions or operations specified in 40 C.F.R. Part 63 Subpart A.	40 C.F.R. § 63.6 and § 63.11	N/A	No
		Requirements that specify monitoring-			
		Comply with all applicable monitoring requirements of 40 C.F.R. Part 63 Subpart A.	40 C.F.R. § 63.8	N/A	No
		Requirements that specify records to be kept and requirements that specify record retention time-			
		Maintain all applicable records as required by 40 C.F.R. Part 63 Subpart A.	40 C.F.R. § 63.10	N/A	No
		Requirements that specify reports to be submitted-			
		Submit all applicable reports as required by 40 C.F.R. Part 63 Subpart A.	40 C.F.R. § 63.9 and § 63.10	N/A	No
		Requirements that specify performance testing-			
		Conduct applicable tests according to 40 C.F.R. § 63.7.	40 C.F.R. § 63.7	N/A	No
	40 C.F.R. Part 82 - Stratospheric Ozone Provisions	**Requirements that limit emissions or operations-**			
		Comply with the standards for recycling and emissions reduction pursuant to 40 C.F.R. Part 82, Subpart F, as applicable, except as provided for Motor Vehicle Air Conditioners (MVACs) in Subpart B.	40 C.F.R. 82 Subparts B and F	N/A	No
		Requirements that specify monitoring-			
		N/A	N/A	N/A	N/A
		Requirements that specify records to be kept and requirements that specify record retention time-			
		N/A	N/A	N/A	N/A
		Requirements that specify reports to be submitted-			
		N/A	N/A	N/A	N/A
		Requirements that specify performance testing-			
		N/A	N/A	N/A	N/A
	LAC 33:III Chapter 2 - Rules and Regulations for the Fee System of the Air Quality Control Programs	**Requirements that limit emissions or operations-**			
		Shall pay the prescribed application fee or annual fee, as determined by LAC 33:III.223, within 90 days after the due date.	LAC 33:III.219	90 Days after application due date	No
		Requirements that specify monitoring-			
		N/A	N/A	N/A	N/A
		Requirements that specify records to be kept and requirements that specify record retention time-			
		N/A	N/A	N/A	N/A
		Requirements that specify reports to be submitted-			
		N/A	N/A	N/A	N/A
		Requirements that specify performance testing-			
		N/A	N/A	N/A	N/A

TABLE 2: STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
UNF001 (Continued)	LAC 33.III Chapter 5 - Permit Procedures	**Requirements that limit emissions or operations-**			
		No construction, modification, or operation of a facility which ultimately may result in an initiation or increase in emission of air contaminants as defined in LAC 33:III.111 shall commence until the appropriate permit fee has been paid and a permit has been issued by the permitting authority.	LAC 33:III.501.C.2	N/A	No
		Operate in accordance with all terms and conditions of the permit.	LAC 33:III.501.C.4	N/A	No
		Comply with the terms and conditions of the permit to ensure compliance with all state and federally applicable air quality requirements and standards at the source, and other permit terms and conditions as determined by the permitting authority to be reasonable and necessary.	LAC 33:III.501.C.6	N/A	No
		Comply with the Part 70 General Conditions as set forth in LAC 33:III.535 and the Louisiana General Conditions as set forth in LAC 33:III.537.	LAC 33:III.535, LAC 33:III.537	N/A	No for LAC 33:III.535; Yes for 33:III.537
		The requirements of LAC 33:III.509 apply to the construction of any new major stationary source , as defined in Subsection B of this Section, or any project at an existing major stationary source in an area designated as attainment or unclassifiable under Sections 107(d)(1)(A)(ii) or (iii) of the Clean Air Act.	LAC 33:III.509.A.1	N/A	No
		No new major stationary source or major modification to which the requirements of LAC 33:III.509.J through R.5 apply shall begin actual construction without a permit that states that the major stationary source or major modification will meet those requirement.	LAC 33:III.509.A.3	N/A	No
		Requirements that specify monitoring-			
		N/A	N/A	N/A	N/A
		Requirements that specify records to be kept and requirements that specify record retention time-			
		Alternate Operating Scenario: Operating plan recordkeeping by logbook upon each occurrence of making a change from one operating scenario to another. Record the operating scenario under which the facility is currently operating. Include in this record the identity of the sources involved, the permit number under which the scenario is included, and the date of change. Keep a copy of the log on site for at least two years.	LAC 33:III.507.G.5	N/A	No
		Requirements that specify reports to be submitted-			
		Submit a timely and complete permit application to the Office of Environmental Services as required in accordance with the procedures in LAC 33:III Chapter 5. Permit applications must be submitted prior to construction, reconstruction, or modification unless otherwise provided in LAC 33:III Chapter 5.	LAC 33:III.501.C.1	N/A	No
		The owner or operator of any new source which will constitute a Part 70 source and for which construction will commence after the effective date of the Louisiana Part 70 program shall submit a permit application prior to construction and pursuant to LAC 33:III.517. The application shall include all information required for applications pertaining to a Part 70 source. Construction shall not begin prior to approval by the permitting authority. Such approval may be provided either by authorization to construct in accordance with LAC 33:III.501.C.3 or by issuance of the permit.	LAC 33:III.507.C.2	N/A	No
		Any permit application to renew an existing permit shall be submitted at least six months prior to the date of permit expiration, or at such earlier time as may be required by the existing permit or approved by DEQ. In no event shall the application for permit renewal be submitted more than 18 months before the date of permit expiration.	LAC 33:III.507.E	Six months prior to date of permit expiration	No

TABLE 2: STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
UNF001 (Continued)	LAC 33:III Chapter 5 - Permit Procedures (Continued)	Any permit application pertaining to a new or modified source shall be submitted prior to commencement of construction, reconstruction, or modification of the source. Construction, reconstruction, or modification of any source required to be permitted under this Chapter shall not commence prior to approval by the permitting authority.	LAC 33:III.517.A.1	N/A	No
		Any application form, report, or compliance certification submitted under LAC 33:III.Chapter 5 shall contain certification by a responsible official of truth, accuracy, and completeness. The certification shall state that, based on information and belief formed after reasonable enquiry, the statements and information contained in the application are true, accurate, and complete.	LAC 33:III.517.B.1	N/A	No
		Any application pertaining to a Part 70 source shall include a compliance certification and provisions for future compliance certifications.	LAC 33:III.517.B.2	N/A	No
		Duty to Supplement or Correct. Any applicant who fails to submit any relevant facts or who has submitted incorrect information in a permit application shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information. In addition, an applicant shall provide additional information as necessary to address any requirements that become applicable to the source after the date it filed a complete application but prior to release of a proposed permit.	LAC 33:III.517.C	N/A	No
		Shall submit permit applications in accordance with LDEQ-provided forms and guidance. At a minimum, each permit application submitted per LAC 33:III.Chapter 5 shall contain the information specified in LAC 33:III.517.D, Subparagraphs 1-18. Also, for Part 70 sources, the information as specified in LAC 33:III.517.E.1 through E.8 shall be included, as applicable.	LAC 33:III.517.D through E	N/A	No
		Requirements that specify performance testing-			
		N/A	N/A	N/A	N/A
	LAC 33:III Chapter 9 - General Regulations on Control of Emissions and Emission Standards	**Requirements that limit emissions or operations-**			
		No person shall allow particulate matter or gases to become airborne in amounts which cause the ambient air quality standards to be exceeded.	LAC 33:III.929.A	N/A	No
		Requirements that specify monitoring-			
		N/A	N/A	N/A	N/A
		Requirements that specify records to be kept and requirements that specify record retention time-			
		N/A	N/A	N/A	N/A
		Requirements that specify reports to be submitted-			
		Submit Emission Inventory (EI)/Annual Emissions Statement: Due annually, by the 30th of April to the Office of Environmental Assessment, for the reporting period of the previous calendar year that coincides with period of ownership or operatorship, until released from reporting, in writing, by DEQ. Submit both an emissions inventory and the certification statement required by LAC 33:III.919.F.1.c, separately for each AI, in a format specified by DEQ.	LAC 33:III.919	Annually	No
		Shall report the unauthorized discharge of any air pollutant into the atmosphere in accordance with LAC 33:I.Chapter 39. Submit written reports to the department pursuant to LAC 33:I.3925. Submit timely and appropriate follow-up reports detailing methods to be used to prevent similar atmospheric releases.	LAC 33:III.927	Upon occurrence of an unauthorized discharge	No
		Requirements that specify performance testing-			
		New sources shall provide necessary sampling ports in stacks or ducts and such other safe and proper sampling and testing facilities, exclusive of instruments and sensing devices as may be necessary for proper determination of the emission of air contaminants.	LAC 33:III.913	N/A	No
	LAC 33:III Chapter 11 - Control of Emissions of Smoke	**Requirements that limit emissions or operations-**			
		Emissions of smoke which pass onto or across a public road and create a traffic hazard by impairing visibility as defined in LAC 33:III.111 or intensifying an existing traffic hazard condition are prohibited.	LAC 33:III.1103	N/A	No
		Outdoor burning of waste material or other combustible material is prohibited.	LAC 33:III.1109.B	N/A	No

TABLE 2: STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
UNF001 (Continued)	LAC 33:III Chapter 11 - Control of Emissions of Smoke (Continued)	**Requirements that specify monitoring-**			
		N/A	N/A	N/A	N/A
		Requirements that specify records to be kept and requirements that specify record retention time-			
		N/A	N/A	N/A	N/A
		Requirements that specify reports to be submitted-			
		N/A	N/A	N/A	N/A
		Requirements that specify performance testing-			
		N/A	N/A	N/A	N/A
	LAC 33:III Chapter 13 - Emission Standards for Particulate Matter	**Requirements that limit emissions or operations-**			
		Emissions of particulate matter which pass onto or across a public road and create a traffic hazard by impairment of visibility or intensify an existing traffic hazard condition are prohibited.	LAC 33:III.1303.B	N/A	Yes
		Prevent particulate matter from becoming airborne by taking all reasonable precautions including, but not limited to, those specified in LAC 33:III.1305.A.1 through A.7.	LAC 33:III.1305.A	N/A	No
		Requirements that specify monitoring-			
		N/A	N/A	N/A	N/A
		Requirements that specify records to be kept and requirements that specify record retention time-			
		N/A	N/A	N/A	N/A
		Requirements that specify reports to be submitted-			
		N/A	N/A	N/A	N/A
		Requirements that specify performance testing-			
		N/A	N/A	N/A	N/A
	LAC 33:III Chapter 21 - Control of Emission of Organic Compounds	**Requirements that limit emissions or operations-**			
		Maintain best practical housekeeping and maintenance practices at the highest possible standards to reduce the quantity of organic compounds emissions. Good housekeeping shall include, but not be limited to, the practices listed in LAC 33:III.2113.A.1-5.	LAC 33:III.2113.A	N/A	No
		Requirements that specify monitoring-			
		N/A	N/A	N/A	N/A
		Requirements that specify records to be kept and requirements that specify record retention time-			
		N/A	N/A	N/A	N/A
		Requirements that specify reports to be submitted-			
		N/A	N/A	N/A	N/A
		Requirements that specify performance testing-			
		N/A	N/A	N/A	N/A
	LAC 33:III Chapter 51 - Comprehensive Toxic Air Pollutant Emission Control Program	**Requirements that limit emissions or operations-**			
		N/A	N/A	N/A	N/A
		Requirements that specify monitoring-			
		N/A	N/A	N/A	N/A
		Requirements that specify records to be kept and requirements that specify record retention time-			
		N/A	N/A	N/A	N/A
		Requirements that specify reports to be submitted-			
		Submit notification: Due to the Department of Public Safety 24-hour Louisiana Emergency Hazardous Materials Hotline in accordance with LAC 33:I.3915.A, after any discharge of a toxic air pollutant into the atmosphere that results or threatens to result in an emergency condition, as defined in LAC 33:I.3905.A.	LAC 33:III.5107.B.1	Upon occurrence of an unauthorized discharge	Yes

TABLE 2: STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
UNF001 (Continued)	LAC 33:III Chapter 51 - Comprehensive Toxic Air Pollutant Emission Control Program (Continued)	Submit notification: Due to SPOC, except as provided in LAC 33:III.5107.B.4, immediately, but in no case later than 24 hours after any unauthorized discharge of a toxic air pollutant into the atmosphere that does not cause an emergency condition, the rate or quantity of which is in excess of that allowed by permit, compliance schedule, or variance, or for upset events that exceed the reportable quantity in LAC 33:I.3931. Submit notification in the manner provided in LAC 33:I.3923.	LAC 33:III.5107.B.2	Within 24 hours	Yes
		Submit written report: Due by certified mail to SPOC within seven calendar days of learning of any such discharge or equipment bypass as referred to in LAC 33:III.5107.B.1 and B.2. Include the information specified in LAC 33:III.5107.B.3.a.i through B.3.a.viii.	LAC 33:III.5107.B.3	Within 7 calendar days	Yes
		Submit notification in writing: Due to SPOC not more than 60 days nor less than 30 days prior to initial start-up. Submit the anticipated date of the initial start-up.	LAC 33:III.5113.A.1	Between 30-60 days prior to initial start-up	Yes
		Submit notification in writing: Due to SPOC within 10 working days after the actual date of initial start-up of the source. Submit the actual date of initial start-up of the source.	LAC 33:III.5113.A.2	Within 10 working Days after initial start-up	Yes
		Requirements that specify performance testing-			
		N/A	N/A	N/A	N/A
	LAC 33:III Chapter 56 - Prevention of Air Pollution Emergency Episodes	**Requirements that limit emissions or operations-**			
		Prepare standby plans for the reduction of emissions during periods of Air Pollution Alert, Air Pollution Warning and Air Pollution Emergency. Design standby plans to reduce or eliminate emissions in accordance with the objectives as set forth in LAC 33:III.5611. Tables 5, 6, and 7.	LAC 33:III.5609.A	N/A	No
		Activate the preplanned abatement strategy listed in LAC 33:III.5611 .Table 5 when DEQ declares an Air Pollution Alert.	LAC 33:III.5609.A.1.a	N/A	No
		Activate the preplanned strategy listed in LAC 33:III.5611.Table 6 when DEQ declares an Air Pollution Warning.	LAC 33:III.5609.A.2.b	N/A	No
		Activate the preplanned abatement strategy listed in LAC 33:III.5611.Table 7 when DEQ declares an Air Pollution Emergency.	LAC 33:III.5609.A.3.b	N/A	No
		During an Air Pollution Alert, Air Pollution Warning or Air Pollution Emergency, make the standby plan available on the premises to any person authorized by DEQ to enforce these regulations.	LAC 33:III.5611.B.1	N/A	No
		Requirements that specify monitoring-			
		N/A	N/A	N/A	N/A
		Requirements that specify records to be kept and requirements that specify record retention time-			
		N/A	N/A	N/A	N/A
		Requirements that specify reports to be submitted-			
		Submit standby plan for the reduction or elimination of emissions during an Air Pollution Alert, Air Pollution Warning, or Air Pollution Emergency: Due within 30 days after requested by DEQ.	LAC 33:III.5611.A	N/A	No
		Requirements that specify performance testing-			
		N/A	N/A	N/A	N/A

TABLE 2: STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
ASCCT1 - ASCCT4	40 C.F.R. Part 60 Subpart A - General Provisions	**Requirements that limit emissions or operations-**			
		Comply with all applicable requirements to limit emissions or operations specified in 40 C.F.R. Part 60 Subpart A.	40 C.F.R. § 60.11 and § 60.18	N/A	No
		Requirements that specify monitoring-			
		Comply with all applicable monitoring requirements of 40 C.F.R. Part 60 Subpart A.	40 C.F.R. § 60.13	N/A	No
		Requirements that specify records to be kept and requirements that specify record retention time-			
		Maintain all applicable records as required by 40 C.F.R Part 60 Subpart A.	40 C.F.R. § 60.7	N/A	No
		Requirements that specify reports to be submitted-			
		Submit all applicable reports as required by 40 C.F.R. Part 60 Subpart A.	40 C.F.R § 60.7 and § 60.19	N/A	No
		Requirements that specify performance testing-			
		Conduct applicable tests according to 40 C.F.R. § 60.8.	40 C.F.R. § 60.8	N/A	No
	40 C.F.R. Part 60 Subpart KKKK - Standards of Performance for Stationary Combustion Turbines	**Requirements that limit emissions or operations-**			
		For high load operation (>= 75% load): NO_X <= 25 ppm @ 15% O_2 or 150 ng/J of useful output (1.2 lb/MWh). **For low load operation (< 75% load):** NO_X <= 96 ppm @ 15% O_2 or 590 ng/J of useful output (4.7 lb/MWh).	40 C.F.R. 60.4320 and Table 1 to 40 C.F.R. § 60 Subpart KKKK	3-Hour average (performance test) per 40 C.F.R. 60.4340(a) or 4-hour rolling average (CEMs) per 40 C.F.R. 60.4350(g)	No
		Do not cause to be discharged into the atmosphere from the stationary combustion turbine any gases which contain SO_2 in excess of 110 ng/J (0.90 lb/MWh) gross output; or, do not burn in the stationary combustion turbine any fuel which contains total potential sulfur emissions in excess of 26 ng SO_2/J (0.060 lb SO_2/MMBtu) heat input.	40 C.F.R. § 60.4330(a)(1) or (a)(2)	As specified in 60.4415	No
		Operate and maintain the stationary combustion turbines, air pollution control equipment, and monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at all times including during startup, shutdown, and malfunction.	40 C.F.R. § 60.4333(a)	N/A	No
		Requirements that specify monitoring-			
		As an alternative to 40 C.F.R § 60.4340(a), nitrogen oxides monitored by continuous emission monitor (CEM) continuously as described in 40 CFR 60.4335(b) and 40 CFR 60.4345.	40 C.F.R. § 60.4340(b)(1)	Continuously	No
		Fuel sulfur content monitored by the regulation's specified method(s) at the regulation's specified frequency, except as provided in 40 C.F.R. § 60.4365. Monitor the total sulfur content of the fuel being fired in the turbine using the total sulfur methods described in 40 C.F.R. § 60.4415 at the frequency specified in 40 C.F.R. § 60.4370.	40 C.F.R. § 60.4360	As specified in 40 C.F.R. § 60.4370	No
		Requirements that specify records to be kept and requirements that specify record retention time-			
		If the option to use a NO_X CEMS is chosen: develop and keep on-site a quality assurance (QA) plan for all of the continuous monitoring equipment described in 40 C.F.R. 60.4345(a), (c), and (d).	40 C.F.R. § 60.4345(e)	N/A	No
		Requirements that specify reports to be submitted-			
		For each affected unit required to continuously monitor parameters or emissions, or to periodically determine the fuel sulfur content under subpart KKKK, submit reports of excess emissions and monitor downtime, in accordance with 40 C.F.R. § 60.7(c). Excess emissions must be reported for all periods of unit operation, including start-up, shutdown, and malfunction to be calculated per 40 C.F.R. 60.4350(g).	40 C.F.R. § 60.4350(g) and 60.4375(a)	Semi-annually	No
		Submit performance test results: Due in writing before the close of business on the 60th day following the completion of the performance test.	40 C.F.R. § 60.4375(b)	Within 60 days	No
		All reports required under 40 C.F.R. § 60.7(c) must be postmarked by the 30th day following the end of each 6-month period.	40 C.F.R. § 60.4395	Semi-annually	No

TABLE 2: STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
ASCCT1 - ASCCT4 (Continued)	40 C.F.R. Part 60 Subpart KKKK - Standards of Performance for Stationary Combustion Turbines (Continued)	**Requirements that specify performance testing-**			
		Conduct an initial NO_X performance test, as required in 40 C.F.R. § 60.8. Unless using a NOx CEMS per 40 C.F.R. 60.4340(b), subsequent NOx performance tests must be conducted on an annual basis (no more than 14 calendar months following the previous performance test). If the NO_X emission result from the performance test is less than or equal to 75 percent of the NO_X emission limit for the turbine, the frequency of subsequent performance tests may be reduced to once every 2 years (no more than 26 calendar months following the previous performance test). If results of any subsequent performance test exceed 75 percent of the NO_X emission limit for the turbine, annual performance tests must be resumed. If using a NO_X-diluent CEMS according to 40 CFR 60.4345, then the test may be performed as specified in 40 CFR 60.4405(a) through (d).	40 C.F.R. § 60.4340(a), 40 C.F.R. § 60.4400, 40 C.F.R. § 60.4405	Initially and Annually, unless qualifies for reduced testing per rule or using NOx CEMS	No
		Conduct an initial SO_2 performance test, as required in 40 C.F.R § 60.8. Subsequent SO_2 performance tests must be conducted on an annual basis (no more than 14 calendar months following the previous performance test). Use one of the methodologies specified in 40 C.F.R. § 60.4415(a)(1) through (a)(3).	40 C.F.R. § 60.4415	Annually	No
	40 C.F.R. Part 63 Subpart A - General Provisions	**Requirements that limit emissions or operations-**			
		Comply with all applicable requirements to limit emissions or operations specified in 40 C.F.R. Part 63 Subpart A.	40 C.F.R. § 63.6 and § 63.11 as per 63.6165	N/A	No
		Requirements that specify monitoring-			
		Comply with all applicable monitoring requirements of 40 C.F.R. Part 63 Subpart A.	40 C.F.R. § 63.8 as per 63.6165	N/A	No
		Requirements that specify records to be kept and requirements that specify record retention time-			
		Maintain all applicable records as required by 40 C.F.R. Part 63 Subpart A.	40 C.F.R. § 63.10 as per 63.6165	N/A	No
		Requirements that specify reports to be submitted-			
		Submit all applicable reports as required by 40 C.F.R. Part 63 Subpart A.	40 C.F.R. § 63.9 and § 63.10 as per 63.6165	N/A	No
		Requirements that specify performance testing-			
		Conduct applicable tests according to 40 C.F.R. § 63.7.	40 C.F.R. § 63.7 as per 63.6165	N/A	No
	40 C.F.R. Part 63 Subpart YYYY - National Emission Standards for Hazardous Air Pollutants For Stationary Combustion Turbines	**Requirements that limit emissions or operations-**			
		Shall limit the concentration of formaldehyde to 91 ppbvd or less at 15-percent O_2, except during turbine startup.	40 C.F.R. § 63.6100 and 40 C.F.R Part 63 Subpart YYYY Table 1	3-Hour average	No
		Shall maintain the 4-hour rolling average of the catalyst inlet temperature within the range suggested by the catalyst manufacturer. The owner or operator are not required to use the catalyst inlet temperature data that is recorded during engine startup in the calculations of the 4-hour rolling average catalyst inlet temperature.	40 C.F.R. § 63.6100 and 40 C.F.R Part 63 Subpart YYYY Table 2	4-Hour rolling average	No
		Shall be in compliance with the applicable emission limitations, operating limitations, and other requirements in this subpart at all times.	40 C.F.R. § 63.6105(a)	N/A	No

TABLE 2: STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
ASCCT1 - ASCCT4 (Continued)	40 C.F.R. Part 63 Subpart YYYY - National Emission Standards for Hazardous Air Pollutants For Stationary Combustion Turbines (Continued)	At all times, the owner or operator must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the owner or operator to make any further efforts to reduce emissions if levels required by the applicable standard have been achieved. Determination of whether a source is operating in compliance with operation and maintenance requirements will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.	40 C.F.R. § 63.6105(c)	N/A	No
		Demonstrate initial compliance with each emission and operating limitation in Table 4 of 40 C.F.R. 63 Subpart YYYY, as applicable.	40 C.F.R. § 63.6130(a)	N/A	No
		The owner or operator must comply with the applicable General Provisions in §63.1 through 15 as described in Table 7 of 40 C.F.R. 63 Subpart YYYY.	40 C.F.R. § 63.6165	N/A	No
		Requirements that specify monitoring-			
		Shall monitor on a continuous basis the catalyst inlet temperature in order to comply with the operating limitations in Table 2 and as specified in Table 5 of 40 C.F.R. 63 Subpart YYYY.	40 C.F.R. § 63.6125(a)	Continuously	No
		Must develop and implement a continuous monitoring system (CMS) quality control program that includes written procedures for CMS according to §63.8(d)(1) through (2). The owner or operator must keep these written procedures on record for the life of the affected source or until the affected source is no longer subject to the provisions of this part, to be made available for inspection, upon request, by the Administrator. If the performance evaluation plan is revised, the owner or operator shall keep previous (i.e., superseded) versions of the performance evaluation plan on record to be made available for inspection, upon request, by the Administrator, for a period of 5 years after each revision to the plan. The program of corrective action should be included in the plan required under §63.8(d)(2).	40 C.F.R. § 63.6125(e)	N/A	No
		Except for monitor malfunctions, associated repairs, and required quality assurance or quality control activities (including, as applicable, calibration checks and required zero and span adjustments of the monitoring system), must conduct all parametric monitoring at all times the stationary combustion turbine is operating.	40 C.F.R. § 63.6135(a)	Continuously	No
		Do not use data recorded during monitor malfunctions, associated repairs, and required quality assurance or quality control activities for meeting the requirements of this subpart, including data averages and calculations. The owner or operator must use all the data collected during all other periods in assessing the performance of the control device or in assessing emissions from the new or reconstructed stationary combustion turbine.	40 C.F.R. § 63.6135(b)	N/A	No
		Demonstrate continuous compliance with each emission limitation and operating limitation in Table 1 and Table 2 of 40 C.F.R. 63 Subpart YYYY according to methods specified in Table 5.	40 C.F.R. § 63.6140(a)	N/A	No
		Requirements that specify records to be kept and requirements that specify record retention time-			
		Maintain all applicable records as described in paragraphs (a)(1) through (7) of 40 C.F.R. § 63.6155(a).	40 C.F.R. § 63.6155(a)	N/A	No
		Maintain all the applicable records required in Table 5 of 40 C.F.R. 63 Subpart YYYY to show continuous compliance with each applicable operating limitation.	40 C.F.R. § 63.6155(c)	N/A	No

TABLE 2: STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
ASCCT1 - ASCCT4 (Continued)	40 C.F.R. Part 63 Subpart YYYY - National Emission Standards for Hazardous Air Pollutants For Stationary Combustion Turbines (continued)	Any records required to be maintained by this part that are submitted electronically via the EPA's CEDRI may be maintained in electronic format. This ability to maintain electronic copies does not affect the requirement for facilities to make records, data, and reports available upon request to a delegated air agency or the EPA as part of an on-site compliance evaluation.	40 C.F.R. § 63.6155(d)	N/A	No
		Shall maintain all applicable records in such a manner that they can be readily accessed and are suitable for inspection according to §63.10(b)(1).	40 C.F.R. § 63.6160(a)	N/A	No
		Shall maintain each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record as specified in §63.10(b)(1).	40 C.F.R. § 63.6160(b)	Five years	No
		Shall retain records of the most recent 2 years on site or records must be accessible on site. The records of the remaining 3 years may be retained off site.	40 C.F.R. § 63.6160(c)	As specified	No
		Requirements that specify reports to be submitted-			
		Submit the Notification of Compliance Status containing results of the initial compliance demonstration according to the requirements in 40 C.F.R. § 63.6145(f).	40 C.F.R. § 63.6130(b)	As specified	No
		Shall report each instance in which the owner or operator did not meet each emission limitation or operating limitation. Shall also report each instance in which the owner or operator did not meet the applicable requirements in Table 7 of this subpart. These instances are deviations from the emission and operating limitations in this subpart. These deviations must be reported according to the requirements in §63.6150.	40 C.F.R. § 63.6140(b)	Semi-annually	No
		Submit all of the notifications in 40 C.F.R. § 63.7(b) and (c), § 63.8(e), § 63.8(f)(4), and § 63.9(b) and (h) by the dates specified, as applicable.	40 C.F.R. § 63.6145(a)	N/A	No
		Submit an Initial Notification no later than 120 calendar days after becoming subject to 40 C.F.R. 63 Subpart YYYY.	40 C.F.R. § 63.6145(c)	Within 120 calendar days after becoming subject to this subpart	No
		Submit a notification of intent to conduct an initial performance test at least 60 calendar days before the initial performance test is scheduled to begin as required in §63.7(b)(1).	40 C.F.R. § 63.6145(e)	At least 60 days before initial performance test	No
		Submit a Notification of Compliance Status according to §63.9(h)(2)(ii). For each performance test required to demonstrate compliance with the emission limitation for formaldehyde, shall submit the Notification of Compliance Status, including the performance test results, before the close of business on the 60th calendar day following the completion of the performance test.	40 C.F.R. § 63.6145(f)	Within 60 days of completion of performance test	No
		Submit a semiannual compliance report according to Table 6 of 40 C.F.R. 63 Subpart YYYY. The semiannual compliance report must contain the information described in paragraphs (a)(1) through (5) of 40 C.F.R. § 63.6150(a). The semiannual compliance report, including the excess emissions and monitoring system performance reports of §63.10(e)(3), must be submitted by the dates specified in in paragraphs (b)(1) through (5) of 40 C.F.R. § 63.6150(a), unless the Administrator has approved a different schedule. After September 8, 2020, or once the reporting template has been available on the Compliance and Emissions Data Reporting Interface (CEDRI) website for 180 days, whichever date is later, the owner or operator must submit all subsequent reports to the EPA following the procedure specified in paragraph (g) of 40 C.F.R. § 63.6150.	40 C.F.R. § 63.6150(a)	Semi-annually	No
		Submit the results of the performance test (as specified in §63.6145(f)) following the procedures specified in paragraphs (f)(1) through (3) of 40 C.F.R. § 63.6150(f) within 60 days after the date of completing each performance test required by 40 C.F.R. 63 Subpart YYYY.	40 C.F.R. § 63.6150(f)	Within 60 days after date of completion of performance test	No

TABLE 2: STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
ASCCT1 - ASCCT4 (Continued)	40 C.F.R. Part 63 Subpart YYYY - National Emission Standards for Hazardous Air Pollutants For Stationary Combustion Turbines (Continued)	Shall submit reports to the EPA via CEDRI, which can be accessed through the EPA's CDX (https://cdx.epa.gov/) in accordance with this regulation.	40 C.F.R. § 63.6150(g)	N/A	No
		If the owner or operator is required to electronically submit a report through CEDRI in the EPA's CDX, the owner or operator may assert a claim of EPA system outage for failure to timely comply with the reporting requirement. To assert a claim of EPA system outage, the owner or operator must meet the requirements outlined in paragraphs (h)(1) through (7) of this section.	40 C.F.R. § 63.6150(h)	N/A	No
		If the owner or operator is required to electronically submit a report through CEDRI in the EPA's CDX, the owner or operator may assert a claim of force majeure for failure to timely comply with the reporting requirement. To assert a claim of force majeure, the owner or operator must meet the requirements outlined in paragraphs (i)(1) through (5) of this section.	40 C.F.R. § 63.6150(i)	N/A	No
		Requirements that specify performance testing-			
		Conduct the initial performance tests or other initial compliance demonstrations in Table 4 of 40 C.F.R. 63 Subpart YYYY as applicable within 180 calendar days after the compliance date as specified in §63.6095 and according to the provisions in §63.7(a)(2).	40 C.F.R. § 63.6110(a)	Within 180 calendar days after compliance date	No
		Subsequent performance tests must be performed on an annual basis as specified in Table 3 of 40 C.F.R. 63 Subpart YYYY.	40 C.F.R. § 63.6115	Annually	No
		Conduct each applicable performance test in Table 3 of 40 C.F.R. 63 Subpart YYYY.	40 C.F.R. § 63.6120(a)	N/A	No
		Conduct each applicable performance test according to the requirements in Table 3 of 40 C.F.R. 63 Subpart YYYY.	40 C.F.R. § 63.6120(b)	N/A	No
		Performance tests must be conducted at high load, defined as 100 percent plus or minus 10 percent. Performance tests shall be conducted under such conditions based on representative performance of the affected source for the period being tested. Representative conditions exclude periods of startup and shutdown. The owner or operator may not conduct performance tests during periods of malfunction. The owner or operator must record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such conditions represent normal operation. Upon request, the owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests.	40 C.F.R. § 63.6120(c)	N/A	No
		The owner or operator must conduct three separate test runs for each performance test, and each test run must last at least 1 hour.	40 C.F.R. § 63.6120(d)	N/A	No
	LAC 33:III Chapter 5 - Permit Procedures	**Requirements that limit emissions or operations-**			
		Determined as BACT: NOx: Selective Catalytic Reduction, Dry Low NO_X (DLN) Combustor Design, and Good Combustion Practices during normal operations; Good Combustion Practices during Maintenance, Startup, and Shutdown (MSS) operations. PM_{10}/$PM_{2.5}$: Exclusive Combustion of Low Sulfur Gaseous Fuel and Good Combustion Practices. CO_2e: Exclusively Combust Low Carbon Gaseous Fuel, Good Combustion Practices, Proper O&M Practices, and Insulation Properly Implemented for Surfaces Above 120°F.	LAC 33:III.509.J.3	N/A	No
		Requirements that specify monitoring-			
		N/A	N/A	N/A	N/A
		Requirements that specify records to be kept and requirements that specify record retention time-			
		N/A	N/A	N/A	N/A

TABLE 2: STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
ASCCT1 - ASCCT4 (Continued)	LAC 33:III Chapter 13 - Emission Standards for Particulate Matter	**Requirements that limit emissions or operations-**			
		Opacity <= 20 percent, except for emissions that have an average opacity in excess of 20 percent for not more than one six-minute period in any 60 consecutive minutes.	LAC 33:III.1311.C	6 Minutes in any 60 minute consecutive period	No
		Emissions of particulate matter from any fuel burning equipment cannot exceed 0.6 lbs/MMBTU of heat input.	LAC 33:III.1313.C	3-Hour average	No
		Requirements that specify monitoring-			
		N/A	N/A	N/A	N/A
		Requirements that specify records to be kept and requirements that specify record retention time-			
		N/A	N/A	N/A	N/A
		Requirements that specify reports to be submitted-			
		N/A	N/A	N/A	N/A
		Requirements that specify performance testing-			
		N/A	N/A	N/A	N/A
	LAC 33:III Chapter 51 - Comprehensive Toxic Air Pollutant Emission Control Program	**Requirements that limit emissions or operations-**			
		Emits Ammonia (Class III TAP) from SCR operations. All other TAPs from turbines are exempt under LAC 33:III.5105.B.3 or LAC 33:III.5105.B.3.c. Therefore, Chapter 51 MACT is not required. For Ammonia Emissions: Comply with the ambient air standard requirements of LAC 33:III.5109.B.	LAC 33:III.5109.B	N/A	Yes
		Requirements that specify monitoring-			
		N/A	N/A	N/A	N/A
		Requirements that specify records to be kept and requirements that specify record retention time-			
		N/A	N/A	N/A	N/A
		Requirements that specify reports to be submitted-			
		For Ammonia Emissions: Emissions to be reported in facility-wide report.	LAC 33:III.5107.A	Annual	Yes
		Requirements that specify performance testing-			
		N/A	N/A	N/A	N/A
AASTK1	LAC 33:III Chapter 51 - Comprehensive Toxic Air Pollutant Emission Control Program	**Requirements that limit emissions or operations-**			
		Comply with ambient standards in accordance with LAC 33:III.5109.B.	LAC 33:III.5109.B	N/A	Yes
		Comply with the SOP requirements of LAC 33:III.5109.C.2.	LAC 33:III.5109.C.2	N/A	Yes
		Requirements that specify monitoring-			
		N/A	N/A	N/A	N/A
		Requirements that specify records to be kept and requirements that specify record retention time-			
		N/A	N/A	N/A	N/A
		Requirements that specify reports to be submitted-			
		For Ammonia Emissions: Emissions to be reported in facility-wide report.	LAC 33:III.5107.A	Annual	Yes
		Requirements that specify performance testing-			
		N/A	N/A	N/A	N/A
ASCCTCAP	LAC 33:III Chapter 5 - Permit Procedures	**Requirements that limit emissions or operations-**			
		N/A	N/A	N/A	N/A
		Requirements that specify monitoring-			
		N/A	N/A	N/A	N/A
		Requirements that specify records to be kept and requirements that specify record retention time-			
		N/A	N/A	N/A	N/A
		Requirements that specify reports to be submitted-			
		Due annually, by the 30th of April. Report emissions of all criteria pollutants for the preceding calendar year to the Office of Environmental Compliance.	LAC 33:III.507.H.1.a	Annual	No
		Requirements that specify performance testing-			
		N/A	N/A	N/A	N/A

TABLE 2: STATE AND FEDERAL AIR QUALITY REQUIREMENTS

Emission Point ID No.:	Applicable Requirement	Compliance Method/Provision	Compliance Citation	Averaging Period/Frequency	State Only Requirement
FUG	LAC 33:III Chapter 5 - Permit Procedures	**Requirements that limit emissions or operations-**			
		Determined as BACT: CO_2e: Proper Piping Design and Installation; and Good Work Practices	LAC 33:III.509.J.3	N/A	No
		Requirements that specify monitoring-			
		N/A	N/A	N/A	N/A
		Requirements that specify records to be kept and requirements that specify record retention time-			
		N/A	N/A	N/A	N/A
		Requirements that specify reports to be submitted-			
		N/A	N/A	N/A	N/A
		Requirements that specify performance testing-			
		N/A	N/A	N/A	N/A
	LAC 33:III Chapter 51 - Comprehensive Toxic Air Pollutant Emission Control Program	**Requirements that limit emissions or operations-**			
		Comply with ambient standards in accordance with LAC 33:III.5109.B.	LAC 33:III.5109.B	N/A	Yes
		Comply with the SOP requirements of LAC 33:III.5109.C.2.	LAC 33:III.5109.C.2	N/A	Yes
		Requirements that specify monitoring-			
		N/A	N/A	N/A	N/A
		Requirements that specify records to be kept and requirements that specify record retention time-			
		N/A	N/A	N/A	N/A
		Requirements that specify reports to be submitted-			
		For Ammonia Emissions: Emissions to be reported in facility-wide report.	LAC 33:III.5107.A	Annual	Yes
		Requirements that specify performance testing-			
		N/A	N/A	N/A	N/A

TABLE 3: EXPLANATION FOR EXEMPTION STATUS OR NON-APPLICABILITY OF A SOURCE

Emission Point ID No:	Requirement	Exempt or Does Not Apply	Explanation	Citation Providing for Exemption or Non-applicability
UNF001	40 C.F.R. Part 60 Subpart OOOOa - Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015	Does Not Apply	This subpart applies to equipment within the crude oil and natural gas source category that are constructed, modified, or reconstructed after September 18, 2015. As defined in § 60.5430a, crude oil and natural gas source category means "[n]atural gas production, processing, transmission, and storage, which include the well and extend to, but do not include, the local distribution company custody transfer station." Additionally, per § 60.5430a, local distribution company ("LDC") custody transfer station means "a metering station where the LDC receives a natural gas supply from an upstream supplier, which may be an interstate transmission pipeline or a local natural gas producer, for delivery to customers through the LDC's intrastate transmission or distribution lines." Based on the above, this subpart is only applicable to equipment upstream of the facility (i.e., equipment from the natural gas wellhead to immediately upstream of the LDC custody transfer station). Therefore, NSPS Subpart OOOOa is not applicable to the facility.	40 C.F.R. § 60.5430a
	40 C.F.R. Part 63 Subpart HHH - National Emission Standards for Hazardous Air Pollutants from Natural Gas Transmission and Storage Facilities	Does Not Apply	The facility does not contain an affected source as specified in 40 C.F.R. § 63.1270(b).	40 C.F.R. § 63.1270(b)
	40 C.F.R. Part 68 - Chemical Accident Prevention Provisions	Does Not Apply	40 C.F.R. Part 68 applies to stationary sources. In 40 C.F.R. Part 68, stationary sources do not include transportation sources, such as those regulated by USDOT regulations (49 C.F.R. Parts 192, 193, and 195). The facility is subject to 49 C.F.R. Part 193, so 40 C.F.R. Part 68 does not apply.	40 C.F.R. § 68.3
	40 C.F.R. Part 72 - Permit Regulation	Does Not Apply	The units at the facility are non-utility units, and non-utility units are not subject to the Acid Rain Program.	40 C.F.R. § 72.6(b)(8)
	LAC 33:III.2115 - Control of Emission of Organic Compounds - Waste Gas Disposal	Does Not Apply	The proposed facility will not generate any waste gas stream as defined in LAC 33:III.2115.N.	LAC 33:III.2115.N
	LAC 33:III.5109.C - Standard Operating Procedure Requirements	Does Not Apply	Source does not have emissions that are required to report in accordance with LAC 33:III.5107.A.	LAC 33:III.5109.C
	LAC 33:III.Chapter 59 - Chemical Accident Prevention and Minimization of Consequences	Does Not Apply	LAC 33:III.5901 incorporates 40 C.F.R. Part 68 and provides requirements for the implementation of risk management at stationary sources storing greater than a threshold quantity of regulated substances. Per 40 C.F.R. § 68.3, "stationary source" does not apply to transportation, including transportation subject to regulated under 49 C.F.R. Parts 192, 193, or 195. Therefore, LAC 33:III.Chapter 59 does not apply to the facility.	40 C.F.R. § 68.3

TABLE 3: EXPLANATION FOR EXEMPTION STATUS OR NON-APPLICABILITY OF A SOURCE

Emission Point ID No:	Requirement	Exempt or Does Not Apply	Explanation	Citation Providing for Exemption or Non-applicability
ASCCT1 - ASCCT4	40 C.F.R. Part 60 Subpart D - Standards of Performance for Fossil-Fuel-Fired Steam Generators	Exempt	The turbines are not steam-generating units.	40 C.F.R. § 60.40(a)
	40 C.F.R. Part 60 Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units	Exempt	The turbines are not steam-generating units.	40 C.F.R. § 60.40b(a)
	40 C.F.R. Part 60 Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units	Exempt	The turbines are not steam-generating units.	40 C.F.R. § 60.40c(a)
	40 C.F.R. Part 60 Subpart GG - Standards of Performance for Stationary Gas Turbines	Exempt	Turbines that are subject to 40 C.F.R. Part 60 Subpart KKKK are exempt from the requirements of Subpart GG.	40 C.F.R. § 60.4305(b)
	40 C.F.R. Part 60 Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	Does Not Apply	Combustion turbines are excluded from the definition of stationary internal combustion engine.	40 C.F.R. § 60.4219
	LAC 33:III.Chapter 11 - Control of Emissions of Smoke	Does Not Apply	Requirement does not apply to combustion units when combusting only natural gas, carbon monoxide, hydrogen, and/or other gaseous fuels with a carbon to hydrogen molecular ratio of less than 0.34. For mixtures of gaseous fuels, the molecular ratio shall be computed based on the volume percent (at standard conditions) of carbon monoxide, hydrogen, and each organic compound in the fuel gas stream.	LAC 33:III.1107.B.1
	40 C.F.R. Part 64 - Compliance Assurance Monitoring	Exempt	For NOx, the turbines are subject to emission limitation requirements under 40 C.F.R. Part 60 Subpart KKKK.	40 C.F.R. § 64.2(b)(1)(i)
			For CO, the turbines are equipped with CO CEMS which is also a continuous compliance monitoring method.	40 C.F.R. § 64.2(b)(1)(vi)
	LAC 33:III.Chapter 15 - Emission Standards for Sulfur Dioxide	Does Not Apply	Each turbine emits less than 5 tons per year of sulfur dioxide. Shall record and retain data to show annual potential emissions from ASCCT1 - ASCCT4.	LAC 33:III.1502.A.3 and LAC 33:III.1513.C
	LAC 33:III.Chapter 51 - Comprehensive Toxic Air Pollutant Emission Control Program	Exempt	For TAP Emissions from Fuel Combustion: TAP emissions are from the combustion of Group 1 virgin fossil fuels and/or gas streams meeting the requirements of LAC 33:III.5105.B.3.c.	LAC 33:III.5105.B.3.a and c
	LAC 33:III.5109.A - Maximum Achievable Control Technology (MACT) Requirements	Does Not Apply	For Ammonia Emissions from SCR Operation: Ammonia is a Class III TAP; therefore, MACT is not applicable.	LAC 33:III.5109.A

TABLE 3: EXPLANATION FOR EXEMPTION STATUS OR NON-APPLICABILITY OF A SOURCE

Emission Point ID No:	Requirement	Exempt or Does Not Apply	Explanation	Citation Providing for Exemption or Non-applicability
AASTK1	40 C.F.R. Part 60 Subpart Kb - Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984	Does Not Apply	Tanks do not store volatile organic liquid.	40 C.F.R. § 60.110b(b)
	LAC 33:III.2103 - Control of Emissions of Organic Compounds - Storage of Volatile Organic Compounds	Does Not Apply	Tanks do not store volatile organic liquid.	LAC 33:III 2103.B
	LAC 33:III.5109.A - Maximum Achievable Control Technology (MACT) Requirements	Does Not Apply	Ammonia is a Class III TAP; therefore, MACT is not applicable.	LAC 33:III.5109.A
FUG	40 C.F.R. Part 60 Subpart OOOOa - Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015	Does Not Apply	This subpart applies to equipment within the crude oil and natural gas source category that are constructed, modified, or reconstructed after September 18, 2015. As defined in § 60.5430a, crude oil and natural gas source category means "[n]atural gas production, processing, transmission, and storage, which include the well and extend to, but do not include, the local distribution company custody transfer station." Additionally, per § 60.5430a, local distribution company ("LDC") custody transfer station means "a metering station where the LDC receives a natural gas supply from an upstream supplier, which may be an interstate transmission pipeline or a local natural gas producer, for delivery to customers through the LDC's intrastate transmission or distribution lines." Based on the above, this subpart is only applicable to equipment upstream of the facility (i.e., equipment from the natural gas wellhead to immediately upstream of the LDC custody transfer station). Therefore, NSPS Subpart OOOOa is not applicable to the facility.	40 C.F.R. § 60.5430a
	40 C.F.R. Part 63 Subpart EEEE - National Emission Standards for Hazardous Air Pollutants: Organic Liquids Distribution (Non-Gasoline)	Does Not Apply	There is no affected source used to distribute organic liquids.	40 C.F.R. § 63.2338(b)
	LAC 33:III.2121 - Fugitive Emission Control	Does Not Apply	Facility is not one of the facility types subject to this regulation; the definition of natural gas processing plant excludes compressor stations, dehydration units, sweetening units, field treatment, underground storage facilities, liquefied natural gas units, and field gas gathering systems.	LAC 33:III.2121.A, LAC 33:III.111
	LAC 33:III.5109.A - Maximum Achievable Control Technology (MACT) Requirements	Does Not Apply	Ammonia is a Class III TAP; therefore, MACT is not applicable.	LAC 33:III.5109.A

TABLE 4: EQUIPMENT LIST

Emission Point ID No:	Description	Construction Date	Routes to:	Operating Rate/Volume	Applicable Requirement(s)?
ASCCT1	Aeroderivative Simple Cycle Combustion Turbine 1	2024	ASCCTCAP	393 MMBtu/hr	Yes
ASCCT2	Aeroderivative Simple Cycle Combustion Turbine 2	2024	ASCCTCAP	393 MMBtu/hr	Yes
ASCCT3	Aeroderivative Simple Cycle Combustion Turbine 3	2024	ASCCTCAP	393 MMBtu/hr	Yes
ASCCT4	Aeroderivative Simple Cycle Combustion Turbine 4	2024	ASCCTCAP	393 MMBtu/hr	Yes

23. Emissions Inventory Questionnaire (EIQ) Forms [LAC 33:III.517.D.3; 517.D.6]

Complete one (1) EIQ for:

- Each emission source. If two emission sources have a common stack, the applicant may submit one EIQ sheet for the common emissions point. Note any emissions sources that route to this common point in Table 4 of the application.
- Each emissions CAP that is proposed, including each source that is part of the CAP.
- Each alternate operating scenario that a source may operate under. Some common scenarios are:
    1. Sources that combust multiple fuels
    2. Sources that have startup/shutdown max lb/hr emission rates higher than the max lb/hr for normal operating conditions would need a separate EIQ addressing the startup/shutdown emission rates
- Fugitive emissions releases. One (1) EIQ should be completed for each of the following types of fugitive emissions sources or emissions points:
    1. Equipment leaks.
    2. Non-equipment leaks (i.e., road dust, settling ponds, etc).

For each EIQ:

- Fill in all requested information.
- Speciate all Toxic Air Pollutants and Hazardous Air Pollutants emitted by the source.
- Use appropriate significant figures.
- Consult instructions.

The EIQ is in Microsoft Word Excel. Visit the following website to get to the EIQ form.
http://deq.louisiana.gov/page/air-permit-applications

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: January 2024

Emission Point ID No.	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
ASCCT1	Aeroderivative Simple Cycle Combustion Turbine 1	Method: 18, "Interpolation - Map"; Datum: NAD83
Tempo Subject Item ID No.		UTM Zone: 16; Horizontal: 219,395 mE; Vertical: 3,278,281 mN
New		Latitude: 29 ° 36 ' 10 " 12 hundredths
		Longitude: -89 ° 53 ' 50 " 24 hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-	Apr-	Jul-	Oct-
Yes	10.00 ft / ___ ft^2	80.00 ft	106.20 ft/sec	500,450 ft^3/min	870 °F	8,760 hr/yr	Proposed	25%	25%	25%	25%

Type of Fuel Used and Heat Input (see instructions)

Fuel	Type of Fuel	Heat Input (MMBTU/hr)
a	Fuel Gas / Natural Gas	393
b		
c		

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	393	MMBtu/hr
Maximum Operating Rate/Throughput	393	MMBtu/hr
Design Capacity/Volume/Cylinder Displacement		
Shell Height (ft)		
Tank Diameter (ft)		
Tanks: Fixed Roof	Floating Roof	External / Internal
Date Engine Ordered		Engine Model Year
Date Engine Was Built by Manufacturer		
SI Engines: Rich Burn	Lean Burn	2 Stroke / 4 Stroke

Notes

[1] This EIQ represents Aeroderivative Simple Cycle Combustion Turbine 1.
[2] The maximum hourly emission rate is based on the max of the normal hourly emission rate and the SU/SD hourly emission rate.
[3] The average and annual emission rates are authorized under the Turbines Operations Emissions CAP (ASCCTCAP).
[4] Alternative location at Delta LNG - Method: 18, "Interpolation - Map"; Datum: NAD83; UTM Zone: 16, Horizontal: 220,953 mE, Vertical: 3,277,467 mN; Latitude: 29°35'44.95" N, Longitude: -89°52'51.64" W.

Emission Point ID No. (Designation): ASCCT1

Pollutant	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates Average (lb/hr)	Proposed Emission Rates Maximum (lb/hr)	Proposed Emission Rates Annual (tons/yr)	Permitted Emission Rate (Current) Annual (tons/yr)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
Particulate matter (PM_{10})				*	4.00	*		A		
Particulate matter ($PM_{2.5}$)				*	4.00	*		A		
Nitrogen oxides (NO_x)				*	39.72	*		A		
Sulfur Dioxide (SO_2)				*	0.48	*		A		
Carbon monoxide (CO)				*	29.11	*		A		
Volatile Organic Compounds (VOC)				*	0.80	*		A		
Ammonia			7664-41-7	*	2.72	*		A		
Benzene			71-43-2	*	0.005	*		A		
Formaldehyde			50-00-0	*	0.09	*		A		
Naphthalene			91-20-3	*	<0.001	*		A		
Toluene			108-88-3	*	0.05	*		A		
PAH			206-44-0	*	0.001	*		A		
Acetaldehyde			00075-07-0	*	0.02	*		A		
Acrolein			00107-02-8	*	0.003	*		A		
Xylenes			01330-20-7	*	0.03	*		A		
Ethylbenzene			01330-20-7	*	0.01	*		A		
Hydrogen Sulfide			7783-06-04	*	0.003	*		A		
Propylene Oxide			75-56-9	*	0.01	*		A		
Carbon Dioxide Equivalent (CO_2e)				*	*	*		A		

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: January 2024

Emission Point ID No.	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
ASCCT2	Aeroderivative Simple Cycle Combustion Turbine 2	Method: 18, "Interpolation - Map"; Datum: NAD83
Tempo Subject Item ID No.		UTM Zone: 16; Horizontal: 219,376 mE; Vertical: 3,278,294 mN
New		Latitude: 29 ° 36 ' 10 " 51 hundredths
		Longitude: -89 ° 53 ' 50 " 96 hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-	Apr-	Jul-	Oct-
Yes	10.00 ft ft²	80.00 ft	106.20 ft/sec	500,450 ft^3/min	870 °F	8,760 hr/yr	Proposed	25%	25%	25%	25%

Type of Fuel Used and Heat Input (see instructions)

Fuel	Type of Fuel	Heat Input (MMBTU/hr)
a	Fuel Gas / Natural Gas	393
b		
c		

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	393	MMBtu/hr
Maximum Operating Rate/Throughput	393	MMBtu/hr
Design Capacity/Volume/Cylinder Displacement		
Shell Height (ft)		
Tank Diameter (ft)		
Tanks: Fixed Roof	Floating Roof	External / Internal
Date Engine Ordered		Engine Model Year:
Date Engine Was Built by Manufacturer		
SI Engines: Rich Burn	Lean Burn	2 Stroke / 4 Stroke

Notes

[1] This EIQ represents Aeroderivative Simple Cycle Combustion Turbine 2.
[2] The maximum hourly emission rate is based on the max of the normal hourly emission rate and the SU/SD hourly emission rate.
[3] The average and annual emission rates are authorized under the Turbines Operations Emissions CAP (ASCCTCAP).
[4] Alternative location at Delta LNG - Method: 18, "Interpolation - Map"; Datum: NAD83; UTM Zone: 16, Horizontal: 220,945 mE, Vertical: 3,277,433 mN; Latitude: 29°35'43.84" N, Longitude: -89°52'51.92" W.

Emission Point ID No. (Designation): ASCCT2

Pollutant	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates Average (lb/hr)	Proposed Emission Rates Maximum (lb/hr)	Proposed Emission Rates Annual (tons/yr)	Permitted Emission Rate (Current) Annual (tons/yr)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
Particulate matter (PM_{10})				*	4.00	*		A		
Particulate matter ($PM_{2.5}$)				*	4.00	*		A		
Nitrogen oxides (NO_x)				*	39.72	*		A		
Sulfur Dioxide (SO_2)				*	0.48	*		A		
Carbon monoxide (CO)				*	29.11	*		A		
Volatile Organic Compounds (VOC)				*	0.80	*		A		
Ammonia			7664-41-7	*	2.72	*		A		
Benzene			71-43-2	*	0.005	*		A		
Formaldehyde			50-00-0	*	0.09	*		A		
Naphthalene			91-20-3	*	<0.001	*		A		
Toluene			108-88-3	*	0.05	*		A		
PAH			206-44-0	*	0.001	*		A		
Acetaldehyde			00075-07-0	*	0.02	*		A		
Acrolein			00107-02-8	*	0.003	*		A		
Xylenes			01330-20-7	*	0.03	*		A		
Ethylbenzene			01330-20-7	*	0.01	*		A		
Hydrogen Sulfide			7783-06-04	*	0.003	*		A		
Propylene Oxide			75-56-9	*	0.01	*		A		
Carbon Dioxide Equivalent (CO_2e)				*	*	*		A		

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: January 2024

Emission Point ID No.	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
ASCCT3	Aeroderivative Simple Cycle Combustion Turbine 3	Method: 18, "Interpolation - Map"; Datum: NAD83
Tempo Subject Item ID No.		UTM Zone: 16; Horizontal: 219,358 mE; Vertical: 3,278,307 mN
New		Latitude: 29 ° 36 ' 10 " 94 hundredths
		Longitude: -89 ° 53 ' 51 " 68 hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point
Yes	10.00 ft / ft^2	80.00 ft	106.20 ft/sec	500,450 ft^3/min	870 °F	8,760 hr/yr	Proposed	Jan- 25%; Apr- 25%; Jul- 25%; Oct- 25%

Type of Fuel Used and Heat Input (see instructions)

Fuel	Type of Fuel	Heat Input (MMBTU/hr)
a	Fuel Gas / Natural Gas	393
b		
c		

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	393	MMBtu/hr
Maximum Operating Rate/Throughput	393	MMBtu/hr
Design Capacity/Volume/Cylinder Displacement		
Shell Height (ft)		
Tank Diameter (ft)		
Tanks:	Fixed Roof / Floating Roof	External / Internal
Date Engine Ordered		Engine Model Year:
Date Engine Was Built by Manufacturer		
SI Engines:	Rich Burn / Lean Burn	2 Stroke / 4 Stroke

Notes

[1] This EIQ represents Aeroderivative Simple Cycle Combustion Turbine 3.
[2] The maximum hourly emission rate is based on the max of the normal hourly emission rate and the SU/SD hourly emission rate.
[3] The average and annual emission rates are authorized under the Turbines Operations Emissions CAP (ASCCTCAP).
[4] Alternative location at Delta LNG - Method: 18, "Interpolation - Map"; Datum: NAD83; UTM Zone: 16, Horizontal: 220,937 mE, Vertical: 3,277,399 mN; Latitude: 29°35'42.72" N, Longitude: -89°52'52.18" W.

Emission Point ID No. (Designation): ASCCT3

Pollutant	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates Average (lb/hr)	Proposed Emission Rates Maximum (lb/hr)	Proposed Emission Rates Annual (tons/yr)	Permitted Emission Rate (Current) Annual (tons/yr)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
Particulate matter (PM_{10})				*	4.00	*		A		
Particulate matter ($PM_{2.5}$)				*	4.00	*		A		
Nitrogen oxides (NO_x)				*	39.72	*		A		
Sulfur Dioxide (SO_2)				*	0.48	*		A		
Carbon monoxide (CO)				*	29.11	*		A		
Volatile Organic Compounds (VOC)				*	0.80	*		A		
Ammonia			7664-41-7	*	2.72	*		A		
Benzene			71-43-2	*	0.005	*		A		
Formaldehyde			50-00-0	*	0.09	*		A		
Naphthalene			91-20-3	*	<0.001	*		A		
Toluene			108-88-3	*	0.05	*		A		
PAH			206-44-0	*	0.001	*		A		
Acetaldehyde			00075-07-0	*	0.02	*		A		
Acrolein			00107-02-8	*	0.003	*		A		
Xylenes			01330-20-7	*	0.03	*		A		
Ethylbenzene			01330-20-7	*	0.01	*		A		
Hydrogen Sulfide			7783-06-04	*	0.003	*		A		
Propylene Oxide			75-56-9	*	0.01	*		A		
Carbon Dioxide Equivalent (CO_2e)				*	*	*		A		

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: January 2024

Emission Point ID No.	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
ASCCT4	Aeroderivative Simple Cycle Combustion Turbine 4	Method: 18, "Interpolation - Map"; Datum: NAD83
Tempo Subject Item ID No.		UTM Zone: 16; Horizontal: 219,339 mE; Vertical: 3,278,321 mN
New		Latitude: 29 ° 36 ' 11 " 34 hundredths
		Longitude: -89 ° 53 ' 52 " 37 hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point			
								Jan-	Apr-	Jul-	Oct-
Yes	10.00 ft / ___ ft^2	80.00 ft	106.20 ft/sec	500,450 ft^3/min	870 °F	8,760 hr/yr	Proposed	25%	25%	25%	25%

Type of Fuel Used and Heat Input (see instructions)

Fuel	Type of Fuel	Heat Input (MMBTU/hr)
a	Fuel Gas / Natural Gas	393
b		
c		

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	393	MMBtu/hr
Maximum Operating Rate/Throughput	393	MMBtu/hr
Design Capacity/Volume/Cylinder Displacement		
Shell Height (ft)		
Tank Diameter (ft)		
Tanks: Fixed Roof / Floating Roof / External / Internal		
Date Engine Ordered		Engine Model Year:
Date Engine Was Built by Manufacturer		
SI Engines: Rich Burn / Lean Burn / 2 Stroke / 4 Stroke		

Notes

[1] This EIQ represents Aeroderivative Simple Cycle Combustion Turbine 4.
[2] The maximum hourly emission rate is based on the max of the normal hourly emission rate and the SU/SD hourly emission rate.
[3] The average and annual emission rates are authorized under the Turbines Operations Emissions CAP (ASCCTCAP).
[4] Alternative location at Delta LNG - Method: 18, "Interpolation - Map"; Datum: NAD83; UTM Zone: 16, Horizontal: 220,928 mE, Vertical: 3,277,359 mN; Latitude: 29°35'41.42" N, Longitude: -89°52'52.46" W.

Emission Point ID No. (Designation): ASCCT4

Pollutant	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates Average (lb/hr)	Proposed Emission Rates Maximum (lb/hr)	Proposed Emission Rates Annual (tons/yr)	Permitted Emission Rate (Current) Annual (tons/yr)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
Particulate matter (PM_{10})				*	4.00	*		A		
Particulate matter ($PM_{2.5}$)				*	4.00	*		A		
Nitrogen oxides (NO_x)				*	39.72	*		A		
Sulfur Dioxide (SO_2)				*	0.48	*		A		
Carbon monoxide (CO)				*	29.11	*		A		
Volatile Organic Compounds (VOC)				*	0.80	*		A		
Ammonia			7664-41-7	*	2.72	*		A		
Benzene			71-43-2	*	0.005	*		A		
Formaldehyde			50-00-0	*	0.09	*		A		
Naphthalene			91-20-3	*	<0.001	*		A		
Toluene			108-88-3	*	0.05	*		A		
PAH			206-44-0	*	0.001	*		A		
Acetaldehyde			00075-07-0	*	0.02	*		A		
Acrolein			00107-02-8	*	0.003	*		A		
Xylenes			01330-20-7	*	0.03	*		A		
Ethylbenzene			01330-20-7	*	0.01	*		A		
Hydrogen Sulfide			7783-06-04	*	0.003	*		A		
Propylene Oxide			75-56-9	*	0.01	*		A		
Carbon Dioxide Equivalent (CO_2e)				*	*	*		A		

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: January 2024

Emission Point ID No.	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
ASCCTCAP	Turbines Operations Emissions CAP	Method: N/A; Datum: N/A
Tempo Subject Item ID No.		UTM Zone: N/A; Horizontal: N/A mE; Vertical: N/A
New		Latitude: N/A ° N/A ' N/A " N/A hundredths
		Longitude: N/A ° N/A ' N/A " N/A hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point
N/A	N/A ft N/A ft^2	N/A ft	N/A ft/sec	N/A ft^3/min	N/A °F	N/A hr/yr	Proposed	Jan- 25%; Apr- 25%; Jul- 25%; Oct- 25%

Type of Fuel Used and Heat Input (see instructions)

Fuel	Type of Fuel	Heat Input (MMBTU/hr)
a	N/A	N/A
b		
c		

Notes

[1] This emission cap includes all four (4) Aeroderivative Simple Cycle Combustion Turbines (ASCCTs).
[2] The annual emissions represent the combined emissions of 8,660 hours of normal operations as well as 100 hours of startup and shutdown for each Aeroderivative Simple Cycle Combustion Turbine (ASCCT).

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	N/A	N/A
Maximum Operating Rate/Throughput	N/A	N/A
Design Capacity/Volume/Cylinder Displacement		
Shell Height (ft)		
Tank Diameter (ft)		
Tanks: Fixed Roof / Floating Roof / External / Internal		
Date Engine Ordered		Engine Model Year:
Date Engine Was Built by Manufacturer		
SI Engines: Rich Burn / Lean Burn / 2 Stroke / 4 Stroke		

Emission Point ID No. (Designation): ASCCTCAP

Pollutant	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates Average (lb/hr)	Maximum (lb/hr)	Annual (tons/yr)	Permitted Emission Rate (Current) Annual (tons/yr)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
Particulate matter (PM_{10})				16.00	*	70.08		A		
Particulate matter ($PM_{2.5}$)				16.00	*	70.08		A		
Nitrogen oxides (NO_x)				16.36	*	71.64		A		
Sulfur Dioxide (SO_2)				1.92	*	8.40		A		
Carbon monoxide (CO)				19.03	*	83.36		A		
Volatile Organic Compounds (VOC)				2.68	*	11.72		A		
Ammonia			7664-41-7	10.83	*	47.44		A		
Benzene			71-43-2	0.02	*	0.09		A		
Formaldehyde			50-00-0	0.35	*	1.53		A		
Naphthalene			91-20-3	0.00	*	0.01		A		
Toluene			108-88-3	0.21	*	0.92		A		
PAH			206-44-0	0.00	*	0.02		A		
Acetaldehyde			00075-07-0	0.06	*	0.28		A		
Acrolein			00107-02-8	0.01	*	0.05		A		
Xylenes			01330-20-7	0.10	*	0.45		A		
Ethylbenzene			00107-02-8	0.05	*	0.23		A		
Hydrogen Sulfide			01330-20-7	0.01	*	0.05		A		
Propylene Oxide			7783-06-04	0.05	*	0.21		A		
Carbon Dioxide Equivalent (CO_2e)			75-56-9	*	*	836,076		A		

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: January 2024

Emission Point ID No.	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
AASTK1	Aqueous Ammonia Storage Tank 1	Method: 18, "Interpolation - Map"; Datum: NAD83
Tempo Subject Item ID No.		UTM Zone: 16; Horizontal: 220,975 mE; Vertical: 3,277,417 mN
New		Latitude: 29 ° 35 ' 43 " 33 hundredths
		Longitude: -89 ° 52 ' 50 " 81 hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point
Yes	3.28 ft / ft²	11.11 ft	0.003 ft/sec	2 ft^3/min	Ambien °F	8,760 hr/yr	Proposed	Jan- 25%; Apr- 25%; Jul- 25%; Oct- 25%

Type of Fuel Used and Heat Input (see instructions)

Fuel	Type of Fuel	Heat Input (MMBTU/hr)
a		
b		
c		

Notes

This EIQ represents Aqueous Ammonia Storage Tank 1.

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput	459,541	gal/yr
Maximum Operating Rate/Throughput	459,541	gal/yr
Design Capacity/Volume/Cylinder Displacement	5,000	gal
Shell Length (ft)	18.83	
Tank Diameter (ft)	7.06	
Tanks: X Fixed Roof	Floating Roof	External / Internal
Date Engine Ordered		Engine Model Year
Date Engine Was Built by Manufacturer		
SI Engines: Rich Burn	Lean Burn	2 Stroke / 4 Stroke

Emission Point ID No. (Designation): AASTK1 / Pollutant	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates: Average (lb/hr)	Maximum (lb/hr)	Annual (tons/yr)	Permitted Emission Rate (Current): Annual (tons/yr)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
Ammonia			7664-41-7	0.08	0.08	0.34		A		

State of Louisiana
Emissions Inventory Questionnaire (EIQ) for Air Pollutants

Date of submittal: January 2024

Emission Point ID No.	Descriptive Name of the Emissions Source (Alt. Name)	Approximate Location of Stack or Vent (see instructions)
FUG	Fugitive Emissions	Method: 18, "Interpolation - Map"; Datum: NAD83
Tempo Subject Item ID No.		UTM Zone: 16; Horizontal: 219,367 mE; Vertical: 3,278,301 mN
New		Latitude: 29 ° 36 ' 10 " 73 hundredths
		Longitude: -89 ° 53 ' 51 " 32 hundredths

Stack and Discharge Physical Characteristics Change? (yes or no)	Diameter (ft) or Stack Discharge Area (ft^2)	Height of Stack Above Grade (ft)	Stack Gas Exit Velocity	Stack Gas Flow at Conditions, not at Standard (ft^3/min)	Stack Gas Temperature (°F)	Normal Operating Time (hours per year)	Date of Construction or Modification	Percent of Annual Throughput Through This Emission Point
Yes	N/A ft; ft²	N/A ft	N/A ft/sec	N/A ft^3/min	Ambien °F	8,760 hr/yr	Proposed	Jan- 25%; Apr- 25%; Jul- 25%; Oct- 25%

Type of Fuel Used and Heat Input (see instructions)

Fuel	Type of Fuel	Heat Input (MMBTU/hr)
a		
b		
c		

Operating Parameters (include units)

	Parameter	Description
Normal Operating Rate/Throughput		
Maximum Operating Rate/Throughput		
Design Capacity/Volume/Cylinder Displacement		
Shell Length (ft)		
Tank Diameter (ft)		
Tanks: Fixed Roof / Floating Roof / External / Internal		
Date Engine Ordered		Engine Model Year
Date Engine Was Built by Manufacturer		
SI Engines: Rich Burn / Lean Burn / 2 Stroke / 4 Stroke		

Notes

[1] This EIQ represents Fugitive Emissions.
[2] Alternative location at Delta LNG - Method: 18, "Interpolation - Map"; Datum: NAD83; UTM Zone: 16, Horizontal: 220,941 mE, Vertical: 3,277,415 mN; Latitude: 29°35'43.22" N, Longitude: -89°52'52.07" W.

Emission Point ID No. (Designation): FUG — Pollutant	Control Equipment Code	Control Equipment Efficiency	HAP / TAP CAS Number	Proposed Emission Rates: Average (lb/hr)	Maximum (lb/hr)	Annual (tons/yr)	Permitted Emission Rate (Current) Annual (tons/yr)	Add, Change, Delete, or Unchanged	Continuous Compliance Method	Concentration in Gases Exiting at Stack
Volatile Organic Compounds (VOC)				0.11	0.11	0.50		A		
Benzene			71-43-2	0.01	0.01	0.06		A		
Hexane			110-54-3	0.04	0.04	0.18		A		
Toluene			108-88-3	0.01	0.01	0.03		A		
Xylenes			01330-20-7	0.004	0.004	0.02		A		
Ammonia			7664-41-7	0.01	0.01	0.06		A		
Carbon Dioxide Equivalent (CO_2e)				*	*	222		A		

24. NSR Applicability Summary [LAC 33:III.504 and LAC 33:III.509]   ☐ N/A

This section consists of five tables, A-E, and is applicable only to new and existing major stationary sources (as defined in LAC 33:III.504 or in LAC 33:III.509) proposing to permit a physical change or change in the method of operation. It would also apply to existing minor stationary sources proposing a physical change or change in the method of operation where the change would be a major source in and of itself. Add rows to each table as necessary. Provide a written explanation of the information summarized in these tables. Consult instructions.

24.A. Project Summary

		A	B	C	D	E	F
Emission Point ID	Description	New, Modified, Affected, or Unaffected*	Pre-Project Allowables (TPY)	Baseline Actual Emissions (over 24-month period)	Projected Actual Emissions (TPY)	Post-Project Potential to Emit (TPY)	Change
$PM_{2.5}$	**24-Month Period:** MM/DD/YYYY – MM/DD/YYYY						
ASCCT1	Aeroderivative Simple Cycle Combustion Turbine 1	New	0	0		17.52	17.52
ASCCT2	Aeroderivative Simple Cycle Combustion Turbine 2	New	0	0		17.52	17.52
ASCCT3	Aeroderivative Simple Cycle Combustion Turbine 3	New	0	0		17.52	17.52
ASCCT4	Aeroderivative Simple Cycle Combustion Turbine 4	New	0	0		17.52	17.52
						$PM_{2.5}$ Change:	70.08
PM_{10}	**24-Month Period:** MM/DD/YYYY – MM/DD/YYYY						
ASCCT1	Aeroderivative Simple Cycle Combustion Turbine 1	New	0	0		17.52	17.52
ASCCT2	Aeroderivative Simple Cycle Combustion Turbine 2	New	0	0		17.52	17.52
ASCCT3	Aeroderivative Simple Cycle Combustion Turbine 3	New	0	0		17.52	17.52
ASCCT4	Aeroderivative Simple Cycle Combustion Turbine 4	New	0	0		17.52	17.52
						PM_{10} Change	70.08
SO_2	**24-Month Period:** MM/DD/YYYY – MM/DD/YYYY						
ASCCT1	Aeroderivative Simple Cycle Combustion Turbine 1	New	0	0		2.10	2.10
ASCCT2	Aeroderivative Simple Cycle Combustion Turbine 2	New	0	0		2.10	2.10
ASCCT3	Aeroderivative Simple Cycle Combustion Turbine 3	New	0	0		2.10	2.10
ASCCT4	Aeroderivative Simple Cycle Combustion Turbine 4	New	0	0		2.10	2.10
						SO_2 Change	8.40
NO_X	**24-Month Period:** MM/DD/YYYY – MM/DD/YYYY						
ASCCT1	Aeroderivative Simple Cycle Combustion Turbine 1	New	0	0		17.91	17.91
ASCCT2	Aeroderivative Simple Cycle Combustion Turbine 2	New	0	0		17.91	17.91
ASCCT3	Aeroderivative Simple Cycle Combustion Turbine 3	New	0	0		17.91	17.91
ASCCT4	Aeroderivative Simple Cycle Combustion Turbine 4	New	0	0		17.91	17.91
						NO_X Change	71.64
CO	**24-Month Period:** MM/DD/YYYY – MM/DD/YYYY						
ASCCT1	Aeroderivative Simple Cycle Combustion Turbine 1	New	0	0		20.84	20.84
ASCCT2	Aeroderivative Simple Cycle Combustion Turbine 2	New	0	0		20.84	20.84
ASCCT3	Aeroderivative Simple Cycle Combustion Turbine 3	New	0	0		20.84	20.84
ASCCT4	Aeroderivative Simple Cycle Combustion Turbine 4	New	0	0		20.84	20.84
						CO Change	83.36

24. NSR Applicability Summary [LAC 33:III.504 and LAC 33:III.509]

☐ N/A

This section consists of five tables, A-E, and is applicable only to new and existing major stationary sources (as defined in LAC 33:III.504 or in LAC 33:III.509) proposing to permit a physical change or change in the method of operation. It would also apply to existing minor stationary sources proposing a physical change or change in the method of operation where the change would be a major source in and of itself. Add rows to each table as necessary. Provide a written explanation of the information summarized in these tables. Consult instructions.

24.A. Project Summary

		A	B	C	D	E	F
Emission Point ID	**Description**	**New, Modified, Affected, or Unaffected***	**Pre-Project Allowables (TPY)**	**Baseline Actual Emissions (over 24-month period)**	**Projected Actual Emissions (TPY)**	**Post-Project Potential to Emit (TPY)**	**Change**
VOC	**24-Month Period:** MM/DD/YYYY – MM/DD/YYYY						
ASCCT1	Aeroderivative Simple Cycle Combustion Turbine 1	New	0	0		2.93	2.93
ASCCT2	Aeroderivative Simple Cycle Combustion Turbine 2	New	0	0		2.93	2.93
ASCCT3	Aeroderivative Simple Cycle Combustion Turbine 3	New	0	0		2.93	2.93
ASCCT4	Aeroderivative Simple Cycle Combustion Turbine 4	New	0	0		2.93	2.93
FUG	Fugitive Emissions	New	0	0		0.50	0.50
						VOC Change	12.22

CO_2e	**24-Month Period:** MM/DD/YYYY – MM/DD/YYYY						
ASCCT1	Aeroderivative Simple Cycle Combustion Turbine 1	New	0	0		209,019	209,019
ASCCT2	Aeroderivative Simple Cycle Combustion Turbine 2	New	0	0		209,019	209,019
ASCCT3	Aeroderivative Simple Cycle Combustion Turbine 3	New	0	0		209,019	209,019
ASCCT4	Aeroderivative Simple Cycle Combustion Turbine 4	New	0	0		209,019	209,019
FUG	Fugitive Emissions	New	0	0		222	222
						CO_2e Change	836,298

24.B. Creditable Contemporaneous Changes

Contemporaneous Period: MM/DD/YYYY – MM/DD/YYYY	

		A	B	C	D	E	F
Emission Point ID	**Description**	**Date of Modification**	**Pre-Project Allowables (TPY)**	**Baseline Actual Emissions (over 24-month period)**	**24-Month Period**	**Post-Project Potential to Emit (TPY)**	**Change**
$PM_{2.5}$							
						$PM_{2.5}$ Change:	
PM_{10}							
						PM_{10} Change:	
SO_2							
						SO_2 Change:	
NO_X							
						NO_X Change:	
CO							

24.B. Creditable Contemporaneous Changes

						CO Change:	

VOC							
						VOC Change:	

CO_2e							
						CO_2e Change:	

For each source identified as "New" or "Modified" in Section 24.A, complete the following table for each pollutant that will trigger NSR. If LAER is not required per LAC 33:III.504.D.3, indicate such.

24.C. BACT/LAER Summary

Emission Point ID	Pollutant	BACT/LAER	Limitation	Averaging Period	Description of Control Technology/Work Practice Standard(s)
Refer to Section 3 of this application for the BACT analysis.					

24.D. PSD Air Quality Analyses Summary

Refer to Appendix H of this application for the PSD Air Quality Analyses.

Pollutant	Averaging Period	A Preliminary Screening Concentration ($\mu g/m^3$)	B Level of Significant Impact ($\mu g/m^3$)	C Significant Monitoring Concentration ($\mu g/m^3$)	D Background ($\mu g/m^3$)	E Maximum Modeled Concentration ($\mu g/m^3$)	F Modeled + Background Concentration ($\mu g/m^3$)	G NAAQS ($\mu g/m^3$)	H Modeled PSD Increment Consumption ($\mu g/m^3$)	I Allowable Class II PSD Increment ($\mu g/m^3$)
$PM_{2.5}$	24-hour		-	-				35		9
	Annual		-	-				12		4
PM_{10}	24-hour		5	10				150		30
	Annual		1	-				-		17
SO_2	1-hour		7.8	-				195		-
	3-hour		25	-				1300		512
	24-hour		5	13				365		91
	Annual		1	-				80		20
NO_X	1-hour		7.5	-				189		-
	Annual		1	14				100		25
CO	1-hour		2000	-				40,000	-	-
	8-hour		500	575				10,000	-	-
Lead	3-month		-	0.1				1.5	-	-

24.E Nonattainment New Source Review Offsets [LAC 33:III.517.D.16, LAC 33:III.504.D.4 & 5] ☒ **N/A**

Complete this section only if the proposed project triggers Nonattainment New Source Review (NNSR).
This project triggers NNSR review for: ☐ **NO_X** ☐ **VOC** ☐ **SO_2**

NO_X:

Is the applicant proposing to use internal offsets? ☐ **Yes** ☐ **No**

If not, identify the source of the offsets. **Company:** _____
Facility/Unit: _____
Permit No.: _____

Is an ERC Bank Application included with this application, or has an application already been submitted to LDEQ?
☐ **Yes** ☐ **No**

If the ERC application has already been submitted, give the date: _____

Identify the emissions units from which the offsets will be obtained (reference specific Emission Point ID numbers).

VOC:

Is the applicant proposing to use internal offsets? ☐ **Yes** ☐ **No**

If not, identify the source of the offsets. **Company:** _____
Facility/Unit: _____
Permit No.: _____

Is an ERC Bank Application included with this application, or has an application already been submitted to LDEQ?
☐ **Yes** ☐ **No**

If the ERC application has already been submitted, give the date: _____

Identify the emissions units from which the offsets will be obtained (reference specific Emission Point ID numbers).

SO_2:

Is the applicant proposing to use internal offsets? ☐ **Yes** ☐ **No**

If not, identify the source of the offsets. **Company:** _____
Facility/Unit: _____
Permit No.: _____

Is an ERC Bank Application included with this application, or has an application already been submitted to LDEQ?
☐ **Yes** ☐ **No**

If the ERC application has already been submitted, give the date: _____

Identify the emissions units from which the offsets will be obtained (reference specific Emission Point ID numbers).

In order to expedite processing, please be sure the ERC Bank Application is completed properly. In the case of NO_X, the document should clearly differentiate between ozone season and non-ozone season actual emissions during the baseline period. Be sure to indicate if a portion of the reductions are no longer surplus (e.g., due to new or revised federal or state regulations, use in a netting analysis, etc.).

24.F. Economic Impact

Answer the following questions.
How many temporary jobs will be added as a result of this project? Approximately 30
How many permanent jobs will be added as a result of this project? -

24.G Notification of Federal Land Manager [LAC 33:III.504.E.1, LAC 33:III.509.P.1]
Complete this section only if the proposed project triggers NNSR or PSD.

a. Is the proposed facility or modification located within 100 kilometers of a Class I Area? ☒ **Yes** ☐ **No**
If Yes, determination of Q/d is not required; skip to the next question. If No, complete the Q/d equation below:

$$Q/d = \frac{PM_{10\,(NEI)} + SO_{2\,(NEI)} + NO_{X\,(NEI)} + H_2SO_{4\,(NEI)}}{\text{Class I km}}$$

where:

- $PM_{10\,(NEI)}$ = net emissions increase of PM_{10}[1,2]
- $SO_{2\,(NEI)}$ = net emissions increase of SO_2[1,2]
- $NO_{X\,(NEI)}$ = net emissions increase of NO_X[1,2]
- $H_2SO_{4\,(NEI)}$ = net emissions increase of H_2SO_4[1,2]
- Class I km = distance to nearest Class I Area[3]

$$Q/d = \frac{70.08 + 8.41 + 86.02 + 0}{86} = 1.91$$

Per Federal Land Manager guidance, Q values should reflect annual emissions (in tons per year, based on 24-hour maximum allowable emissions). If $Q/d < 10$, proceed to Section 25. If $Q/d \geq 10$, complete the remainder of this Section.

b. Has the applicant provided a copy of the application to the Federal Land Manager? ☐ **Yes** ☐ **No**

c. Does the application contain modeling that demonstrates no adverse impact on Air Quality Related Values (AQRVs) in the Class I Area? ☐ **Yes** ☐ **No**

d. If Yes, indicate the model used: ☐ **VISCREEN** ☐ **PLUVUE II** ☐ **CALPUFF** ☐ **Other:**[4] ______

e. Has the Federal Land Manager concurred that the proposed project will not adversely impact any AQRVs?
☐ **Yes** ☐ **No** If Yes, please attach correspondence.

[1]If the net emissions increase of any pollutant is negative, enter "0."
[2]If the project did not trigger a netting analysis, use the project increase. In this case, the value will be less than the pollutant's significance level.
[3]In kilometers.
[4]Model must be approved by LDEQ and the Federal Land Manager.

25. Environmental Assessment Statement (EAS or "IT" Question Responses)

[La. R.S. 30:2018] ☒ **Yes** ☐ **No**

*** This section is required when applying for new Part 70 operating permits and/or major modifications. Any applications for these permit types that do not include answers to these questions will not be considered to be administratively complete.* **

For new Part 70 operating permits and/or major modifications, answers to these questions must be provided by the applicant to the local governmental authority and the designated public library at no additional costs to these entities. Consult instructions to determine what is considered to be a "local governmental authority" and a "designated public library." Indicate the name and address of the local governmental authority and the designated public library to which the answers to these questions were sent:

Name of Local Governing Authority			Name of Designated Public Library		
Plaquemines Parish Government			Port Sulphur Library		
Street or P.O. Box			**Street or P.O. Box**		
333 F. Edward Hebert Building 100			139 Delta Street		
City	**State**	**ZIP**	**City**	**State**	**ZIP**
Belle Chasse	LA	70037	Port Sulphur	LA	70083

Answer the following five questions on separate pages using full and complete answers. Include as many pages as necessary in order to provide full and complete answers. This information is required per Louisiana Revised Statutes 30:2018 (La. R.S. 30:2018).

Refer to Section 5 of this application for the Environmental Assessment Statement.

Question 1: Have the potential and real adverse environmental effects of the proposed facility been avoided to the maximum extent possible?

Question 2: Does a cost benefit analysis of the environmental impact costs balanced against the social and economic benefits of the proposed facility demonstrate that the latter outweighs the former?

Question 3: Are there alternative projects which would offer more protection to the environment than the proposed facility without unduly curtailing non-environmental benefits?

Question 4: Are there alternative sites which would offer more protection to the environment than the proposed facility site without unduly curtailing non-environmental benefits?

Question 5: Are there mitigating measures which would offer more protection to the environment than the facility as proposed without unduly curtailing non-environmental benefits?

PART 70 OPERATING PERMIT APPLICATION COMPLETENESS CHECKLIST

Instructions: Complete this checklist and submit with the completed air permit application.

LAC 33:III.	Completeness Questions Relative to the Part 70 Permit Application	Yes	No	NA	Location Within the Permit Application
517.A Timely Submittal	Was a Copy of the Application Also Submitted to EPA?	X			
517.B.1,2 Certification	Does the Application include a Certification by a Responsible Official?	X			AAE Section 10
517.B.3 Certification	Does the Application Include Certification by a Professional Engineer or their Designee:	X			AAE Section 10
517.D.1 Identifying Information	Does the Application Include:	X			
	1. Company Name, Physical and Mailing Address of Facility?	X			AAE Section 1, 2, and 11
	2. Map showing Location of the Facility?	X			Appendix A
	3. Owner and Operator Names and Agent?	X			AAE Section 1
	4. Name and Telephone Number of Plant Manager or Contact?	X			AAE Section 11
517.D.2 SIC Codes, Source Categories	Does the Application Include a Description of the Source's Processes and Products?	X			Section 1
	Does the Application Include the Source's SIC Code?	X			AAE Section 5
	Does the Application Include EPA Source Category of HAPs if applicable?			X	
517.D.3,6 EIQ Sheets	Has an EIQ Sheet been Completed for each Emission Point whether an Area or Point Source?	X			AAE Section 23
517.D.4 Monitoring Devices	Does the Application Include Identification and Description of Compliance Monitoring Devices or Activities?	X			AAE Section 22 and Appendix F
517.D.5 Revisions and Modifications Only	For Revisions or Modifications, Does the Application include a Description of the Proposed Change and any Resulting Change in Emissions?			X	
517.D.7 General Information	Does the Application Include Information Regarding Fuels, Fuel Use, Raw Materials, Production Rates, and Operating Schedules as necessary to substantiate emission rates?	X			AAE Section 23
517 D.8 Operating Limitations	Has Information Regarding any Limitations on Source Operation or any Applicable Work Practice Standards been Identified?	X			AAE Section 22
517.D.9 Calculations	Are Emission Calculations Provided?	X			Appendix B
517.D.10 Regulatory Review	Does the Application Include a Citation and Description of Applicable Louisiana and Federal Air Quality Requirements and Standards?	X			AAE Section 22 and Section 2

LAC 33:III.	Completeness Questions Relative to the Part 70 Permit Application	Yes	No	NA	Location Within the Permit Application
517.D.11 Test Methods	Has a Description of or a Reference to Applicable Test Methods Used to Determine Compliance with Standards been Provided?	X			AAE Section 22
517.D.12 Major Sources of TAPs	Does the Application include Information Regarding the Compliance History of Sources Owned or Operated by the Applicant (per LAC 33.III.5111)?			X	
517.D.13 Major Sources of TAPs	Does the Application include a Demonstration to show that the Source Meets all Applicable MACT and Ambient Air Standard Requirements?	X			AAE Section 22
517.D.14 PSD Sources Only	If Required by DEQ, Does the Application Include Information Regarding the Ambient Air Impact for Criteria Pollutants as Required for the Source Impact Analysis per LAC 33:III.509.K, L, and M?	X			Appendix H
517 D.15 PSD Sources Only	If Required by DEQ, Does the Application Include a Detailed Ambient Air Analysis?	X			Appendix H
517.D.16, 18	Has any Additional Information been Provided?	X			Section 1
517.D.17 Fees	Has the Fee Code been Identified?	X			AAE Section 5
	Is the Applicable Fee Included with the Application?	X			Attached to cover letter
517.E.1 Additional Part 70 Requirements	Does the Certification Statement Include a Description of the Compliance Status of Each Emission Point in the Source with All Applicable Requirements?	X			AAE Section 10
517E.2 Additional Part 70 Requirements	Does the Certification Statement Include a Statement that the Source will continue to Comply with All Applicable Requirements with which the Source is in Compliance?	X			AAE Section 10
517.E.3 Additional Part 70 Requirements	Does the Certification Statement Include a Statement that the Source will, on a timely basis, meet All Applicable Requirements that will Become Effective During the Permit Term?	X			AAE Section 10
517.E.4 Additional Part 70 Requirements	Are there Applicable Requirements for which the Source is not in Compliance at the Time of Submittal?		X		
	Does the Application include a Compliance Plan Schedule?			X	
	Does the Schedule Include Milestone Dates for which Significant Actions will occur?			X	
	Does the Schedule Include Submittal Dates for Certified Progress Reports?			X	
517.E.5 Additional Part 70 Requirements Acid Rain	Is this Source Covered by the Federal Acid Rain Program?		X		
	Are the Requirements of LAC 33.III.517.E 1-4 included in the Acid Rain Portion of the Compliance Plan?			X	

LAC 33:III.	Completeness Questions Relative to the Part 70 Permit Application	Yes	No	NA	Location Within the Permit Application
517.E.6 Additional Part 70 Requirements	Have any Exemptions from any Applicable Requirements been Requested?	X			AAE Section 22
	Is the List and explanations Provided?	X			AAE Section 22
517.E.7 Additional Part 70 Requirements	Does the Application Include a Request for a Permit Shield?		X		
	Does the Request List those Federally Applicable Requirements for which the Shield is Requested along with the Corresponding Draft Permit Terms and conditions which are Proposed to Maintain Compliance?			X	
517.E.8 Additional Part 70 Requirements	Does the Application Identify and Reasonably Anticipated Alternative Operating Scenarios?	X			Section 1 and AAE Section 23
	Does the Application include Sufficient Information to Develop permit Terms and Conditions for Each Scenario, Including Source Process and Emissions Data?	X			Section 1 and AAE Section 23
517.F Confidentiality	Does the Application Include a Request for Non-Disclosure (Confidentiality)?		X		
525.B. Minor Permit Modifications	Does the Application Include a Listing of New Requirements Resulting for the Change?			X	
	Does the Application Include Certification by the Responsible Official that the Proposed Action Fits the Definition of a Minor Modification as per LAC 33:III.525.A.			X	
	Does the Certification also Request that Minor Modification Procedures be Used?			X	
	Does the Application, for Part 70 Sources, Include the Owner's Suggested Draft Permit and Completed Forms for the Permitting Authority to Use to Notify Affected States?			X	
La. R.S. 30:2018 – PSD/NNSR only	Has a copy of the answers to the questions posed in the Environmental Assessment Statement (Section 25) been sent to the local governing authority at no cost to the local governing authority?	X			AAE Section 25 and Section 5
	Has a copy of the answers to the questions posed in the Environmental Assessment Statement (Section 25) been sent to the designated public library at no cost to the designated public library?	X			

5. ENVIRONMENTAL ASSESSMENT STATEMENT (EAS OR "IT" QUESTION RESPONSES)

5. ENVIRONMENTAL ASSESSMENT STATEMENT (EAS OR "IT" QUESTION RESPONSES)

Plaquemines Generation, LLC (Plaquemines Generation), a wholly owned subsidiary of Venture Global LNG, Inc. (Venture Global), proposes to install four (4) aeroderivative natural gas-fired combustion turbines and associated ancillary equipment for use at Plaquemines LNG, a liquefied natural gas (LNG) production, storage, and export terminal, which is owned and will be operated by Venture Global Plaquemines LNG, LLC (Plaquemines LNG) and/or at the proposed Delta LNG Project, which will be owned and operated by Venture Global Delta LNG, LLC (Delta LNG).

The Plaquemines LNG terminal, which is under construction, is currently authorized under Title V Operating Permit No. 2240-00443-V2 and Prevention of Significant Deterioration (PSD) Permit No. PSD-LA-808(M-2) issued on May 28, 2021[1] by the Louisiana Department of Environmental Quality (LDEQ). Delta LNG submitted an application to the LDEQ on November 26, 2019[2] to request authorization to construct and operate the Delta LNG Project in accordance with the LDEQ Title V Operating Permits Program and PSD Program. The Plaquemines LNG terminal and the proposed Delta LNG Project will be located on the west bank of the Mississippi River near river Mile Markers 55 and 54, respectively, in Plaquemines Parish, Louisiana and both are wholly owned subsidiaries of Venture Global LNG, Inc. The proposed Delta LNG Project will be located on property contiguous to the Plaquemines LNG terminal. Therefore, with respect to the LDEQ Title V Operating Permit and PSD Permit programs, the facilities will be contiguous and will be under common control; thus, they are considered one major stationary source. The Plaquemines Generation Facility will be located within either the Plaquemines LNG terminal or the proposed Delta LNG Project. Because Plaquemines Generation is also owned by the same parent company as these two terminals, it will also be part of this single major stationary source. Plaquemines LNG will retain the permitted sources and emissions for the Plaquemines LNG terminal under its current Title V and PSD Permits. Similarly, Delta LNG will retain the permitted sources and emissions under its Title V and PSD permits.

The primary purpose of the proposed power generation facility (Facility) is to support Plaquemines LNG and/or the proposed Delta LNG Project on an as-needed basis, including, but not limited to, during periods of maintenance, repair, or unplanned events when one or more of the Plaquemines LNG or Delta LNG electrical power sources are unavailable. The proposed Facility will include four (4) 37 megawatt (MW) aeroderivative simple cycle combustion turbines (ASCCTs) and associated ancillary equipment.

It is important to recognize that Plaquemines LNG and Delta LNG do not share electrical interconnections. When the Plaquemines Generation turbines are at Plaquemines LNG, they will support only the Plaquemines internal electrical system and when at Delta LNG, they will support only the Delta LNG internal electrical system. Plaquemines Generation will not provide electrical power for sale to the public utility grid.

Plaquemines Generation submits this Environmental Assessment Statement (EAS or "IT" Question Responses) for the proposed Facility in support of and as part of its application (Application) for a Title V Operating Permit under Part 70 of Title 40 of the Code of Federal Regulations (40 CFR Part 70) and for a

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[1] Louisiana Department of Environmental Quality, Electronic Data Management System. Available at: https://edms.deq.louisiana.gov/app/doc/view?doc=12738655 and https://edms.deq.louisiana.gov/app/doc/view?doc=12738653. Accessed January 2024.
[2] Louisiana Department of Environmental Quality, Electronic Data Management System. Available at: https://edms.deq.louisiana.gov/app/doc/view?doc=11961839 and https://edms.deq.louisiana.gov/app/doc/view?doc=11961843. Accessed January 2024.

PSD permit-to-construct under New Source Review (NSR). Pursuant to Louisiana Revised Statute (La. R.S.) 30:2018.A, an EAS is required for:[3]

> *...a new permit or a major modification of an existing permit as defined in rules and regulations that would authorize the treatment, storage, or disposal of hazardous wastes, the disposal of solid wastes, or the discharge of water pollutants or air emissions in sufficient quantity or concentration to constitute a major source...*

As stated in La. R.S. 30:2018.B, the purpose of the EAS is to satisfy the public trustee requirements of Article IX, Section 1 of the Louisiana Constitution.[4] Article IX states the following:[5]

> *The natural resources of the state, including air and water, and the healthful, scenic, historic, and esthetic quality of the environment shall be protected, conserved, and replenished insofar as possible and consistent with the health, safety, and welfare of the people. The legislature shall enact laws to implement this policy.*

Accordingly, Plaquemines Generation submits this EAS for the proposed Facility pursuant to new and separate Title V and PSD permits in accordance with Louisiana Administrative Code (LAC) 33:III.507.E.4.

The EAS must include a detailed evaluation of both air and non-air environmental impacts of the proposed Facility. To satisfy this requirement, Section 25 of the LDEQ Application for Approval of Emissions (AAE) requires applicants for permit actions subject to La. R.S. 30:2018 to address the following five questions in the EAS:

- **Question 1:** Have the potential and real adverse environmental effects of the proposed facility been avoided to the maximum extent possible?
- **Question 2:** Does a cost benefit analysis of the environmental impact costs balanced against the social and economic benefits of the proposed facility demonstrate that the latter outweighs the former?
- **Question 3:** Are there alternative projects which would offer more protection to the environment than the proposed facility without unduly curtailing non-environmental benefits?
- **Question 4:** Are there alternative sites which would offer more protection to the environment than the proposed facility site without unduly curtailing non-environmental benefits?
- **Question 5:** Are there mitigating measures which would offer more protection to the environment than the facility as proposed without unduly curtailing non-environmental benefits?

A response to each question above is provided in the forthcoming sections. Plaquemines Generation selected the Plaquemines Parish site for the power generation facility to enhance the stability of the electrical power system at Plaquemines LNG and/or the proposed Delta LNG Project and the presence of existing infrastructure, including suitable access roads and electric distribution lines, that mitigate the environmental impacts that would otherwise occur by building new infrastructure. Siting considerations are further discussed below. Alternative projects and mitigating measures assessed by Plaquemines Generation also will be discussed herein. The proposed Facility will comply with all applicable ambient air, water, and noise standards that are designed to ensure there is no adverse human health or environmental impact. The proposed Facility will not have disproportionately high or adverse impacts on any environmental justice community as a result of the proposed emission sources. In addition, the proposed Facility will provide or

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[3] La. R.S. 30:2018. Available at: https://legis.la.gov/Legis/Law.aspx?d=87053. Accessed January 2024.
[4] Ibid.
[5] Louisiana Constitution, Article IX, Sec. 1. Natural Resources. Available at: https://senate.la.gov/Documents/Constitution/Article9.htm. Accessed January 2024.

enhance positive economic and social benefits, while avoiding or minimizing potential adverse environmental impacts.

5.1 Question 1

Have the potential and real adverse environmental effects of the proposed facility been avoided to the maximum extent possible?

Response:

Yes. Plaquemines Generation has designed the proposed power generation facility to avoid the potential and real adverse environmental effects to the maximum extent possible. The Facility will comply with all applicable ambient environmental standards and will employ best available technology to control air emissions and water effluents. To avoid or minimize potential adverse environmental impacts, numerous measures were implemented in the Facility's design.

One example is the use of pipeline quality natural gas and high pressure (HP) fuel gas (treated natural gas) as the primary fuel for all ASCCTs, which minimizes emissions. Additionally, the proposed turbines will have the state-of-the-art control technologies such as dry low nitrogen oxides (NO_X) emission and selective catalytic reduction (SCR) to minimize the NO_X emissions and catalytic oxidization to minimize the carbon monoxide (CO) and formaldehyde emissions. As a result of these measures, the proposed ASCCTs are among the lowest emitting types of simple cycle turbines. As detailed in the subsequent sections, Plaquemines Generation is committed to minimizing the potential impact of its operations upon the environment and using best available control technologies (BACT) and best management practices (BMPs) to reduce or prevent potential adverse environmental impacts when feasible.

With respect to the LDEQ Title V Operating Permit and PSD Permit programs, the facilities will be contiguous and will be under common control; thus, they are considered one major stationary source. The Plaquemines Generation facility will be located in either the Plaquemines LNG terminal or in the Delta LNG terminal. Because Plaquemines Generation is also owned by the same parent company as these two terminals, it will also be part of this single major stationary source. Hence, the facility is subject to PSD NSR Review, including the application of Best Available Control Technology (BACT), air quality impacts review, and secondary impacts review.

The proposed Facility will be permitted to emit greenhouse gases (GHGs). It is important to note, however, that operational emission estimates use a potential to emit basis which conservatively assumes a facility would operate at maximum capacity 24 hours per day for 365 days a year. Plaquemines Generation understands such emissions are of concern and acknowledges the efforts of former Governor Jon Bel Edwards's Task Force on Climate Change to reduce GHG emissions in Louisiana by 40 percent to 50 percent by 2030 and to reach net zero by 2050.[6] Although the proposed Facility will represent an increase in GHG emissions, the net impact of its operations (i.e., providing flexible power for Plaquemines LNG and/or the proposed Delta LNG Project for subsequent export of LNG) will result in a reduction of global GHG emissions by assisting Plaquemines LNG and/or the proposed Delta LNG Project in providing clean, affordable energy to overseas markets. This LNG will enable such overseas sources to reduce the use of coal and other fuels that generate higher levels of GHG emissions than using natural gas.

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[6] State of Louisiana Executive Order JBE 2020-18, Climate Initiative Task Force. Available at: https://gov.louisiana.gov/assets/ExecutiveOrders/2020/JBE-2020-18-Climate-Initiatives-Task-Force.pdf. Accessed January 2024.

LNG exports for electricity generation in Asian and other markets have a significant net GHG emissions reduction from a life cycle and secondary impacts perspective, when compared to local coal extraction and use of dirtier fuels for electricity generation.[7] Global demand for LNG is forecast to almost double by 2040, with Asian countries expected to drive roughly 75 percent of that growth, and more medium and long-term LNG contracts are being executed. In this market context, natural gas exports from the U.S. can contribute to significantly transitioning energy generation away from coal. This transition will help to achieve global targets in GHG reductions and foster economic activity in the U.S. at the same time.[8] Plaquemines Generation will discuss specific GHG minimization and mitigation measures in Section 5.1.1.3 below.

5.1.1 Air

The primary sources of air emissions from the proposed Facility are four (4) 37 MW natural gas and HP fuel gas-fired aeroderivative simple cycle combustion turbines. Other emission sources include aqueous ammonia storage tanks, fugitive emissions from equipment leaks, and several insignificant activities, such as lube oil storage tanks. As noted above, because Plaquemines Generation is contiguous with Plaquemines LNG and the proposed Delta LNG Project, which are major sources under both Title V and PSD regulations for all criteria pollutants and GHGs, and are under common control, the proposed Facility will be classified as a major modification under PSD regulations.

5.1.1.1 The Proposed Emissions Will Meet or Exceed Applicable Federal and State Ambient Air Standards

The proposed facility-wide emissions are subject to the requirements of the federal Clean Air Act (CAA) as well as those of the Louisiana Air Pollution Control Act. The CAA requires the U.S. Environmental Protection Agency (U.S. EPA) to establish National Ambient Air Quality Standards (NAAQS) for pollutants considered potentially harmful to public health and the environment when they exist at sufficient concentrations. Specifically, the NAAQS are established by the U.S. EPA to ensure that the air quality outside the boundary of a facility (i.e., ambient air) is protective of public health and welfare. The CAA establishes two types of NAAQS:[9]

- *Primary standards* provide public health protection with an adequate margin of safety, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly; and
- *Secondary standards* provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

The U.S. EPA established primary and secondary NAAQS for the following six principal pollutants (i.e., "criteria" air pollutants): CO, lead, NO_2, ozone (evaluated using ozone precursors NO_X and VOCs), particle pollution (PM_{10} and $PM_{2.5}$), and SO_2.[10] If ambient monitoring data for a geographic area show concentrations of a criteria pollutant equal to or below a NAAQS, the U.S. EPA designates the area as "*attainment/unclassifiable*" for that particular NAAQS. If ambient monitoring data show concentrations of a criteria pollutant above a NAAQS, the U.S. EPA designates the area as "*nonattainment*" for that particular

[7] Western States and Tribal Nations Natural Gas Inititative, "Life Cycle Assessment of Greenhouse Gas Emissions from Liquefied Natural Gas Exports from North America's West Coast for Coal-Displaced Electricity Generation in Asia". Available at https://ceda60f9-1aec-426f-a073-008895be8fba.usrfiles.com/ugd/ceda60_321bc1d38f904de2a0134bae21dcc312.pdf. Accessed January 2024.
[8] *Ibid.*
[9] 42 U.S.C. § 7409(b)(1) and (2) (Clean Air Act, § 109(b)(1) and (2).
[10] U.S. Environmental Protection Agency, NAAQS Table. Available at: https://www.epa.gov/criteria-air-pollutants/naaqs-table. Accessed January 2024.

NAAQS. In some cases, the U.S. EPA is not able to determine an area's status after evaluating the available information. Those areas are designated as "*unclassifiable.*"[11]

Louisiana has adopted each of the federal NAAQS as enforceable state regulations.[12] Pursuant to approved U.S. EPA protocols, the LDEQ operates several ambient air monitoring stations which measure criteria pollutants throughout the New Orleans Metropolitan Statistical Area (MSA) in the LDEQ Southeast region, which includes Jefferson, Orleans, and St. Bernard Parishes, which are near Plaquemines Parish.[13] These air monitoring stations measure the ambient concentrations of criteria pollutants and often also measure meteorological parameters such as outdoor temperature, wind velocity, and wind direction.[14] Plaquemines Parish is currently designated attainment/unclassifiable for each NAAQS,[15,16] which means the existing air quality within the parish meets all federal criteria pollutant NAAQS that are protective of human health and the environment.[17] A comparison of local design values to NAAQS for parameters monitored in the area is shown in the following table.

Criteria Pollutant	NAAQS (Averaging Period)	2020-2022 Design Value at the Most Representative Monitor[1]
Ozone	70 ppb (8-Hour)	59 ppb (Thibodaux, LA)
NO_2	53 ppb (Annual)	6 ppb (Jefferson Parish, LA – Kenner)
	100 ppb (1-Hour)	37 ppb (Kenner, LA)
$PM_{2.5}$	12 $\mu g/m^3$ (Annual)	7.6 $\mu g/m^3$ (Marrero, LA)
$PM_{2.5}$	35 $\mu g/m^3$ (24-Hour)	18 $\mu g/m^3$ (Marrero, LA)
SO_2	75 ppb (1-Hour)	9 ppb (Meraux, LA)
CO	35 ppm (1-Hour)	1.9 ppm (New Orleans, LA)
CO	9 ppm (8-Hour)	1.4 ppm (New Orleans, LA)

[1] Based on the U.S. Environmental Agency's Air Quality Design Values. Available at: https://www.epa.gov/air-trends/air-quality-design-values. Accessed January 2024.

To obtain the Title V and PSD Permits for the proposed Facility, Plaquemines Generation is required to conduct an air quality dispersion modeling analysis for certain PSD-regulated criteria pollutants. The modeling has three objectives: 1) demonstrate that the proposed emissions will not cause or significantly contribute to any exceedance of a NAAQS; 2) demonstrate that the air quality in the area will not be significantly deteriorated by showing that the proposed emissions are within allowable "growth increments"; and 3) demonstrate that there will be no additional adverse environmental impacts, including no impacts on visibility at any Class I air quality area.

[11] U.S. Environmental Protection Agency, Process to Determine Whether Areas Meet the NAAQS (Designations Process). Available at: https://www.epa.gov/criteria-air-pollutants/naaqs-designations-process. Accessed January 2024.
[12] LAC 33:III.Ch. 7.
[13] Louisiana Department of Environmental Quality, Southeast Ambient Air Monitoring Stations. Available at: https://deq.louisiana.gov/page/southeast. Accessed January 2024.
[14] Louisiana Department of Environmental Quality, Louisiana Ambient Air Monitoring Sites. Available at: https://www.deq.louisiana.gov/assets/docs/Air/LouisianaAmbientAirMonitoringSites.pdf. Accessed January 2024.
[15] 40 CFR Part 81 Designation of Areas for Air Quality Planning Purposes, Subpart C – Section 107 Attainment Status Designations - Louisiana (40 C.F.R. Section 81.319).
[16] U.S. Environmental Protection Agency, Current Nonattainment Counties for All Criteria Pollutants. Available at: https://www3.epa.gov/airquality/greenbook/ancl.html. Accessed January 2024.
[17] The LDEQ has also adopted the federal NAAQS as enforceable state ambient standards at LAC Title 33, Part III, Chapter 7.

Modeling was performed to determine the potential worst-case ambient air quality impacts from the proposed Facility at and beyond the property boundary of the stationary source. Modeled impacts less than the Significant Impacts Levels (SILs), which are only a fraction of the NAAQS, are considered to be insignificant and no further modeling is required. Any modeled impacts of a specific PSD pollutant greater than the prescribed SIL triggers a full impact analysis ("refined modeling") for that pollutant which considers not only emissions from the proposed Facility, but also emissions from existing sources within the impact area to demonstrate that the proposed Facility will not cause or contribute to a violation of any NAAQS or prescribed PSD increment standard.[18,19]

PSD growth increments are established to allow some growth in attainment areas, but not so much as would cause the air quality in clean areas to deteriorate to the level set by the NAAQS. The NAAQS is a maximum allowable concentration ceiling. A PSD increment, however, is the maximum allowable increase in concentration that is allowed to occur above a baseline concentration for a pollutant.

Finally, the additional impacts analysis required under the PSD permitting program assesses the potential impacts of air, ground, and water pollution on soils, vegetation, and visibility that may be caused by the increase in emissions of the NSR regulated pollutants subject to PSD review and from associated growth resulting from the proposed Facility.[20] The PSD additional impacts analysis is similar to the Louisiana-required EAS in that it considers multi-media environmental impacts.

The air quality dispersion modeling analyses for the proposed Facility are provided in Appendix H of this Application. The air dispersion modeling analyses demonstrate that the proposed emissions will not result in any NAAQS or PSD increment standard exceedances. The analyses show that for all modeled pollutants and their respective averaging periods, except the $PM_{2.5}$ 24-hour averaging period, the results were less than the significant impact levels (SILs) and do not trigger refined modeling. In the case of the $PM_{2.5}$ 24-hour averaging period, the air dispersion modeling demonstrates Plaquemines Generation will be in compliance with NAAQS and PSD increment standards.

Additionally, the air quality modeling analysis includes a secondary $PM_{2.5}$ and ozone impacts analysis. In accordance with EPA guidance, Plaquemines Generation utilized the Tier 1 Modeled Emission Rates for Precursors (MERPs) method[21] to demonstrate that the proposed emissions will not cause or contribute to a violation of the 8-hour ozone NAAQS or to the 24-hour or annual $PM_{2.5}$ NAAQS or PSD increment standards.

The additional impacts analysis demonstrates that the proposed emissions will have negligible growth-related ambient air impacts, are in compliance with the secondary NAAQS and visibility standards, and do not have any adverse impact on the Breton National Wildlife Refuge Class I Area's Air Quality Related Values (AQRV) or Class I increments. The Breton National Wildlife Refuge (NWR) is approximately 86 kilometers (km) from the proposed Facility and is within the 100-km threshold of concern established by the U.S. EPA, the Federal Land Manager (FLM), Louisiana Department of Natural Resources (LDNR), and LDEQ.

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[18] LAC 33:III.509.K, L, and M.

[19] As noted in the Application, the modeling analysis reviewed the full potential to emit from the proposed Plaquemine Generation facility without consideration of any potential limitations. To the extent necessary, supplemental modeling will be provided consistent with such potential limitations.

[20] LAC 33:III.509.O.

[21] U.S. Environmental Protection Agency, "Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 Demonstration Tool for Ozone and PM2.5 under the PSD Permitting Program," Memorandum from Mr. Richard A Wayland, April 30, 2019. Available at: https://www.epa.gov/sites/production/files/2020-09/documents/epa-454_r-19-003.pdf. Accessed January 2024.

As set forth by the FLM, the Q/D screening assessment compares the ratio of the sum of proposed annualized maximum daily emission rates of all visibility-impairing pollutants (in tons per year, tpy) and the distance to a Class I area (in kilometers, km) to a threshold value of ten (10).[22] As detailed in Appendix H of this Application, the Q/D for this Facility is 1.91, well below ten (10) for the potentially-affected Class I area. As such, it is anticipated that the FLMs will not require a Class I AQRV analysis and that the proposed Facility will neither adversely affect the AQRV for the Breton NWR nor contribute to any significant violations of the Class I PSD increments. Because the modeled concentrations at the Breton NWR demonstrate compliance with the significance criteria, it is concluded that the proposed Facility will neither cause nor significantly contribute to any violations of the Class I PSD increments in the Breton NWR.

Compliance with the NAAQS, compliance with PSD increment standards, and lack of additional adverse impacts demonstrate that there will not be significant adverse impacts to air due to the proposed Facility. As noted above, the U.S. EPA must establish the primary NAAQS at levels that provide an adequate margin of safety to protect the public health. This requirement is reflected in Section 109 of the CAA which states:[23]

> *National primary ambient air quality standards, prescribed under subsection (a) of this section shall be ambient air quality standards the attainment and maintenance of which in the judgment of the Administrator, based on such criteria and allowing an adequate margin of safety, are requisite to protect the public health. Such primary standards may be revised in the same manner as promulgated.*

Litigation over past NAAQS determined that economic cost and technical feasibility cannot be considered in setting these primary standards.[24] Therefore, by definition, modeling compliance with the NAAQS demonstrates that no adverse impacts to human health will result from emission of these pollutants as the standards have been set conservatively to protect even sensitive individuals with an adequate margin of safety, and without regard to the cost of compliance.

In Louisiana, facilities emitting certain state-regulated Toxic Air Pollutants (TAPs) are subject to both ambient air standards and technological control requirements. The Louisiana regulations in LAC 33:III.Chapter 51 regulate over 100 TAPs, most of which are also Hazardous Air Pollutants (HAPs) under Section 112 of the federal CAA (refer to Section 2.4 of this Application).[25] Louisiana requires that Class I and II TAPs be controlled using Maximum Available Control Technology (MACT). In addition, the LDEQ has established Louisiana Ambient Air Quality Standards (LAAS) for all Class I, II, and III TAPs per La. R.S. 30:2060.[26]

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[22] U.S. Department of the Interior, U.S. Forest Service. "Federal Land Managers' Air Quality Related Values Work Group (FLAG): Phase I Report—Revised (2010)," Natural Resource Report NPS/RPC/NRR—2010/232. Available at: https://irma.nps.gov/DataStore/DownloadFile/420352. Accessed January 2024.
[23] Clean Air Act Section 109(b)(1), 42 U.S.C. § 7409(b)(1). Available at: https://www.govinfo.gov/content/pkg/USCODE-2013-title42/html/USCODE-2013-title42-chap85-subchapI-partA-sec7409.htm. Accessed January 2024.
[24] *Am. Petroleum Inst. v. Douglas M. Costle, Adm'r, & U.S. EPA*, 665 F.2d 1176 (D.C. Cir. 1981), https://law.justia.com/cases/federal/appellate-courts/F2/665/1176/408302/ and *Lead Indus. Ass'n, Inc. v. U.S. EPA*, 647 F.2d 1130 (D.C. Cir. 1980), https://law.justia.com/cases/federal/appellate-courts/F2/647/1130/237769/. Accessed January 2024.
[25] Louisiana's TAP list includes all federally-regulated HAPs plus fourteen additional compounds and compound types. See Louisiana Department of Environmental Quality's "Louisiana Guidance for Air Permitting Actions", January 14, 2013, pp. 17. Available at: https://deq.louisiana.gov/assets/docs/Air/LouisianaGuidanceforAirPermittingActions.pdf. Accessed January 2024.
[26] La. R.S. 30:2060. Available at: https://legis.la.gov/Legis/Law.aspx?d=87125. Accessed January 2024.

Pursuant to this statutory requirement, the LDEQ established either an 8-hour average LAAS for TAPs that could cause acute effects or annual average LAAS for TAPs that may have chronic effects (over an individual's lifetime). The LAAS apply at the property boundary and are set at levels which would be safe even for a person who might live 24 hours per day for 70 years at the fence line. Thus, in establishing these ambient air standards, the LDEQ has established levels that are safe for residential exposures.

The Louisiana TAP program also created Minimum Emission Rates (MERs) in LAC 33:III.5112, Table 51.1. Emissions below the MERs do not require control per LAC 33:III.5109, because they are considered to have a *de minimis* potential impact. Increases of any TAP above a specified MER requires discussion in the application of any potential impacts. As discussed in Section 2.4 of this Application, ammonia is the only non-exempt TAP that will be increased at the stationary source due to this proposed Facility that exceeds the MER in LAC 33:III.5112. The MER for ammonia is 1,200 lb/year and the proposed Facility will have the potential to emit of 47.84 tpy. The ammonia emissions are associated with the unreacted ammonia from the SCR system used to control NO_x emissions (termed ammonia "slip") from the proposed ASCCTs and with fugitive emissions from equipment leaks from the storage and handling of the aqueous ammonia. Emissions from ammonia slip only occur when there is an incomplete conversion of NO_x to nitrogen and water by the reaction between the NO_x and aqueous ammonia through the SCR. Ammonia slip will be minimized by proper operation of the SCR system to optimize the amount of ammonia injection to a degree necessary to adequately control NO_x to BACT levels without excessive ammonia slip. Further, proper piping design and installation and good work practices (such as auditory, visual, and olfactory inspections) will minimize fugitive emission leaks.

As noted above, the proposed ASCCTs will use only pipeline quality natural gas or HP fuel gas as fuel. Any TAP emissions from the combustion of virgin fossil fuel (LAC 33:III.5105.B.3.a) from the turbines are exempted from the requirements of LAC 33:III.Chapter 51 as they are considered to be emitted from clean-burning fuels.

The proposed ASCCTs are subject to National Emissions Standard for Hazardous Air Pollutants (NESHAP) for Stationary Combustion Turbines under 40 CFR Part 63 Subpart YYYY. This regulation imposes Maximum Achievable Control Technology (MACT) limits to control formaldehyde emissions from combustion of fuel in the proposed turbines. It contains performance testing, monitoring, recordkeeping, and reporting requirements designed to ensure continuous compliance with the formaldehyde standard. The proposed ASCCTs will be equipped with catalytic oxidation systems which will result in minimization of formaldehyde emissions to a level that meets this standard.

5.1.1.2 Proposed Criteria Pollutants Emissions from the Plaquemines Generation Facility Meet or Exceed Applicable Control Technology Requirements

In addition to meeting ambient air quality standards, the PSD program requires that each emission unit subject to PSD must control emissions of the PSD pollutant through application of BACT.[27] BACT is defined as a stringent emission limitation based on the maximum degree of emissions control that can be achieved for the source that considers energy, environmental, and economic impacts. BACT may be a design, modification, add-on control equipment, work practice, or operational standard.

The BACT cannot be less stringent than any applicable New Source Performance Standard (NSPS) in 40 CFR Part 60 or National Emission Standards for Hazardous Air Pollutants (NESHAP) in 40 CFR Part 61 or Part 63. The Part 63 NESHAP standards require application of Maximum Achievable Control Technology (MACT), and for new sources, which means application of the technology achieved by the best performing source in the

[27] LAC 33:III.509.J.

category.[28] Refer to Section 3 of this Application for a detailed report of the review and selection of BACT for each affected emission source and PSD subject pollutant due to the proposed Facility. Note that the BACT emission limits for NO_x emissions from the proposed ASCCTs are more stringent than their respective NSPS KKKK requirements.

As required by the PSD program, Plaquemines Generation will comply with the stringent NSPS promulgated by the U.S. EPA pursuant to its authority under the CAA. The NSPS are technology-based standards that apply to specific categories of stationary sources and set forth restrictions on the quantities or concentration of air pollutants that a source may emit. NSPS are mandated by 42 U.S.C. § 7411(a)(1), which states:[29]

> *The term "standard of performance" means a standard for emissions of air pollutants which reflects the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction and any non-air quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated.*

Therefore, NSPS requirements impose an additional layer of protection of the environment as emission units must meet these technology-based emissions limitations regardless of whether the area is in attainment of the NAAQS. The U.S. EPA reviews these NSPS every five (5) years to make sure the regulations are based on the most up-to-date technology. Because BACT under the PSD program must not be less stringent than any applicable NSPS, these very stringent NSPS are evaluated as part of the BACT analysis in Section 3 of this Application. The following NSPS standards apply to the proposed ASCCTs at the Plaquemines Generation facility:

- 40 CFR Part 60 Subpart A – General Provisions include broader definitions of applicability and various methods for maintaining compliance with requirements listed in subsequent subparts of 40 CFR Part 60. The proposed ASCCTs will comply with this NSPS; and
- 40 CFR Part 60 Subpart KKKK – Standards of Performance for Stationary Combustion Turbines establish standards for NO_x and SO_2. The proposed ASCCTs will comply with this NSPS.

NESHAPs apply to major and/or certain area (minor) sources of HAPs. The following NESHAP standards apply to the proposed ASCCTs at the Plaquemines Generation facility:

- 40 CFR Part 63 Subpart A – General Provisions include broader definitions of applicability and various methods for maintaining compliance with requirements listed in subsequent subparts of 40 CFR Part 63. The proposed ASCCTs will comply with this NESHAP; and
- 40 CFR Part 63 Subpart YYYY – National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines establish standards to minimize HAP emissions through control of formaldehyde as surrogate. This regulation imposes MACT limits to control formaldehyde emissions from combustion of fuel in the turbines. It contains performance testing and monitoring, recordkeeping, and reporting requirements designed to ensure continuous compliance. The proposed ASCCTs will comply with this NESHAP.

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[28] Clean Air Act Section 112(d)(3), 42 U.S.C. § 7412(d)(3). Available at: https://www.govinfo.gov/content/pkg/USCODE-2013-title42/html/USCODE-2013-title42-chap85-subchapI-partA-sec7412.htm. Accessed January 2024.

[29] Clean Air Act Section 111(a)(1), 42 U.S.C. § 7411(a)(1). Available at: https://www.govinfo.gov/content/pkg/USCODE-2013-title42/html/USCODE-2013-title42-chap85-subchapI-partA-sec7411.htm. Accessed January 2024.

In addition to the federal NSPS and NESHAP requirements outlined above,[30] the proposed Facility is subject to applicable Louisiana regulations, including, but not limited to the following:

- LAC 33:III.Chapter 9 – General Regulations on Control of Emissions and Emission Standards;
- LAC 33:III.Chapter 11 – Control of Emissions of Smoke;
- LAC 33:III.Chapter 13 – Emission Standards for Particulate Matter;
- LAC 33:III.Chapter 51 – Comprehensive Toxic Air Pollutant Emission Control Program; and
- LAC 33:III.Chapter 56 – Prevention of Air Pollution Emergency Episodes.

These Louisiana regulations are aimed at appropriately controlling air emissions from certain sources or operations or from the proposed Facility as a whole. With the exception of the regulations in LAC 33:III.Chapter 51, the majority of these rules are also federally enforceable by the U.S. EPA and citizens under the CAA because they are federally approved under the Louisiana State Implementation Plan (SIP).[31] The Louisiana PSD rules specify that BACT cannot be less stringent than any applicable SIP requirement.

As stated above, Section 3 of this Application contains a detailed BACT analysis for each regulated pollutant that is subject to PSD review due to the proposed Facility. It is important to note that BACT is a "top-down" analysis determined on a case- by-case basis, with consideration given to the technical and economic feasibility of reducing or eliminating emissions (i.e., potential technologies are analyzed and ranked in descending order of stringency). A technology cannot be eliminated from the top of the list if it is technologically and economically feasible. Because of this "top-down" BACT process and because BACT cannot be less stringent than applicable NESHAP, NSPS, and SIP standards as discussed above (with detailed requirements listed in Section 22 of the LDEQ's Application for Approval of Emissions of Air Pollutants from Part 70 Sources), potential and real adverse environmental effects are avoided to the maximum extent possible. In short, where the top-down method yields a standard more stringent than an applicable NESHAP, NSPS, or SIP standard, it must be selected. Such is the case for the proposed ASCCTs where the proposed NO_x BACT is more stringent than the applicable NO_x emission standards of NSPS Subpart KKKK.

5.1.1.3 Greenhouse Gas Emissions

The U.S. EPA has characterized GHGs as pollutants in the context of climate change. Proportionate local and direct impacts are not a result of GHG emissions. Rather, the global climate system is affected by the collective concentration of GHGs in the Earth's atmosphere. Thus, the geographic scope for GHG emissions analysis is global – not local or regional. As an example, the contribution to climate change would be similar for a project 5 miles away emitting 1 ton of GHGs and a project 5,000 miles away emitting 1 ton of GHGs.

The primary purpose of the proposed Facility is to support Plaquemines LNG and/or the proposed Delta LNG Project on an as-needed basis, including, but not limited to, during periods of maintenance, repair, or unplanned events when one or more of the Plaquemines LNG or Delta LNG electrical power sources are unavailable. In turn, the LNG terminals will result in the global reduction of CO_2 emissions by enabling recipient nations to abate the use of coal and other more GHG-intensive fuels. Moreover, LNG exports can be accomplished in a manner to minimize associated GHG emissions. The proposed Facility has a potential to emit of 836,298 tons per year (tpy) for GHG (CO_2e) emissions. It is important to note, however,

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[30] The LDEQ has adopted the majority of NSPS and NESHAP standards by reference. *See* LAC 33:III.Chapter 30, Subchapter A (NSPS); LAC 33:III.Chapter 51, Subchapter B (Part 61 NESHAP); LAC 33:III.Chapter 51, Subchapter C (Part 63 NESHAPs for Major Sources); and LAC 33:III.Chapter 53, Subchapter B (Part 63 NESHAPs for Area Sources).

[31] U.S. Environmental Protection Agency, "Current Louisiana SIP-Approved Regulations". Available at: https://www.epa.gov/air-quality-implementation-plans/current-louisiana-sip-approved-regulations. Accessed January 2024.

operational emission estimates use a potential to emit basis which assumes a facility would operate at maximum capacity 24 hours per day for 365 days a year. GHG emissions will be minimized by application of EPA-approved BACT under the PSD permitting process. As noted above, this is a top-down process that requires that the facility use the BACT that is technically feasible and that is economically achievable without causing other adverse energy or environmental impacts. Thus, the PSD process requires control technology and measures that have been found to be the most technologically and economically feasible for reduction of GHG emissions. For example, the proposed BACT for combustion sources includes good design, use of low carbon fuel, and use of good combustion practices.

As discussed in Section 3 of this Application, the Carbon Capture and Sequestration (CCS) control technology is technically infeasible and cost prohibitive for the proposed Facility. Because CCS control technology for CO_2 capture is not demonstrated (i.e., the CCS control technology has not been installed and operated successfully on the type of source under review and has only been implemented on a pilot scale basis), CCS control technology for CO_2 capture is not considered to be BACT for the ASCCTs at the proposed Plaquemines Generation facility. Notwithstanding the fact that CCS is unproven technology for the specific source and scale of the proposed Facility, the overall total annualized cost for implementing CCS control technology is estimated to be $429.18/ton of CO_2 removed from the ASCCTs. Therefore, as discussed in Section 3.4 of this Application, implementing this control technology is cost prohibitive.

Finally, the two potential CCS CO_2 storage methodologies for the Facility, both of which are cost prohibitive, are either transportation for enhanced oil recovery (EOR) or injection underground into a deep saline aquifer. While the use of CO_2 for EOR is a technology that has been utilized for over forty years in certain areas, it would require an extensive pipeline system and is subject to other uncertainties as discussed in the BACT review. Injection of CO_2 for storage in a saline aquifer of the type found in south Louisiana is unproven. Further, the only two known LNG facilities currently injecting CO_2 into saline aquifers, Gorgon in Australia and Snøhvit Sin Norway, experienced problems maintaining full injection rates during the early years of operating.[32,33]

The construction and operation of the proposed Facility likely would increase the atmospheric concentration of GHGs and, in combination with past and future emissions from all other sources globally, would contribute incrementally to climate change. To date, neither the LDEQ nor the Federal Energy Regulatory Commission (FERC) have identified a methodology to attribute discrete, quantifiable, physical effects on the environment to a project's incremental contribution to GHGs. Additionally, the agencies have not identified any established threshold for determining the significance of a project's GHG emissions.

To provide context to consider a project's emissions, FERC generally compares the project's construction and operational GHG emissions to the total GHG emissions of the United States as a whole. On a national level for 2021, 5,586 million metric tons of CO_2e were emitted (inclusive of CO_2e sources and sinks).[34] Based on the 2021 national levels, the proposed Facility's operational emissions could potentially increase United States CO_2e emissions by about 0.01 percent.

To provide further context regarding a project's emissions, FERC sometimes compares the project's GHG emissions to the relevant state's GHG inventories. On a state level for 2021, energy-related CO_2e emissions

32 R. Kaufmann and E Skurtveit, "Snohvit: A success Story," FME Success Sysnthesis report Volume 6.
33 Chevron, Gorgon Project Carbon Dioxide Injection Project, "Section 13 Approval Annual Operational Report (1 July 2019 - 31 December 2019)." Available at: https://beta.documentcloud.org/documents/20440490-foi-4-abu200300205_1-jul-2019-to-30-dec-2019-section-13-annual-operational-rep-ar. Accessed January 2024.
34 U.S. Environmental Protection Agency, "Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2021," pp. ES-5, Table ES-2 (2021). Available at: https://www.epa.gov/system/files/documents/2023-04/US-GHG-Inventory-2023-Main-Text.pdf. Accessed January 2024.

in Louisiana were 188.6 million metric tons.[35] The proposed Facility's operational emissions would result in an emissions increase in Louisiana; however, no end-use is expected in the state because the LNG produced will be exported from the United States. Based on the 2021 Louisiana levels, the Facility's operational emissions could potentially increase CO_2e emissions by about 0.39 percent.

The operation of the proposed Facility likely would increase the atmospheric concentration of GHGs and, in combination with past and future emissions from all other sources globally, would contribute incrementally to climate change. However, the proposed Facility will play a significant role in supporting the electrical power requirements of Plaquemines LNG and/or the proposed Delta LNG Project which will produce and export LNG.

Where LNG will be exported from the United States, analysis of the GHG emissions directly emitted by an LNG project and the uses of such LNG is the duty of the U.S. Department of Energy (DOE) which has independent statutory authority to approve such exports.[36] The DOE has conducted two studies analyzing the life cycle greenhouse gas perspective on exporting liquefied natural gas from the United States, one in 2014[37] and another in 2019.[38] The DOE has concluded that these GHG studies support the agency position in numerous orders that LNG exports are consistent with the public interest.[39] Importantly, exporting LNG will encourage the use of more environmentally friendly natural gas for the generation of electricity as distinguished from the use of coal, diesel, or heavy fuel oil used in many foreign countries for power generation. Thus, LNG exports from Plaquemines LNG and the proposed Delta LNG Project are likely to reduce overall global GHG emissions. A study was completed by ICF, a company that provides expertise in energy, environment, and infrastructure, in 2020, reaching the same conclusions regarding LNG exports generally.[40]

Thus, although the proposed Facility will contribute to an increase in state and US GHG emissions, the net impact of the proposed Facility along with the operation of Plaquemines LNG and the proposed Delta LNG Project (i.e., transport of domestically produced natural gas from the LNG terminal facilities for subsequent export) will result in a reduction of global GHG emissions by providing clean, affordable energy to overseas markets. The proposed Facility will provide reliable power for the LNG terminal facilities that are critical to the overall LNG export operations which will have far-reaching global impacts such as aiding decarbonization efforts in partnership with renewables by providing LNG for on-demand gas-fired baseload power generation

[35] U.S. Energy Information Administration, Table 1. State Energy-Related Carbon Dioxide Emissions by Year: Louisiana (Released date July 12, 2023). Available at: https://www.eia.gov/environment/emissions/state/. Accessed January 2024.

[36] *See, e.g., Sierra Club v. FERC (Freeport)*, 827 F.3d 36, 47 (D.C. Cir. 2016); *Sierra Club v. FERC (Sabine Pass)*, 827 F.3d 59, 68-69 (D.C. Cir. 2016); *EarthReports, Inc. v. FERC*, 828 F.3d 949, 955-56 (D.C. Cir. 2016).

[37] U. S. Department of Energy, "Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States", DOE/NETL-2014/1649, May 14, 2014. Available at: http://www.energy.gov/sites/prod/files/2014/05/f16/Life Cycle GHG Perspective Report.pdf. Accessed January 2024.

[38] U. S. Department of Energy, "Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States: 2019 Update," DOE/NETL-2019/2041, September 12, 2019. Available at: https://energy.gov/sites/prod/files/2019/09/f66/2019%20NETL%20LCA-GHG%20Report.pdf. Accessed January 2024.

[39] *See, e.g.,* Venture Global Calcasieu Pass, LLC, DOE/FE Order No. 4346 at 68 (noting that DOE/FE has held that "[t]he conclusions of the [2014 GHG Study], combined with the observation that many LNG-importing nations rely heavily on fossil fuels for electric generation, suggests that exports of U.S. LNG may decrease global GHG emissions, although there is substantial uncertainty on this point. Based on the record evidence, however, we see no reason to conclude that U.S. LNG exports will increase global GHG emissions in a material or predictable way."); Venture Global Plaquemines LNG, LLC, DOE/FE Order No. 4446 at 41 (same). Identical or very similar statements are included in numerous other DOE orders.

[40] American Petroleum Institute, "Update to the Life-Cycle Analysis of GHG Emissions for US LNG Exports," ICF 2020. Available at: https://www.api.org/-/media/Files/Policy/LNG-Exports/2020/API-ICF-LNG-LCA-Study.pdf. Accessed January 2024.

and as a replacement to highly carbon-intensive power sources in developing economies, including in Asia.[41,42]

In addition to the overall beneficial impact on global GHG emissions, LNG exports are of significant importance to the United States and its allies to combat the Russian aggression in Ukraine.[43,44,45] LNG exports to United States' allies has enabled them to be less dependent upon Russian-provided energy sources and has enhanced their ability to assist in support of Ukraine.[46]

5.1.1.4 Conclusions – Air

Based on the applicable analysis and regulatory requirements summarized above and more fully in the referenced sections of this Application, Plaquemines Generation has demonstrated that the potential adverse impacts related to air emissions have been avoided to the maximum extent possible.

5.1.2 Water Resources and Hydrology

5.1.2.1 Surface Waters

The proposed Facility will be constructed in the Hydrologic Unit Code (HUC) Region 8. The proposed Facility will be constructed in the Lower Mississippi River Basin.[47] Below are more details for the Lower Mississippi River Basin:

- Lower Mississippi River Basin: The Lower Mississippi River Basin is located in southeastern Louisiana and covers about 106,700 square miles. It consists of nine subregions with Subregion 0809 being the furthest downriver and where the proposed Facility will be located. The basin extends along the Mississippi River from the states of Kentucky and Missouri down to the Gulf of Mexico. The basin consists primarily of flat to gently rolling terraces. The southern portion of the basin is located within the Gulf of Mexico coastal zone. Major tributaries within the basin include the Arkansas River, Tennessee River, the Mississippi River, and the Gulf Intracoastal Waterway.

The chemical, physical, biological, and aesthetic integrity of the water resources and aquatic environment of Louisiana are protected by the LDEQ. Water quality classifications for waters of the state are based on the designated uses for that waterbody. A waterbody that does not achieve water quality criteria for one or

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[41] Forbes, "U.S. LNG: A World Of Benefits Beyond Price." Available at: https://www.forbes.com/sites/thebakersinstitute/2021/06/24/us-lng-a-world-of-benefits-beyond-price/?sh=22f271481e9c. Accessed January 2024.
[42] Center for Liquefied Natural Gas, LNG Export Markets webpage. Available at: https://www.lngfacts.org/lng-export-markets/. Accessed January 2024.
[43] The White House, "Joint Statement by President Biden and President von der Leyen on U.S.-EU Cooperation on Energy Security," January 28, 2022. Available at: https://www.whitehouse.gov/briefing-room/statements-releases/2022/01/28/joint-statement-by-president-biden-and-president-von-der-leyen-on-u-s-eu-cooperation-on-energy-security/. Accessed January 2024.
[44] European Commission, "The Ninth U.S.-EU Energy Council," February 7, 2022. Available at: https://commission.europa.eu/news/ninth-us-eu-energy-council-2022-02-07_en. Accessed January 2024.
[45] The White House, "Joint Statement between the United States and the European Commission on European Energy Security," March 25, 2022. Available at: https://www.whitehouse.gov/briefing-room/statements-releases/2022/03/25/joint-statement-between-the-united-states-and-the-european-commission-on-european-energy-security/. Accessed January 2024.
[46] The Hill, "5 Things to Know about Liquified Natural Gas and its Role in the Ukraine Crisis." Available at: https://thehill.com/policy/energy-environment/3262830-5-things-to-know-about-liquefied-natural-gas-and-its-role-in-the-ukraine-crisis/. Accessed January 2024.
[47] U.S. Geological Survey, Locate your Watershed. Available at: https://water.usgs.gov/wsc/sub/0809.html. Accessed January 2024.

more of its designated uses is considered impaired. The LDEQ defines the following eight uses for surface waters: agricultural (AGR), drinking water supply (DWS), fish and wildlife propagation (FWP), FWP subcategory of limited fish and wildlife use (LAL), outstanding natural resource (ONR), oyster propagation (OYS), primary contact recreation (PCR), and secondary contact recreation (SCR).[48]

The proposed Facility will discharge into either Plaquemines LNG or Delta LNG's respective discharge system and will comply with applicable technology-based standards and any necessary water quality-based standards such that discharges will meet all ambient water quality criteria that are protective of the designated uses for Lake Judge Perez and other receiving waters. The proposed Facility will not contribute PCBs, dioxins, or furans. Plaquemines Generation will send sanitary waste to Plaquemines LNG or Delta LNG's respective sanitary treatment system for treatment to ensure compliance any bacteriologic standards set by the respective LNG terminal's Louisiana Pollutant Discharge Elimination System (LPDES) permit. Thus, the proposed Facility will not contribute to any impairment of the designated uses of the receiving waters.

Plaquemines Generation will comply with LPDES discharge permit requirements and implement Stormwater Pollution Prevention Plan (SWPPP) and Spill Prevention Control and Containment (SPCC) plan requirements of federal law and those state standards in LAC 33:XI.Chapter 9. The proposed Facility will generate little process wastewater, hydrostatic test water, and stormwater discharges.

The LDEQ regulates surface runoff from construction activities pursuant to the Louisiana Construction Stormwater General Permit program and requires development of a SWPPP in accordance with LPDES General Permit LAR100000 for construction sites greater than five acres.[49] Stormwater runoff from the disturbed construction right-of-way could affect nearby surface waters. Vegetation clearing and grading, trenching, and backfilling could increase turbidity and sedimentation rates in adjacent surface waters. These activities could also reduce dissolved oxygen in the water column and release chemical or nutrient pollutants from sediments. Adherence to Best Management Practices (BMPs) required by the SWPPP will reduce turbidity and sedimentation from construction activities. Temporary erosion and sediment control devices and measures will include one or more of the following: sediment barriers, stormwater diversions, trench breakers, mulch applications, and revegetation. Activities will be conducted in compliance with the LPDES program as required under the CWA and Louisiana law to minimize impacts. Further, the SWPPP BMPs and other control measures to contain stormwater discharges and to prevent or minimize potential surface water impacts from such discharges will be implemented.

For commissioning activities, Plaquemines Generation will comply with LPDES General Permit LAG670000 for Discharges of Hydrostatic Test Wastewaters.[50] Depending on the volume required, water for hydrostatic testing of any piping or storage, and potentially for other equipment, will be obtained from the local municipal supply or the respective LNG terminal's water system.

Plaquemines Generation anticipates it will receive water for fire protection from the respective LNG terminal firewater system where the proposed Facility's turbines are located.

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[48] LAC 33:IX.1111.

[49] Louisiana Department of Environmental Quality, LAR100000 – Storm Water Discharges from Construction Activities of 5 Acres or More. Available at: https://deq.louisiana.gov/assets/docs/Permits/LAR100000.pdf. Accessed January 2024.

[50] Louisiana Department of Environmental Quality, LAG670000 – Discharges of Hydrostatic Test Wastewater. Available at: https://deq.louisiana.gov/assets/docs/Permits/LAG670000.pdf. Accessed January 2024.

5.1.2.2 Wetlands

Wetlands protection for the proposed Facility are afforded by compliance with both the federal CWA Section 404 regulations administered by the U.S. Army Corps of Engineers (USACE) and the Louisiana Coastal Use Permit program administered by the Louisiana Department of Natural Resources (LDNR) under the State and Local Coastal Resources Management Act, as amended (La. R.S. 49:214.21 et seq).

The USACE regulations define wetlands as areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs, and bottomlands. Wetlands at the Terminal Facilities were field delineated in 2015, 2016, and 2019 and include Palustrine emergent (PEM) wetland and Palustrine forested (PFO) wetland. The proposed Facility will be located within the existing Plaquemines LNG terminal on land already developed and subject to the Plaquemines LNG CWA Section 404 Permit. Therefore, there will be no additional wetlands impacts from the proposed Facility at Plaquemines LNG. The site where the proposed Delta LNG Project will be constructed is subject to pending jurisdictional determinations concerning wetlands and will obtain a CWA Section 404 Permit to address any wetlands impacts. When the proposed Facility is moved to Delta LNG, it will be located on already developed land. Therefore, there will be no additional wetlands impacts from the proposed Facility at Delta LNG.

5.1.2.3 Groundwater/Geology/Soils

Because the proposed Facility will be located within the existing Plaquemines LNG terminal and the proposed Delta LNG terminal on sites that have been determined by LDNR to be fastlands (i.e., protected by a flood control levee and in the coastal zone) and will not adversely affect any coastal waters, the Facility will not be subject to a Coastal Use Permit (CUP). At most, a determination of consistency with the issued CUPs or the issuance of a No Direct and Significant Impact (NDSI) determination would be needed.

The proposed Facility will not have any adverse impact on groundwater or soils. The proposed Facility will not involve any on-site waste disposal and will not manage chemicals of concern that will impact groundwater.

The proposed Facility will be located within the southernmost subregion of the Lower Mississippi River Basin. Near-surface silt and very fine sand, which form lenses of permeable material in the clayey natural-levee deposits of the Mississippi River, yield the only fresh groundwater in the parish. Locally, these lenses of permeable material may provide sufficient quantities of water for domestic use to wells not more than 20 to 30 feet deep. However, point-bar sand deposits of the Mississippi River are hydraulically connected to the river and are subject to infiltration of water from the river. Salty water that moves up to the river at times of low flow may infiltrate and contaminate these sands.[51]

The proposed Facility lies within the Coastal Lowlands aquifer system. The aquifer system, underlying an area along the Gulf Coastal Plain from Rio Grande valley in southern Texas to the western panhandle of Florida, contains unconsolidated to poorly consolidated discontinuous beds of sand, silt, and clay that range in age from Oligocene to Holocene. The Coastal Lowlands aquifer system ranks fourth in the United States as a source of groundwater for public supply and fifth as a source of private domestic supply. The majority

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[51] Rollo, J.R., U.S. Department of the Interior, U.S. Geological Survey, Water Resource Division, Louisiana District, "Ground Water in Plaquemines Parish, Louisiana," 1962.

of the groundwater withdrawals in the Coastal Lowlands aquifer occur in other states, predominantly Texas.[52]

Plaquemines Generation will source the proposed Facility's construction, commissioning, and operational (potable and process) water from Plaquemines Parish, and/or from either Plaquemines LNG or the proposed Delta LNG Project. Plaquemines Generation does not plan to install any groundwater wells in the aquifer. Firewater will be sourced from the Plaquemines LNG and the proposed Delta LNG Project firewater systems. Additionally, neither the construction activities (i.e., excavation or pile installation) nor facility operations are expected to affect groundwater supplies due to subsurface stratification of stiff clays (which will be verified through geotechnical investigations). Clay strata provide restrictive layers slowing the downward migration of surface and near-surface waters or contaminants. The potential for impacts on groundwater resources is low and will be minimized by adherence to the SWPPP and SPCC Plan.

5.1.3 Waste Management

The proposed Facility will comply with applicable Solid Waste and Hazardous Waste Regulations with respect to solid/hazardous waste disposal. Plaquemines Generation will manage all waste materials in accordance with all applicable local, state, and federal requirements, and in an environmentally sound manner to prevent impacts to the environment.

Plaquemines Generation will not have any solid waste disposal facilities on-site. Any industrial solid waste generated will be disposed off-site. Plaquemines Generation will comply with the Louisiana Solid Waste Regulations for industrial solid waste generators and for management of such wastes prior to off-site disposal at a permitted disposal facility. It is anticipated that Plaquemines Generation will generate less than 100 tons per year of solid waste. There is adequate capacity for off-site disposal of industrial solid waste in Plaquemines Parish.

Plaquemines Generation will generate some hazardous waste; however, Plaquemines Generation will not own or operate any hazardous waste treatment, storage, or disposal units requiring a permit under the Louisiana Hazardous Waste Regulations. There are no significant process streams generating hazardous waste; the wastes generated will primarily be spent solvents used for maintenance, degreasers, paint wastes, and vessel cleanout materials.

Plaquemines Generation will comply with all regulations applicable to generators under the Louisiana Hazardous Waste Regulations. This includes compliance with the general requirements of LAC 33:V.Chapter 10 Subchapter A (waste determination, satellite accumulation areas, recordkeeping); the preparedness, prevention, and emergency procedures of Subchapter D (including a contingency plan); and the pre-transport requirements of Subchapter E (including appropriate manifest tracking). In addition, the proposed Facility will be classified as a large quantity generator of hazardous waste due to the co-location with Plaquemines LNG and the proposed Delta LNG Project. Thus, Plaquemines Generation will prepare and implement a Waste Minimization Plan as required by LAC 33:V.2245.J and LAC 33:V.2245.K certified by a licensed professional engineer. All hazardous wastes generated will be appropriately manifested for off-site recycling or disposal at licensed facilities and will be transported only by licensed transporters.

Additionally, Plaquemines Generation will require that contractors adhere to all regulatory requirements and use BMPs to prevent spills. The following BMPs will be implemented:

[52] Federal Energy Regulatory Commission, FERC Docket Number PF19-4-000, Resource Report 2, Accession Number 20190717-5008.

- All employees and contractors will receive training regarding the handling of fuel, oil, lubricants, and hazardous materials commensurate with their position;
- All equipment used in construction and operation will be inspected at regular intervals;
- Fuel trucks transporting fuel to onsite equipment will travel only on approved access roads or the approved right-of-way;
- All equipment at the construction sites will be fueled at least 100 feet from any waterbody, except for cases where there is no reasonable alternative;
- No hazardous materials, including chemicals, fuels, and oils, will be stored within 100 feet of any waterbody, except as needed and in accordance with the SPCC Plan; and
- Spill response materials will be kept on site per the SPCC Plan.

5.1.4 Biological Resources

The proposed Facility will be constructed within Plaquemines LNG and/or the proposed Delta LNG Project. Therefore, by staying within the footprints of these project sites, the potential impacts to fish, wildlife, vegetation, and endangered and threatened species will be avoided or minimized.

5.1.5 Noise

The proposed Facility will be constructed within Plaquemines LNG and/or the proposed Delta LNG Project. The noise-emitting equipment associated with the proposed Facility are the ASCCTs which will meet applicable noise standards to ensure there is no adverse human health or environmental impact. Noise from the ASCCTs will be intermittent and at levels similar to or lower than other operational equipment and activities.

5.1.6 Site Safety and Security

Plaquemines Generation will construct and operate the proposed Facility in a safe manner such that the potential environmental impacts are minimized. Further, Plaquemines Generation will meet or exceed all existing environmental regulations in a manner that minimizes the potential for accidental releases. Safety and security systems that are currently in place include:

- Emergency Shut Down (ESD) system to prevent escalation of hazards from accidents or equipment failure;
- Gas, fire, and spill detection systems in combination throughout the facility with manual alarm call points;
- Spill and leak containment; and
- Fire protection systems.

5.1.7 Summary

As described above, Plaquemines Generation will construct and operate the proposed Facility to minimize environmental and community impacts to the extent practicable. Further, Plaquemines Generation proposes to install the proposed Facility within the existing Plaquemines LNG terminal and/or proposed Delta LNG Project and will implement a range of design, construction, and operational measures to minimize or avoid potential adverse environmental impacts to the extent practicable. In particular, the proposed Facility will not result in exceedance of any ambient air or water standards. These measures will allow the proposed Facility to meet or exceed federal, state, and parish environmental regulations and permit conditions.

5.2 Question 2

Does a cost benefit analysis of the environmental impact costs balanced against the social and economic benefits of the proposed facility demonstrate that the latter outweighs the former?

Response:

Yes. As described in the subsequent sections, the social and economic benefits of the proposed Facility outweigh any potential environmental impacts costs. Based on the response to Question 1 in the previous section, Plaquemines Generation established that the potential adverse environmental impacts are minimal due to the proposed Facility meeting all applicable ambient air and water standards, technology standards, waste management standards, and noise standards. In addition, the proposed Facility will be designed and operated to avoid or minimize such impacts to the extent practicable.

Plaquemines Generation is proposing the power generation facility to support to the two LNG terminals by enhancing the stability of the power supply for Plaquemines LNG and/or the proposed Delta LNG Project on an as-needed basis, including, but not limited to, during periods of maintenance, repair, or unplanned events when one or more of the Plaquemines LNG or Delta LNG electrical power sources are unavailable. The Title V, PSD, and LPDES permits along with the other applicable environmental regulations discussed above will provide sufficient allowances for conducting necessary operations and maintenance activities in compliance with all environmental requirements. Thus, Plaquemines Generation provides a summary of the social and economic benefits of the proposed Facility below.

5.2.1 Plaquemines Generation Facility Needs and Opportunities

There is a demonstrated market demand and need for the operation of Plaquemines LNG and the proposed Delta LNG Project. The proposed Facility will enhance the stability of the power supply for Plaquemines LNG and the proposed Delta LNG Project on an as-needed basis, thereby minimizing flaring and other potential issues associated with power outages and will be able to maximize on-stream time to produce and export domestically produced natural gas (in the form of LNG) to promote natural gas trade and greater diversification of energy supplies on an international basis. The U.S. has experienced significant advances in natural gas drilling and production technologies in recent years which have led to broad access to U.S. natural gas reserves. Venture Global promotes a liberalized global natural gas trade and greater diversification of global gas supplies by converting natural gas into LNG for storage and export.

As discussed under Question 1, natural gas export from the U.S. can contribute to significantly transitioning energy generation away from coal and other more GHG intensive fuels. This transition will help achieve global targets in GHG reductions and foster economic activity in the U.S. at the same time.[53] Additionally, the proposed Facility will support Plaquemines LNG and the proposed Delta LNG's global decarbonization efforts in partnership with renewables by providing LNG for on-demand gas-fired baseload power generation and as a replacement to highly carbon-intensive power sources in developing economies, especially in Asia.[54]

[53] Western States and Tribal Nations Natural Gas Initiative, "Life Cycle Assessment of Greenhouse Gas Emissions from Liquefied Natural Gas Exports from North America's West Coast for Coal-Displaced Electricity Generation in Asia." Available at https://ceda60f9-1aec-426f-a073-008895be8fba.usrfiles.com/ugd/ceda60_321bc1d38f904de2a0134bae21dcc312.pdf. Accessed January 2024.
[54] Forbes, "U.S. LNG: A World Of Benefits Beyond Price", June 24, 2021. Available at: https://www.forbes.com/sites/thebakersinstitute/2021/06/24/us-lng-a-world-of-benefits-beyond-price/?sh=22f271481e9c. Accessed January 2024.

U.S. LNG exports reached all-time highs in the first half of 2022 and the U.S. became the world's largest LNG exporter during the first half of 2022, according to the U.S. Energy Information Administration (EIA).[55] To provide citizens and businesses with a cleaner alternative to coal and other sources of energy with relatively high GHG emissions, customers in markets around the world are importing more U.S. LNG. In fact, LNG is set for strong growth as domestic supply in key gas markets is not anticipated to keep up with demand growth.[56] Specifically, demand is expected to grow 3.4 percent per annum to 2035, with some 100 million metric tons of additional capacity required to meet both demand growth and decline from existing projects.[57] Additionally, U.S. LNG also provides security and diversity of supply to countries seeking to increase their own national security.

LNG exports also have macroeconomic benefits and are consistent with the public interest, as consistently recognized by the DOE. For example, a 2018 U.S. DOE-sponsored report stated that U.S. consumer well-being increases with rising LNG exports and total economic activity (i.e., gross domestic product, GDP) expands with rising U.S. LNG exports.[58] In 2021, U.S. Secretary of Energy, Dan Brouillette, described the benefits of U.S. LNG exports as follows:

> *U.S. LNG exports are set to continue growing for the next decade and beyond. These exports are creating jobs, reducing our trade deficit, and providing a clean and reliable energy alternative to our allies and trading partners.*

Based on various recent economic studies of the U.S.'s current and projected patterns of supply of and demand for domestically produced natural gas, the Plaquemines Generation facility along with Plaquemines LNG and the proposed Delta LNG Project will provide benefits that will outweigh adverse impacts.

Summarized below are the main benefits associated with the proposed Facility:

- **Direct Job Creation/Employment Sustainability and Economic Benefits:** Approximately 30 additional temporary on-site workers will be employed during the construction period of the proposed Facility at an average salary commensurate with industry standards. The construction period is anticipated to last approximately three (3) months. Approximately 250 full-time workers are anticipated to be hired to operate the Plaquemines LNG terminal and approximately 250 full-time workers are anticipated to be hired to operate the proposed Delta LNG Project. These employees are compensated at an average salary commensurate with industry standards. The temporary construction jobs associated with the proposed Facility will lead to additional indirect employment opportunities and growth in the area.

  Plaquemines LNG conducted three (3) job fairs in Plaquemines Parish in 2023. Approximately 675 people attended the jobs fairs which resulted in 125 offers for employment. As of mid-2023, more than 500 Plaquemines Parish residents are currently working at the Plaquemines LNG Project site as contractors, employees, and related services.

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[55] U.S. Energy Information Administration, "The United States became the world's largest LNG exporter in the first half of 2022." Available at: https://www.eia.gov/todayinenergy/detail.php?id=53159. Accessed January 2024.
[56] McKinsey & Company, "Global Gas Outlook to 2050", February 26, 2021. Available at: https://www.mckinsey.com/industries/oil-and-gas/our-insights/global-gas-outlook-to-2050. Accessed January 2024.
[57] *Ibid.*
[58] U.S. Department of Energy, "Macroeconomic Outcomes of Market Determined Levels of U.S. LNG Exports," prepared by NERA Economic Consulting. Available at: https://www.energy.gov/sites/prod/files/2018/06/f52/Macroeconomic%20LNG%20Export%20Study%202018.pdf. Accessed January 2024.

Plaquemines Generation will also spend money on local materials, water, sewer, and waste disposal utilities within Louisiana, which will boost the local economy and generate local jobs. These indirect jobs will result in added earnings for local households, increased regional business activity, and increased spending due to workers relocating temporarily or permanently from other towns. The proposed Facility will also generate payroll taxes, income taxes, sales tax revenue, and property tax revenue from both the direct and indirect employment and purchases. These economic benefits will provide federal, state, and local government agencies with the necessary financial resources to maintain their services. A 2020 ICF study entitled "The Economic Impact of the Oil and Gas Industry in Louisiana" concluded that "for every direct employee in the oil and gas industry in the state, there are 1.43 additional employees supporting the state economy through indirect and induced effects."[59] Indirect economic effects are referred to as multiplier or ripple effects. In addition to the ICF study, a 2012 study by Dr. Loren C. Scott, Ph.D., found that for each new job created in the chemical manufacturing sector leads to 5.2 additional jobs created elsewhere in the state.[60] While LNG export is not in the chemical manufacturing sector, the ripple impacts for this type of industrial project are expected to be greater than the ICF multiplier and similar to the Scott study.

Plaquemines Generation, together with Plaquemines LNG and Delta LNG, will generate millions of dollars in annual government revenues through direct tax payments and indirectly through increases in the state and local sales and income tax bases. Note that before Plaquemines LNG is even in production, it spent approximately 80 million dollars (as of 2021) in salary, benefits, taxes, and contract labor associated with the construction of the Plaquemines LNG terminal. This is the case even without consideration of additional benefits that would materialize with the construction of the proposed Delta LNG Terminal.

- **National Security and Foreign Relations:** The proposed Facility will provide reliable electrical power to Plaquemines LNG and/or the proposed Delta LNG Project. By promoting a global, liquid, and robust market for natural gas, the U.S. will increase economic trade and ties with foreign nations by providing them with access to a reliable supply of LNG. LNG will support global efforts to partner with renewables by providing on-demand gas-fired baseload power generation and replacing high carbon-intensive power sources in developing economies, especially in Asia. U.S. LNG also provides security and diversity of supply to countries seeking to increase their own national security. The DOE has consistently recognized that LNG exports have macroeconomic benefits and are consistent with the public interest. This trade will enhance the national security of the U.S. by encouraging positive foreign relations with trading partners.

- **National Interest:** Obtaining authorization for the proposed Facility will provide reliable electrical power and enhance the power stability for Plaquemines LNG and/or the proposed Delta LNG Project on an as-needed basis, including, but not limited to, during periods of maintenance, repair, or unplanned events when one or more of the Plaquemines LNG or Delta LNG electrical power sources are unavailable. The increase in operational availability of the LNG terminal facilities will have a significant positive impact on furthering national energy and security goals. The LDEQ's approval of this Application will enable the proposed Facility to supply reliable electricity to the LNG terminal facilities so that they can continue to contribute to the production of LNG for export to the European market, which will assist in achieving President Biden's commitment to the EU to provide US-sourced natural gas to offset reductions in oil and natural

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[59] ICF, "The Economic Impact of the Oil and Natural Gas Industry in Louisiana," study for the American Petroleum Institute and the Louisiana Mid-Continent Oil & Gas Association, October 5, 2020. Available at: https://www.lmoga.com/assets/uploads/documents/LMOGA-ICF-Louisiana-Economic-Impact-Report-10.2020.pdf. Accessed January 2024.

[60] Scott, Loren C., Ph.D., "The Economic Impact of the Chemical Industry on the Louisiana Economy," December 2012.

gas that EU countries previously acquired from Russia. On March 25, 2022, the White House announced: "The United States will strive to ensure, including working with international partners, additional [LNG] volumes for the EU market of at least 15 billion cubic meters in 2022 with expected increases going forward."[61] With increased availability of power on an as-needed basis, Plaquemines Generation will assist Venture Global to help meet the global LNG demand during this global energy crisis.

- **Decarbonization Benefits:** The proposed Facility will enable the LNG terminal facilities to support global decarbonization efforts in partnership with renewables by providing LNG for on-demand gas-fired baseload power generation and as a replacement to highly carbon-intensive power sources in developing economies, especially in Asia.

- **Community Benefits**: In addition to the above socio-economic benefits, Plaquemines Generation is committed to being a good neighbor and having a positive impact to Plaquemines Parish as well as in Cameron and Calcasieu Parishes, where its parent company has other operations. This commitment is evidenced by the charitable and civic actions of its parent company, Venture Global LNG, Inc. over the prior years in each of these parishes. Such community impact projects include:[62]

  - Since initial outreach in 2015, residents of Plaquemines Parish identified a shortage of jobs and a lack of skills for those jobs that were available as their primary issue. To address the community's concerns regarding job scarcity, Plaquemines LNG has prioritized investing in local businesses and hiring locally. Since Spring 2022, Plaquemines LNG has been:

    - Working with its contractors to make sure that outreach to local businesses includes minority owned business and that bidding processes are inclusive and fair.
    - Scheduling vendor fairs for businesses over multiple days and at various locations and times of day to maximize accessibility and opportunity.
    - Facilitating local contractor recruitment processes, resulting in jobs with contractors.
    - Supporting requests from local job seekers and promptly responding to local businesses interested in bidding on scopes of work for the Project.
    - Continuing to support the Will to Skill program founded in 2020, which is funded by Venture Global LNG, Inc., and provides training opportunities to Plaquemines Parish residents for skilled labor in high demand locally, regionally, and nationally.[63]

  - A cooperative endeavor agreement with Cameron Parish for Lighthouse Bend, a Venture Global-funded 58-acre site along the Calcasieu Pass waterway. Lighthouse Bend is designed to bolster the local economy and provide recreational opportunities for the community including a marina, bar, restaurant, market, and RV park. Lighthouse Bend opened to public in July 2023;[64]
  - Donations to local charities including Second Harvest Food Bank and Catholic Charities of Louisiana to provide meals during the pandemic and hurricanes;

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[61] The White House, "Joint Statement between the United States and the European Commission on European Energy Security," March 25, 2022, Available at: https://www.whitehouse.gov/briefing-room/statements-releases/2022/03/25/joint-statement-between-the-united-states-and-the-european-commission-on-european-energy-security/ Accessed January 2024.

[62] Venture Global LNG, Inc., Community Impact webpage. Available at: https://ventureglobalIng.com/about/community-impact/. Accessed January 2024.

[63] *See*: Delgado and Venture Global LNG Announce 'Will to Skill' Training Program in Plaquemines Parish (dcc.edu); Nunez and Venture Global Celebrate Second 'Will to Skill' Cohort | Nunez Community College; Ten Plaquemines Parish Students Earn CDL in Latest Will to Skill | Nunez Community College; and Latest 'Will To Skill' Cohort Earns Multiple Industry Certifications | Nunez Community College. See also: FERC Docket CP17-66-001, Accession No. 20221227-5212.

[64] *See* Lighthouse Bend website. Available at: https://lighthousebend.com/. Accessed December 2023.

- Collaboration with SOWELA Technical College and the Cameron Parish School Board to sponsor pipefitter training/certification program.[65] In addition, Venture Global has rolled out its flagship workforce development program, Will to Skill, in Calcasieu Parish and Cameron Parish similar to the program it created in Plaquemines Parish;[66]
- Establishment of a twelve-month Apprenticeship Program at Calcasieu Pass in November 2023 to assist technical school graduates specializing in maintenance and process operations;[67] and
- Assistance to local community recovery efforts after hurricanes and other severe weather, including providing fuel, materials, services, and shelter.

Venture Global is deeply committed to the communities where it operates and will provide opportunities for meaningful involvement of landowners and stakeholders to provide input for consideration in the decision-making process.[68]

5.2.2 Environmental Justice

The state and federally required environmental justice (EJ) review of proposed major new facilities and major expansion projects that trigger PSD and Title V is a component of this EAS (see Question 2). As a state environmental regulatory agency that receives federal funds for its Title V and PSD programs, the LDEQ must abide by U.S. Executive Order (EO) 12898, which requires an EJ review when making major environmental permitting decisions. EO 12898 specifically requires that LDEQ identify whether a proposed permit will result in any "disproportionately high and adverse human health or environmental effects" on minority or low-income populations.

Based on the analysis presented below, the proposed Facility will not disproportionately affect low-income or minority populations. There will be no high, adverse environmental impacts on nearby populations because Plaquemines Generation will comply with all applicable environmental rules, including ambient air and water standards that have been established to ensure protection of human health with a margin of safety.

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,* was issued in February 1994. Its purpose is to focus federal attention on the environmental and human health effects of federal actions on minority and low-income populations with the goal of achieving environmental protection for all communities.[69] Specifically, this EO recognizes the importance of using the NEPA process to identify and address, as appropriate, any disproportionately high and adverse health or environmental effects of federal programs, policies, and activities on minority populations and low-income populations.[70] Further, in January 2021, President Biden issued EO 14008,

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[65] The Cameron Parish Pilot, "Four Students Complete SOWELA Pipefitter Program", February 14, 2021. Available at: https://cameronpilot.com/four-students-complete-sowela-pipefitter-program/. Accessed January 2024.

[66] *See* "Delgado and Venture Global LNG Announce 'Will to Skill' Training Program in Plaquemines Parish", June 24, 2020. Available at: https://www.dcc.edu/news/venture-global-nccer-training.aspx. Accessed January 2024. Note that in addition to Calcaseiu, Cameron, and Plaquemines Parishes, the Will to Skill program has also been made available to residents in Jasper and Newton Counties, Texas.

[67] The Cameron Parish Pilot, "Venture Global Launches Apprenticeship Program", November 19, 2023. Available at: https://cameronpilot.com/venture-global-launches-apprenticeship-program/. Accessed January 2024.

[68] Venture Global LNG, Inc., Plaquemines LNG Commitment to Community webpage. Available at: https://ventureglobalIng.com/project-plaquemines/community/. Accessed January 2024.

[69] U.S. Environmental Protection Agency, Summary of Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. Available at: https://www.epa.gov/laws-regulations/summary-executive-order-12898-federal-actions-address-environmental-justice. Accessed January 2024.

[70] *Ibid.*

Executive Order on Tackling the Climate Crisis at Home and Abroad, which requires federal agencies to "make achieving environmental justice part of their missions."[71]

The EJ analysis below is based on the approach outlined by the Council on Environmental Quality (CEQ) and the U.S. EPA because Louisiana has not defined state-specific criteria for identifying an EJ community and evaluating impacts. The analysis follows federal guidelines and methodologies to assess the potential for the Plaquemines Generation facility to have high and disproportionately adverse impacts on minority or low-income populations.

Specifically, the CEQ requests that federal agencies actively scrutinize the following issues with respect to environmental justice (consistent with EO 12898):[72]

- The racial and economic composition of affected communities;
- Health-related issues that may amplify effects on minority or low-income individuals from a proposed project; and
- Public participation strategies, including community or tribal participation in the process.

The U.S. EPA's EJ policies focus on enhancing opportunities for residents to participate in the decision-making process. The U.S. EPA states that EJ is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies.[73] Further, fair treatment means no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental and commercial operations or policies.[74] In addition, meaningful involvement means:[75]

- People have an opportunity to participate in decisions about activities that may affect their environment and/or health;
- The public's contribution can influence the regulatory agency's decision;
- Community concerns will be considered in the decision-making process; and
- Decision makers will seek out and facilitate the involvement of those potentially affected.

5.2.2.1 Environmental Justice Areas Analysis

The Interagency Working Group on Environmental Justice (EJ IWG) explains that a minority population may be present if the minority population percentage of the affected area is "meaningfully greater" than the minority population percentage in the general population or other "appropriate unit of geographic analysis."[76] The EJ IWG provides a numeric measure of over 50 percent of the affected area.[77] The term

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[71] Presidential Documents, Executive Order 14008, "Tackling the Climate Crisis at Home and Abroad". Federal Register Vol. 86, No. 19, pp. 7619-7633, Monday, February 1, 2021. Available at: https://www.govinfo.gov/content/pkg/FR-2021-02-01/pdf/2021-02177.pdf. Accessed January 2024.
[72] U.S. Environmental Protection Agency, Council on Environmental Quality, "Environmental Justice – Guidance under the National Environmental Policy Act." Available at: https://www.epa.gov/sites/production/files/2015-02/documents/ej_guidance_nepa_ceq1297.pdf. Accessed January 2024.
[73] U.S. Environmental Protection Agency, "Learn About Environmental Justice." Available at: https://www.epa.gov/environmentaljustice/learn-about-environmental-justice. Accessed January 2024.
[74] *Ibid.*
[75] *Ibid.*
[76] U.S. Environmental Protection Agency, "Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses," April 1998. Available at: https://www.epa.gov/sites/production/files/2015-04/documents/ej-guidance-nepa-compliance-analyses.pdf. Accessed January 2024.
[77] *Ibid.*

"affected area" is not defined by the EJ IWG, but guidance states it should be interpreted as "that area which the proposed project will or may have an effect on."[78] The EJ IWG also advises agencies not to "artificially dilute or inflate" the affected minority population when selecting the appropriate unit of geographic analysis.[79]

A key element here, according to the EJ IWG, is the selection of the appropriate level of geographic analysis; that is, selecting a comparison population to which the population in the affected area will be compared to identify if there are "meaningfully greater" percentages.[80] The selection of the appropriate unit of geographic analysis may be a governing body's jurisdiction, a neighborhood census tract, or other similar unit, which is done to prevent artificial dilution or inflation of the affected minority population.[81] The census block group (CBG) is the smallest geographic unit for which U.S. Census Bureau demographic data are available.

The proposed Plaquemines Generation facility will be located in Census Block Group (CBG) 220750504001 in Plaquemines Parish. The CBG was selected as the appropriate geographic unit for analysis for purposes of determining whether environmental justice populations are in the area that may be affected by construction and operation of the proposed Facility. Plaquemines Generation utilized the U.S. EPA's EJScreen and performed the environmental justice analysis to a 3-mile radius from the proposed Facility. A copy of the EJScreen Community Report is provided as Attachment J to the Application.

The demographic indicators pertaining to the environmental justice analysis are provided in Table 5-1 and were evaluated based on the EJScreen results and on the 2016-2020 American Community Survey 5-Year Estimates tables (File # B17017 and File # B03002).[82]

Table 5-1. Demographic Indicators: Race, Ethnicity, and Income

LOCATION	RACE AND ETHNICITY[1],[2]										LOW INCOME
Geographical Area	Total Population	White (Not Hispanic) (%)	Black or African American (%)	Asian (%)	American Indian and Alaskan Native (%)	Native Hawaiian and Other Pacific Islander (%)	Some other race (%)	Two or more races (%)	Hispanic or Latino (%)	Total Minority (%)	Population Below Poverty Level (%)
Louisiana	4,657,305	57.8	31.7	1.7	0.5	0.0	0.4	2.6	5.3	42.2	18.5
Plaquemines Parish	23,536	63	19	4.0	1.0	0.0	0.0	4.0	8.0	37	34
CBG 220750504001	854	33.0	59.0	0.0	4.0	0.0	1.0	4.0	0.0	67	21
3-Mile Radius[3]	361	23.0	70.0	0.0	3.0	0.0	1.0	3.0	0.0	77	41

[78] *Ibid.*
[79] *Ibid.*
[80] *Ibid.*
[81] *Ibid.*
[82] United States Census Bureau. Available at: https://data.census.gov/cedsci/. Accessed January 2024.

LOCATION	RACE AND ETHNICITY[1],[2]									LOW INCOME
Geographical Area	Total Population	White (Not Hispanic) (%)	Black or African American (%)	Asian (%)	American Indian and Alaskan Native (%)	Native Hawaiian and Other Pacific Islander (%)	Some other race (%)	Two or more races (%)	Hispanic or Latino (%)	Total Minority (%)	Population Below Poverty Level (%)

Source: U.S. Census Bureau, American Community Survey, 2016-2020, File # B17017 and File # B03002. Available at: https://data.census.gov/cedsci/. Accessed January 2024.
[1] "Minority" refers to people who reported their ethnicity and race as something other than non-Hispanic White.
[2] Minority or low-income populations exceeding the established thresholds are indicated in bold text.
Due to rounding differences in the dataset, the totals may not reflect the sum of the addends.
[3] EJScreen Community Report, January 2024, see Appendix J of this Application.

5.2.2.2 Impacts on Minority and Low-Income Communities

The U.S. EPA guidelines for identifying an EJ area provide that either the area must have a "meaningfully greater" percentage of minorities than the reference population (i.e., Plaquemines Parish for this analysis) or the minority population must be greater than 50 percent.[83] The 3-mile radius area from the proposed Facility has a minority population comprising 77 percent of the total population which is higher than the 34 percent minority population for Plaquemines Parish. Therefore, this area is identified as an environmental justice area based on the minority threshold. The percentage of the population below the poverty level (41%) is greater than the percentage of the Plaquemines Parish population below the poverty level (34%). The State of Louisiana has 40% of its population below the poverty level.

Plaquemines Generation utilized the U.S. EPA's EJScreen (Version 2.2) to perform the environmental justice analysis. EJScreen is the most commonly used federal assessment tool for evaluating potential impacts to communities facing environmental justice-related concerns and is recommended by EPA Region 6.[84] It provides a nationally consistent dataset and approach for combining environmental and demographic socioeconomic indicators used to assess potential exposure in potentially vulnerable communities. EJScreen calculates twelve (12) Environmental Justice Indexes (EJ Indexes), one for each of twelve individual environmental indicators, where the EJ Index is a percentile ranking among two comparison populations: state and US. Each EJ Index is available at state- and US-comparison levels within the standard reports and is exportable from the on-line EJScreen tool.

The U.S. EPA uses the 80th percentile threshold as a starting point for the purpose of identifying geographic areas that may warrant further consideration, analysis, or outreach area.[85] If any of the EJ Indexes are at or above the 80th percentile, then further review of the area is appropriate and required by LDEQ's recent permitting process.[86] Because the screening methodology is conservative, EJ Index scores below the 80th percentile generally do not warrant detailed review with regard to environmental justice impacts. Based on the EJScreen analysis for the proposed Facility, the EJ Indexes for all environmental indicators are lower

[83] U.S. Environmental Protection Agency, "Technical Guidance for Assessing Environmental Justice in Regulatory Analysis." Available at: https://www.epa.gov/sites/default/files/2016-06/documents/ejtg_5_6_16_v5.1.pdf. Accessed January 2024.
[84] U.S. Environmental Protection Agency, Region 6, "EPA Region 6 Regional Implementation Plan To Promote Meaningful Engagement of Overburdened Communities in Permitting Activities", May 1, 2013. Available at: https://www.epa.gov/sites/default/files/2015-08/documents/r6_rip_ej_permitting07022013.pdf. Accessed January 2024.
[85] U.S. Environmental Protection Agency, "Technical Guidance for Assessing Environmental Justice in Regulatory Analysis." Available at: https://www.epa.gov/sites/default/files/2016-06/documents/ejtg_5_6_16_v5.1.pdf. Accessed January 2024..
[86] *See, e.g.,* "Basis for Decision, Magnolia Power LLC – Magnolia Power Generating Station Unit 1," LDEQ EDMS Document No. 13323744, at p. 22. Available at: https://edms.deq.louisiana.gov/app/doc/view?doc=13323744. Accessed January 2024.

than the U.S. EPA's recommended 80th percentile threshold for the selected location. If the supplemental indexes are used, then ozone, toxic air releases, and wastewater discharges would be greater than the 80th percentile. However, the proposed Facility will not have any impacts on these three supplemental indexes as discussed below.

- **Wastewater Discharge**: As previously discussed, the proposed Facility has limited or no potential impact on the quantity or quality of any future wastewater discharge from Plaquemines LNG and/or the proposed Delta LNG Project. Thus, it will have no impact on the index for wastewater.

- **Ozone**: Plaquemines Parish is currently in attainment for the 2015 Ozone National Ambient Air Quality Standards (NAAQS). The current ozone design values for 2020-2022 at the three closest ambient monitors are well below the 0.070 ppm 8-hour ozone NAAQS: 0.058 ppm (Meraux, LA); 0.062 ppm (Kenner, LA); and 0.059 ppm (Thibodaux, LA).[87] Moreover, Plaquemines Generation performed the Class II ozone impact analysis to demonstrate that the proposed Facility does not cause or contribute to exceedance of the ozone NAAQS. Compliance with the ozone SIL ensures no excess risk as that standard was established to protect vulnerable populations with a margin of safety (See Appendix I of the Application).

- **Toxic Air Releases**: According to the U.S. EPA, this new indicator is based upon the U.S. EPA's Risk-Screening Environmental Indicators (RSEI) modeled toxicity-weighted concentrations in air of Toxic Release Inventory (TRI) listed chemicals.[88] The RSEI is a screening-level model that incorporates the U.S. EPA's TRI information with other data sources and derived risk factors. The U.S. EPA's TRI data indicate that there are ten (10) facilities reporting TRI release data to the U.S. EPA and all but three (3) of these are located in or just outside of Belle Chasse, 15 to 20 miles or more from the proposed Facility.[89] The proposed Facility is not within an SIC/NAICS Code that is required to report under the TRI program. Thus, the proposed Facility will not affect the RSEI score for the parish. The proposed Facility will result in relatively small increases in the potential to emit 4.07 tpy of HAPs emissions, all from burning natural gas in the turbines and fugitive emissions from equipment leaks. Additionally, the proposed Facility has a potential to emit 47.44 tpy of ammonia emissions from the SCR system that is used to reduce the NO_X emissions. Ammonia is a Louisiana Toxic Air Pollutant (TAP) but is not a HAP. In summary, emission increases of HAPs/TAPs associated with the proposed Facility are relatively small and will not result in any change in the TRI ranking on EJScreen.

  Importantly, the EJScreen process did not result in a score greater than 80 for the Diesel Particulate Matter, Air Toxics Cancer Risk, or Air Toxics Respiratory Hazard Indexes. Further, the increases due to the proposed Facility will not cause or contribute to any exceedance of Louisiana Ambient Air Standard (LAAS). Ambient air standards for TAPs that could pose short-term risks are established as 8-hour averages and protect against acute risks. The LAAS for ammonia is one such 8-hour standard. Standards for TAPs that pose chronic threats (such as carcinogens) are established as annual averages that are very conservative in that they are set at a level that would be protective of a person living at the fence-line of the facility for 24 hours per day, 7 days per week for an entire lifetime with a margin of safety. In

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[87] Based on the U.S. Environmental Agency's Air Quality Design Values. Available at: https://www.epa.gov/air-trends/air-quality-design-values. Accessed January 2024.

[88] U.S. Environmental Protection Agency, EJScreen Change Log. (calculated from 2021 Risk-Screening Environmental Indicators (RSEI) Geographic Microdata results for the air pathway, retrieved May 16, 2023). Available at: https://www.epa.gov/ejscreen/ejscreen-change-log Accessed January 2024.

[89] See the U.S. Environmental Proection Agency's RSEI Dashboard Mapping tool, selecting Plaquemines Parish, LA. Available at: https://edap.epa.gov/public/extensions/EasyRSEI/EasyRSEI.html. Accessed January 2024.

establishing these ambient air standards, the LDEQ has established levels that are safe for residential exposures. Therefore, compliance with the LAAS indicates no excess risk.

Based on the above, Plaquemines Generation believes that the proposed Facility will not pose any environmental justice concerns within the area of impact. Thus, the EJScreen analysis indicates that it is unlikely that any EJ community within the area of review is likely to experience disproportionately high or adverse environmental impacts.

5.2.2.3 Public Participation

According to the National Environmental Justice Advisory Council (NEJAC), there are many terms that describe the concept of public participation including community participation, community involvement, community engagement, stakeholder involvement, and stakeholder engagement.[90] Public participation and community involvement are crucial in ensuring that decisions affecting human health and the environment acknowledge and avoid EJ impacts.[91]

With respect to this Application, the issuance of a Title V permit and PSD permit requires a minimum 30-day public comment period once the LDEQ issues a public notice permit and provides for the opportunity for a public hearing with 30 days advance notice of such hearing. The LDEQ publishes a list of all pending permit applications on its website shortly after an application is filed. Moreover, the LDEQ posts the permit application materials to its Electronic Data Management System[92] within a short period of time after submission, affording the public ample time to review the application materials. Finally, this EAS will be furnished to the local governmental authority (Plaquemines Parish Council and President) and to the designated public library at the same time it is filed with the LDEQ, per La. R.S. 30:2018.

5.2.2.4 Conclusions

As discussed in Section 5.1 above, Plaquemines Generation does not anticipate significant adverse environmental impacts, including disproportionately high or adverse impacts on minority or low-income populations, would occur from the proposed Facility due to the proposed location within Plaquemines LNG or the proposed Delta LNG Project. The lack of adverse effects is summarized below.

With regard to air impacts, the emissions from the proposed Facility will not result in the exceedance of any federal or state ambient air standards. The LDEQ maintains an extensive ambient air quality monitoring network made up of stationary ambient air monitoring stations. From these sites, LDEQ personnel collect direct measurements of air pollutant concentrations, analyze, and interpret the data. The data collected are used to track trends in air quality and to determine compliance with NAAQS. Based on these data collected from air monitoring stations, the State of Louisiana and the U.S. EPA have determined that the entire region around Plaquemines Parish currently meets all federal NAAQS.

Federal and State NSR and PSD regulations mandate that certain air quality protection demonstrations be conducted by the permittee using computer simulations before a major source air emissions permit may be issued. These demonstrations were conducted by Plaquemines Generation using the approved air dispersion

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[90] U.S. Environmental Protection Agency, National Environmental Justice Advisory Council, "Model Guidelines for Public Participation – An Update to the 1996 NEJAC Model Plan for Public Participation (January 2013)". Available at: https://www.epa.gov/sites/production/files/2015-02/documents/recommendations-model-guide-pp-2013.pdf. Accessed January 2024.

[91] *Ibid.*

[92] Louisiana Department of Environmental Quality, Electronic Data Management System. Available at: https://edms.deq.louisiana.gov/edmsv2/quick-search. The Agency Interest number for Plaquemines LNG is 197379 and for Delta LNG is 218335. Accessed January 2024.

modeling techniques. The modeling showed that the air emissions from the proposed Facility will not cause or contribute to an exceedance of any NAAQS. Because these standards are conservatively established to be protective of human health with a margin of safety, there is reasonable assurance from such modeling analysis that no public areas will be adversely impacted by emissions from the proposed Facility. As such, the modeling results further support there is not a disparate adverse impact on any protected population. Moreover, beyond meeting the ambient standards, Plaquemines Generation will meet the BACT requirements of the PSD program, including the MACT requirements of any applicable NESHAP standards.

Plaquemines Generation believes the proposed Project will not have any significant non-air environmental impacts.

Federal and state water quality regulations apply to industrial wastewater and require that any discharges meet stringent standards. Plaquemines Generation will comply with the LPDES permit requirements. Additionally, compliance with the Storm Water Pollution Prevention Plan (SWPPP) and Spill Prevention, Control, and Control Measures (SPCC) Plan will ensure that potential impacts to groundwater and surface water from stormwater runoff and/or any spills would be prevented or minimized.

Because the proposed Facility will be constructed within the existing non-wetlands properties of Plaquemines Generation and/or the proposed Delta LNG Project, there will be no additional impacts to wetlands. At most, Plaquemines Generation will obtain a No Direct and Significant Impact determination or a determination of consistency with the Coastal Use Permits (CUPs) issued for Plaquemines LNG and the proposed Delta LNG Project.

Plaquemines Generation will comply with the Louisiana Hazardous and Solid Waste Regulations such that the wastes will be minimized and recycled to the maximum extent possible. Any waste generated will be properly stored while temporarily on-site and will be manifested according to regulatory requirements.

With support of its parent company, Venture Global LNG, Inc., Plaquemines Generation will comply with all applicable regulations for the protection of any endangered, threatened or otherwise protected species that could potentially occur near the proposed Facility.

In conclusion, Plaquemines Generation believes the need for the proposed Facility, coupled with the economic benefits that it will bring to the area, outweigh the less than significant environmental impacts.

5.3 Question 3

Are there alternative projects which would offer more protection to the environment than the proposed facility without unduly curtailing non-environmental benefits?

Response:

No alternative projects would offer more protection to the environment than the currently proposed Facility without unduly curtailing non-environmental benefits. Plaquemines Generation is proposing to construct and operate a power generation facility to support Plaquemines LNG and/or the proposed Delta LNG Project on an as-needed basis, including, but not limited to, during periods of maintenance, repair, or unplanned events when one or more of the Plaquemines LNG or Delta LNG electrical power sources are unavailable. Plaquemines Generation will implement state-of-the-art control technology to control air emissions by complying with the BACT under the PSD requirements. The proposed Facility's scope and need is to support Plaquemines LNG and the proposed Delta LNG Project; therefore, there are no known alternative projects or process modifications which would provide more protection to the environment than the proposed Facility. The proposed Facility is the most environmentally beneficially, cost-effective, and technologically feasible when compared to any other alternative projects such as purchasing power from the grid, which would result in higher direct and indirect emissions and would require construction of additional infrastructure.

5.4 Question 4

Are there alternative sites which would offer more protection to the environment than the proposed facility site without unduly curtailing non-environmental benefits?

Response:

No alternative sites would offer more protection to the environment than the proposed Facility site without unduly curtailing non-environmental benefits for reasons discussed below. Refer to Appendix A of this application for an area map of the proposed Facility.

The primary purpose of the proposed Facility is to support Plaquemines LNG and/or the proposed Delta LNG Project on an as-needed basis, including, but not limited to, during periods of maintenance, repair, or unplanned events when one or more of the Plaquemines LNG or Delta LNG electrical power sources are unavailable. The Plaquemines LNG terminal is an existing facility located in Plaquemines Parish that is nearing completion of construction of Phase 1 and will soon commence commissioning for Phase 1. The proposed Facility will be located initially within the Plaquemines LNG terminal. Delta LNG is a proposed facility located contiguous to Plaquemines LNG. The proposed Facility may be moved to within the Delta LNG terminal after use at Plaquemines LNG. The proposed site locations within the LNG terminal facilities represent the best balance of environmental protection, economics, and technological viability for meeting Plaquemines Generation's purpose and need.

As discussed in Section 5.1 of this EAS, the proposed Facility is to enhance stability of the electrical power systems at Plaquemines LNG and/or the proposed Delta LNG Project. Therefore, a traditional "greenfield" alternative site analysis is not applicable for the proposed Facility because it must be located in close proximity to Plaquemines LNG and the proposed Delta LNG Project to serve its intended purpose.

The proposed Facility represents the most environmentally friendly, technologically viable, and economically advantageous option for meeting Plaquemines Generation's purpose and need, namely, to provide stability to the electrical power systems, on an as-needed basis, at Plaquemines LNG and the proposed Delta LNG Project. In turn, the LNG terminal facilities will be able to minimize flaring and other potential issues associated with power outages and will be able to maximize on-stream time to produce and export domestically produced natural gas (in the form of LNG) to promote natural gas trade and greater diversification of energy supplies on an international basis.

5.5 Question 5

Are there mitigating measures which would offer more protection to the environment than the facility as proposed without unduly curtailing non-environmental benefits?

Response:

No additional mitigating measures would offer more protection to the environment than the construction and operation of the proposed Facility. Potential adverse effects associated with the construction, operation, and maintenance of the proposed Facility will be mitigated to the extent practicable to maximize environmental protection and prevent any adverse human health and environmental impacts.

As discussed in the response to Question 1, and as detailed below, the proposed Facility will minimize or avoid adverse environmental impacts (e.g., air emissions, wastewater discharges, impacts to wetlands, and generation of solid and hazardous wastes) to the extent practicable. However, all air emissions and water discharges will be below any applicable ambient air and water quality standards. Additionally, the proposed Facility will minimize or avoid adverse impacts on wetlands, fish, and wildlife resources, including endangered and threatened species, and prime agricultural areas to the extent practicable. Plaquemines Generation will implement the necessary mitigation measures to further avoid or minimize these impacts.

Air emissions from the proposed Facility are regulated under the Clean Air Act and Louisiana Air Pollution Control Law, requiring Plaquemines Generation to obtain a Title V permit and PSD permit. PSD air quality dispersion modeling analyses (see Appendix H and Appendix I of this Application) demonstrate that the proposed Facility will not result in any NAAQS or PSD increment standard exceedances. The proposed Facility will implement BACT to control criteria pollutant and GHG emissions as required by the PSD regulations. BACT is selected in a top-down process which requires the use of top performing technically feasible technology unless it is not cost-effective or if it results in other adverse energy or environmental impacts (refer to Section 3 of this Application). Further, the proposed ASCCTs will be designed and operated to comply with the stringent NSPS, as applicable, promulgated by the U.S. EPA. The proposed ASCCTs are also subject to the Maximum Achievable Control Technology (MACT) limit under the NESHAP for Stationary Combustion Turbines (40 CFR Part 63 Subpart YYYY) to minimize the HAP emissions. The proposed control technologies will allow compliance with these NSPS and NESHAP standards. The NESHAP YYYY requirements for new sources was established based on the best performing 5% of the stationary combustion turbines. The emissions from the proposed Facility will also meet applicable Louisiana regulations, including Louisiana Ambient Air Standards.

Plaquemines Generation will achieve a relatively lower carbon intensity by generating the power required to operate the four (4) simple cycle turbines using natural gas-fired combustion. By generating electrical power on-site, Venture Global can avoid indirect GHG emissions that may be generated while purchasing power from a grid. Additionally, the GHG emissions from natural gas fired turbines will be lower than the GHG emissions from purchasing power generated from coal-fired or pet-coke fired power plants or older, more inefficient gas-fired plants.

Plaquemines Generation will not dispose of solid waste onsite; any industrial solid waste generated will be disposed offsite at a permitted disposal facility. Although some hazardous waste will be generated, Plaquemines Generation will not own or operate any hazardous waste treatment, storage, or disposal units which require a permit per the Louisiana Hazardous Waste Regulations. Further, Plaquemines Generation will properly recycle or dispose of all generated hazardous waste off-site using permitted facilities and transporters qualified to handle such waste.

Groundwater resources will be protected to the maximum extent possible through facility design, compliance with the SWPPP, SPCC Plan, and implementation of BMPs. The wastewater and stormwater discharges from the proposed Project will have minimal impact on receiving waters. Federal and state water quality regulations apply to industrial wastewater and require stringent treatment to specific standards prior to its discharge. The LDEQ will conduct evaluations to ensure discharges from the proposed Facility do not impair receiving streams. In addition, the LDEQ requires a discharge permit with numerical loading limitations for any industrial wastewater. Plaquemines Generation discharges will comply with the LPDES program, and Plaquemines Generation will utilize BMPs to limit the discharge of pollutants during/from any spills or release incidents.

The proposed Facility will be designed and operated to maximize environmental protection and prevent any adverse human health and environmental impacts. In summary, the proposed Facility provides the most effective and reliable technology to provide operational support to Plaquemines LNG and the proposed Delta LNG Project. The planned design and construction of the proposed Facility will be highly effective in providing environmental protection. Plaquemines Generation believes there are no other mitigating measures that are feasible without unduly curtailing non-environmental benefits.

APPENDIX A. AREA MAP

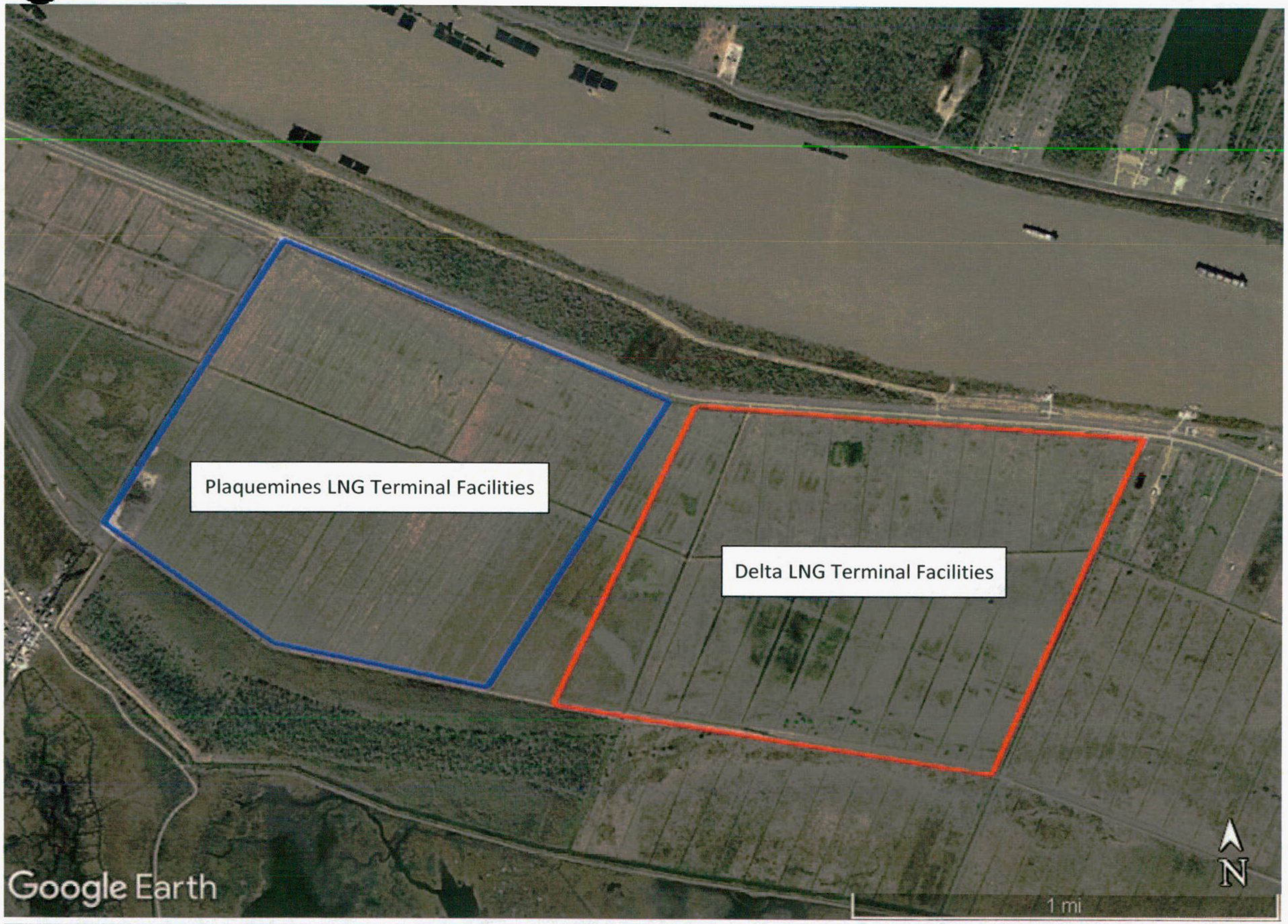

Figure A-1. Area Map
Plaquemines Generation, LLC
Plaquemines Parish, Louisiana

Note: The Plaquemines Generation facility will be installed & operated at Plaquemines LNG and Delta LNG.

APPENDIX B. EMISSION CALCULATIONS

Plaquemines Generation, LLC
Power Generation - Aeroderivative Simple Cycle Combustion Turbines

Input Data

Property	Value	Units
Turbine Annual Operating Hours (Normal)	8,660	hr/yr/turbine
Turbine Annual Operating Hours (SU/SD)	100	hr/yr/turbine
Total Turbine Annual Operating Hours (Normal + SU/SD)	8,760	hr/yr/turbine
Number of Turbines	4	number
Heat Input Capacity (Duty) per turbine [1]	393	MMBtu/hr
Fuel Gas Higher Heating Value (HHV)[1]	1,049	Btu/scf
Natural Gas Higher Heating Value (HHV)[3]	1,020	Btu/scf
Fuel Used for Turbine	fuel gas/natural gas	-

[1] Based on data provided by Plaquemines Generation.
[2] Fuel Gas/Natural Gas Higher Heating Value (HHV) based on Heat and Material Balance data.
[3] Natural Gas Higher Heating Value (HHV) from U.S. EPA, AP-42, Section 1.4 Natural Gas Combustion.

Emissions Summary

Pollutant	Per Unit				Turbines Operations Emissions Cap [5]	
	Average Hourly Emission Rate [1]	Maximum Hourly Emission Rate[2]	Average Annual Emission Rate [4]	SU/SD Scenario Hourly Emission Rate[3]	Average Hourly Emission Rate	Average Annual Emission Rate
	(lb/hr)	(lb/hr)	(tpy)	(lb/hr)	(lb/hr)	(tpy)
VOC	0.67	0.80	2.93	0.80	2.68	11.72
NO_x	4.09	4.91	17.91	39.72	16.36	71.64
CO	4.76	4.76	20.84	29.11	19.03	83.36
SO_2	0.48	0.48	2.10	0.48	1.92	8.40
PM	4.00	4.00	17.52	4.00	16.00	70.08
PM_{10}	4.00	4.00	17.52	4.00	16.00	70.08
$PM_{2.5}$	4.00	4.00	17.52	4.00	16.00	70.08
Ammonia (NH_3)	2.71	2.72	11.86	2.72	10.83	47.44
H_2S	0.003	0.003	0.013	-	0.01	0.05
CO_2e	-	-	209,019	-	-	836,076

[1] The average hourly emission rate is calculated as follows: Average Hourly Emission Rate (lb/hr) = Average Annual Emission Rate (tpy) x 2,000 (lb/ton) / 8,760 (hr/yr) per LDEQ guidance.
[2] Maximum hourly emissions during normal operations. For NOx, a safety factor of 20% is applied to the average hourly emissions to calculate the maximum hourly emissions.
[3] Maximum of hourly emissions during SU/SD operations and normal operations.
[4] Annual average emissions include 100 hours per year of SU/SD activities for each turbine. VOC, SO_2, $PM_{10}/PM_{2.5}$, and NH_3 hourly emissions during SU/SD activities are lower than the hourly emissions during normal operations. Therefore, annual average emissions for VOC, SO_2, $PM_{10}/PM_{2.5}$, and NH_3 during the 100 hours per year of SU/SD activities are based on the hourly emissions during normal operations.
[5] The Turbines Operations Emissions Cap includes all four (4) Aeroderivative Simple Cycle Combustion Turbines.

Plaquemines Generation, LLC
Power Generation - Aeroderivative Simple Cycle Combustion Turbines

Cold Start - Assume 1 hour at 30% load and 1 hour at 50% load. Assume control devices become effective after 90 minutes.

Pollutant	Load	Duration of Control During Cold Start	Uncontrolled EF	Controlled EF	Adjusted Hourly	Uncontrolled Hourly	Controlled Hourly	Controlled per Cold Start	Max Hourly During Cold Start	Total Emissions (100 hours per Year per Turbine)
	%	hrs	ppmv[1]	ppmv[1]	lb/hr	lb/hr[2]	lb/hr[2]	lb/2 hrs	lb/ hr	lb/yr[5]
VOC	30%	-	1.74	-	-	0.27	-	0.65	0.38	38.46
	50%	-	1.50	-	-	0.38	-			
NO_x [2]	30%	-	90	-	-	39.72	-	49.83	39.72	3,971.94
	50%	0.50	25	2.50	-	18.39	1.84			
CO	30%	-	108.33	-	-	29.11	-	47.02	29.11	2910.60
	50%	-	40	-	-	17.91	-			
SO_2	30%	-	-	-	0.48	0.48	-	0.48	0.48	47.98
PM_{10}	All	-	-	-	4.00	4.00	-	8.00	4.00	400.00
NH_3 [3,4]	All	0.50	5	-	2.72	1.36	-	1.36	1.36	136.13

[1] The NO_x and CO concentrations at 50% load is equal to that at 100% load.

[2] NO_x emissions are assumed to be controlled during the last half hour of the cold start (at 50% load).

[3] NH_3 emissions are based on 5 ppm ammonia slip per good engineering judgement.

[4] NH_3 emissions are assumed to occur only when the control device is effective, during the last half hour of the cold start. Therefore, the NH_3 emission rate calculation for cold start is based on 0.5 hour instead of 2 hours of

lb/MMBtu = ppmv/10^6 * Oxygen Correction Factor ((20.9) / (20.9 - 15)) * MW (lb/lbmole) * Fd (dscf/MMBtu) / Vm (dscf/lbmole).

lb/MMscf = lb/MMBtu * Btu/scf

[5] Total Emissions = Max Hourly During Cold Start (lb/hr) * Total SU/SD Hours Per Year (hr/yr/turbine).

Plaquemines Generation, LLC
Power Generation - Aeroderivative Simple Cycle Combustion Turbines

Warm Start - Assume 0.5 hours at 30% load and 0.5 hours at 50% load. Assume control devices become effective after 30 minutes.

Pollutant	Load	Uncontrolled EF	Controlled EF	Adjusted Hourly	Uncontrolled Hourly	Controlled Hourly	Warm Start Event	Total Emissions (100 hours per Year per Turbine)
	%	ppmv[1]	ppmv[1]	lb/hr	lb/hr[2]	lb/hr[2]	lb/hr	lb/yr[5]
VOC	30%	1.74	-	-	0.27	-	0.33	32.63
	50%	1.50	-	-	0.38	-		
NO_x[2]	30%	90.00	-	-	39.72	-	20.78	2,077.91
	50%	-	2.50	-	-	1.84		
CO	30%	108.33	-	-	29.11	-	23.51	2,350.87
	50%	40.00	-	-	17.91	-		
SO_2	30%	-	-	0.48	0.48	-	0.48	47.98
PM_{10}	All	-	-	4.00	4.00	-	4.00	400.00
NH_3[3,4]	All	5.00	-	2.72	1.36	-	1.36	136.13

[1] The NO_x and CO concentrations at 50% load is equal to that at 100% load.
[2] NO_x emissions are assumed to be controlled during the last half hour of the warm start (at 50% load).
[3] NH_3 emissions are based on 5 ppm ammonia slip per good engineering judgement.
[4] NH_3 emissions are assumed to occur only when the control device is effective, during the last half hour of the warm start.
[5] Total Emissions = Warm Start Event (lb/hr) * Total SU/SD Hours Per Year (hr/yr/turbine).
lb/MMBtu = ppmv/10^6 * Oxygen Correction Factor ((20.9) / (20.9 - 15)) * MW (lb/lbmole) * Fd (dscf/MMBtu) / Vm (dscf/lbmole).
lb/MMscf = lb/MMBtu * Btu/scf

Shutdowns - Assume 0.5 hours at 50% load and 0.5 hours at 30% load. Assume control devices become ineffective after 30 minutes.

Pollutant	Load	Uncontrolled EF	Controlled EF	Adjusted Hourly	Uncontrolled Hourly	Controlled Hourly	Shutdown Event	Total Emissions (100 hours per Year per Turbine)
	%	ppmv[1]	ppmv[1]	lb/hr	lb/hr[2]	lb/hr[2]	lb/hr	lb/yr[5]
VOC	30%	1.74	-	-	0.27	-	0.33	32.63
	50%	1.50	-	-	0.38	-		
NO_x[2]	30%	90.00	-	-	39.72	-	20.78	2,077.91
	50%	-	2.50	-	-	1.84		
CO	30%	108.33	-	-	29.11	-	23.51	2,350.87
	50%	40.00	-	-	17.91	-		
SO_2	All	-	-	0.48	0.48	-	0.48	47.98
PM_{10}	All	-	-	4.00	4.00	-	4.00	400.00
NH_3[3,4]	All	5.00	-	2.72	1.36	-	1.36	136.13

[1] The NO_x and CO concentrations at 50% load is equal to that at 100% load.
[2] NO_x emissions are assumed to be controlled during the last half hour of the warm start (at 50% load).
[3] NH_3 emissions are based on 5 ppm ammonia slip per good engineering judgement.
[4] NH_3 emissions are assumed to occur only when the control device is effective, during the first half hour of shutdown. Therefore, the emission rate calculations for shutdown are based on 0.5 hour instead of 1 hour of operation.
[5] Total Emissions = Shutdown Event (lb/hr) * Total SU/SD Hours Per Year (hr/yr/turbine).

Plaquemines Generation, LLC
Power Generation - Aeroderivative Simple Cycle Combustion Turbines

Turbine Operations - Assume normal operation at 100% load. Assume control devices are effective.

Pollutant	Uncontrolled EF	Controlled EF	Hourly	Annual
	ppmv[1]	ppmv[1]	lbs/hr	ton/yr
VOC	-	1.30	0.67	2.89
NO_X	-	2.50	3.68	15.92
CO	-	5.00	4.48	19.39
SO_2[2]	-	-	0.48	2.08
$PM_{10}/PM_{2.5}$[1]	-	-	4.00	17.32
NH_3	5.00	-	2.72	11.79
H_2S[2]	-	-	0.003	0.013
CO_2e	-	-	-	209,019

[1] Based on data provided by Plaquemines Generation.

[2] SO_2 and H_2S emissions are based on the Heat and Material Balance data, assuming 99% of sulfur compounds are converted to SO_2; the other 1% is conservatively assumed to be emitted as H_2S.

HAP Emissions from Turbine

Pollutant	HAP?[1]	TAP?[2]	Emission Factor		Adjusted Emission Factor	Per Turbine[7] Average Hourly Emissions[4]	Per Turbine[7] Annual Emissions[5]
			(ppbv)	(lb/MMBtu)[3]	(lb/MMBtu)[6]	(lb/hr)	(tpy)
1,3-Butadiene	Y	Y	-	4.300E-07	4.423E-07	<0.001	< 0.001
Acetaldehyde	Y	Y	-	4.000E-05	4.115E-05	0.02	0.07
Acrolein	Y	Y	-	6.400E-06	6.583E-06	0.003	0.011
Benzene	Y	Y	-	1.200E-05	1.234E-05	0.005	0.02
Ethylbenzene	Y	Y	-	3.200E-05	3.292E-05	0.01	0.06
Formaldehyde	Y	Y	91	-	-	0.09	0.38
Naphthalene	Y	Y	-	1.300E-06	1.337E-06	< 0.001	<0.01
PAH	Y	Y	-	2.200E-06	2.263E-06	0.001	0.004
Propylene Oxide	Y	Y	-	2.900E-05	2.983E-05	0.01	0.05
Toluene	Y	Y	-	1.300E-04	1.337E-04	0.05	0.23
Xylenes	Y	Y	-	6.400E-05	6.583E-05	0.03	0.11
Lead[6]	Y	Y	-	-	-	-	-
Total TAP[7]						0.216	0.945
Total HAP[7]						0.216	0.945

[1] Listed US EPA Hazardous Air Pollutants.

[2] Louisiana Toxic Air Pollutants, per LAC:33.III.Chapter 51, Table 51.1.

[3] Emission factors obtained from U.S. EPA, AP-42, Section 3.1 Stationary Gas Turbines (4/00), Table 3.1-3.

[4] Hourly emissions = Adjusted Emission Factor (lb/MMBtu) * Heat Input Capacity (Duty) per Turbine (MMBtu/hr) OR CH_2O (lb/hr) = 91 ppbv /10^9 * Oxygen Correction Factor ((20.9) / (20.9 - 15))* 30.03 lb CH_2O/lbmole CH_2O * Fd (dscf/MMBtu) / Vm (dscf/lbmole) * Heat Input Capacity (Duty) per Turbine (MMBtu/hr). Not applicable during start up.

[5] Maximum Potential Annual Emission Rate (tpy) = Hourly Emissions (lb/hr) * Total Turbine Annual Operating Hours (Normal + SU/SD) (hr/yr) * (1 ton / 2,000 lb).

[6] U.S. EPA AP-42 Emission factors adjusted to Fuel Gas HHV by multiplying by (Fuel Gas HHV/Natural Gas HHV).

[7] Consistent with LDEQ guidance, only those individual TAP/HAP with a potential to emit of equal to or greater than 1 lb/yr are included.

Plaquemines Generation, LLC
Fugitive Emissions

Input Data

Property	Value	Units
Hours of Operation	8,760	hr/yr
Natural Gas/Fuel Gas VOC [1]	5.00%	wt%
Natural Gas/Fuel Gas Benzene [2]	0.58%	wt%
Natural Gas/Fuel Gas Hexane [2]	1.82%	wt%
Natural Gas/Fuel Gas Toluene [2]	0.34%	wt%
Natural Gas/Fuel Gas o-Xylene [2]	0.18%	wt%
Natural Gas/Fuel Gas CH_4 [2]	89.27%	wt%
Natural Gas/Fuel Gas CO_2 [2]	3.09%	wt%
GWP_{CH4} [3]	25	-
GWP_{CO2} [3]	1	-

Emissions Summary

Pollutant	Hourly Emissions	Annual Emissions
	(lb/hr)	(tpy)
VOC	0.11	0.50
Benzene	0.01	0.06
Hexane	0.04	0.18
Toluene	0.008	0.03
o-Xylene	0.004	0.02
CH_4	2.02	8.85
CO_2	0.07	0.31
CO_2e [4]	-	222
Ammonia	0.01	0.06

Emission Calculations

Process	Component	Service	Component Count [6]	Emission Factor [7]	Uncontrolled Emission Rate	Hourly VOC Emissions	Annual VOC Emissions	Hourly CH_4 Emissions	Annual CH_4 Emissions	Hourly CO_2 Emissions	Annual CO_2 Emissions	Hourly Ammonia Emissions	Annual Ammonia Emissions	Hourly Benzene Emissions	Annual Benzene Emissions	Hourly Hexane Emissions	Annual Hexane Emissions	Hourly Toluene Emissions	Annual Toluene Emissions	Hourly o-Xylene Emissions	Annual o-Xylene Emissions
				(kg/comp-hr)	(lb/hr)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
Natural Gas/Fuel Gas	Valves	Gas/Vapor	167	0.00450	1.66	0.08	0.36	1.48	6.48	0.05	0.22	-	-	0.01	0.04	0.03	0.13	0.01	0.02	0.003	0.01
	Pump Seals	Gas/Vapor	0	0.00240	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Connectors	Gas/Vapor	170	0.00020	0.07	0.004	0.02	0.07	0.29	0.002	0.01	-	-	0.0004	0.002	0.001	0.01	0.0003	0.001	0.0001	0.001
	Flanges	Gas/Vapor	170	0.00039	0.15	0.01	0.03	0.13	0.57	0.005	0.02	-	-	0.001	0.004	0.003	0.01	0.0005	0.002	0.0003	0.001
	Other [5]	Gas/Vapor	19	0.00880	0.37	0.02	0.08	0.33	1.44	0.01	0.05	-	-	0.002	0.01	0.01	0.03	0.001	0.01	0.001	0.003
	Open-ended Lines (Vents)	Gas/Vapor	4	0.00200	0.02	0.001	0.004	0.02	0.07	0.001	0.002	-	-	0.0001	0.0004	0.0003	0.001	0.0001	0.0003	0.00003	0.0001
	Total		**530**		**2.26**	**0.11**	**0.50**	**2.02**	**8.85**	**0.07**	**0.31**	-	-	**0.013**	**0.06**	**0.04**	**0.18**	**0.008**	**0.03**	**0.004**	**0.02**
Aqueous Ammonia [8]	Manual Valves	Light Liquid	12	0.0025	0.01	-	-	-	-	-	-	0.01	0.06	-	-	-	-	-	-	-	-
	Connectors (Flanges)	Light Liquid	23	0.0002	0.002	-	-	-	-	-	-	0.002	0.01	-	-	-	-	-	-	-	-
	Total		**35**	-	**0.01**	-	-	-	-	-	-	**0.015**	**0.06**	-	-	-	-	-	-	-	-

[1] Weight percent (wt%) of VOC is based on engineering estimates and best currently available information.

[2] Weight percent (wt%) is based on representative composition of natural gas.

[3] Global Warming Potentials for CH_4 and CO_2 are from 40 CFR 98 Table A-1.

[4] Annual CO_2e (tpy) = Annual CH_4 emission (tpy) x Global Warming Potential for CH_4 + Annual CO_2 emission (tpy) x Global Warming Potential for CO_2

[5] The "other" equipment type was derived from compressors, diaphrams, drains, dump arms, hatches, instruments, meters, pressure relief valves, polished rods, relief valves, and vents. This "other" equipment type should be applied for any equipment type other than connectors, flanges, open-ended lines, pumps, or valves.

[6] Equipment component counts are estimated based on 5% of the counts for Natural Gas/Fuel Gas process from the CP2 LNG Initial Title V & PSD Permit application (July 2022) and 50% of the counts for two aqueous ammonia tanks from the Plaquemines LNG M4/V-4 Title V and PSD Permit application (October 2023).

[7] Emission factors are taken from Protocol for Equipment Leak Emission Estimates, EPA-453/R-95-017, November 1995, Table 2-4 (Oil and Gas Production Operations Average Emission Factors).

[8] Using average emission factors according to the EPA-453/R-95-017, November 1995, Page 2-53. Estimated Ammonia emissions are adjusted for 19% Aqueous ammonia as shown below:
Ammonia emissions = Ammonia emissions based on 100% aqueous ammonia x 19%.

Plaquemines Generation, LLC
Aqueous Ammonia Storage Tank

Input Data

Description	Value	Units
Number of Tanks	1	number
Operating Hours	8,760	hr/yr
Working Volume[4]	5,000	gal
Shell Length[4]	18.83	ft
Tank Diameter[4]	7.06	ft
Turnovers	91.91	number
Net Throughput[3]	459,541	gal/yr
Components	19% Aqueous Ammonia	-

Emissions Summary

	Losses (lb/yr)[1]			Losses	Losses
Pollutant	**Working Loss**	**Breathing Loss**	**Total Losses**	**(lb/hr)**	**(tpy)[2]**
19% Aqueous Ammonia - Storage Tank 1	643.10	31.25	674.35	0.08	0.34
19% Aqueous Ammonia - Total	**643.10**	**31.25**	**674.35**	**0.08**	**0.34**

Notes:

[1] Losses for Aqueous Ammonia Storage Tank 1 are determined using the BREEZE TankESP PRO Version 5.2.0 software.

[2] Losses in tons per year are calculated by dividing the losses in pound per year by 2,000 pound per ton.

[3] Based on data provided by Plaquemines Generation.

[4] Based on vendor data.

APPENDIX C. INSIGNIFICANT ACTIVITIES

Plaquemines Generation, LLC
LAC 33:III.501.B.5.A.2 - Lube Oil Storage Tanks (<250 gallons each)

Input Data

Description	Value	Units
Number of Tanks[3]	4	number
Operating Hours	8,760	hr/yr
Working Volume[3]	140	gal
Shell Length	2.90	ft
Tank Diameter	2.90	ft
Turnovers	2.00	number
Net Throughput	280	gal/yr
Components	Lube Oil (Synthetic)	-

Emissions Summary

	Losses (lb/yr)[1]			Losses	Losses
Pollutant	**Working Loss**	**Breathing Loss**	**Total Losses**	**(lb/hr)**	**(tpy)[2]**
Lube Oil - Tank 1	4.51E-04	2.88E-03	0.003	< 0.001	< 0.001
Lube Oil - Tank 2	4.51E-04	2.88E-03	0.003	< 0.001	< 0.001
Lube Oil - Tank 3	4.51E-04	2.88E-03	0.003	< 0.001	< 0.001
Lube Oil - Tank 4	4.51E-04	2.88E-03	0.003	< 0.001	< 0.001
Lube Oil - Total	**1.80E-03**	**1.15E-02**	**0.013**	**< 0.001**	**< 0.001**

Notes:

[1] Losses for Turbine Lube Oil Storage Tanks are determined using the BREEZE TankESP PRO Version 5.2.0 software.

[2] Losses in tons per year are calculated by dividing the losses in pound per year by 2,000 pound per ton.

[3] Based on data provided by Plaquemines Generation.

Plaquemines Generation, LLC
LAC 33:III.501.B.5.A.2 - Lube Oil Storage Tanks (<250 gallons each)

Input Data

Description	Value	Units
Number of Tanks[3]	4	number
Operating Hours	8,760	hr/yr
Working Volume[3]	40	gal
Shell Length	3.00	ft
Tank Diameter	3.00	ft
Turnovers	2.00	number
Net Throughput	80	gal/yr
Components	Lube Oil (Mineral)	-

Emissions Summary

	Losses (lb/yr)[1]			Losses	Losses
Pollutant	**Working Loss**	**Breathing Loss**	**Total Losses**	**(lb/hr)**	**(tpy)[2]**
Lube Oil - Tank 1	1.29E-04	3.29E-03	0.003	< 0.001	< 0.001
Lube Oil - Tank 2	1.29E-04	3.29E-03	0.003	< 0.001	< 0.001
Lube Oil - Tank 3	1.29E-04	3.29E-03	0.003	< 0.001	< 0.001
Lube Oil - Tank 4	1.29E-04	3.29E-03	0.003	< 0.001	< 0.001
Lube Oil - Total	**5.15E-04**	**0.01**	**0.01**	**< 0.001**	**< 0.001**

Notes:

[1] Losses for Hydraulic Start Oil Tanks are determined using the BREEZE TankESP PRO Version 5.2.0 software.

[2] Losses in tons per year are calculated by dividing the losses in pound per year by 2,000 pound per ton.

[3] Based on data provided by Plaquemines Generation.

Plaquemines Generation, LLC
LAC 33:III.501.B.5.A.2 - Lube Oil Storage Tanks (<250 gallons each)

Input Data

Description	Value	Units
Number of Tanks[3]	4	number
Operating Hours	8,760	hr/yr
Working Volume[3]	250	gal
Shell Length	3.50	ft
Tank Diameter	3.50	ft
Turnovers	2.00	number
Net Throughput	500	gal/yr
Components	Lube Oil (Mineral)	-

Emissions Summary

	Losses (lb/yr)[1]			Losses	Losses
Pollutant	Working Loss	Breathing Loss	Total Losses	(lb/hr)	(tpy)[2]
Lube Oil - Tank 1	8.05E-04	5.91E-03	0.01	< 0.001	< 0.001
Lube Oil - Tank 2	8.05E-04	5.91E-03	0.01	< 0.001	< 0.001
Lube Oil - Tank 3	8.05E-04	5.91E-03	0.01	< 0.001	< 0.001
Lube Oil - Tank 4	8.05E-04	5.91E-03	0.01	< 0.001	< 0.001
Lube Oil - Total	**3.22E-03**	**0.02**	**0.03**	**< 0.001**	**< 0.001**

Notes:

[1] Losses for Generator Lube Oil Tanks are determined using the BREEZE TankESP PRO Version 5.2.0 software.

[2] Losses in tons per year are calculated by dividing the losses in pound per year by 2,000 pound per ton.

[3] Based on data provided by Plaquemines Generation.

APPENDIX D. RACT/BACT/LAER CLEARINGHOUSE SEARCH RESULTS AND SUPPORTING DOCUMENTATION FOR BACT ANAYLSES

RBLC Entries for Particulate Matter Control from Simple Cycle Combustion Turbines/Aeroderivative Simple Cycle Combustion Turbines

RBLCID	FACILITY NAME	FACILITY STATE	PERMIT NUMBER	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT
AK-0085	GAS TREATMENT PLANT	AK	AQ1524CPT01	8/13/2020	Six (6) Simple Cycle Gas-Turbines (Power Generation)	Natural Gas	386	MMBtu/hr	Particulate matter, total (TPM)	Good Combustion Practices and burning clean fuels (NG)	0.007	LB/MMBTU
AK-0085	GAS TREATMENT PLANT	AK	AQ1524CPT01	8/13/2020	Six (6) Simple Cycle Gas-Turbines (Power Generation)	Natural Gas	386	MMBtu/hr	Particulate matter, total (TPM10)	Good Combustion Practices and burning clean fuels (NG)	0.007	LB/MMBTU
AK-0085	GAS TREATMENT PLANT	AK	AQ1524CPT01	8/13/2020	Six (6) Simple Cycle Gas-Turbines (Power Generation)	Natural Gas	386	MMBtu/hr	Particulate matter, total (TPM2.5)	Good Combustion Practices and burning clean fuels (NG)	0.007	LB/MMBTU
AK-0088	LIQUEFACTION PLANT	AK	AQ1539CPT01	7/7/2022	Six Simle Cycle Gas-Fired Turbines	Natural Gas	1113	MMBtu/hr	Particulate matter, total (TPM)	Good combustion practices and burning clean fuel (natural gas)	0.007	LB/MMBTU
AK-0088	LIQUEFACTION PLANT	AK	AQ1539CPT01	7/7/2022	Six Simle Cycle Gas-Fired Turbines	Natural Gas	1113	MMBtu/hr	Particulate matter, total (TPM10)	Good combustion practices and burning clean fuel (natural gas)	0.007	LB/MMBTU
AK-0088	LIQUEFACTION PLANT	AK	AQ1539CPT01	7/7/2022	Six Simle Cycle Gas-Fired Turbines	Natural Gas	1113	MMBtu/hr	Particulate matter, total (TPM2.5)	Good combustion practices and burning clean fuel (natural gas)	0.007	LB/MMBTU
AL-0329	COLBERT COMBUSTION TURBINE PLANT	AL	701-0010	9/21/2021	Three 229 MW Simple Cycle Combustion Turbines	Natural Gas	229	MW	Particulate matter, total (TPM10)		0.008	LB/MMBTU
AL-0329	COLBERT COMBUSTION TURBINE PLANT	AL	701-0010	9/21/2021	Three 229 MW Simple Cycle Combustion Turbines	Natural Gas	229	MW	Particulate matter, total (TPM2.5)		0.008	LB/MMBTU
CO-0075	PUEBLO AIRPORT GENERATING STATION	CO	13PB2245	5/30/2014	Turbine - simple cycle gas	natural gas	375	MMBTU/H	Particulate matter, total (TPM10)	Firing of pipeline quality natural gas as defined in 40 CFR Part 72. Specifically, the owner or the operator shall demonstrate that the natural gas burned has total sulfur content less than 0.5 grains/100 SCF.	4.8	LB/H
CO-0075	PUEBLO AIRPORT GENERATING STATION	CO	13PB2245	5/30/2014	Turbine - simple cycle gas	natural gas	375	MMBTU/H	Particulate matter, total (TPM2.5)	Firing of pipeline quality natural gas as defined in 40 CFR Part 72. Specifically, the owner or the operator shall demonstrate that the natural gas burned has total sulfur content less than 0.5 grains/100 SCF.	4.8	LB/H
FL-0346	LAUDERDALE PLANT	FL	0110037-011-AC	4/22/2014	Five 200-MW combustion turbines	Natural gas	2000	MMBtu/hr (approx)	Particulate matter, total (TPM2.5)	Good combustion practice and low-sulfur fuel	0	
FL-0354	LAUDERDALE PLANT	FL	0110037-013-AC	8/25/2015	Five 200-MW combustion turbines	Natural gas	2100	MMBtu/hr (approx)	Particulate matter, total (TPM)	Clean fuel prevents PM formation	2	GR. S / 100 SCF GAS
FL-0354	LAUDERDALE PLANT	FL	0110037-013-AC	8/25/2015	Five 200-MW combustion turbines	Natural gas	2100	MMBtu/hr (approx)	Particulate matter, total (TPM10)	Clean fuel prevents PM formation	2	GR. S / 100 SCF
FL-0354	LAUDERDALE PLANT	FL	0110037-013-AC	8/25/2015	Five 200-MW combustion turbines	Natural gas	2100	MMBtu/hr (approx)	Particulate matter, total (TPM2.5)	Clean fuel prevents PM formation	2	GR. S / 100 SCF
FL-0355	FORT MYERS PLANT	FL	0710002-022-AC	9/10/2015	Combustion Turbines	Natural gas	2262.4	MMBtu/hr gas	Particulate matter, total (TPM)	Use of clean fuels, and annual VE test	2	GR S / 100 SCF GAS
FL-0355	FORT MYERS PLANT	FL	0710002-022-AC	9/10/2015	Combustion Turbines	Natural gas	2262.4	MMBtu/hr gas	Particulate matter, total (TPM10)	Use of clean fuels	2	GR S / 100 SCF GAS
FL-0355	FORT MYERS PLANT	FL	0710002-022-AC	9/10/2015	Combustion Turbines	Natural gas	2262.4	MMBtu/hr gas	Particulate matter, total (TPM2.5)	Use of clean fuels	2	GR S / 100 SCF GAS
IL-0121	INVENERGY NELSON EXPANSION LLC	IL	15060042	9/27/2016	Two Simple Cycle Combustion Turbines	Natural Gas	190	MW	Particulate matter, filterable (FPM)	turbine design and good combustion practices	0.0038	LB/MMBTU
IL-0121	INVENERGY NELSON EXPANSION LLC	IL	15060042	9/27/2016	Two Simple Cycle Combustion Turbines	Natural Gas	190	MW	Particulate matter, total (TPM10)	turbine design and good combustion practices	0.005	LB/MMBTU
IL-0121	INVENERGY NELSON EXPANSION LLC	IL	15060042	9/27/2016	Two Simple Cycle Combustion Turbines	Natural Gas	190	MW	Particulate matter, total (TPM2.5)	turbine design and good combustion practices	0.005	LB/MMBTU
IN-0173	MIDWEST FERTILIZER CORPORATION	IN	129-33576-00059	6/4/2014	TWO (2) NATURAL GAS FIRED COMBUSTION TURBINES	NATURAL GAS	283	MMBTU/H, EACH	Particulate matter, filterable (FPM)	GOOD COMBUSTION PRACTICES AND PROPER DESIGN	0.0019	LB/MMBTU
IN-0173	MIDWEST FERTILIZER CORPORATION	IN	129-33576-00059	6/4/2014	TWO (2) NATURAL GAS FIRED COMBUSTION TURBINES	NATURAL GAS	283	MMBTU/H, EACH	Particulate matter, total (TPM10)	GOOD COMBUSTION PRACTICES AND PROPER DESIGN	0.0076	LB/MMBTU
IN-0173	MIDWEST FERTILIZER CORPORATION	IN	129-33576-00059	6/4/2014	TWO (2) NATURAL GAS FIRED COMBUSTION TURBINES	NATURAL GAS	283	MMBTU/H, EACH	Particulate matter, total (TPM2.5)	GOOD COMBUSTION PRACTICES AND PROPER DESIGN	0.0076	LB/MMBTU
IN-0180	MIDWEST FERTILIZER CORPORATION	IN	129-33576-00059	6/4/2014	TWO (2) NATURAL GAS FIRED COMBUSTION TURBINES	NATURAL GAS	283	MMBTU/H, EACH	Particulate matter, filterable (FPM)	GOOD COMBUSTION PRACTICES AND PROPER DESIGN	0.0019	LB/MMBTU
IN-0180	MIDWEST FERTILIZER CORPORATION	IN	129-33576-00059	6/4/2014	TWO (2) NATURAL GAS FIRED COMBUSTION TURBINES	NATURAL GAS	283	MMBTU/H, EACH	Particulate matter, total (TPM10)	GOOD COMBUSTION PRACTICES AND PROPER DESIGN	0.0076	LB/MMBTU
IN-0180	MIDWEST FERTILIZER CORPORATION	IN	129-33576-00059	6/4/2014	TWO (2) NATURAL GAS FIRED COMBUSTION TURBINES	NATURAL GAS	283	MMBTU/H, EACH	Particulate matter, total (TPM2.5)	GOOD COMBUSTION PRACTICES AND PROPER DESIGN	0.0076	LB/MMBTU
IN-0261	VERMILLION GENERATING STATION	IN	165-36956-00022	2/28/2017	SIMPLE CYCLE, NATURAL GAS FIRED COMBUSTION TURBINES	NATURAL GAS	80	MW	Particulate matter, filterable (FPM)	GOOD COMBUSTION PRACTICES	5	LB/H
IN-0261	VERMILLION GENERATING STATION	IN	165-36956-00022	2/28/2017	SIMPLE CYCLE, NATURAL GAS FIRED COMBUSTION TURBINES	NATURAL GAS	80	MW	Particulate matter, filterable (FPM10)	GOOD COMBUSTION PRACTICES	5	LB/H
IN-0261	VERMILLION GENERATING STATION	IN	165-36956-00022	2/28/2017	SIMPLE CYCLE, NATURAL GAS FIRED COMBUSTION TURBINES	NATURAL GAS	80	MW	Particulate matter, total (TPM2.5)	GOOD COMBUSTION PRACTICES	5	LB/H
IN-0264	MONTPELIER GENERATING STATION	IN	179-37209-00026	1/6/2017	PRATT & TWIN-PAC SIMPLE CYCLE TURBINES	NATURAL GAS	270.9	MMBTU/H	Particulate matter, filterable (FPM10)	USE NATURAL GAS AS PRIMARY FUEL; GOOD COMBUSTION PRACTICES	0.0066	LB/MMBTU
IN-0264	MONTPELIER GENERATING STATION	IN	179-37209-00026	1/6/2017	PRATT & TWIN-PAC SIMPLE CYCLE TURBINES	NATURAL GAS	270.9	MMBTU/H	Particulate matter, total (TPM2.5)	NATURAL GAS PRIMARY FUEL; GOOD COMBUSTION PRACTICES	0.0066	LB/MMBTU
KS-0036	WESTAR ENERGY - EMPORIA ENERGY CENTER	KS	C-10656	3/18/2013	GE LM6000PC SPRINT Simple cycle combustion turbine	Pipeline quality natural gas	405.3	MMBTU/hr	Particulate matter, total (TPM10)	fire only pipeline quality natural gas	6	LB/HR
KS-0036	WESTAR ENERGY - EMPORIA ENERGY CENTER	KS	C-10656	3/18/2013	GE LM6000PC SPRINT Simple cycle combustion turbine	Pipeline quality natural gas	405.3	MMBTU/hr	Particulate matter, total (TPM)	fire only pipeline quality natural gas	6	LB/HR
KS-0036	WESTAR ENERGY - EMPORIA ENERGY CENTER	KS	C-10656	3/18/2013	GE 7FA Simple Cycle Combustion Turbine	Pipeline quality natural gas	1780	MMBTU/HR	Particulate matter, total (TPM10)	will fire only pipeline quality natural gas	18	LB/HR
KS-0036	WESTAR ENERGY - EMPORIA ENERGY CENTER	KS	C-10656	3/18/2013	GE 7FA Simple Cycle Combustion Turbine	Pipeline quality natural gas	1780	MMBTU/HR	Particulate matter, total (TPM)	will fire only pipeline quality natural gas	18	LB/HR
LA-0307	MAGNOLIA LNG FACILITY	LA	PSD-LA-792	3/21/2016	Gas Turbines (8 units)	natural gas	333	mm btu/hr	Particulate matter, total (TPM10)	good combustion practices and fueled by natural gas	0	
LA-0307	MAGNOLIA LNG FACILITY	LA	PSD-LA-792	3/21/2016	Gas Turbines (8 units)	natural gas	333	mm btu/hr	Particulate matter, filterable (FPM2.5)	good combustion practices and fueled by natural gas	0	

RBLC Entries for Particulate Matter Control from Simple Cycle Combustion Turbines/Aeroderivative Simple Cycle Combustion Turbines

RBLCID	FACILITY NAME	FACILITY STATE	PERMIT NUMBER	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT
LA-0316	CAMERON LNG FACILITY	LA	PSD-LA-766(M3)	2/17/2017	Gas turbines (9 units)	natural gas	1069	mm btu/hr	Particulate matter, total (TPM10)	good combustion practices and fueled by natural gas	0.0076	LB/MM BTU
LA-0316	CAMERON LNG FACILITY	LA	PSD-LA-766(M3)	2/17/2017	Gas turbines (9 units)	natural gas	1069	mm btu/hr	Particulate matter, total (TPM2.5)	good combustion practices and fueled by natural gas	0.0076	LB/MM BTU
*LA-0327	WASHINGTON PARISH ENERGY CENTER	LA	PSD-LA-829	5/23/2018	CTG01 CO - Simple-Cycle Combustion Turbine 1 (Commissioning) [SCN0005]	Natural Gas	2201	MM BTU/hr	Particulate matter, total (TPM10)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR
*LA-0327	WASHINGTON PARISH ENERGY CENTER	LA	PSD-LA-829	5/23/2018	CTG01 CO - Simple-Cycle Combustion Turbine 1 (Commissioning) [SCN0005]	Natural Gas	2201	MM BTU/hr	Particulate matter, total (TPM2.5)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR
*LA-0327	WASHINGTON PARISH ENERGY CENTER	LA	PSD-LA-829	5/23/2018	CTG02 CO - Simple-Cycle Combustion Turbine 2 (Commissioning) [SCN0006]	natural gas	2201	MM BTU/hr	Particulate matter, total (TPM10)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR
*LA-0327	WASHINGTON PARISH ENERGY CENTER	LA	PSD-LA-829	5/23/2018	CTG02 CO - Simple-Cycle Combustion Turbine 2 (Commissioning) [SCN0006]	natural gas	2201	MM BTU/hr	Particulate matter, total (TPM2.5)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR
*LA-0327	WASHINGTON PARISH ENERGY CENTER	LA	PSD-LA-829	5/23/2018	CTG01 SUSD - Simple-Cycle Combustion Turbine 1 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0019]	Natural Gas	2201	MM BTU/hR	Particulate matter, total (TPM2.5)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR
*LA-0327	WASHINGTON PARISH ENERGY CENTER	LA	PSD-LA-829	5/23/2018	CTG01 SUSD - Simple-Cycle Combustion Turbine 1 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0019]	Natural Gas	2201	MM BTU/hR	Particulate matter, total (TPM10)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR
*LA-0327	WASHINGTON PARISH ENERGY CENTER	LA	PSD-LA-829	5/23/2018	CTG02 SUSD - Simple-Cycle Combustion Turbine 2 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0020]	Natural Gas	2201	MM BTU/hr	Particulate matter, total (TPM2.5)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR
*LA-0327	WASHINGTON PARISH ENERGY CENTER	LA	PSD-LA-829	5/23/2018	CTG02 SUSD - Simple-Cycle Combustion Turbine 2 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0020]	Natural Gas	2201	MM BTU/hr	Particulate matter, total (TPM10)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR
*LA-0327	WASHINGTON PARISH ENERGY CENTER	LA	PSD-LA-829	5/23/2018	CTG01 NO - Simple-Cycle Combustion Turbine 1 (Normal Operations) [EQT0017]	Natural Gas	2201	MM BTU/hr	Particulate matter, total (TPM10)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR
*LA-0327	WASHINGTON PARISH ENERGY CENTER	LA	PSD-LA-829	5/23/2018	CTG01 NO - Simple-Cycle Combustion Turbine 1 (Normal Operations) [EQT0017]	Natural Gas	2201	MM BTU/hr	Particulate matter, total (TPM2.5)	Good combustion practices & use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR
*LA-0327	WASHINGTON PARISH ENERGY CENTER	LA	PSD-LA-829	5/23/2018	CTG02 NO - Simple-Cycle Combustion Turbine 2 (Normal Operations) [EQT0018]	Natural Gas	2201	MM BTU/hr	Particulate matter, total (TPM10)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR
*LA-0327	WASHINGTON PARISH ENERGY CENTER	LA	PSD-LA-829	5/23/2018	CTG02 NO - Simple-Cycle Combustion Turbine 2 (Normal Operations) [EQT0018]	Natural Gas	2201	MM BTU/hr	Particulate matter, total (TPM2.5)	Good combustion practices & use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR
LA-0331	CALCASIEU PASS LNG PROJECT	LA	PDS-LA-805	9/21/2018	Aeroderivative Simple Cycle Combustion Turbine	Natural Gas	263	MM BTU/h	Particulate matter, total (TPM10)	Exclusive Combustion of Fuel Gas, Good Combustion Practices Including Proper Burner Design.	4.5	LB/H
LA-0331	CALCASIEU PASS LNG PROJECT	LA	PDS-LA-805	9/21/2018	Aeroderivative Simple Cycle Combustion Turbine	Natural Gas	263	MM BTU/h	Particulate matter, total (TPM2.5)	Exclusive Combustion of Fuel Gas, Good Combustion Practices Including Proper Burner Design.	4.5	LB/H
LA-0331	CALCASIEU PASS LNG PROJECT	LA	PDS-LA-805	9/21/2018	Simple Cycle Combustion Turbines (SCCT1 to SCCT3)	Natural Gas	927	MM BTU/h	Particulate matter, total (TPM10)	Exclusive Combustion of Fuel Gas and Good Combustion Practices, Including Proper Burner Design.	8	LB/H
LA-0331	CALCASIEU PASS LNG PROJECT	LA	PDS-LA-805	9/21/2018	Simple Cycle Combustion Turbines (SCCT1 to SCCT3)	Natural Gas	927	MM BTU/h	Particulate matter, total (TPM2.5)	Exclusive Combustion of Fuel Gas and Good Combustion Practices, Including Proper Burner Design.	8	LB/H
LA-0349	DRIFTWOOD LNG FACILITY	LA	PSD-LA-824	7/10/2018	Compressor Turbines (20)	natural gas	540	mm btu/hr	Particulate matter, total (TPM10)	Good Combustion Practices and Use of low sulfur facility fuel gas	0.0066	LB/MM BTU
LA-0349	DRIFTWOOD LNG FACILITY	LA	PSD-LA-824	7/10/2018	Compressor Turbines (20)	natural gas	540	mm btu/hr	Particulate matter, total (TPM2.5)	Good Combustion Practices and Use of low sulfur facility fuel gas	0.0066	LB/MM BTU
LA-0383	LAKE CHARLES LNG EXPORT TERMINAL	LA	PSD-LA-838	9/3/2020	Turbines (EQT0020 - EQT0031)	Natural gas	0		Particulate matter, total (TPM10)	Good combustion practices and clean natural gas	0	
LA-0383	LAKE CHARLES LNG EXPORT TERMINAL	LA	PSD-LA-838	9/3/2020	Turbines (EQT0020 - EQT0031)	Natural gas	0		Particulate matter, total (TPM2.5)	Good combustion practices and clean natural gas	0	
MD-0043	PERRYMAN GENERATING STATION	MD	PSC CASE NO. 9136	7/1/2014	(2) 60-MW SIMPLE CYCLE COMBUSTION TURBINES, FIRING NATURAL GAS	NATURAL GAS	120	MW	Particulate matter, total (TPM10)	GOOD COMBUSTION PRACTICES AND USE OF NATURAL GAS	5	LB/H
MD-0043	PERRYMAN GENERATING STATION	MD	PSC CASE NO. 9136	7/1/2014	(2) 60-MEGAWATT SIMPLE CYLCE COMBUSTION TURBINE, FIRING ULSD	ULTRA LOW SULFUR DIESEL	120	MW	Particulate matter, total (TPM10)	GOOD COMBUSTION PRACTICES AND LIMITED USE OF ULSD	15	LB/H
MD-0044	COVE POINT LNG TERMINAL	MD	PSC CASE NO. 9318	6/9/2014	2 COMBUSTION TURBINES	NATURAL GAS	130	MW	Particulate matter, filterable (FPM)	EXCLUSIVE USE OF FACILITY PROCESS FUEL GAS OR PIPELINE QUALITY NATURAL GAS AND GOOD COMBUSTION PRACTICES	0.0033	LB/MMBTU
MD-0044	COVE POINT LNG TERMINAL	MD	PSC CASE NO. 9318	6/9/2014	2 COMBUSTION TURBINES	NATURAL GAS	130	MW	Particulate matter, total (TPM10)	EXCLUSIVE USE OF FACILITY PROCESS FUEL GAS OR PIPELINE QUALITY NATURAL GAS AND GOOD COMBUSTION PRACTICES	0.007	LB/MMBTU
MD-0044	COVE POINT LNG TERMINAL	MD	PSC CASE NO. 9318	6/9/2014	2 COMBUSTION TURBINES	NATURAL GAS	130	MW	Particulate matter, total (TPM2.5)	EXCLUSIVE USE OF FACILITY PROCESS FUEL GAS OR PIPELINE QUALITY NATURAL GAS AND GOOD COMBUSTION PRACTICES	0.007	LB/MMBTU
MI-0441	LBWL--ERICKSON STATION	MI	74-18	12/21/2018	EUCTGHRSG1--A 667 MMBTU/H NG fired combustion turbine generator coupled with a heat recovery steam generator (HRSG)	Natural gas	667	MMBTU/H	Particulate matter, total (TPM10)	Pipeline quality natural gas, inlet air conditioning, and good combustion practices.	6.02	LB/H
MI-0441	LBWL--ERICKSON STATION	MI	74-18	12/21/2018	EUCTGHRSG1--A 667 MMBTU/H NG fired combustion turbine generator coupled with a heat recovery steam generator (HRSG)	Natural gas	667	MMBTU/H	Particulate matter, total (TPM2.5)	Pipeline quality natural gas, inlet air conditioning and good combustion practices.	6.02	LB/H
ND-0028	R.M. HESKETT STATION	ND	PTC13016	2/22/2013	Combustion Turbine	Natural gas	986	MMBTU/H	Particulate matter, total (TPM10)	Good Combustion Practices	7.3	LB/H
ND-0028	R.M. HESKETT STATION	ND	PTC13016	2/22/2013	Combustion Turbine	Natural gas	986	MMBTU/H	Particulate matter, total (TPM2.5)	Good combustion practices.	7.3	LB/H
ND-0029	PIONEER GENERATING STATION	ND	PTC 13037	5/14/2013	Natural gas-fired turbines	Natural gas	451	MMBTU/H	Particulate matter, total (TPM2.5)		5.4	LB/H
ND-0030	LONESOME CREEK GENERATING STATION	ND	PTC 13049	9/16/2013	Natural Gas Fired Simple Cycle Turbines	Natural gas	412	MMBTU/H	Particulate matter, total (TPM2.5)		5	LB/H
NJ-0086	BAYONNNE ENERGY CENTER	NJ	12863-BOP150001	8/26/2016	Simple Cycle Stationary Turbines firing Natural gas	Natural Gas	2143980	MMBTU/YR	Particulate matter, filterable (FPM)	Use of Natural gas a clean burning fuel	5	LB/H
NJ-0086	BAYONNNE ENERGY CENTER	NJ	12863-BOP150001	8/26/2016	Simple Cycle Stationary Turbines firing Natural gas	Natural Gas	2143980	MMBTU/YR	Particulate matter, total (TPM10)	Use of Natural gas a clean burning fuel	5	LB/H

RBLC Entries for Particulate Matter Control from Simple Cycle Combustion Turbines/Aeroderivative Simple Cycle Combustion Turbines

RBLCID	FACILITY NAME	FACILITY STATE	PERMIT NUMBER	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT
NJ-0086	BAYONNNE ENERGY CENTER	NJ	12863-BOP150001	8/26/2016	Simple Cycle Stationary Turbines firing Natural gas	Natural Gas	2143980	MMBTU/YR	Particulate matter, total (TPM2.5)	Use of natural gas a clean burning fuel	5	LB/H
NJ-0086	BAYONNNE ENERGY CENTER	NJ	12863-BOP150001	8/26/2016	Simple Cycle Stationary Turbines firing Ultra Low Sulfur Distillate Oil	Ultra Low Sulfur Distillate Oil	720	H/YR	Particulate matter, filterable (FPM)	Use of ULSD, a clean burning fuel	14	LB/H
NJ-0086	BAYONNNE ENERGY CENTER	NJ	12863-BOP150001	8/26/2016	Simple Cycle Stationary Turbines firing Ultra Low Sulfur Distillate Oil	Ultra Low Sulfur Distillate Oil	720	H/YR	Particulate matter, total (TPM10)	Use of ULSD a clean burning fuel	14	LB/H
NJ-0086	BAYONNNE ENERGY CENTER	NJ	12863-BOP150001	8/26/2016	Simple Cycle Stationary Turbines firing Ultra Low Sulfur Distillate Oil	Ultra Low Sulfur Distillate Oil	720	H/YR	Particulate matter, total (TPM2.5)	Use of ULSD, a clean burning fuel	14	LB/H
NY-0103	CRICKET VALLEY ENERGY CENTER	NY	3-1326-00275/00009	2/3/2016	Turbines and duct burners	natural gas	228	mw	Particulate matter, filterable (FPM)	good combustion practiced and pipeline quality natural gas	0.005	LB/MMBTU
NY-0106	GREENIDGE STATION	NY	8-5736-00004/00017	9/7/2016	Turbine - natural gas	natural gas	107	MW	Particulate matter, filterable (FPM2.5)	Baghouse with leak detection system.	8.25	E-3 LB/MMBTU
NY-0106	GREENIDGE STATION	NY	8-5736-00004/00017	9/7/2016	Turbine - natural gas	natural gas	107	MW	Particulate matter, filterable (FPM10)	Baghouse with leak detection system.	8.25	E-3 LB/MMBTU
NY-0106	GREENIDGE STATION	NY	8-5736-00004/00017	9/7/2016	Turbine - natural gas	natural gas	107	MW	Particulate matter, filterable (FPM)	Baghouse with leak detection system.	0.002	LB/MMBTU
NY-0106	GREENIDGE STATION	NY	8-5736-00004/00017	9/7/2016	Turbine - natural gas and wood	natural gas and up to 19% wood	107	MW	Particulate matter, filterable (FPM2.5)	Baghouse with leak detection system.	0.031	LB/MMBTU
NY-0106	GREENIDGE STATION	NY	8-5736-00004/00017	9/7/2016	Turbine - natural gas and wood	natural gas and up to 19% wood	107	MW	Particulate matter, filterable (FPM10)	Baghouse with leak detection system.	0.031	LB/MMBTU
NY-0106	GREENIDGE STATION	NY	8-5736-00004/00017	9/7/2016	Turbine - natural gas and wood	natural gas and up to 19% wood	107	MW	Particulate matter, filterable (FPM)	Baghouse with leak detection system.	0.01	LB/MMBTU
NY-0113	EDGEWOOD ENERGY LLC	NY	1-4728-03244/00005	7/9/2013	Turbines - NG	natural gas	0		Particulate matter, filterable (FPM)		0.0112	LB/MMBTU
OR-0050	TROUTDALE ENERGY CENTER, LLC	OR	26-0235	3/5/2014	GE LMS-100 combustion turbines, simple cycle with water injection	natural gas	1690	MMBTU/H	Particulate matter, total (TPM10)	Utilize only natural gas or ULSD fuel; Limit the time in startup or shutdown.	9.1	LB/H TOTAL PM
PA-0305	SHELL CHEM APPALACHIA/PETROCHEMICALS COMPLEX	PA	04-00740A	6/18/2015	Combustion turbine wih duct burner and heat recovery steam generator	Natural Gas	0	Three 40.6 MW turbines	Particulate matter, total (TPM10)		0.0066	LB/MMBTU
PA-0305	SHELL CHEM APPALACHIA/PETROCHEMICALS COMPLEX	PA	04-00740A	6/18/2015	Combustion turbine wih duct burner and heat recovery steam generator	Natural Gas	0	Three 40.6 MW turbines	Particulate matter, total (TPM2.5)		0.0066	LB/MMBTU
PA-0306	TENASKA PA PARTNERS/WESTMORELAND GEN FAC	PA	65-00990 C/E	2/12/2016	Large combustion turbine	Natural Gas	0		Particulate matter, total (TPM)	Good combustion practices with the use of low ash/sulfer fuels	0.0039	LB/MMBTU
PA-0306	TENASKA PA PARTNERS/WESTMORELAND GEN FAC	PA	65-00990 C/E	2/12/2016	Large combustion turbine	Natural Gas	0		Particulate matter, total (TPM10)	Good combustion practices with the use of low ash/sulfer fuels	0.0039	LB/MMBTU
PA-0306	TENASKA PA PARTNERS/WESTMORELAND GEN FAC	PA	65-00990 C/E	2/12/2016	Large combustion turbine	Natural Gas	0		Particulate matter, total (TPM2.5)	Good combustion practices	0.0039	LB/MMBTU
*TN-0187	TENNESSEE VALLEY AUTHORITY - JOHNSONVILLE COMBUSTION TURBINE	TN	979348	8/31/2022	Ten Simple Cycle NG Turbines	Natural Gas	465.8	MMBtu/hr	Particulate matter, total (TPM)	good combustion design and operating practices and the use of low sulfur fuel	3.65	LB/HR
TX-0672	CORPUS CHRISTI LIQUEFACTION PLANT	TX	PSDTX1306 105710	9/12/2014	Refrigeration compressor turbines	natural gas	40000	hp	Particulate matter, total (TPM2.5)		0.72	LB/H
TX-0672	CORPUS CHRISTI LIQUEFACTION PLANT	TX	PSDTX1306 105710	9/12/2014	Refrigeration compressor turbines	natural gas	40000	hp	Particulate matter, total (TPM2.5)		0.72	LB/H
TX-0686	ANTELOPE ELK ENERGY CENTER	TX	109148, PSDTX1358	4/22/2014	Combustion Turbine-Generator(CTG)	Natural Gas	202	MW	Particulate matter, filterable (FPM2.5)	Pipeline quality natural gas; limited hours; Good combustion practices	0	
TX-0688	SR BERTRON ELECTRIC GENERATION STATION	TX	102731, PSDTX1294	12/19/2014	Simple cycle natural gas turbines	Natural Gas	225	MW	Particulate matter, filterable (FPM2.5)	Good Combustion Practices, natural gas	0	
TX-0691	PH ROBINSON ELECTRIC GENERATING STATION	TX	108182 PSDTX1346	5/20/2014	(6) simple cycle turbines	natural gas	65	MW	Particulate matter, total (TPM2.5)		0	
TX-0693	ANTELOPE ELK ENERGY CENTER	TX	109148 PSDTX1358	4/22/2014	combustion turbine	natural gas	202	MW	Particulate matter, total (TPM2.5)		0	
TX-0694	INDECK WHARTON ENERGY CENTER	TX	111724 PSDTX1374	2/2/2015	(3) combustion turbines	natural gas	220	MW	Particulate matter, total (TPM2.5)		0	
TX-0695	ECTOR COUNTY ENERGY CENTER	TX	110423 PSDTX1366	8/1/2014	(2) combustion turbines	natural gas	180	MW	Particulate matter, total (TPM2.5)		0	
TX-0696	ROANâ€™S PRAIRIE GENERATING STATION	TX	114698 PSDTX1378	9/22/2014	(2) simple cycle turbines	natural gas	600	MW	Particulate matter, total (TPM2.5)		0	
TX-0701	ECTOR COUNTY ENERGY CENTER	TX	110423, PSDTX1366	5/13/2013	Simple Cycle Combustion Turbines	natural gas	180	MW	Particulate matter, total (TPM2.5)	Firing pipeline quality natural gas and good combustion practices	0	
TX-0733	ANTELOPE ELK ENERGY CENTER	TX	109148, PSDTX1358M1	5/12/2015	Simple Cycle Turbine & Generator	natural gas	202	MW	Particulate matter, total (TPM2.5)	Pipeline quality natural gas; limited hours; good combustion practices.	0	
TX-0733	ANTELOPE ELK ENERGY CENTER	TX	109148, PSDTX1358M1	5/12/2015	Simple Cycle Turbine & Generator	natural gas	202	MW	Particulate matter, total (TPM10)	Pipeline quality natural gas; limited hours; good combustion practices.	0	
TX-0733	ANTELOPE ELK ENERGY CENTER	TX	109148, PSDTX1358M1	5/12/2015	Simple Cycle Turbine & Generator	natural gas	202	MW	Particulate matter, total (TPM)	Pipeline quality natural gas; limited hours; good combustion practices.	0	
TX-0764	NACOGDOCHES POWER ELECTRIC GENERATING PLANT	TX	77679, PSDTX1061M1 & O-3455	10/14/2015	Natural Gas Simple Cycle Turbine (>25 MW)	natural gas	232	MW	Particulate matter, total (TPM)	Pipeline quality natural gas; limited hours; good combustion practices.	12.09	LB/HR

RBLC Entries for Particulate Matter Control from Simple Cycle Combustion Turbines/Aeroderivative Simple Cycle Combustion Turbines

RBLCID	FACILITY NAME	FACILITY STATE	PERMIT NUMBER	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT
TX-0764	NACOGDOCHES POWER ELECTRIC GENERATING PLANT	TX	77679, PSDTX1061M1 & O-3455	10/14/2015	Natural Gas Simple Cycle Turbine (>25 MW)	natural gas	232	MW	Particulate matter, total (TPM10)	Pipeline quality natural gas; limited hours; good combustion practices.	12.09	LB/HR
TX-0764	NACOGDOCHES POWER ELECTRIC GENERATING PLANT	TX	77679, PSDTX1061M1 & O-3455	10/14/2015	Natural Gas Simple Cycle Turbine (>25 MW)	natural gas	232	MW	Particulate matter, total (TPM2.5)	Pipeline quality natural gas; limited hours; good combustion practices.	12.09	LB/HR
TX-0768	SHAWNEE ENERGY CENTER	TX	PSDTX1442, 125963	10/9/2015	Simple cycle turbines greater than 25 megawatts (MW)	natural gas	230	MW	Particulate matter, total (TPM10)	Pipeline quality natural gas; limited hours; good combustion practices.	84.1	LB/HR
TX-0768	SHAWNEE ENERGY CENTER	TX	PSDTX1442, 125963	10/9/2015	Simple cycle turbines greater than 25 megawatts (MW)	natural gas	230	MW	Particulate matter, total (TPM2.5)	Pipeline quality natural gas; limited hours; good combustion practices.	84.1	LB/HR
TX-0769	VAN ALSTYNE ENERGY CENTER (VAEC)	TX	121051 AND PSDTX1418	10/27/2015	Simple Cycle Turbine	natural gas	183	MW	Particulate matter, total (TPM10)	Pipeline Quality Natural Gas	8.6	LB/H
TX-0769	VAN ALSTYNE ENERGY CENTER (VAEC)	TX	121051 AND PSDTX1418	10/27/2015	Simple Cycle Turbine	natural gas	183	MW	Particulate matter, total (TPM2.5)	Pipeline Quality Natural Gas	8.6	LB/H
TX-0777	UNION VALLEY ENERGY CENTER	TX	120973 AND PSDTX1420	12/9/2015	Simple Cycle Turbine	natural gas	183	MW	Particulate matter, total (TPM10)	pipeline quality natural gas, good combustion practices	8.6	LB/H
TX-0777	UNION VALLEY ENERGY CENTER	TX	120973 AND PSDTX1420	12/9/2015	Simple Cycle Turbine	natural gas	183	MW	Particulate matter, total (TPM2.5)	pipeline quality natural gas, good combustion practices	8.6	LB/H
TX-0788	NECHES STATION	TX	122401, PSDTX1428, GHGPSDTX111	3/24/2016	Large Combustion Turbines > 25 MW	natural gas	232	MW	Particulate matter, total (TPM10)	good combustion practices, low sulfur fuel	13.4	LB/H
TX-0788	NECHES STATION	TX	122401, PSDTX1428, GHGPSDTX111	3/24/2016	Large Combustion Turbines > 25 MW	natural gas	232	MW	Particulate matter, total (TPM2.5)	good combustion practices, low sulfur fuel	13.4	LB/H
TX-0794	HILL COUNTY GENERATING FACILITY	TX	130051,PSDTX1450, GHGPSDTX131	4/7/2016	Simple cycle turbine	natural gas	171	MW	Particulate matter, total (TPM10)	Premixing of fuel and air enhances combustion efficiency and minimizes emissions.	14	LB/H
TX-0794	HILL COUNTY GENERATING FACILITY	TX	130051,PSDTX1450, GHGPSDTX131	4/7/2016	Simple cycle turbine	natural gas	171	MW	Particulate matter, total (TPM2.5)	Premixing of fuel and air enhances combustion efficiency and minimizes emissions.	14	LB/H
TX-0794	HILL COUNTY GENERATING FACILITY	TX	130051,PSDTX1450, GHGPSDTX131	4/7/2016	Simple Cycle Turbine	ULTRA LOW SULFUR DIESEL	171	MW	Particulate matter, total (TPM10)	combustor designed for complete combustion and therefore minimizes emissions	9.8	LB/H
TX-0794	HILL COUNTY GENERATING FACILITY	TX	130051,PSDTX1450, GHGPSDTX131	4/7/2016	Simple Cycle Turbine	ULTRA LOW SULFUR DIESEL	171	MW	Particulate matter, total (TPM2.5)	combustor designed for complete combustion and therefore minimizes emissions	9.8	LB/H
TX-0816	CORPUS CHRISTI LIQUEFACTION	TX	139479, PSDTX1496, GHGPSDTX157	2/14/2017	Refrigeration compressor turbines	NATURAL GAS	40000	HP	Particulate matter, total (TPM2.5)		0.75	LB/H
TX-0819	GAINES COUNTY POWER PLANT	TX	135322, PSDTX1470, AND GHGPSDT	4/28/2017	Simple Cycle Turbine	natural gas	227.5	MW	Particulate matter, total (TPM)	Pipeline quality natural gas; limited hours; good combustion practices	8.5	T/YR
TX-0819	GAINES COUNTY POWER PLANT	TX	135322, PSDTX1470, AND GHGPSDT	4/28/2017	Simple Cycle Turbine	natural gas	227.5	MW	Particulate matter, total (TPM10)	Pipeline quality natural gas; limited hours; good combustion practices	8.5	T/YR
TX-0819	GAINES COUNTY POWER PLANT	TX	135322, PSDTX1470, AND GHGPSDT	4/28/2017	Simple Cycle Turbine	natural gas	227.5	MW	Particulate matter, total (TPM2.5)	Pipeline quality natural gas; limited hours; good combustion practices	8.5	T/YR
TX-0826	MUSTANG STATION	TX	72579, PSDTX1080M1, GHGPSDTX13	8/16/2017	Simple Cycle Turbine	NATURAL GAS	162.8	MW	Particulate matter, total (TPM10)	Pipeline quality natural gas and good combustion practices	27	T/YR
TX-0826	MUSTANG STATION	TX	72579, PSDTX1080M1, GHGPSDTX13	8/16/2017	Simple Cycle Turbine	NATURAL GAS	162.8	MW	Particulate matter, total (TPM2.5)	Pipeline quality natural gas and good combustion practices	27	T/YR
TX-0833	JACKSON COUNTY GENERATORS	TX	PSDTX1422	1/26/2018	Combustion Turbines	natural gas	920	MW	Particulate matter, filterable (FPM)	Use of pipeline quality natural gas and good combustion practices.	11.81	TON/YR
TX-0833	JACKSON COUNTY GENERATORS	TX	PSDTX1422	1/26/2018	Combustion Turbines	natural gas	920	MW	Particulate matter, total (TPM10)	Use of pipeline quality natural gas and good combustion practices.	11.81	TON/YR
TX-0833	JACKSON COUNTY GENERATORS	TX	PSDTX1422	1/26/2018	Combustion Turbines	natural gas	920	MW	Particulate matter, total (TPM2.5)	Use of pipeline quality natural gas and good combustion practices.	11.81	TON/YR
TX-0833	JACKSON COUNTY GENERATORS	TX	PSDTX1422	1/26/2018	Combustion Turbines MSS	NATURAL GAS	0		Particulate matter, total (TPM)	Minimizing duration of startup/shutdown, using good air pollution control practices and safe operating practices.	0.01	TON/YR
TX-0833	JACKSON COUNTY GENERATORS	TX	PSDTX1422	1/26/2018	Combustion Turbines MSS	NATURAL GAS	0		Particulate matter, total (TPM10)	Minimizing duration of startup/shutdown, using good air pollution control practices and safe operating practices.	0.01	TON/YR
TX-0833	JACKSON COUNTY GENERATORS	TX	PSDTX1422	1/26/2018	Combustion Turbines MSS	NATURAL GAS	0		Particulate matter, total (TPM2.5)	Minimizing duration of startup/shutdown, using good air pollution control practices and safe operating practices.	0.01	TON/YR
TX-0851	RIO BRAVO PIPELINE FACILITY	TX	140792, PSDTX1498, GHGPSDTX158	12/17/2018	Refrigeration Compression Turbines	NATL GAS	967	MMBTU/HR	Particulate matter, filterable (FPM10)	Good combustion practices and use of pipeline quality natural gas.	7	LB/HR
TX-0851	RIO BRAVO PIPELINE FACILITY	TX	140792, PSDTX1498, GHGPSDTX158	12/17/2018	Refrigeration Compression Turbines	NATL GAS	967	MMBTU/HR	Particulate matter, filterable (FPM2.5)	Good combustion practices and use of pipeline quality natural gas.	7	LB/HR
TX-0933	NACERO PENWELL FACILITY	TX	164137 PSDTX1594 GHGPSDTX207	11/17/2021	TURBINE	NATURAL GAS	0		Particulate matter, filterable (FPM)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU
TX-0933	NACERO PENWELL FACILITY	TX	164137 PSDTX1594 GHGPSDTX207	11/17/2021	TURBINE	NATURAL GAS	0		Particulate matter, filterable (FPM10)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU

RBLC Entries for Particulate Matter Control from Simple Cycle Combustion Turbines/Aeroderivative Simple Cycle Combustion Turbines

RBLCID	FACILITY NAME	FACILITY STATE	PERMIT NUMBER	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT
TX-0933	NACERO PENWELL FACILITY	TX	164137 PSDTX1594 GHGPSDTX207	11/17/2021	TURBINE	NATURAL GAS	0		Particulate matter, filterable (FPM2.5)	good combustion practices and the use of gaseous fuel	0.0075	LB/MMBTU
VA-0326	DOSWELL ENERGY CENTER	VA	51018	10/4/2016	Two (2) GE 7FA simple cycle combustion turbines	Natural Gas	1961	MMBTU/HR	Particulate matter, filterable (FPM)	Good combustion, operation and maintenance practices and use of pipeline quality natural gas	10	LB
VA-0326	DOSWELL ENERGY CENTER	VA	51018	10/4/2016	Two (2) GE 7FA simple cycle combustion turbines	Natural Gas	1961	MMBTU/HR	Particulate matter, filterable (FPM10)	Good combustion, operation and maintenance practices and use of pipeline quality natural gas	12	LB
VA-0326	DOSWELL ENERGY CENTER	VA	51018	10/4/2016	Two (2) GE 7FA simple cycle combustion turbines	Natural Gas	1961	MMBTU/HR	Particulate matter, total (TPM2.5)	Good combustion, operation and maintenance practices and use of pipeline quality natural gas	12	LB
WV-0026	WAVERLY FACILITY	WV	R14-0034	1/23/2017	GE Model 7FA Turbine	Natural Gas	1571	mmbtu/hr	Particulate matter, total (TPM2.5)	Inlet Air Filtration, Use of Natural Gas, Ultra-Low Sulfur Diesel	15	LB/HR
WV-0028	WAVERLY POWER PLANT	WV	R14-0034A	3/13/2018	GE 7FA.004 Turbine	Natural Gas	167.8	MW	Particulate matter, total (TPM2.5)	Inlet air filtration.	15.09	LB/HR

RBLC Entries for Nitrogen Oxides Control from Simple Cycle Combustion Turbines/Aeroderivative Simple Cycle Combustion Turbines

RBLCID	FACILITY NAME	FACILITY STATE	PERMIT NUMBER	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT
AK-0085	GAS TREATMENT PLANT	AK	AQ1524CPT01	8/13/2020	Six (6) Simple Cycle Gas-Turbines (Power Generation)	Natural Gas	386	MMBtu/hr	Nitrogen Oxides (NOx)	DLN combustors and Good Combustion Practices	15	PPMV @ 15% O2
AK-0088	LIQUEFACTION PLANT	AK	AQ1539CPT01	7/7/2022	Six Simle Cycle Gas-Fired Turbines	Natural Gas	1113	MMBtu/hr	Nitrogen Oxides (NOx)	SCR, DLN combustors, and good combustion practices	2	PPMV @ 15% O2
AL-0329	COLBERT COMBUSTION TURBINE PLANT	AL	701-0010	9/21/2021	Three 229 MW Simple Cycle Combustion Turbines	Natural Gas	229	MW	Nitrogen Oxides (NOx)		9	PPMVD
CA-1238	PUENTE POWER	CA	00013-370	10/13/2016	Gas turbine	Natural gas	262	MW	Nitrogen Oxides (NOx)		2.5	PPMVD
CO-0076	PUEBLO AIRPORT GENERATING STATION	CO	09PB0591	12/11/2014	Turbines - two simple cycle gas	natural gas	799.7	MMBTU/H each	Nitrogen Oxides (NOx)	SCR and dry low NOx burners	23	LB/H
FL-0346	LAUDERDALE PLANT	FL	0110037-011-AC	4/22/2014	Five 200-MW combustion turbines	Natural gas	2000	MMBtu/hr (approx)	Nitrogen Oxides (NOx)	Required to employ dry low-NOx technology and wet injection. Water injection must be used when firing ULSD.	9	PPMVD @ 15% 02
FL-0354	LAUDERDALE PLANT	FL	0110037-013-AC	8/25/2015	Five 200-MW combustion turbines	Natural gas	2100	MMBtu/hr (approx)	Nitrogen Oxides (NOx)	Dry-low-NOx combustion system. Wet injection when firing ULSD.	9	PPMVD@15%O2
FL-0355	FORT MYERS PLANT	FL	0710002-022-AC	9/10/2015	Combustion Turbines	Natural gas	2262.4	MMBtu/hr gas	Nitrogen Oxides (NOx)	DLN and wet injection (for ULSD operation)	9	PPMVD@15% O2
IL-0121	INVENERGY NELSON EXPANSION LLC	IL	15060042	9/27/2016	Two Simple Cycle Combustion Turbines	Natural Gas	190	MW	Nitrogen Oxides (NOx)	Dry low-NOx combustion technology for natural gas and low-NOx combustion technology and water injection for ULSD.	0.033	LB/MMBTU
IN-0173	MIDWEST FERTILIZER CORPORATION	IN	129-33576-00059	6/4/2014	TWO (2) NATURAL GAS FIRED COMBUSTION TURBINES	NATURAL GAS	283	MMBTU/H, EACH	Nitrogen Oxides (NOx)	DRY LOW NOX COMBUSTORS	22.65	PPMVD AT 15% OXYGEN
IN-0180	MIDWEST FERTILIZER CORPORATION	IN	129-33576-00059	6/4/2014	TWO (2) NATURAL GAS FIRED COMBUSTION TURBINES	NATURAL GAS	283	MMBTU/H, EACH	Nitrogen Oxides (NOx)	DRY LOW NOX COMBUSTORS	22.65	PPMVD AT 15% OXYGEN
IN-0261	VERMILLION GENERATING STATION	IN	165-36956-00022	2/28/2017	SIMPLE CYCLE, NATURAL GAS FIRED COMBUSTION TURBINES	NATURAL GAS	80	MW	Nitrogen Oxides (NOx)	GOOD COMBUSTION PRACTICES	250	LB/H
IN-0264	MONTPELIER GENERATING STATION	IN	179-37209-00026	1/6/2017	PRATT & TWIN-PAC SIMPLE CYCLE TURBINES	NATURAL GAS	270.9	MMBTU/H	Nitrogen Oxides (NOx)	WATER INJECTION	25	PPMV
KS-0036	WESTAR ENERGY - EMPORIA ENERGY CENTER	KS	C-10656	3/18/2013	GE LM6000PC SPRINT Simple cycle combustion turbine	Pipeline quality natural gas	405.3	MMBTU/hr	Nitrogen Oxides (NOx)	water injection	25	PPMDV
KS-0036	WESTAR ENERGY - EMPORIA ENERGY CENTER	KS	C-10656	3/18/2013	GE 7FA Simple Cycle Combustion Turbine	Pipeline quality natural gas	1780	MMBTU/HR	Nitrogen Oxides (NOx)	dry low NOx burners and fire only pipeline natural gas	9	PPMDV
LA-0307	MAGNOLIA LNG FACILITY	LA	PSD-LA-792	3/21/2016	Gas Turbines (8 units)	natural gas	333	mm btu/hr	Nitrogen Oxides (NOx)	Dry Low NOX burners and good combustion practices	25	PPMVD
LA-0316	CAMERON LNG FACILITY	LA	PSD-LA-766(M3)	2/17/2017	Gas turbines (9 units)	natural gas	1069	mm btu/hr	Nitrogen Oxides (NOx)	good combustion practices and dry low nox burners	15	PPMVD
*LA-0327	WASHINGTON PARISH ENERGY CENTER	LA	PSD-LA-829	5/23/2018	CTG01 CO - Simple-Cycle Combustion Turbine 1 (Commissioning) [SCN0005]	Natural Gas	2201	MM BTU/hr	Nitrogen Oxides (NOx)	Pipeline quality natural gas & dry-low-NOX burners	240	LB/HR
*LA-0327	WASHINGTON PARISH ENERGY CENTER	LA	PSD-LA-829	5/23/2018	CTG02 CO - Simple-Cycle Combustion Turbine 2 (Commissioning) [SCN0006]	natural gas	2201	MM BTU/hr	Nitrogen Oxides (NOx)	Pipeline quality natural gas & dry-low-NOX burners	240	LB/HR
*LA-0327	WASHINGTON PARISH ENERGY CENTER	LA	PSD-LA-829	5/23/2018	CTG01 SUSD - Simple-Cycle Combustion Turbine 1 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0019]	Natural Gas	2201	MM BTU/hR	Nitrogen Oxides (NOx)	Pipeline quality natural gas & dry-low-NOX burners	86.38	LB/HR
*LA-0327	WASHINGTON PARISH ENERGY CENTER	LA	PSD-LA-829	5/23/2018	CTG02 SUSD - Simple-Cycle Combustion Turbine 2 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0020]	Natural Gas	2201	MM BTU/hr	Nitrogen Oxides (NOx)	Pipeline quality natural gas & dry-low-NOX burners	86.38	LB/HR
*LA-0327	WASHINGTON PARISH ENERGY CENTER	LA	PSD-LA-829	5/23/2018	CTG01 NO - Simple-Cycle Combustion Turbine 1 (Normal Operations) [EQT0017]	Natural Gas	2201	MM BTU/hr	Nitrogen Oxides (NOx)	Pipeline quality natural gas & dry-low-NOX burners	9	PPMVD @15%O2
*LA-0327	WASHINGTON PARISH ENERGY CENTER	LA	PSD-LA-829	5/23/2018	CTG02 NO - Simple-Cycle Combustion Turbine 2 (Normal Operations) [EQT0018]	Natural Gas	2201	MM BTU/hr	Nitrogen Oxides (NOx)	Pipeline quality natural gas & dry-low-NOX burners	9	PPMVD @15%O2
LA-0331	CALCASIEU PASS LNG PROJECT	LA	PDS-LA-805	9/21/2018	Aeroderivative Simple Cycle Combustion Turbine	Natural Gas	263	MM BTU/h	Nitrogen Oxides (NOx)	Selective Catalytic Reduction (SCR), exclusive combustion of fuel gas, and good combustion practices.	25	PPMV
LA-0331	CALCASIEU PASS LNG PROJECT	LA	PDS-LA-805	9/21/2018	Simple Cycle Combustion Turbines (SCCT1 to SCCT3)	Natural Gas	927	MM BTU/h	Nitrogen Oxides (NOx)	Dry Low NOx Combustor Design, Good Combustion Practices, and Natural Gas Combustion.	9	PPMV
LA-0343	SABINE PASS LNG TERMINAL	LA	PSD-LA-703(M7)	9/6/2019	gas turbines during startups, shutdowns, and maintenance	natural gas	0		Nitrogen Oxides (NOx)	good combustion practices	96	PPMV
LA-0349	DRIFTWOOD LNG FACILITY	LA	PSD-LA-824	7/10/2018	Compressor Turbines (20)	natural gas	540	mm btu/hr	Nitrogen Oxides (NOx)	DLN and SCR	5	PPMVD
LA-0383	LAKE CHARLES LNG EXPORT TERMINAL	LA	PSD-LA-838	9/3/2020	Turbines (EQT0020 - EQT0031)	Natural gas	0		Nitrogen Oxides (NOx)	LNB + SCR	3.1	PPMVD @15%O2
MD-0043	PERRYMAN GENERATING STATION	MD	PSC CASE NO. 9136	7/1/2014	(2) 60-MW SIMPLE CYCLE COMBUSTION TURBINES, FIRING NATURAL GAS	NATURAL GAS	120	MW	Nitrogen Oxides (NOx)	USE OF NATURAL GAS, WATER/STEAM INJECTION, AND A SELECTIVE CATAYTIC REDUCTION (SCR) SYSTEM	2.5	PPMVD @ 15% O2
MD-0043	PERRYMAN GENERATING STATION	MD	PSC CASE NO. 9136	7/1/2014	(2) 60-MEGAWATT SIMPLE CYLCE COMBUSTION TURBINE, FIRING ULSD	ULTRA LOW SULFUR DIESEL	120	MW	Nitrogen Oxides (NOx)	LIMITED USE OF ULSD, WATER/STEAM INJECTION, AND A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM.	5	PPMVD @ 15% O2
MD-0044	COVE POINT LNG TERMINAL	MD	PSC CASE NO. 9318	6/9/2014	2 COMBUSTION TURBINES	NATURAL GAS	130	MW	Nitrogen Oxides (NOx)	USE OF DRY LOW-NOX COMBUSTOR TURBINE DESIGN (DLN1), USE OF FACILITY PROCESS FUEL GAS AND PIPELINE NATURAL GAS DURING NORMAL OPERATION AND SCR SYSTEM	2.5	PPMVD @ 15% O2
MI-0441	LBWL--ERICKSON STATION	MI	74-18	12/21/2018	EUCTGHRSG1--A 667 MMBTU/H NG fired combustion turbine generator coupled with a heat recovery steam generator (HRSG)	Natural gas	667	MMBTU/H	Nitrogen Oxides (NOx)	Dry low NOx burners and selective catalytic reduction for NOx control.	3	PPM
ND-0028	R.M. HESKETT STATION	ND	PTC13016	2/22/2013	Combustion Turbine	Natural gas	986	MMBTU/H	Nitrogen Oxides (NOx)	Dry low-NOx combustion (DLN)	9	PPMVD @15% OYYGEN
ND-0029	PIONEER GENERATING STATION	ND	PTC 13037	5/14/2013	Natural gas-fired turbines	Natural gas	451	MMBTU/H	Nitrogen Oxides (NOx)	Water injection plus SCR	5	PPPMVD
ND-0030	LONESOME CREEK GENERATING STATION	ND	PTC 13049	9/16/2013	Natural Gas Fired Simple Cycle Turbines	Natural gas	412	MMBTU/H	Nitrogen Oxides (NOx)	SCR	5	PPMVD
NJ-0086	BAYONNNE ENERGY CENTER	NJ	12863-BOP150001	8/26/2016	Simple Cycle Stationary Turbines firing Natural gas	Natural Gas	2143980	MMBTU/YR	Nitrogen Oxides (NOx)	Selective Catalytic Reduction, water injection, use of natural gas a low NOx emitting fuel	2.5	PPMVD@15%O2

RBLC Entries for Nitrogen Oxides Control from Simple Cycle Combustion Turbines/Aeroderivative Simple Cycle Combustion Turbines

RBLCID	FACILITY NAME	FACILITY STATE	PERMIT NUMBER	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT
NJ-0086	BAYONNE ENERGY CENTER	NJ	12863-BOP150001	8/26/2016	Simple Cycle Stationary Turbines firing Ultra Low Sulfur Distillate Oil	Ultra Low Sulfur Distillate Oil	720	H/YR	Nitrogen Oxides (NOx)	SCR and water injection	5	PPMVD@15% O2
NY-0103	CRICKET VALLEY ENERGY CENTER	NY	3-1326-00275/00009	2/3/2016	Turbines and duct burners	natural gas	228	mw	Nitrogen Oxides (NOx)	dry low NOx burners in combination with selective catalytic reduction	2	PPMVD @ 15% O2
NY-0106	GREENIDGE STATION	NY	8-5736-00004/00017	9/7/2016	Turbine - natural gas	natural gas	107	MW	Nitrogen Oxides (NOx)	Advanced low NOx burners, closed-coupled and staged over-fire air, Selective Non-Catalytic Reduction, and Selective Catalytic Reduction.	0.03	LB/MMBTU
NY-0106	GREENIDGE STATION	NY	8-5736-00004/00017	9/7/2016	Turbine - natural gas and wood	natural gas and up to 19% wood	107	MW	Nitrogen Oxides (NOx)	Advanced low NOx burners, closed-coupled and staged over-fire air, Selective Non-Catalytic Reduction, and Selective Catalytic Reduction.	0.03	LB/MMBTU
OR-0050	TROUTDALE ENERGY CENTER, LLC	OR	26-0235	3/5/2014	GE LMS-100 combustion turbines, simple cycle with water injection	natural gas	1690	MMBTU/H	Nitrogen Oxides (NOx)	Utilize water injection when combusting natural gas or 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.	2.5	PPMDV AT 15% O2
PA-0305	SHELL CHEM APPALACHIA/PETROCHEMICALS COMPLEX	PA	04-00740A	6/18/2015	Combustion turbine wih duct burner and heat recovery steam generator	Natural Gas	0	Three 40.6 MW turbines	Nitrogen Oxides (NOx)		2	PPMDV @ 15% O2
PA-0306	TENASKA PA PARTNERS/WESTMORELAND GEN FAC	PA	65-00990 C/E	2/12/2016	Large combustion turbine	Natural Gas	0		Nitrogen Oxides (NOx)	SCR, DLN, and good combustion practice	2	PPMVD@15% O2
*TN-0187	TENNESSEE VALLEY AUTHORITY - JOHNSONVILLE COMBUSTION TURBINE	TN	979348	8/31/2022	Ten Simple Cycle NG Turbines	Natural Gas	465.8	MMBtu/hr	Nitrogen Oxides (NOx)	dry low-NOx burners selective catalytic reduction	5	PPMVD @ 15% O2
TX-0672	CORPUS CHRISTI LIQUEFACTION PLANT	TX	PSDTX1306 105710	9/12/2014	Refrigeration compressor turbines	natural gas	40000	hp	Nitrogen Oxides (NOx)	Dry low emission combustors	25	PPMVD
TX-0672	CORPUS CHRISTI LIQUEFACTION PLANT	TX	PSDTX1306 105710	9/12/2014	Refrigeration compressor turbines	natural gas	40000	hp	Nitrogen Oxides (NOx)	dry low emission combustors	25	PPMVD
TX-0686	ANTELOPE ELK ENERGY CENTER	TX	109148, PSDTX1358	4/22/2014	Combustion Turbine-Generator(CTG)	Natural Gas	202	MW	Nitrogen Oxides (NOx)	DLN	9	PPM
TX-0688	SR BERTRON ELECTRIC GENERATION STATION	TX	102731, PSDTX1294	12/19/2014	Simple cycle natural gas turbines	Natural Gas	225	MW	Nitrogen Oxides (NOx)	DLN	9	PPM
TX-0691	PH ROBINSON ELECTRIC GENERATING STATION	TX	108182 PSDTX1346	5/20/2014	(6) simple cycle turbines	natural gas	65	MW	Nitrogen Oxides (NOx)	DLN combustors	15	PPMVD
TX-0693	ANTELOPE ELK ENERGY CENTER	TX	109148 PSDTX1358	4/22/2014	combustion turbine	natural gas	202	MW	Nitrogen Oxides (NOx)	DLN combustors	9	PPMVD
TX-0694	INDECK WHARTON ENERGY CENTER	TX	111724 PSDTX1374	2/2/2015	(3) combustion turbines	natural gas	220	MW	Nitrogen Oxides (NOx)	DLN combustors	9	PPMVD
TX-0695	ECTOR COUNTY ENERGY CENTER	TX	110423 PSDTX1366	8/1/2014	(2) combustion turbines	natural gas	180	MW	Nitrogen Oxides (NOx)	DLN combustors	9	PPMVD
TX-0696	ROANâ€™S PRAIRIE GENERATING STATION	TX	114698 PSDTX1378	9/22/2014	(2) simple cycle turbines	natural gas	600	MW	Nitrogen Oxides (NOx)	DLN combustors	9	PPMVD
TX-0701	ECTOR COUNTY ENERGY CENTER	TX	110423, PSDTX1366	5/13/2013	Simple Cycle Combustion Turbines	natural gas	180	MW	Nitrogen Oxides (NOx)	Dry low NOx combustor	9	PPMVD
TX-0733	ANTELOPE ELK ENERGY CENTER	TX	109148, PSDTX1358M1	5/12/2015	Simple Cycle Turbine & Generator	natural gas	202	MW	Nitrogen Oxides (NOx)	Dry Low NOx burners	9	PPMVD AT 15% O2
TX-0734	CLEAR SPRINGS ENERGY CENTER (CSEC)	TX	120849 AND PSDTX1414	5/8/2015	Simple Cycle Turbine	natural gas	183	MW	Nitrogen Oxides (NOx)	dry low-NOx (DLN) burners	9	PPMVD @ 15% O2
TX-0764	NACOGDOCHES POWER ELECTRIC GENERATING PLANT	TX	77679, PSDTX1061M1 & O-3455	10/14/2015	Natural Gas Simple Cycle Turbine (>25 MW)	natural gas	232	MW	Nitrogen Oxides (NOx)	Dry Low NOx burners, good combustion practices, limited operations	9	PPMVD @ 15% O2
TX-0768	SHAWNEE ENERGY CENTER	TX	PSDTX1442, 125963	10/9/2015	Simple cycle turbines greater than 25 megawatts (MW)	natural gas	230	MW	Nitrogen Oxides (NOx)	Dry Low NOx burners	9	PPMVD @ 15% O2
TX-0769	VAN ALSTYNE ENERGY CENTER (VAEC)	TX	121051 AND PSDTX1418	10/27/2015	Simple Cycle Turbine	natural gas	183	MW	Nitrogen Oxides (NOx)	DLN burners	9	PPMVD @ 15% O2
TX-0777	UNION VALLEY ENERGY CENTER	TX	120973 AND PSDTX1420	12/9/2015	Simple Cycle Turbine	natural gas	183	MW	Nitrogen Oxides (NOx)	dry low NOX burners	9	PPMVD @ 15% O2
TX-0788	NECHES STATION	TX	122401, PSDTX1428, GHGPSDTX111	3/24/2016	Large Combustion Turbines > 25 MW	natural gas	232	MW	Nitrogen Oxides (NOx)	Dry low-NOx burners (DLN), good combustion practices	9	PPM
TX-0794	HILL COUNTY GENERATING FACILITY	TX	130051,PSDTX1450, GHGPSDTX131	4/7/2016	Simple cycle turbine	natural gas	171	MW	Nitrogen Oxides (NOx)	Emission controls consist of dry low-NOx combustors (DLN). DLN combustors use two stages of combustion, transitioning from initial startup with fuel and flame in the primary nozzles only, through a lean lean stage with fuel and flame in the primary and secondary nozzles, to fuel in the secondary stage only, extinguishing the primary flame, and in full operation, premix mode, with fuel to both nozzles, but flame only in the second stage. When natural gas and air are well-mixed before combustion, the flame temperature and resulting NOx emissions are greatly reduced compared to conventional diffusion flame combustion.	9	PPMVD @ 15% O2
TX-0794	HILL COUNTY GENERATING FACILITY	TX	130051,PSDTX1450, GHGPSDTX131	4/7/2016	Simple Cycle Turbine	ULTRA LOW SULFUR DIESEL	171	MW	Nitrogen Oxides (NOx)	DLN, WATER INJECTION	42	PPMVD @ 15% O2
TX-0816	CORPUS CHRISTI LIQUEFACTION	TX	139479, PSDTX1496, GHGPSDTX157	2/14/2017	Refrigeration compressor turbines	NATURAL GAS	40000	HP	Nitrogen Oxides (NOx)	Dry low emission burners	25	PPMDV
TX-0819	GAINES COUNTY POWER PLANT	TX	135322, PSDTX1470, AND GHGPSDT	4/28/2017	Simple Cycle Turbine	natural gas	227.5	MW	Nitrogen Oxides (NOx)	Dry Low NOx burners (control), natural gas, good combustion practices, limited operating hours (prevention)	9	PPMV

RBLC Entries for Nitrogen Oxides Control from Simple Cycle Combustion Turbines/Aeroderivative Simple Cycle Combustion Turbines

RBLCID	FACILITY NAME	FACILITY STATE	PERMIT NUMBER	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT
TX-0826	MUSTANG STATION	TX	72579, PSDTX1080M1, GHGPSDTX13	8/16/2017	Simple Cycle Turbine	NATURAL GAS	162.8	MW	Nitrogen Oxides (NOx)	Dry low-NOx burners	9	PPMVD
TX-0833	JACKSON COUNTY GENERATORS	TX	PSDTX1422	1/26/2018	Combustion Turbines	natural gas	920	MW	Nitrogen Oxides (NOx)	Dry low NOx burners	9	PPMVD
TX-0833	JACKSON COUNTY GENERATORS	TX	PSDTX1422	1/26/2018	Combustion Turbines MSS	NATURAL GAS	0		Nitrogen Oxides (NOx)	Minimizing duration of startup/shutdown, using good air pollution control practices and safe operating practices.	0.01	TON/YR
TX-0851	RIO BRAVO PIPELINE FACILITY	TX	140792, PSDTX1498, GHGPSDTX158	12/17/2018	Refrigeration Compression Turbines	NATL GAS	967	MMBTU/HR	Nitrogen Oxides (NOx)	Dry Low NOx burners. Good combustion practices	9	PPMVD
TX-0900	ECTOR COUNTY ENERGY CENTER	TX	110423, PSDTX1366M1 GHGPSD49M1	8/17/2020	Simple Cycle Turbines	natural gas	0		Nitrogen Oxides (NOx)	Equipped with dry-low NOx burners with best management practices and good combustion practices. Minimize the duration of startup and shutdown events to less than 60 minutes per event. Limit MSS by 140 lb/hr maximum allowable emission rate for each turbine.	9	PPMVD
TX-0933	NACERO PENWELL FACILITY	TX	164137 PSDTX1594 GHGPSDTX207	11/17/2021	TURBINE	NATURAL GAS	0		Nitrogen Oxides (NOx)	LOW NOX BURNERS AND SCR	9	PPMVD
VA-0326	DOSWELL ENERGY CENTER	VA	51018	10/4/2016	Two (2) GE 7FA simple cycle combustion turbines	Natural Gas	1961	MMBTU/HR	Nitrogen Oxides (NOx)	Low NOx Burners/Combustion Technology	9	PPM
WV-0026	WAVERLY FACILITY	WV	R14-0034	1/23/2017	GE Model 7FA Turbine	Natural Gas	1571	mmbtu/hr	Nitrogen Oxides (NOx)	Dry Low-NOx Combustion System (DLNB), Water Injection	9	PPM
WV-0028	WAVERLY POWER PLANT	WV	R14-0034A	3/13/2018	GE 7FA.004 Turbine	Natural Gas	167.8	MW	Nitrogen Oxides (NOx)	Dry LNB	69	LB/HR

RBLC Entries for Greenhouse Gases Control from Simple Cycle Combustion Turbines/Aeroderivative Simple Cycle Combustion Turbines

RBLCID	FACILITY NAME	FACILITY STATE	PERMIT NUMBER	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT
AK-0085	GAS TREATMENT PLANT	AK	AQ1524CPT01	8/13/2020	Six (6) Simple Cycle Gas-Turbines (Power Generation)	Natural Gas	386	MMBtu/hr	Carbon Dioxide Equivalent (CO2e)	Good combustion practices and clean burning fuel (NG)	117.1	LB/MMBTU
AK-0088	LIQUEFACTION PLANT	AK	AQ1539CPT01	7/7/2022	Six Simle Cycle Gas-Fired Turbines	Natural Gas	1113	MMBtu/hr	Carbon Dioxide Equivalent (CO2e)	Good combustion practices and burning clean fuels (natural gas)	117.1	LB/MMBTU
CO-0075	PUEBLO AIRPORT GENERATING STATION	CO	13PB2245	5/30/2014	Turbine - simple cycle gas	natural gas	375	MMBTU/H	Carbon Dioxide Equivalent (CO2e)	Good Combustion Control	1600	LB/MW H GROSS
FL-0355	FORT MYERS PLANT	FL	0710002-022-AC	9/10/2015	Combustion Turbines	Natural gas	2262.4	MMBtu/hr gas	Carbon Dioxide Equivalent (CO2e)	Use of low-emitting fuel and efficient turbine	1374	LB CO2E / MWH
IL-0121	INVENERGY NELSON EXPANSION LLC	IL	15060042	9/27/2016	Two Simple Cycle Combustion Turbines	Natural Gas	190	MW	Carbon Dioxide Equivalent (CO2e)	Turbine-generator design and proper operation	0	
LA-0307	MAGNOLIA LNG FACILITY	LA	PSD-LA-792	3/21/2016	Gas Turbines (8 units)	natural gas	333	mm btu/hr	Carbon Dioxide Equivalent (CO2e)	good combustion/operating/maintenance practices and fueled by natural gas; use intake air chiller	0	
LA-0316	CAMERON LNG FACILITY	LA	PSD-LA-766(M3)	2/17/2017	Gas turbines (9 units)	natural gas	1069	mm btu/hr	Carbon Dioxide Equivalent (CO2e)	good combustion practices and fueled by natural gas; Use high thermal efficiency turbines	0	
*LA-0327	WASHINGTON PARISH ENERGY CENTER	LA	PSD-LA-829	5/23/2018	CTG01 SUSD - Simple-Cycle Combustion Turbine 1 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0019]	Natural Gas	2201	MM BTU/hR	Carbon Dioxide Equivalent (CO2e)	Facility-wide energy efficiency measures , such as improved combustion measures, and use of pipeline quality natural gas.	120	LB/MM BTU
*LA-0327	WASHINGTON PARISH ENERGY CENTER	LA	PSD-LA-829	5/23/2018	CTG02 SUSD - Simple-Cycle Combustion Turbine 2 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0020]	Natural Gas	2201	MM BTU/hr	Carbon Dioxide Equivalent (CO2e)	Facility-wide energy efficiency measures , such as improved combustion measures, and use of pipeline quality natural gas.	120	LB/MM BTU
*LA-0327	WASHINGTON PARISH ENERGY CENTER	LA	PSD-LA-829	5/23/2018	CTG01 NO - Simple-Cycle Combustion Turbine 1 (Normal Operations) [EQT0017]	Natural Gas	2201	MM BTU/hr	Carbon Dioxide Equivalent (CO2e)	Facility-wide energy efficiency measures , such as improved combustion measures, and use of pipeline quality natural gas.	50	KG/GJ
*LA-0327	WASHINGTON PARISH ENERGY CENTER	LA	PSD-LA-829	5/23/2018	CTG02 NO - Simple-Cycle Combustion Turbine 2 (Normal Operations) [EQT0018]	Natural Gas	2201	MM BTU/hr	Carbon Dioxide Equivalent (CO2e)	Facility-wide energy efficiency measures , such as improved combustion measures, and use of pipeline quality natural gas.	50	KG/GJ
LA-0331	CALCASIEU PASS LNG PROJECT	LA	PDS-LA-805	9/21/2018	Aeroderivative Simple Cycle Combustion Turbine	Natural Gas	263	MM BTU/h	Carbon Dioxide Equivalent (CO2e)	Combust low carbon fuel gas, good combustion practices, good operation and maintenance practices and insulation.	134907	T/YR
LA-0331	CALCASIEU PASS LNG PROJECT	LA	PDS-LA-805	9/21/2018	Simple Cycle Combustion Turbines (SCCT1 to SCCT3)	Natural Gas	927	MM BTU/h	Carbon Dioxide Equivalent (CO2e)	Exclusively combust low carbon fuel gas, good combustion practices, good operation and maintenance practices, and insulation	1426146	T/YR
LA-0349	DRIFTWOOD LNG FACILITY	LA	PSD-LA-824	7/10/2018	Compressor Turbines (20)	natural gas	540	mm btu/hr	Carbon Dioxide Equivalent (CO2e)	Use Low Carbon Fuel, Energy Efficiency Measures, and Good Combustion Practices	0	
LA-0383	LAKE CHARLES LNG EXPORT TERMINAL	LA	PSD-LA-838	9/3/2020	Turbines (EQT0020 - EQT0031)	Natural gas	0		Carbon Dioxide Equivalent (CO2e)	Low carbon fuels Energy efficient designs and operation	0	
MD-0043	PERRYMAN GENERATING STATION	MD	PSC CASE NO. 9136	7/1/2014	(2) 60-MW SIMPLE CYCLE COMBUSTION TURBINES, FIRING NATURAL GAS	NATURAL GAS	120	MW	Carbon Dioxide Equivalent (CO2e)	USE OF NATURAL GAS. ENERGY EFFICIENCY DESIGN - USE OF INLET FOGGING/WET COMPRESSION, INSULATION BLANKETS TO REDUCE HEAT LOSS, AND FUEL GAS PREHEATING.	1394	LB CO2E/MWH
MD-0043	PERRYMAN GENERATING STATION	MD	PSC CASE NO. 9136	7/1/2014	(2) 60-MEGAWATT SIMPLE CYLCE COMBUSTION TURBINE, FIRING ULSD	ULTRA LOW SULFUR DIESEL	120	MW	Carbon Dioxide Equivalent (CO2e)	LIMITED USE OF ULSD. ENERGY EFFICIENCY DESIGN - USE OF INLET FOGGING/WET COMPRESSION, INSULATION BLANKETS TO REDUCE HEAT LOSS, AND FUEL GAS PREHEATING	1741	LB/MWH CO2E
MD-0044	COVE POINT LNG TERMINAL	MD	PSC CASE NO. 9318	6/9/2014	2 COMBUSTION TURBINES	NATURAL GAS	130	MW	Carbon Dioxide Equivalent (CO2e)	HIGH EFFICIENCY GE 7EA CTS WITH HRSGS EQUIPPED WITH DLN1 COMBUSTORS AND EXCLUSIVE USE OF FACILITY PROCESS FUEL GAS OR PIPELINE QUALITY NATURAL GAS	117	LB/MMBTU
MI-0441	LBWL--ERICKSON STATION	MI	74-18	12/21/2018	EUCTGHRSG1--A 667 MMBTU/H NG fired combustion turbine generator coupled with a heat recovery steam generator (HRSG)	Natural gas	667	MMBTU/H	Carbon Dioxide Equivalent (CO2e)	Low carbon fuel (pipeline quality natural gas), good combustion practices and energy efficiency measures.	430349	T/YR
ND-0028	R.M. HESKETT STATION	ND	PTC13016	2/22/2013	Combustion Turbine	Natural gas	986	MMBTU/H	Carbon Dioxide Equivalent (CO2e)		413198	TONS/12 MONTH
ND-0029	PIONEER GENERATING STATION	ND	PTC 13037	5/14/2013	Natural gas-fired turbines	Natural gas	451	MMBTU/H	Carbon Dioxide Equivalent (CO2e)		243147	I/12 MON ROLL TOTAL
ND-0030	LONESOME CREEK GENERATING STATION	ND	PTC 13049	9/16/2013	Natural Gas Fired Simple Cycle Turbines	Natural gas	412	MMBTU/H	Carbon Dioxide Equivalent (CO2e)	High efficiency turbines	220122	TONS
NY-0103	CRICKET VALLEY ENERGY CENTER	NY	3-1326-00275/00009	2/3/2016	Turbines and duct burners	natural gas	228	mw	Carbon Dioxide Equivalent (CO2e)	max heat rate 7,604 btu/kw-h HHV without duct firing good combustion practice and burning natural gas	0	
OR-0050	TROUTDALE ENERGY CENTER, LLC	OR	26-0235	3/5/2014	GE LMS-100 combustion turbines, simple cycle with water injection	natural gas	1690	MMBTU/H	Carbon Dioxide Equivalent (CO2e)	Thermal efficiency Clean fuels	1707	LB OF CO2 /GROSS MWH
PA-0305	SHELL CHEM APPALACHIA/PETROCHEMICALS COMPLEX	PA	04-00740A	6/18/2015	Combustion turbine wih duct burner and heat recovery steam generator	Natural Gas	0	Three 40.6 MW turbines	Carbon Dioxide Equivalent (CO2e)		1030	CO2E/MWH
PA-0306	TENASKA PA PARTNERS/WESTMORELAND GEN FAC	PA	65-00990 C/E	2/12/2016	Large combustion turbine	Natural Gas	0		Carbon Dioxide Equivalent (CO2e)	Good combustion practices	1881905	TPY
*TN-0187	TENNESSEE VALLEY AUTHORITY - JOHNSONVILLE COMBUSTION TURBINE	TN	979348	8/31/2022	Ten Simple Cycle NG Turbines	Natural Gas	465.8	MMBtu/hr	Carbon Dioxide Equivalent (CO2e)	Efficient turbine operation and good combustion practices	120	LB/MMBTU
TX-0679	CORPUS CHRISTI LIQUEFACTION PLANT	TX	GHGPSDTX123	2/27/2015	Refrigeration Compressor Turbines	natural gas	40000	hp	Carbon Dioxide Equivalent (CO2e)	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.	146754	TPY
TX-0679	CORPUS CHRISTI LIQUEFACTION PLANT	TX	GHGPSDTX123	2/27/2015	Refrigeration Compressor Turbine	natural gas	40000	hp	Carbon Dioxide Equivalent (CO2e)	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.	146754	TPY
TX-0735	ANTELOPE ELK ENERGY CENTER	TX	GHGPSDTX41M1	5/20/2015	Simple Cycle Turbine & Generator	natural gas	202	MW	Carbon Dioxide Equivalent (CO2e)	Energy efficiency, good design & combustion practices	1304	LB CO2/MWHR
TX-0753	GUADALUPE GENERATING STATION	TX	PSD-TX-1310-GHG	12/2/2014	Simple Cycle Combustion Turbine Generator	Pipeline Natural Gas	10673	Btu/kWh	Carbon Dioxide Equivalent (CO2e)		1293.3	LB CO2/MWHR (GROSS)

RBLC Entries for Greenhouse Gases Control from Simple Cycle Combustion Turbines/Aeroderivative Simple Cycle Combustion Turbines

RBLCID	FACILITY NAME	FACILITY STATE	PERMIT NUMBER	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT
TX-0753	GUADALUPE GENERATING STATION	TX	PSD-TX-1310-GHG	12/2/2014	Simple Cycle Combustion Turbine Generator	Pipeline Natural Gas	10673	Btu/kWh	Carbon Dioxide Equivalent (CO2e)		1293.3	LB CO2/MWHR (GROSS)
TX-0757	INDECK WHARTON ENERGY CENTER	TX	PSD-TX-1374-GHG	5/12/2014	Simple Cycle Combustion Turbine, GE 7FA.05	Pipeline Natural Gas	0		Carbon Dioxide Equivalent (CO2e)		1276	LB CO2/MWHR (GROSS)
TX-0757	INDECK WHARTON ENERGY CENTER	TX	PSD-TX-1374-GHG	5/12/2014	Simple Cycle Combustion Turbine, SGT-5000F(5)	Pipeline Natural Gas	0		Carbon Dioxide Equivalent (CO2e)		1337	LB CO2/MWHR (GROSS)
TX-0758	ECTOR COUNTY ENERGY CENTER	TX	GHGPSDTX1366	8/1/2014	Simple Cycle Combustion Turbine, GE 7FA.03	Natural Gas	11707	Btu/kWh (HHV)	Carbon Dioxide Equivalent (CO2e)		1393	LB CO2/MWHR (GROSS)
TX-0758	ECTOR COUNTY ENERGY CENTER	TX	GHGPSDTX1366	8/1/2014	Simple Cycle Combustion Turbine-MSS	Natural Gas	0		Carbon Dioxide Equivalent (CO2e)		21	TON CO2E/EVENT
TX-0771	SHAWNEE ENERGY CENTER	TX	GHGPSDTX126, PSDTX1442, 125963	11/10/2015	Simple cycle turbines greater than 25 megawatts (MW)	natural gas	230	MW	Carbon Dioxide Equivalent (CO2e)		1398	LB/MWH
TX-0775	CLEAR SPRINGS ENERGY CENTER (CSEC)	TX	GHGPSDTX120, 120849, AND PSDTX	11/13/2015	Simple Cycle Turbine	natural gas	183	MW	Carbon Dioxide Equivalent (CO2e)	Low carbon fuel, good combustion, efficient combined cycle design	1461	LB/MW H
TX-0778	UNION VALLEY ENERGY CENTER	TX	GHGPSDTX117	12/16/2015	Simple Cycle Turbine	natural gas	183	MW	Carbon Dioxide Equivalent (CO2e)		1461	LB/MW H
TX-0788	NECHES STATION	TX	122401, PSDTX1428, GHGPSDTX111	3/24/2016	Large Combustion Turbines > 25 MW	natural gas	232	MW	Carbon Dioxide Equivalent (CO2e)	good combustion practiceS	1341	LB/MW H
TX-0794	HILL COUNTY GENERATING FACILITY	TX	130051,PSDTX1450, GHGPSDTX131	4/7/2016	Simple cycle turbine	natural gas	171	MW	Carbon Dioxide Equivalent (CO2e)		1434	LB/MWH
TX-0794	HILL COUNTY GENERATING FACILITY	TX	130051,PSDTX1450, GHGPSDTX131	4/7/2016	Simple Cycle Turbine	ULTRA LOW SULFUR DIESEL	171	MW	Carbon Dioxide Equivalent (CO2e)		1434	LB/MWH
TX-0816	CORPUS CHRISTI LIQUEFACTION	TX	139479, PSDTX1496, GHGPSDTX157	2/14/2017	Refrigeration compressor turbines	NATURAL GAS	40000	HP	Carbon Dioxide Equivalent (CO2e)		1793574	T/YR
TX-0819	GAINES COUNTY POWER PLANT	TX	135322, PSDTX1470, AND GHGPSDT	4/28/2017	Simple Cycle Turbine	natural gas	227.5	MW	Carbon Dioxide Equivalent (CO2e)	Pipeline quality natural gas; limited hours; good combustion practices	1300	LB/MW H
TX-0824	JACKSON COUNTY GENERATING FACILITY	TX	GHGPSDTX118	6/30/2017	Simple Cycle Turbines	natural gas	920	MW	Carbon Dioxide Equivalent (CO2e)	energy efficiency designs, practices, and procedures, CT inlet air cooling, periodic CT burner maintenance and tuning, reduction in heat loss, i.e., insulation of the CT, instrumentation and controls	1316	LB/MW HR
TX-0826	MUSTANG STATION	TX	72579, PSDTX1080M1, GHGPSDTX13	8/16/2017	Simple Cycle Turbine	NATURAL GAS	162.8	MW	Carbon Dioxide Equivalent (CO2e)	Pipeline quality natural gas and good combustion practices	120	LB/MMBTU
TX-0851	RIO BRAVO PIPELINE FACILITY	TX	140792, PSDTX1498, GHGPSDTX158	12/17/2018	Refrigeration Compression Turbines	NATL GAS	967	MMBTU/HR	Carbon Dioxide Equivalent (CO2e)	Good combustion practices and use of pipeline quality natural gas.	0	
TX-0900	ECTOR COUNTY ENERGY CENTER	TX	110423, PSDTX1366M1 GHGPSD49M1	8/17/2020	Simple Cycle Turbines	natural gas	0		Carbon Dioxide Equivalent (CO2e)	Best management practices and good combustion practices, clean fuel	1514	LB/MWHR
TX-0933	NACERO PENWELL FACILITY	TX	164137 PSDTX1594 GHGPSDTX207	11/17/2021	TURBINE	NATURAL GAS	0		Carbon Dioxide Equivalent (CO2e)	good combustion practices and the use of gaseous fuel	0	
VA-0326	DOSWELL ENERGY CENTER	VA	51018	10/4/2016	Two (2) GE 7FA simple cycle combustion turbines	Natural Gas	1961	MMBTU/HR	Carbon Dioxide Equivalent (CO2e)	Good combustion, maintenance and use of active combustion dynamic monitoring systems.	0	
WV-0028	WAVERLY POWER PLANT	WV	R14-0034A	3/13/2018	GE 7FA.004 Turbine	Natural Gas	167.8	MW	Carbon Dioxide Equivalent (CO2e)	Use of natural gas & use of GE 7FA.004	0	

RBLC Entries for Greenhouse Gases Control from Equipment Leak Fugitive Emissions

RBLCID	FACILITY NAME	FACILITY STATE	PERMIT NUMBER	PERMIT ISSUANCE DATE	PROCESS NAME	PROCCESS TYPE	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT
CO-0067	LANCASTER PLANT	CO	12WE1492	6/4/2013	Fugitive emissions from leaking components	50.002		0		Carbon Dioxide Equivalent (CO2e)	LDAR	0	
CO-0068	LUCERNE GAS PROCESSING PLANT	CO	12WE2024	1/13/2014	Fugitive emissions from leaking components	50.002		0		Carbon Dioxide Equivalent (CO2e)	LDAR	200	TON CO2E
FL-0368	NUCOR STEEL FLORIDA FACILITY	FL	1050472-001-AC	2/14/2019	Meltshop Baghouse & Fugitives	81.21	Natural gas	450000	tons of steel per year	Carbon Dioxide Equivalent (CO2e)	Scrap preheating & an energy monitoring and management system	438	LB/TON OF STEEL
KY-0113	WESTLAKE CHEMICAL OPCO, LP	KY	V-14-022 R2	9/21/2020	EU# 025A (EPN FUG-ETH-VVa) Ethylene Plant Fugitives	64.002		0		Carbon Dioxide Equivalent (CO2e)	The equipment leak fugitives involve process piping components (pumps, valves, connectors, etc.) to distribute the liquid and gaseous materials among process units during the manufacture of products. Emissions from those components are mostly related to leakage from seals, connection interfaces, valve stems, etc. Control method is the same as that for VOC BACT. Leak is defined as reading of 500ppmv; BACT includes: proper labeling and following the requirements in 40 CFR 60, Subpart VVa and following good work practices including: 1.Construction of new and reworked piping, valves, pump systems, and compressor systems shall conform to applicable American National Standards Institute (ANSI), American Petroleum Institute (API), American Society of Mechanical Engineers (ASME), or equivalent codes based on the material. 2. New and reworked buried connectors shall be welded. 3. To the extent that good engineering practice will permit, new and reworked valves and piping connections shall be reasonably accessible for leak checking during plant operation. 4. Damaged, leaking, or severely rusted valves, connectors, compressor seals, agitator seals, and pump seals found by visual inspection to be leaking (e.g., process fluids) shall be tagged and replaced or repaired. All leaking components that cannot be repaired until a scheduled shutdown shall be identified for such repair by tagging. 5. Open-ended lines are required to be equipped with a cap, plug, blind flange, or second valve. 6. New relief valves are required to vent to a control device for any potential releases and as a result, any fugitive emissions are reduced. Exceptions may be made if venting relief valves to control will result in a safety concern, but this does not exempt the company from controls such as equipping the valve with a rupture disk and pressure-sensing device.	0	
KY-0113	WESTLAKE CHEMICAL OPCO, LP	KY	V-14-022 R2	9/21/2020	EU# 025B (EPN FUG-ETH) Ethylene Plant Fugitives	64.002		0		Carbon Dioxide Equivalent (CO2e)	Control method is the same as that for VOC BACT. Leak is defined as reading of 500ppmv; BACT includes: proper labeling and following the requirements in 40 CFR 60, Subpart VVa and following good work practices including: 1.Construction of new and reworked piping, valves, pump systems, and compressor systems shall conform to applicable American National Standards Institute (ANSI), American Petroleum Institute (API), American Society of Mechanical Engineers (ASME), or equivalent codes based on the material. 2. New and reworked buried connectors shall be welded. 3. To the extent that good engineering practice will permit, new and reworked valves and piping connections shall be reasonably accessible for leak checking during plant operation. 4. Damaged, leaking, or severely rusted valves, connectors, compressor seals, agitator seals, and pump seals found by visual inspection to be leaking (e.g., process fluids) shall be tagged and replaced or repaired. All leaking components that cannot be repaired until a scheduled shutdown shall be identified for such repair by tagging. 5. Open-ended lines are required to be equipped with a cap, plug, blind flange, or second valve. 6. New relief valves are required to vent to a control device for any potential releases and as a result, any fugitive emissions are reduced. Exceptions may be made if venting relief valves to control will result in a safety concern, but this does not exempt the company from controls such as equipping the valve with a rupture disk and pressure-sensing device.	0	

RBLC Entries for Greenhouse Gases Control from Equipment Leak Fugitive Emissions

RBLCID	FACILITY NAME	FACILITY STATE	PERMIT NUMBER	PERMIT ISSUANCE DATE	PROCESS NAME	PROCCESS TYPE	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT
KY-0113	WESTLAKE CHEMICAL OPCO, LP	KY	V-14-022 R2	9/21/2020	EU# 025 (EPN FUG-ETH-YY) Ethylene Plant Fugitives	64.002		0		Carbon Dioxide Equivalent (CO2e)	The equipment leak fugitives involve process piping components (pumps, valves, connectors, etc.) to distribute the liquid and gaseous materials among process units during the manufacture of products. Emissions from those components are mostly related to leakage from seals, connection interfaces, valve stems, etc. Control method is the same as that for VOC BACT. Leak is defined as reading of 500ppmv; BACT includes: proper labeling and following the requirements in 40 CFR 63, Subpart YY and Subpart UU and following good work practices including: 1.Construction of new and reworked piping, valves, pump systems, and compressor systems shall conform to applicable American National Standards Institute (ANSI), American Petroleum Institute (API), American Society of Mechanical Engineers (ASME), or equivalent codes based on the material. 2. New and reworked buried connectors shall be welded. 3. To the extent that good engineering practice will permit, new and reworked valves and piping connections shall be reasonably accessible for leak checking during plant operation. 4. Damaged, leaking, or severely rusted valves, connectors, compressor seals, agitator seals, and pump seals found by visual inspection to be leaking (e.g., process fluids) shall be tagged and replaced or repaired. All leaking components that cannot be repaired until a scheduled shutdown shall be identified for such repair by tagging. 5. Open-ended lines are required to be equipped with a cap, plug, blind flange, or second valve. 6. New relief valves are required to vent to a control device for any potential releases and as a result, any fugitive emissions are reduced. Exceptions may be made if venting relief valves to control will result in a safety concern, but this does not exempt the company from controls such as equipping the valve with a rupture disk and pressure-sensing device.	0	
KY-0114	WESTLAKE VINYLS, INC.- VINYLS PLANT	KY	V-19-016	11/13/2020	FUG-MON-NG Monomer Plant Fugitives in Natural Gas service	64.002		0		Carbon Dioxide Equivalent (CO2e)	1.LDAR program with instrument sensors consistent with 40 CFR 63, Subpart H requirements. 2.Leak is defined as a reading of 500 ppmv 3.Good piping design and work practices. 4.Installation of high quality/compatible components to provide long term control. Good work practices include: 1.Construction of new and reworked piping, valves, pump systems, and compressor systems shall conform to applicable American National Standards Institute (ANSI), American Petroleum Institute (API), American Society of Mechanical Engineers (ASME), or equivalent codes based on the material. 2. New and reworked buried connectors shall be welded. 3. To the extent that good engineering practice will permit, new and reworked valves and piping connections shall be reasonably accessible for leak checking during plant operation. 4. Damaged, leaking, or severely rusted valves, connectors, compressor seals, agitator seals, and pump seals found by visual inspection to be leaking (e.g., process fluids) shall be tagged and replaced or repaired. All leaking components that cannot be repaired until a scheduled shutdown shall be identified for such repair by tagging. 5. Open-ended lines are required to be equipped with a cap, plug, blind flange, or second valve. 6. New relief valves are required to vent to a control device for any potential releases and as a result, any fugitive emissions are reduced. Exceptions may be made if venting relief valves to control will result in a safety concern, but this does not exempt the company from controls such as equipping the valve with a rupture disk and pressure-sensing device.	0	
LA-0266	EUNICE GAS EXTRACTION PLANT	LA	PSD-LA-569(M-1)	5/1/2013	Process Fugitives (16) (FUG 0001)	50.999		0		Carbon Dioxide Equivalent (CO2e)	LDAR programs: NSPS KKK and LAC 33:III.2121	0	
LA-0271	PLAQUEMINE NGL FRACTIONATION PLANT	LA	PSD-LA-771	5/24/2013	Fugitive Emissions (FUG-01)	50.002		0		Carbon Dioxide Equivalent (CO2e)	Compliance with LDAR programs under 40 CFR 60 Subpart OOOO, LAC 33:III.2111, and LAC 33:III.2122	0	
LA-0287	ALEXANDRIA COMPRESSOR STATION	LA	PSD-LA-787	7/21/2014	Fugitive Emissions and Blowdowns (FUG, FUG 01)	99.999		0		Carbon Dioxide Equivalent (CO2e)	Limit the number of compressor blowdowns to no more than 110 per year per compressor; tandem dry seals for centrifugal compressor shafts; new pneumatic equipment must utilize compressed air or be of a no bleed or low-bleed design; use of low leak technologies for valves and flanges/connectors; minimization of the number of flanges/connectors to the extent practicable; and use of high quality components and materials of construction.	9818	TONS
LA-0288	LAKE CHARLES CHEMICAL COMPLEX	LA	PSD-LA-778	5/23/2014	Power Area Fugitives (FUG 12)	99.999		0		Carbon Dioxide Equivalent (CO2e)	Leak Detection and Repair (LDAR) Program: 40 CFR 63 Subpart FFFF	20	TPY
LA-0291	LAKE CHARLES CHEMICAL COMPLEX GTL UNIT	LA	PSD-LA-778	5/23/2014	GTL Unit Fugitive Emissions (FUG 15)	64.002		0		Carbon Dioxide Equivalent (CO2e)	Leak detection and repair (LDAR) program: 40 CFR 63 Subpart FFFF	1214	TPY
LA-0302	LAKE CHARLES CHEMICAL COMPLEX EO/MEG UNIT	LA	PSD-LA-779	5/23/2014	Fugitive Emissions (FUG 20)	64.002		0		Carbon Dioxide Equivalent (CO2e)	Leak Detection and Repair (LDAR): 40 CFR 63 Subpart H	204	TPY
LA-0305	LAKE CHARLES METHANOL FACILITY	LA	PSD-LA-803(M1)	6/30/2016	Fugitives	64.002		0		Carbon Dioxide Equivalent (CO2e)		0	
LA-0307	MAGNOLIA LNG FACILITY	LA	PSD-LA-792	3/21/2016	fugitives	64.002		0		Carbon Dioxide Equivalent (CO2e)	good piping design/maintenance/work practices	0	
*LA-0315	G2G PLANT	LA	PSD-LA-781	5/23/2014	Process Methanol Fugitives	64.002		0		Carbon Dioxide Equivalent (CO2e)	Energy Efficiency Measures	0	
*LA-0315	G2G PLANT	LA	PSD-LA-781	5/23/2014	Process Gasoline Fugitives	64.002		0		Carbon Dioxide Equivalent (CO2e)	Energy Efficiency Measures	0	
*LA-0315	G2G PLANT	LA	PSD-LA-781	5/23/2014	Wastewater System Fugitives	64.002		0		Carbon Dioxide Equivalent (CO2e)	Energy Efficiency Measures	0	
LA-0316	CAMERON LNG FACILITY	LA	PSD-LA-766(M3)	2/17/2017	fugitive emissions	50.007		0		Carbon Dioxide Equivalent (CO2e)	Implement a leak detection and repair (LDAR) program to minimize the leak	0	

RBLC Entries for Greenhouse Gases Control from Equipment Leak Fugitive Emissions

RBLCID	FACILITY NAME	FACILITY STATE	PERMIT NUMBER	PERMIT ISSUANCE DATE	PROCESS NAME	PROCCESS TYPE	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT
LA-0317	METHANEX - GEISMAR METHANOL PLANT	LA	PSD-LA-761(M4)	12/22/2016	Process Fugitives (I-G-1000, II-G-1000)	64.002		0		Carbon Dioxide Equivalent (CO2e)	complying with 40 CFR 63 Subpart H	0	
LA-0331	CALCASIEU PASS LNG PROJECT	LA	PDS-LA-805	9/21/2018	Fugitive Equipment Leaks	50.002		0		Carbon Dioxide Equivalent (CO2e)	Proper piping design.	3141	T/YR
LA-0348	GEISMAR SYNGAS SEPARATION UNIT	LA	PSD-LA-827	2/18/2018	Unit Fugitive - T3	62.999		0		Carbon Dioxide Equivalent (CO2e)	LDAR program with weekly visual, olfactory, and auditory inspections	0	
LA-0349	DRIFTWOOD LNG FACILITY	LA	PSD-LA-824	7/10/2018	Fugitives	69.999		0		Carbon Dioxide Equivalent (CO2e)	Leak Management Program an Good Work Practices	0	
*LA-0381	EUEG-5 UNIT - GEISMAR PLANT	LA	PSD-LA-832	12/12/2019	Fugitives 4-19 (FUG0021)	64.002		0		Carbon Dioxide Equivalent (CO2e)	LDAR meets requirements of 40 CFR 63 Subpart H	0	
LA-0383	LAKE CHARLES LNG EXPORT TERMINAL	LA	PSD-LA-838	9/3/2020	Fugitives (FUG0001)	50.007		0		Carbon Dioxide Equivalent (CO2e)	Proper piping design and LDAR	0	
LA-0388	LACC LLC US - ETHYLENE PLANT	LA	PSD-LA-800(M-1)	2/25/2022	Ethylene Plant Fugitive Emissions	64.002		0		Carbon Dioxide Equivalent (CO2e)	Compliance with 40 CFR 63 Subpart UU	448	T/YR
LA-0391	MAGNOLIA POWER GENERATING STATION UNIT 1	LA	PSD-LA-839	6/3/2022	Fugitives	99.999		0		Carbon Dioxide Equivalent (CO2e)	Proper piping design and installation.	104	T/YR
MD-0041	CPV ST. CHARLES	MD	PSC CASE NO. 9280	4/23/2014	FUGITIVE GHG EMISSIONS	99.999		0		Carbon Dioxide Equivalent (CO2e)	IMPLEMENTATION OF AN AUDIO, VISUAL AND OLFACTORY (AVO) PROGRAM ON A WEEKLY BASIS	72.7	TONS
OH-0378	PTTGCA PETROCHEMICAL COMPLEX	OH	P0124972	12/21/2018	Fugitive Emissions (P807)	64.002		0		Carbon Dioxide Equivalent (CO2e)	i.an LDAR program for leaks of methane from equipment and piping components in tail gas (fuel gas) and natural gas service. The LDAR program will involve sensory monitoring methods for leaks; ii.methane contained in leaks associated with fugitive VOCs will be minimized by the implementation of BACT for fugitive leaks of VOC.	35	T/YR
OK-0153	ROSE VALLEY PLANT	OK	2012-1393-C PSD	3/1/2013	FUGITIVE EQUIPMENT	50.999	NA	0		Carbon Dioxide Equivalent (CO2e)	LDAR IN COMPLIANCE WITH NSPS OOO.	0	
SC-0183	NUCOR STEEL - BERKELEY	SC	0420-0060-DX	5/4/2018	Pickle Line Equipment (pickle line no. 3 fugitives)	99.19		0		Carbon Dioxide Equivalent (CO2e)	Energy Efficient Design	0	
TX-0744	C3 PETROCHEMICALS, PDH CHOCOLATE BAYOU PLANT	TX	PSD-TX-1342-GHG	6/12/2014	Process Fugitives	99.999		0		Carbon Dioxide Equivalent (CO2e)		4	TPY OF CO2E
TX-0746	NUEVO MIDSTREAM, RAMSEY GAS PLANT	TX	PSD-TX-1392-GHG	11/18/2014	Process Fugitives	99.999		0		Carbon Dioxide Equivalent (CO2e)		185	TPY CO2E/PLANT
TX-0747	LONE STAR NGL FRACTIONATORS, MONT BELVIEU GAS PLANT	TX	PSD-TX-110274-GHG	4/16/2014	Fugitive Process Emission	99.999		0		Carbon Dioxide Equivalent (CO2e)		0	
TX-0748	FGE POWER, FGE TEXAS PROJECT	TX	PSD-TX-1364-GHG	4/28/2014	SF6 Fugitive Emission Sources	99.999		0		Carbon Dioxide Equivalent (CO2e)		0	
TX-0748	FGE POWER, FGE TEXAS PROJECT	TX	PSD-TX-1364-GHG	4/28/2014	Natural Gas Fugitive Emission Sources	99.999		0		Carbon Dioxide Equivalent (CO2e)		0	
TX-0749	GOLDEN SPREAD ELECTRIC COOPERATIVE, ANTELOPE STATION	TX	PSD-TX-1358-GHG	6/2/2014	Fugitive Emissions from SF6 Circuit Breakers	99.999		0		Carbon Dioxide Equivalent (CO2e)		0	
TX-0749	GOLDEN SPREAD ELECTRIC COOPERATIVE, ANTELOPE STATION	TX	PSD-TX-1358-GHG	6/2/2014	Fugitive Emissions from SF6 Circuit Breakers	99.999		0		Carbon Dioxide Equivalent (CO2e)		0	
TX-0753	GUADALUPE GENERATING STATION	TX	PSD-TX-1310-GHG	12/2/2014	Fugitive SF6 Circuit Breaker Emissions	99.999		0		Carbon Dioxide Equivalent (CO2e)		0	
TX-0753	GUADALUPE GENERATING STATION	TX	PSD-TX-1310-GHG	12/2/2014	Components Fugitive Leak Emissions	99.999		0		Carbon Dioxide Equivalent (CO2e)		0	
TX-0757	INDECK WHARTON ENERGY CENTER	TX	PSD-TX-1374-GHG	5/12/2014	Fugitive SF6 Circuit Breaker Emissions	99.999		0		Carbon Dioxide Equivalent (CO2e)		0	
TX-0757	INDECK WHARTON ENERGY CENTER	TX	PSD-TX-1374-GHG	5/12/2014	Components Fugitive Leak Emissions	99.999		0		Carbon Dioxide Equivalent (CO2e)		0	
TX-0758	ECTOR COUNTY ENERGY CENTER	TX	GHGPSDTX1366	8/1/2014	Fugitive SF6 Circuit Breaker Emissions	99.999		0		Carbon Dioxide Equivalent (CO2e)		0	
TX-0758	ECTOR COUNTY ENERGY CENTER	TX	GHGPSDTX1366	8/1/2014	Components Fugitive Leaks	99.999		0		Carbon Dioxide Equivalent (CO2e)		0	
TX-0759	PORT ARTHUR REFINERY	TX	6056, PSDTX1062M2, & GHG121	7/31/2015	Hydrocracking and Hydro-treating Fugitive Components	50.007		105	K BBL/DAY	Carbon Dioxide Equivalent (CO2e)	Enhanced Fugitive Leak Detection and Repair (LDAR) program that requires quarterly monitoring of valves, pumps, and compressor seals with a leak definition of 500 ppmv. Enhancements to the LDAR program include: 1) Monitoring to be done with data loggers capable of assigning time stamps to individual monitoring events; 2) Repair of leaking components found during weekly physical inspections within 15 days; 3) First attempt of repair of any valve found with a VOC reading greater than 100 ppmv; 4) Conduct of annual training for all of all LDAR technicians in the application of Method 21 consistent with the requirements of the permit; 5) Performance of a third party audit by no later than December 31, 2015 and then at least once every two years thereafter to verify whether EPA Method 21 is being properly applied; 6) and Initiation of an optical gas imaging (OGI) enhanced monitoring program for equipment leaks at those process units subject to EPA Method 21. In addition to the enhanced program, Motiva has agreed to perform quarterly instrument monitoring on fugitive components in heavy liquid service as well as quarterly instrument monitoring on all connectors with a leak definition of 500 ppmv.	500	PPMV
TX-0766	GOLDEN PASS LNG EXPORT TERMINAL	TX	116055, PSDTX1386, GHGPSDTX100	9/11/2015	Fugitive Emissions	50.999		0		Carbon Dioxide Equivalent (CO2e)	Work practice leak detection and repair program	2569	TPY
TX-0774	BISHOP FACILITY	TX	123216, PSDTX1438 AND GHGPSDTX	11/12/2015	Fugitives	99.999		0		Carbon Dioxide Equivalent (CO2e)	28VHP fugitive monitoring program on lines containing >10% methane	344	TPY
TX-0790	PORT ARTHUR LNG EXPORT TERMINAL	TX	131769, PSDTX1456, GHGPSDTX134	2/17/2016	LNG Export Facility - Natural Gas Fugitive Emissions	50.999		0		Carbon Dioxide Equivalent (CO2e)	Work practice - leak detection and repair program (TCEQ's 28 VHP LDAR program)	1113	T/YR
TX-0801	PL PROPYLENE HOUSTON OLEFINS PLANT	TX	GHGPSDTX137	6/24/2016	Fugitives	50.007		0		Carbon Dioxide Equivalent (CO2e)	LDAR 28LAER	0	
TX-0824	JACKSON COUNTY GENERATING FACILITY	TX	GHGPSDTX118	6/30/2017	Natural Gas Fugitives	99.999		0		Carbon Dioxide Equivalent (CO2e)	weekly checks for leaks using audio, visual, and olfactory (AVO) sensing for natural gas leaks	693.3	T/YR

RBLC Entries for Greenhouse Gases Control from Equipment Leak Fugitive Emissions

RBLCID	FACILITY NAME	FACILITY STATE	PERMIT NUMBER	PERMIT ISSUANCE DATE	PROCESS NAME	PROCCESS TYPE	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	POLLUTANT	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	EMISSION LIMIT 1 UNIT
TX-0827	PRAXAIR CLEAR LAKE PLANT	TX	144239, PSDTX1512, GHGPSDTX164	10/19/2017	HyCO FUGITIVES	64.002		0		Carbon Dioxide Equivalent (CO2e)		0	
TX-0830	PRAXIAR CLEAR LAKE	TX	144239, PSDTX1512, AND GHGPSDT	10/20/2017	HYCO FUGITIVES	64.002		0		Carbon Dioxide Equivalent (CO2e)		0	
TX-0832	EXXONMOBIL BEAUMONT REFINERY	TX	PSDTX768M1, PSDTX799, PSDTX802	1/9/2018	FUGITIVES	64.002		0		Carbon Dioxide Equivalent (CO2e)	AVO	758	TON/YR
TX-0838	BEAUMONT CHEMICAL PLANT	TX	PSDTX843M2, PSDTX860M2, GHGPSD	6/13/2018	fugitives	64.002		0		Carbon Dioxide Equivalent (CO2e)	28MID LDAR	0	
TX-0838	BEAUMONT CHEMICAL PLANT	TX	PSDTX843M2, PSDTX860M2, GHGPSD	6/13/2018	fugitives	64.002		0		Carbon Dioxide Equivalent (CO2e)	28MID LDAR	0	
TX-0845	ARKEMA BEAUMONT PLANT	TX	865A, PSDTX1016M2, GHGPSDTX168	8/24/2018	FUGITIVES	62.02		0		Carbon Dioxide Equivalent (CO2e)	AVO	0	
TX-0847	VALERO PORT ARTHUR REFINERY	TX	6825A, N65, PSDTX49M1, GHGPSDT	9/16/2018	Equipment Leaks/Fugitive Emissions	50.007		0		Carbon Dioxide Equivalent (CO2e)	28 VHP	0	
TX-0851	RIO BRAVO PIPELINE FACILITY	TX	140792, PSDTX1498, GHGPSDTX158	12/17/2018	FUGITIVES	50.007		0		Carbon Dioxide Equivalent (CO2e)	28 VHP	0	
TX-0858	GULF COAST GROWTH VENTURES PROJECT	TX	146425, PSDTX1518, GHGPSDTX170	6/12/2019	Fugitive Components	64.002		0		Carbon Dioxide Equivalent (CO2e)	TCEQ 28VHP and 28CNTQ leak detection and repair (LDAR) programs for piping components in VOC service	0	
TX-0864	EQUISTAR CHEMICALS CHANNELVIEW COMPLEX	TX	N266, PSDTX1542, GHGPSDTX183	9/9/2019	Fugitive Components	50.007		0		Carbon Dioxide Equivalent (CO2e)	LDAR	500	PPMV
TX-0865	EQUISTAR CHEMICALS CHANNELVIEW COMPLEX	TX	N264, PSDTX1540, GHGPSDTX182	9/9/2019	FUGITIVES	50.007		0		Carbon Dioxide Equivalent (CO2e)	28LAER & 28PI LDAR	0	
TX-0876	PORT ARTHUR ETHANE CRACKER UNIT	TX	PSDTX1546 AND GHGPSDTX186	2/6/2020	FUGITIVES	64.002		0		Carbon Dioxide Equivalent (CO2e)	TCEQ 28VHP and 28CNTQ leak detection and repair (LDAR) programs	0	
TX-0878	LNG EXPORT TERMINAL	TX	158420, PSDTX1572, GHGPSDTX198	9/15/2022	FUGITIVES	50.999		0		Carbon Dioxide Equivalent (CO2e)	28 VHP	0	
TX-0881	EXXONMOBIL BEAUMONT REFINERY	TX	49138, PSDTX1506M1, PSDTX768M2	1/10/2020	FUGITIVES	50.007		0		Carbon Dioxide Equivalent (CO2e)	Compliance with Refinery MACT fugitives and Texas 28VHP LDAR program.	0	
TX-0884	PROPANE DEHYDROGENATION (PDH) UNIT	TX	N272, PSDTX1558, GHGPSDTX193	1/24/2020	FUGITIVES	64.002		0		Carbon Dioxide Equivalent (CO2e)	28LAER; In addition, utilize leak free pumps and compressors.	0	
TX-0888	ORANGE POLYETHYLENE PLANT	TX	155952 PSDTX1556 GHGPSDTX192	4/23/2020	FUGITIVE COMPONENTS	64.002		0		Carbon Dioxide Equivalent (CO2e)	28 VHP, 28CNTA, 28PI leak detection and repair (LDAR) programs	0	
TX-0904	MOTIVA POLYETHYLENE MANUFACTURING COMPLEX	TX	156571, PSDTX1564, GHGPSDTX195	9/9/2020	FUGITIVES	64.002		0		Carbon Dioxide Equivalent (CO2e)	TCEQ 28VHP and 28CNTQ leak detection and repair (LDAR) programs	0	
TX-0906	PORT ARTHUR REFINERY	TX	6825A, PSDTX49M2, GHGPSDTX167M	10/30/2020	FUGITIVES	64.002		0		Carbon Dioxide Equivalent (CO2e)	TCEQ 28VHP (LDAR) program	0	
TX-0908	NEWMAN POWER STATION	TX	N284, PSDTX1090M1, GHGPSDTX199	8/27/2021	Fugitives	99.999		0		Carbon Dioxide Equivalent (CO2e)	weekly AVO	0	
TX-0914	BORGER REFINERY	TX	160874, PSDTX1584, GHGPSDTX205	1/21/2021	FUGITIVE COMPONENTS	50.007		0		Carbon Dioxide Equivalent (CO2e)	28VHP	0	
TX-0939	ORANGE COUNTY ADVANCED POWER STATION	TX	166032 PSDTX1598 GHGPSDTX210	3/13/2023	NATURAL GAS FUGITIVES	50.007		0		Carbon Dioxide Equivalent (CO2e)	28AVO LDAR program	0	
TX-0939	ORANGE COUNTY ADVANCED POWER STATION	TX	166032 PSDTX1598 GHGPSDTX210	3/13/2023	CIRCUIT BREAKER FUGITIVES	15.21		0		Carbon Dioxide Equivalent (CO2e)	State-of-the-art circuit breakers that are gas-tight and require minimal SF6 are used. An AVO monitoring program is used to detect circuit breaker leaks.	0	
TX-0945	FORMOSA POINT COMFORT PLANT OL3	TX	PSDTX1383M2, GHGPSDTX48M1	4/6/2023	FUGITIVES	64.002		0		Carbon Dioxide Equivalent (CO2e)	28 VHP	0	
*TX-0964	NEDERLAND FACILITY	TX	172324, PSDTX1620, GHGPSDTX231	10/5/2023	EQUIPMENT FUGITIVES	50.999		0		Carbon Dioxide Equivalent (CO2e)	Good management practice and personal portable CO monitors for leaking detection	0	
VA-0325	GREENSVILLE POWER STATION	VA	52525	6/17/2016	GAS PIPING COMPONENTS-FUGITIVE LEAKS	99.999		0		Carbon Dioxide Equivalent (CO2e)	Audible/visual/olfactory (AVO) monitoring and leak repair	0	
WY-0076	ROCK SPRINGS FERTILIZER COMPLEX	WY	MD-14824	7/1/2014	Fugitives	61.999		0		Carbon Dioxide Equivalent (CO2e)	routine operation and maintenance of components	393	T/YR

APPENDIX E. ADDITIONAL BACT SUPPORTING DOCUMENTATION

Table E-1. Plaquemines Generation Carbon Capture, Transportation, and Sequestration Cost Summary
BACT Economic Analysis
Reduction of CO_2 Emissions

Project Specific CO_2 Required to be Captured/Compressed (tpy)	See Note 1	815,975
Item	**Basis**	**Cost ($)**
Cost to Capture and Compression of CO_2		
Capital Expenditures		
Flue Gas Duct	See Note 2	$6,760,441
Direct Contact Cooler		$5,531,270
Booster Blower		$4,609,392
Amine System Including Reclaimer		$184,375,669
Compression/Dehy/Pumps		$18,049,427
Balance of Plant (instruments, site, buildings)		$24,583,423
Total Capital Cost for Capture/Compression		***$243,909,622***
Operation and Maintenance (O&M) Cost		
Utility Cost (Natural gas)	See Note 2	$32,210,988
Variable O&M (Maintenance Material Cost)		$4,916,685
Fixed O&M (Maintenance Labor Cost)		$21,304,474
Total O&M Cost		***$58,432,146***
Owner's Cost (startup and financing)	See Note 3	***$38,043,703***
Total Annual Cost to Capture and Compression of CO_2	See Note 4	**$114,822,811**
Cost to Transport CO_2		
Project Specific CO_2 Required to be Captured (tpy)	See Note 1	815,975
Pipeline Length (miles)	See Note 6	100
Pipeline Diameter (inches)		16
Capital Expenditures		
TIC Installed API 5L Carbon Steel Pipeline	See Note 2	$556,800,000
Total Capital Cost for Pipeline		***$556,800,000***
Operation and Maintenance (O&M) Cost		
Fixed O&M (Maintenance Labor Cost)	See Note 2	$27,840,000
Total Transportation Cost		**$139,200,000**
Cost to CO_2 Storage		
Capital Expenditures		
Injection Well Topside Facilities	See Note 2	$53,650,000
Injection Wells		$159,500,000
Monitoring Wells		$58,000,000
Dry Hole Remediations		$21,750,000
Total Capital Cost for Storage		**$292,900,000**
Operation and Maintenance (O&M) Cost		
Variable O&M (Maintenance Material Cost)	See Note 2	$11,240,062
Fixed O&M (Maintenance Labor Cost)		$14,645,000
Total O&M Cost		**$25,885,062**
Owner's Costs (startup and financing)	See Note 3	**$58,580,000**
Total CO_2 Storage Cost	See Note 4	**$96,181,062**
Total Annualized Cost (CO_2 Capture/Compression, Transport, and Storage)		**$350,203,873**
Cost Effectiveness (Total Annual Cost/tpy removed), $/tons CO_2 removed	See Note 5	**$429.18**

References:

[1]The amount of CO_2 captured is the sum of annual CO_2 emissions from the aeroderivative turbines.

[2]Based on preliminary vendor data and engineering estimate.

[3]Owner's cost for CO_2 capture and compression and CO_2 storage are based on 12% and 20% of the total capital costs, respectively.

[4]Assumes 5 year Capital Recovery on capital expenditure and owner's cost and annual operation and maintenance cost (for example, Total Annual Cost to Capture and Compression = (Total Capital Cost for Capture/Compression + Owner's Cost)/5 + Operation and Maintenance (O&M) Cost).

[5]The Cost Effectiveness (Total Annual Cost/tpy removed), $/tons CO_2 removed is consistent (adjusted for inflation, escalation, and contingency) with the IEA Greenhouse Gas R&D Programme, Technical Report 2019-07, Techno-Economic Evaluation of CO_2 Capture in LNG Plants, Oct. 2019. Available at: http://documents.ieaghg.org/index.php/s/rOlcXwQVNnfclhk. Accessed January 2024.

APPENDIX F. COMPLIANCE ASSURANCE MONITORING

Table F-1 Compliance Assurance Monitoring Applicability Analysis[1]

Pollutant-Specific Emissions Unit	Source ID	Pollutant[3, 4]	Control Device Description	Meets CAM definition of Control Device?	Subject to a NSPS or NESHAPs Regulation that was Promulgated on or after November 15, 1990?	Further Review Required?	Control Efficiency[2]	Proposed Potential-to-emit Emissions Per Source	Pre-Control Emissions	Pre-Control Emissions Greater than Major Source Threshold?	Exempt from CAM?	Is CAM Plan Required?
				(Yes/No)	(Yes/No)	(Yes/No)	(%)	(tpy)	(tpy)	(Yes/No)	(Yes/No)	(Yes/No)
Aeroderivative Simple Cycle Combustion Turbines 1 - 4	ASCCT1 through ASCCT4	$PM_{10}/PM_{2.5}$	-	-	-	No	-	-	-	-	-	No
		SO_2	-	-	-	No	-	-	-	-	-	No
		NOx	SCR	Yes	Yes	No	-	-	-	-	-	No
		CO	Oxidation Catalyst	Yes	No	Yes	80%	20.84	104.20	Yes	Yes [5]	No
		Total VOC	Oxidation Catalyst	Yes	No	Yes	20%	2.93	3.66	No	-	No
		Formaldehyde	Oxidation Catalyst	Yes	No[4]	Yes	85%	0.38	2.55	No	-	No

[1] Sources identified below do not use any control device to achieve compliance with any emission limitation or standard for a regulated air pollutant; therefore, in accordance with 40 CFR 64.2(a)(2), they are not included in this analysis:

(i) Aqueous Ammonia Storage Tank 1 (AASTK1); and

(ii) Fugitive Emissions (FUG)

[2] Control efficiencies are based on representative Combustion Turbines.

[3] For brevity, this analysis does not include HAPs that are emitted uncontrolled from sources. Additionally, Louisiana TAPs that are not HAPs (e.g., Ammonia) are not included in this analysis as these are regulated pollutants under LAC 33:III.Chapter 51, which is state-only.

[4] Conservatively conducting further review for formaldehyde.

[5] Source complies with the continuous compliance determination method as defined in 40 CFR 64.1; therefore, the source is exempt from CAM per 40 CFR 64.2(b)(1)(vi): ASCCT1 - ASCCT4 will each be equipped with a CO Continuous Emission Monitoring System (CEMS) to monitor CO emissions.

APPENDIX G. CERTIFICATE OF GOOD STANDING

State of Louisiana Secretary of State

COMMERCIAL DIVISION
225.925.4704

Fax Numbers
225.932.5317 (Admin. Services)
225.932.5314 (Corporations)
225.932.5318 (UCC)

Name	Type	City	Status
PLAQUEMINES GENERATION, LLC	Limited Liability Company (Non-Louisiana)	WILMINGTON	Active

Previous Names

Business: PLAQUEMINES GENERATION, LLC
Charter Number: 45584325Q
Registration Date: 9/6/2023

Domicile Address
1209 ORANGE STREET
WILMINGTON, DE 19801

Mailing Address
1001 19TH STREET NORTH
SUITE 1500
ARLINGTON, VA 22209

Principal Business Office
1001 19TH STREET NORTH
SUITE 1500
ARLINGTON, VA 22209

Registered Office in Louisiana
3867 PLAZA TOWER DR.
BATON ROUGE, LA 70816

Principal Business Establishment in Louisiana
3867 PLAZA TOWER DR.
BATON ROUGE, LA 70816

Status

Status: **Active**
Annual Report Status: **In Good Standing**
Qualified: 9/6/2023
Last Report Filed: N/A
Type: Limited Liability Company (Non-Louisiana)

Registered Agent(s)

Agent:	C T CORPORATION SYSTEM
Address 1:	3867 PLAZA TOWER DR.
City, State, Zip:	BATON ROUGE, LA 70816

Appointment Date:	9/6/2023

Officer(s)

Additional Officers: No

Officer:	VENTURE GLOBAL LNG, INC.
Title:	Member
Address 1:	1001 19TH STREET NORTH
Address 2:	SUITE 1500
City, State, Zip:	ARLINGTON, VA 22209

Amendments on File

No Amendments on file

Print

APPENDIX H. AIR QUALITY ANALYSIS

CLASS II AREA AIR DISPERSION MODELING REPORT

Plaquemines Generation, LLC

Prepared By:

TRINITY CONSULTANTS
1800 West Loop South
Suite 1000
Houston, TX 77027
(713) 552-1371

January 2024

Project 234402.0185

Trinity Consultants

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1. INTRODUCTION

Plaquemines Generation, LLC (Plaquemines Generation), a wholly owned subsidiary of Venture Global LNG, Inc. (Venture Global), proposes to install four (4) aeroderivative natural-gas fired combustion turbines and associated ancillary equipment for use at Plaquemines LNG, a liquefied natural gas (LNG) production, storage, and export terminal, which is owned and operated by Venture Global Plaquemines LNG, LLC (Plaquemines LNG) and the proposed Delta LNG Project, which will be owned and operated by Venture Global Delta LNG, LLC (Delta LNG).

The Plaquemines LNG terminal, which is under construction, is currently authorized under Title V Operating Permit No. 2240-00443-V2 and Prevention of Significant Deterioration (PSD) Permit No. PSD-LA-808(M-2) issued on May 28, 2021[1] by the Louisiana Department of Environmental Quality (LDEQ). Delta LNG submitted an application to the LDEQ on November 26, 2019[2] to request authorization to construct and operate the Delta LNG Project in accordance with the LDEQ Title V Operating Permits Program and PSD Program. The Plaquemines LNG terminal and the proposed Delta LNG Project will be located on the west bank of the Mississippi River near river Mile Markers 55 and 54, respectively, in Plaquemines Parish, Louisiana and are both wholly owned subsidiaries of Venture Global LNG, Inc. The proposed Delta LNG Project will be located on property contiguous to the Plaquemines LNG terminal. Therefore, with respect to the LDEQ Title V Operating Permit and PSD Permit programs, the facilities will be contiguous and will be under common control; thus, they are considered one major stationary source. The Plaquemines Generation facility will be located within either the Plaquemines LNG terminal or the proposed Delta LNG Project. Because Plaquemines Generation is also owned by the same parent company as these two terminals, it will also be part of this single major stationary source. Plaquemines LNG will retain the permitted sources and emissions for the Plaquemines LNG terminal under its current Title V and PSD Permits. Similarly, Delta LNG will retain the permitted sources and emissions under its Title V and PSD permits.

Plaquemines Generation is submitting an initial Title V Permit and PSD Permit Application (Application) to permit the facility's sources and emissions under a new and separate Title V Permit in accordance with Louisiana Administrative Code (LAC) 33:III.507.C.2 and LAC 33:III.509.

In support of the Application, Plaquemines Generation is submitting this Class II Area Air Dispersion Modeling Report to demonstrate compliance with the National Ambient Air Quality Standards (NAAQS) and PSD Increment Standards in accordance with LAC 33:III.509.K and LAC 33:III.509.M. Plaquemines Generation performed air dispersion modeling analyses for the following pollutant and averaging periods:

- Nitrogen dioxide (NO_2): 1-hour and Annual Averaging Periods;
- Fine inhalable particles, with diameters that are 2.5 micrometers and smaller ($PM_{2.5}$): 24-hour and Annual Averaging Periods; and
- Inhalable particles, with diameters that are 10 micrometers and smaller (PM_{10}): 24-hour and Annual Averaging Periods.

[1] See EDMS Documents Nos. 12738653 and 12738655, available at: https://edms.deq.louisiana.gov/app/doc/view?doc=12738653 and https://edms.deq.louisiana.gov/app/doc/view?doc=12738655. Accessed January 2024.
[2] See EDMS Documents Nos. 11961839 and 11961843, available at: https://edms.deq.louisiana.gov/app/doc/view?doc=11961839 and https://edms.deq.louisiana.gov/app/doc/view?doc=11961843. Accessed January 2024.

As discussed in Section 2.2 of the Application, the proposed Facility's carbon monoxide (CO) and sulfur dioxide (SO_2) emissions are less than their respective significant emission rates (SERs). Thus, these pollutants are not included in this modeling analysis.

1.1 PROJECT DESCRIPTION

Plaquemines Generation proposes to install aeroderivative turbines and associated ancillary equipment for use at the Plaquemines LNG Terminal and/or the proposed Delta LNG terminal in Plaquemines Parish, Louisiana. The primary purpose of the proposed power generation facility (Facility) is to support Plaquemines LNG and/or Delta LNG on an as-needed basis, including, but not limited to, during periods of maintenance, repair, and unplanned events. The proposed power generation facility will include four (4) 37 megawatt (MW) aeroderivative simple combustion cycle gas turbines (ASCCTs) and associated ancillary equipment. The proposed turbines will have the state-of-the-art control technologies such as Dry Low Emission and selective catalytic reduction (SCR) to control the nitrogen oxides (NO_X) emissions and catalytic oxidizer to control carbon monoxide (CO) and formaldehyde emissions.

This Class II Area Air Dispersion Modeling Report reviews the full potential to emit from the proposed Plaquemines Generation facility without consideration of any potential limitations. To the extent necessary, supplemental modeling will be provided consistent with such potential limitations.

1.2 STATIONARY SOURCE EMISSIONS

Based on the facility-wide potential to emit (PTE) emissions, PSD review is required for NO_X, PM_{10}, and $PM_{2.5}$. In addition, PSD review is also required for greenhouse gases (GHGs), but GHGs do not require modeling. For additional information on PSD Applicability analysis, refer to Section 2.2 of the Application.

Table 1-1. PSD Applicability Analysis Summary

Pollutant	Emissions	PSD SER	PSD SER Exceeded?
	(tpy)	(tpy)	(Yes/No)
PM_{10}	70.08	15	Yes
$PM_{2.5}$	70.08	10	Yes
NO_X	71.64	40	Yes
SO_2	8.40	40	No
CO	83.36	100	No
VOC	12.22	40	No
H_2S	0.04	10	No
CO_2e	836,298	75,000	Yes

In accordance with Title 40 of the Code of Federal Regulations (CFR) Part 52.21, a demonstration of compliance with NAAQS and PSD Increment standards is required for the construction of new major stationary sources or major modifications at existing stationary sources in areas designated as attainment or unclassifiable under the Clean Air Act (CAA). Plaquemines Generation will be a major modification to an existing major stationary source for the PSD regulated pollutants NO_X, PM_{10}, $PM_{2.5}$, and CO_2e as the proposed Facility will result in both a "significant increase" and a "significant net emissions increase" of each such pollutant, as determined in accordance with LAC 33:III.509.A.4. Therefore, Plaquemines Generation is required to demonstrate compliance with all applicable NAAQS and PSD Increment standards.

1.3 REPORT OVERVIEW

This Class II Area Air Dispersion Modeling Report describes the methodology used to perform the air dispersion modeling analyses required to demonstrate compliance with the NAAQS and PSD Increment Standards. The modeling results presented in this report were determined by using the current U.S. EPA and LDEQ modeling guidelines.[3,4]

Section 2 describes the modeling methodology, which includes a discussion of the PSD Significance Analysis, NAAQS Analysis, and PSD Increment Analysis. The PSD Significance Analysis was also used for preconstruction monitoring analysis.

Section 3 describes the air dispersion model and inputs used for the air dispersion modeling analyses, which includes a discussion of the meteorological data, land use and topography, Good Engineering Practice (GEP), Stack Height Analysis, building wake effects, receptor grid, and the model source parameters.

Section 4 includes a brief discussion of the Additional Impacts Analysis.

Section 5 presents the results of the air dispersion modeling analyses. The site location map of the proposed Facility is included in Appendix A. The modeled stack parameters and emission rates for the proposed Facility are included in Appendix B. Appendix C includes the windrose diagram for all five meteorological years (2018 through 2022). All electronic modeling files are provided in Appendix D.

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[3] U.S. Environmental Protection Agency, "Guideline on Air Quality Models", Codified at 40 CFR Part 51, Appendix W. Federal Register, Vol. 82, No. 10, pp. 5182–5235, Tuesday, January 17, 2017. Available at: https://www.epa.gov/sites/default/files/2020-09/documents/appw_17.pdf. Accessed January 2024.
[4] Louisiana Department of Environmental Quality, Air Quality Assessment Division, "Air Quality Modeling Procedures", August 2006. Available at: https://deq.louisiana.gov/assets/docs/Air/ModelingProcedures0806.pdf. Accessed January 2024.

2. CLASS II AREA AIR DISPERSION MODELING METHODOLOGY

This section describes the air dispersion modeling methodologies that have been used to demonstrate that emissions from the proposed Facility will not cause or significantly contribute to an exceedance of the NAAQS and PSD Increment Standards. The dispersion modeling analyses were conducted with consideration of the following guidance documents:

- "Guideline on Air Quality Models"[5] (herein, U.S. EPA Guideline);
- "User's Guide for the AMS/EPA Regulatory Model (AERMOD)"[6];
- "AERMOD Implementation Guide"[7];
- "New Source Review Workshop Manual, Prevention of Significant Deterioration and Nonattainment Area Permitting"[8];
- "Modeling Procedures for Demonstrating Compliance with $PM_{2.5}$ NAAQS"[9];
- LDEQ "Air Quality Modeling Procedures"[10] (herein, LDEQ Modeling Procedures);
- "Guidance for Ozone and Fine Particulate Matter Permit Modeling"[11];
- "Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier I Demonstration Tool for Ozone and $PM_{2.5}$ under the PSD Permitting Program"[12];
- "Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program"[13];

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[5] U.S. Environmental Protection Agency, "Guideline on Air Quality Models," Codified at 40 CFR Part 51, Appendix W. Federal Register, Vol. 82, No. 10, pp. 5182–5235, Tuesday, January 17, 2017. Available at: https://www.epa.gov/sites/default/files/2020-09/documents/appw_17.pdf. Accessed January 2024.

[6] U.S. Environmental Protection Agency, "User's Guide for the AMS/EPA Regulatory Model (AERMOD)," Research Triangle Park, North Carolina, EPA-454/B-22-007, June 2022. Available at: https://gaftp.epa.gov/Air/aqmg/SCRAM/models/preferred/aermod/aermod_userguide.pdf. Accessed January 2024.

[7] U.S. Environmental Protection Agency, "AERMOD Implementation Guide," Research Triangle Park, North Carolina, EPA-454/B-22-008, June 2022. Available at: https://gaftp.epa.gov/Air/aqmg/SCRAM/models/preferred/aermod/aermod_implementation_guide.pdf. Accessed January 2024.

[8] U.S. Environmental Protection Agency, "New Source Review Workshop Manual, Prevention of Significant Deterioration and Nonattainment Area Permitting DRAFT," October 1990. Available at: https://www.epa.gov/sites/default/files/2015-07/documents/1990wman.pdf. Accessed January 2024.

[9] U.S. Environmental Protection Agency, "Modeling Procedures for Demonstrating Compliance with $PM_{2.5}$ NAAQS", Memorandum from Mr. Stephen D. Page, March 23, 2010. Available at: https://www.epa.gov/sites/default/files/2015-07/documents/pm25memo.pdf. Accessed January 2024.

[10] Louisiana Department of Environmental Quality, Air Quality Assessment Division, "Air Quality Modeling Procedures", August 2006. Available at: https://deq.louisiana.gov/assets/docs/Air/ModelingProcedures0806.pdf. Accessed January 2024.

[11] U.S. Environmental Protection Agency, "Guidance for Ozone and Fine Particulate Matter Permit Modeling," Memorandum from Mr. Richard A Wayland and Mr. Scott Mathias, July 29, 2022. Available at: https://www.epa.gov/system/files/documents/2022-07/Guidance_for_O3_PM25_Permit_Modeling.pdf. Accessed January 2024.

[12] U.S. Environmental Protection Agency, "Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 Demonstration Tool for Ozone and $PM_{2.5}$ under the PSD Permitting Program," Memorandum from Mr. Richard A Wayland, April 30, 2019. Available at: https://www.epa.gov/sites/default/files/2019-05/documents/merps2019.pdf. Accessed January 2024.

[13] U.S. Environmental Protection Agency, "Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program," Memorandum from Mr. Peter Tsirigotis, April 17, 2018. Available at: https://www.epa.gov/sites/default/files/2018-04/documents/sils_policy_guidance_document_final_signed_4-17-18.pdf. Accessed January 2024.

- "Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO_2 National Ambient Air Quality Standard"[14]; and
- "Clarification on the Use of AERMOD Dispersion Modeling for Demonstrating Compliance with the NO_2 National Ambient Air Quality Standard"[15].

2.1 CLASS II PSD MODELING ANALYSES

The three principal steps of the standard PSD Class II area air quality modeling analysis are the Significance Analysis, the NAAQS analysis, and the PSD Increment analysis. The NAAQS and PSD Increment analyses are also commonly referred to together as a "full-impacts" or "cumulative" analysis. Per the U.S. EPA Guideline, the Significance Analysis considers the emissions associated only with the proposed project to determine if it may have a significant impact upon the surrounding area. For all applicable pollutants and their respective averaging periods, the modeled maximum ground-level concentrations are compared to the corresponding Significant Impact Levels (SILs) to determine if any predicted concentrations at any receptor locations are "significant." If predicted impacts for a particular pollutant and averaging period are below the applicable SIL(s), then no further analyses (i.e., NAAQS and PSD increment analyses) are required for that pollutant-averaging period.

If the Significance Analysis reveals that maximum modeled ground-level concentrations for a particular pollutant and averaging period are greater than or equal to the applicable SIL, a full-impact analysis is required. A full-impact analysis considers ambient background concentration, along with emissions from regional sources and is performed at receptors with impacts greater than the SIL identified in the Significance Analysis. Additionally, if the modeling results from the Significance Analysis are above the applicable modeling *de minimis* concentrations for any pollutant-averaging period, then pre-construction ambient monitoring requirements must be addressed. A summary of the tasks that are performed in standard PSD Class II area air quality modeling analysis is presented in the flow chart provided as Figure 2-1.

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[14] U.S. Environmental Protection Agency, "Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO_2 National Ambient Air Quality Standard," Memorandum from Mr. Tyler Fox, March 1, 2011. Available at: https://www.epa.gov/sites/production/files/2020-10/documents/additional_clarifications_appendixw_hourly-no2-naaqs_final_03-01-2011.pdf. Accessed January 2024.

[15] U.S. Environmental Protection Agency, "Clarification on the Use of AERMOD Dispersion Modeling for Demonstrating Compliance with the NO_2 National Ambient Air Quality Standard," Memorandum from Mr. R. Chris Owen and Mr. Roger Brode, September 30, 2014. Available at: https://www.epa.gov/sites/production/files/2020-10/documents/no2_clarification_memo-20140930.pdf. Accessed January 2024.

Figure 2-1. General PSD Class II Area Modeling Flowchart

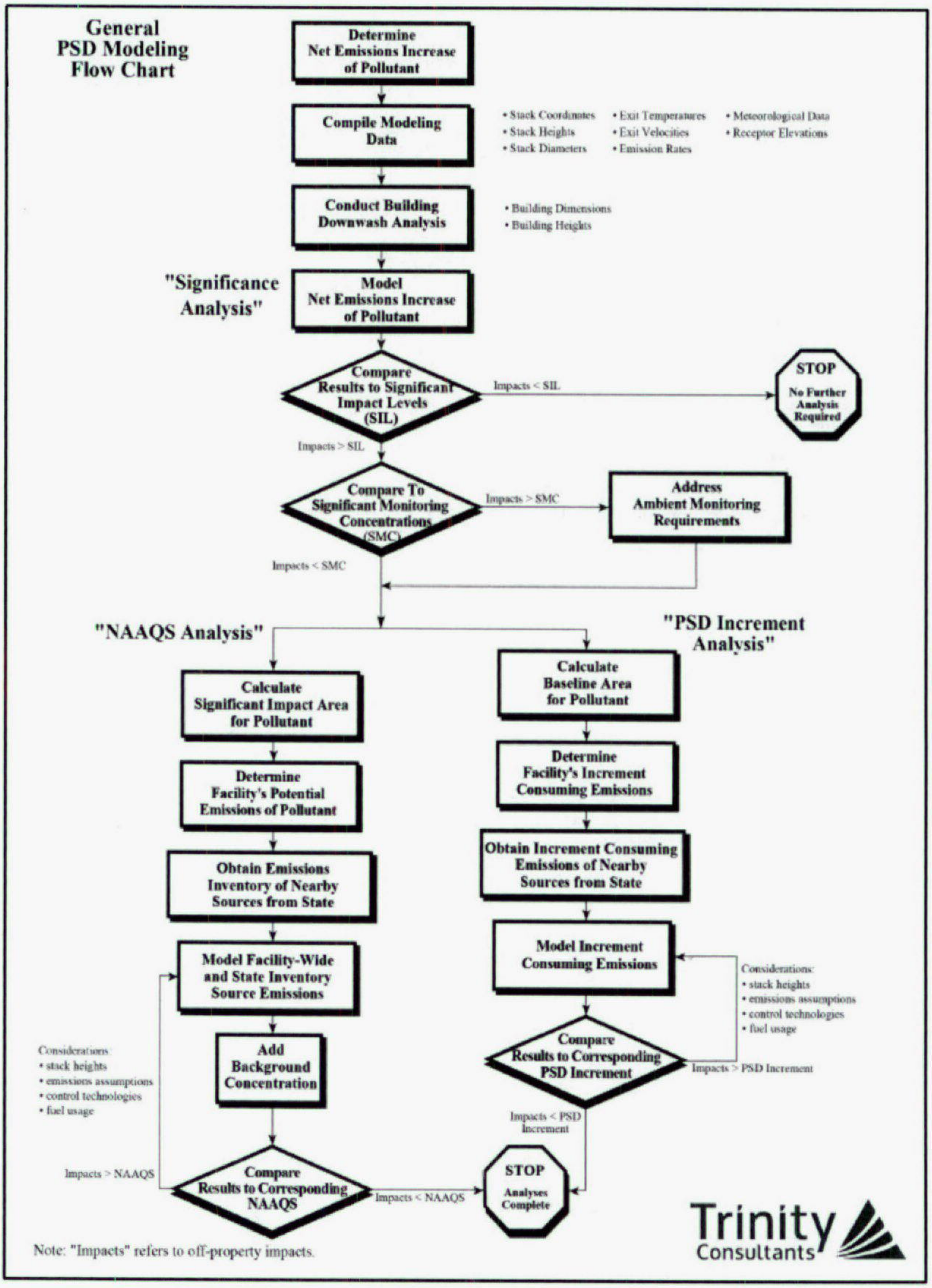

Table 2-1 lists the applicable standards for criteria pollutants that were modeled for the proposed Facility.

Table 2-1. Applicable Air Quality Standards

Pollutant	Averaging Period	SIL (µg/m³)	Monitoring *de minimis* Concentration (µg/m³)	PSD Class II Increment (µg/m³)	Primary NAAQS (µg/m³)
NO_2	1-Hour	7.5[16]	N/A	N/A	188
	Annual	1	14	25	100
PM_{10}[17]	24-Hour	5	10	30	150
	Annual	--	--	17	Revoked
$PM_{2.5}$[18]	24-Hour	1.2	Revoked	9	35
	Annual	0.2[19]	N/A	4	12

The highest concentrations out of all given modeling years for each pollutant-averaging period are then compared to the SIL shown in Table 2-1 to determine if the ambient air impact is significant.

For 1-hour NO_2, PM_{10}, and $PM_{2.5}$ averaging periods, a concatenated meteorological data set to derive the appropriate form of the NAAQS was utilized. For the annual NO_2 averaging period, each individual year was modeled separately to evaluate the maximum annual impacts. When modeled design concentrations are less than the applicable SIL, further analyses (NAAQS and PSD Increment) are not required for that pollutant-averaging period. If modeled impacts are greater than the SIL, a NAAQS and PSD Increment analysis is required for that pollutant and averaging period to demonstrate that the Facility neither causes nor contributes to the exceedance of the NAAQS and PSD Increment Standards.

2.1.1 Special Considerations for NO_2 and Treatment of Intermittent Sources

Plaquemines Generation utilized the U.S. EPA's Tier II Ambient Ratio Method 2 (ARM2) option in AERMOD from the 2017 version (82 FR 5182) of 40 CFR Part 51, Appendix W (Guideline on Air Quality Models) for converting modeled NO_x emission rates to modeled NO_2 impacts.[20] Even though the intermittent emission scenario can be excluded from the NO_2 1-hour modeling analysis, Plaquemines Generation included the annualized emissions for the ASCCTs from the maintenance, startup, and shutdown operations in the model.

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[16] Based on the U.S. EPA Memorandum to Regional Air Division Directors. U.S. Environmental Protection Agency, "Guidance Concerning the Implementation of the 1-hour NO_2 NAAQS for the Prevention of Significant Deterioration Program," Memorandum from Mr. Stephen D. Page, June 29, 2010. Available at: https://www.epa.gov/sites/default/files/2015-07/documents/appwno2.pdf. Accessed January 2024.

[17] The U.S. EPA revoked the annual PM_{10} NAAQS in 2006. U.S. Environmental Protection Agency, "Rules and Regulations: National Ambient Air Quality Standards for Particulate Matter," Codified at 40 CFR Part 50. Federal Register, Vol. 71, No. 200, pp. 61144–61233, Tuesday, October 17, 2006. Available at: https://www.govinfo.gov/content/pkg/FR-2006-10-17/pdf/06-8477.pdf. Accessed January 2024.

[18] U.S. Environmental Protection Agency, "Guidance for Ozone and Fine Particulate Matter Permit Modeling," Memorandum from Mr. Richard A Wayland and Mr. Scott Mathias, July 29, 2022. Section III.5 specifies that the same modeling procedures for the NAAQS SIL analysis could be used for the Increment SIL analysis. Available at: https://www.epa.gov/system/files/documents/2022-07/Guidance_for_O3_PM25_Permit_Modeling.pdf. Accessed January 2024.

[19] U.S. Environmental Protection Agency, "Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program," Memorandum from Mr. Peter Tsirigotis, April 17, 2018. Available at: https://www.epa.gov/sites/production/files/2018-04/documents/sils_guidance_2018.pdf. Accessed January 2024.

[20] U.S. Environmental Protection Agency, "Guideline on Air Quality Models," Codified at 40 CFR Part 51, Appendix W. Federal Register, Vol. 82, No. 10, pp. 5182–5235, Tuesday, January 17, 2017. Available at: https://www.epa.gov/sites/default/files/2020-09/documents/appw_17.pdf. Accessed January 2024.

2.2 PSD SIGNIFICANCE ANALYSIS

The PSD Significance Analysis consists of three separate determinations:

- The Significant Impact Analysis;
- An Area of Impact (AOI) Analysis; and
- A Preconstruction Monitoring Analysis.

2.2.1 Significant Impact Analysis

The Significant Impact Analysis (significance modeling) determines whether a full-impacts analysis (i.e., NAAQS and PSD Increment modeling) is required for compliance with 40 CFR 52.21. For each pollutant that requires PSD review, significance modeling incorporates all project sources and project-affected sources. The modeled emission rates should reflect the net emissions change (increase or decrease) from the project. The net emissions increase as determined for the PSD applicability analysis will be modeled as part of the significance modeling.

The significance modeling compares the maximum concentrations from the significance model results to the appropriate SILs as shown in Table 2-1. If the maximum concentration for each modeled pollutant-averaging period is less than its respective SIL, the proposed Facility impact is not significant and no further modeling is required.[21] If the maximum concentration for any pollutant-averaging period is greater than or equal to its respective SIL, then a full-impacts analysis will be required.

2.2.2 Area of Impact (AOI) Analysis

If the results from the significance modeling indicate that any of the respective SILs are exceeded, then an AOI Analysis must be performed. A circle is drawn around the facility that has a radius equal to the distance from the center of the facility to the furthest *significant* off-property receptor. U.S. EPA Guidance[22] recommends that the calculated AOI should not exceed 50 km due to accuracy constraints of AERMOD. The AOI influences the full impact analysis in two ways:

- The facility must place receptors within the AOI for NAAQS and PSD Increment modeling; and
- The facility must obtain an off-property emissions inventory from the LDEQ based upon the AOI plus 15 kilometers (kms). Based on recent LDEQ Modeling Procedures[23], Plaquemines Generation obtained an offsite emissions inventory for an additional 5 km beyond the AOI +15 km (i.e., AOI + 20 km) to include major sources beyond AOI + 15 km and within AOI + 20 km.

As shown in Table 5-1, the proposed Facility demonstrated compliance with the significance impact analysis for all modeled pollutants. Therefore, a full impact analysis was not required.

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[21] U.S. Environmental Protection Agency, "Guidance for Ozone and Fine Particulate Matter Permit Modeling," Memorandum from Mr. Richard A Wayland and Mr. Scott Mathias, July 29, 2022. Section III.5 of July 2022 Ozone and $PM_{2.5}$ Modeling Guidance does not distinguish between the modeling procedures for the NAAQS-SIL and Increment-SIL analyses. Available at: https://www.epa.gov/system/files/documents/2022-07/Guidance_for_O3_PM25_Permit_Modeling.pdf. Accessed January 2024.

[22] U.S. Environmental Protection Agency, "Guideline on Air Quality Models," Codified at 40 CFR Part 51, Appendix W. Federal Register, Vol. 82, No. 10, pp. 5182–5235, Tuesday, January 17, 2017. Available at: https://www.epa.gov/sites/default/files/2020-09/documents/appw_17.pdf. Accessed January 2024.

[23] Although the LDEQ Air Quality Modeling Procedures indicate that inventory may be obtained up to AOI + 50 km (Section 2.1.2), the LDEQ has modified this requirement as part of recent modeling submittals to account for AERMOD accuracy constraints.

2.2.3 Preconstruction Monitoring Analysis

The U.S. EPA monitoring *de minimis* concentrations establish the levels at which a facility needs to address pre-construction ambient air quality monitoring for applicable pollutants subject to PSD review. The relevant monitoring *de minimis* concentrations are listed in Table 2-1. If the significance modeling shows that maximum modeled concentrations from the affected emission sources do not exceed the monitoring *de minimis* concentrations for the modeled pollutants, pre-construction monitoring may be avoided. If the significance modeling shows that maximum modeled concentrations from the modeled emission sources exceed the *de minimis* concentrations for any of the modeled pollutants, monitoring may be required for up to 12 months prior to construction of the proposed project. As shown in Table 5-1, the modeled impacts are below the *de minimis* concentrations for all applicable pollutants and their averaging periods. Therefore, pre-construction monitoring is not required for the Facility.

2.3 NAAQS and PSD INCREMENT ANALYSES

As shown in Table 5-1, the proposed Facility demonstrated that all modeled impacts were less than Significant Impact Levels (SIL) in its significant impact analysis for all applicable pollutants and their respective averaging periods; therefore, a full impact analysis is not required. Hence, discussion about NAAQS and PSD increment analyses is not included in this report.

2.4 SECONDARY $PM_{2.5}$ AND OZONE IMPACT ANALYSIS

NO_x and SO_2 are precursors of secondary $PM_{2.5}$ emissions and NO_x and VOC are precursors of ozone emissions. The project emissions exceeded the significant emission rate (SER) for NO_x and not for SO_2 and VOC. However, the secondary impacts accounts for emissions from SO_2 and VOC (for $PM_{2.5}$ and ozone, as applicable). Therefore, Plaquemines Generation performed an ambient air quality impact analysis considering the secondary $PM_{2.5}$ and ozone as required in 40 CFR 52.21. Plaquemines Generation performed the Tier 1 assessment to satisfy the requirements of both ambient impact analyses using the latest Modeled Emission Rates for Precursors (MERPs) guidance from the U.S. EPA issued on April 30, 2019.[24]

Specifically, Plaquemines Generation utilized the steps outlined in Figures 3-1 and 4-1 and example scenarios in Section 4 of the MERPs guidance to complete the Tier 1 assessment. Based on a comparison of the source characteristics and chemical and physical environment of the proposed Facility to Louisiana – Orleans hypothetical source (FIPS 22071), Plaquemines Generation determined Louisiana – Orleans is the technically credible hypothetical source to utilize in the Tier 1 MERPs assessment for ozone and secondary $PM_{2.5}$. The detailed comparison and the numerical analysis quantifying the proposed facility's ambient air quality impacts (including the combined impact of primary and secondary $PM_{2.5}$) is provided in Appendix I of the Application.

[24] U.S. Environmental Protection Agency, "Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 Demonstration Tool for Ozone and $PM_{2.5}$ under the PSD Permitting Program," Memorandum from Mr. Richard A Wayland, April 30, 2019. Available at: https://www.epa.gov/sites/production/files/2020-09/documents/epa-454_r-19-003.pdf. Accessed January 2024.

3. CLASS II AREA AIR DISPERSION MODELING ANALYSES

Section 3.1 describes the computer models utilized for the air dispersion modeling analyses. Section 3.2 describes the meteorological data used for the air dispersion modeling analyses. Section 3.3 describes the topography of the area surrounding the proposed facility. Section 3.4 describes the stack height analysis for each modeled emission source. Section 3.5 describes the building wake (downwash) analysis for all the buildings situated within the proposed Facility. Section 3.6 describes the receptor grids used in the model. Section 3.7 describes the modeled emission rates.

3.1 DISPERSION MODEL SELECTION

The American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) is the U.S. EPA-recommended model for evaluating near-field impacts (i.e., source receptor distances of less than or equal to 50 km). The AERMOD modeling system is composed of three modular components: AERMAP, the terrain preprocessor; AERMET, the meteorological preprocessor; and AERMOD, the control module and modeling processor. Additionally, a fourth processor, the AERSURFACE tool, is used to estimate surface characteristics required for input to AERMET. The following versions of each processor were used, including: AERMOD version 23132; AERMET version 23132; AERMAP version 18081; and AERSURFACE version 20060. All AERMOD dispersion modeling was performed using the regulatory default option.

3.2 METEOROLOGICAL DATA

The U.S. EPA AERMOD program requires meteorological data that has been preprocessed with the AERMET program. Three additional variables are considered when preprocessing the surface and meteorological data for a site. These variables are:

- Surface roughness;
- Albedo; and
- Bowen Ratio.

The U.S. EPA has developed a software program called AERSURFACE that was used to determine realistic and reproducible surface characteristics values, including Albedo, Bowen Ratio, and Surface roughness parameters. AERSURFACE requires the input of land cover data from the United States Geological Survey (USGS) National Land Cover Data 2016 (NLCD 2016), which it uses to determine the values of surface characteristics based on the land cover type for the study area. AERSURFACE was used to determine the surface characteristics values for the area surrounding the NWS station for input to AERMET. Plaquemines Generation identified the New Orleans International Airport (Station No. 12916) as the closest surface station to obtain the most representative hourly surface meteorological data. The most recent available five years of processed meteorological data (2018 through 2022) was used in the model. In addition, upper air station data has been obtained and processed from Station No. 53813 at Slidell, LA, the closest upper air station to the proposed Facility. The data was processed in AERMET using the surface characteristics values generated by AERSURFACE.

3.3 TERRAIN ELEVATIONS

The terrain elevation for each modeled building, source, and receptor was determined using National Elevation Datasets (NED) data. The terrain height for each modeled receptor was calculated using AERMAP version 18081, a terrain preprocessor developed specifically for the AERMOD model. AERMAP computes the terrain height and hill height scale from the digital terrain elevations surrounding the modeled receptors. AERMAP also computes the terrain height for modeled sources and buildings. AERMAP was used to search for the terrain height and location that has the greatest influence on dispersion for an individual receptor.

3.4 GEP STACK HEIGHT

A Good Engineering Practices (GEP) stack height evaluation determines if avoidance of building wake effects allow a point source to be modeled at a height greater than 65 meters.

The GEP formula stack height is the greater of 65 meters or (H_b + 1.5L),
Where:
H_b is the building height, and
L is the lesser of the building's height or maximum projected width.

These procedures follow the U.S. EPA Guidelines for Determination of GEP Stack Height.[25] This equation only applies to stacks located within 5L of a surrounding structure. In the absence of influencing structures for a specific source, a default GEP height of 65 meters is used. The downwash structure heights, locations and dimensions for each emission source considered in the analysis are provided in the electronic modeling archive (Appendix D of this report). The model input stack parameters are summarized in Appendix B of this Class II Area Air Dispersion Modeling Report.

3.5 BUILDING WAKE (DOWNWASH) EFFECTS

The emission sources at the proposed Facility were evaluated in terms of the equipment proximity to nearby structures. The purpose of this evaluation is to determine if stack discharges may become caught in the turbulent wakes generated by these structures. AERMOD incorporates the Plume Rise Model Enhancements (PRIME) algorithms for estimating enhanced plume growth and restricted plume rise for plumes affected by building wakes.[26]

Direction-specific structure dimensions and the dominant downwash structure parameters used as input to AERMOD were determined using the BREEZE® Building Profile Input Program – PRIME Model (BPIPPRM) software, developed by Trinity Consultants, Inc. The BREEZE software incorporates the algorithms of the U.S. EPA's sanctioned BPIP PRIME (BPIPPRM), version 04274.[27]

The output from the BPIPPRM downwash analysis lists the names and dimensions of the structures generating wake effects and the locations and heights of the affected emission sources (i.e., stacks). In addition, the output contains a summary of the dominant structure for each emission source (considering all wind directions) and the actual structure height and projected widths for all wind directions. This information is provided in Appendix D of this Class II Area Air Dispersion Modeling Report.

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[25] U.S. Environmental Protection Agency, "Guideline for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulations (Revised)," Research Triangle Park, North Carolina, EPA-450/4-80-023R, June 1985. Available at: https://www.epa.gov/sites/default/files/2020-09/documents/gep.pdf. Accessed January 2024.
[26] Lloyd L. Schulman, David G. Strimaitis & Joseph S. Scire (2000), "Development and Evaluation of the PRIME Plume Rise and Building Downwash Model," Journal of the Air & Waste Management Association, 50:3, 378-390, DOI: 10.1080/10473289.2000.10464017.
[27] U.S. Environmental Protection Agency, "User's Guide to the Building Profile Input Program," Research Triangle Park, North Carolina, EPA-454/R-93-038, Revised February 8, 1995. Available at: https://gaftp.epa.gov/Air/aqmg/SCRAM/models/related/bpip/bpipd.pdf. Accessed January 2024.

3.6 RECEPTOR GRID

For the modeling analysis, Plaquemines Generation used a Cartesian receptor grid to predict off-property, ground-level concentrations. Receptor spacing varies according to distance from the proposed Facility. Plaquemines Generation placed receptors at 100-meter (m) intervals along the property boundary and any public roads which bisect the property. From the property line to 1,000 m (or 1 km), Plaquemines Generation placed receptors every 100 m. From 1 km to 5 km from the property boundary, Plaquemines Generation placed receptors every 500 m. From 5 km to 20 km from the property boundary, Plaquemines Generation placed receptors every 1,000 m. In addition, from 20 km to 50 km from the property boundary, Plaquemines Generation placed receptors every 5,000 m.

3.7 EMISSION RATES

For the Significance modeling, Plaquemines Generation modeled all the facility-wide emission sources for each pollutant that are above their respective PSD SER thresholds. The modeled emission rates for all the emission sources were based on their proposed, maximum emission rates as summarized in the Emissions Inventory Questionnaire (EIQ) in Section 4 of the Application. Annual emission limits (tons per year) for all emission sources were modeled for annual averaging periods and maximum hourly emissions were modeled for all short-term (24 hours or less) averaging periods. A summary of the modeled emission rates is provided in Appendix B of this Class II Area Air Dispersion Modeling Report.

For analysis of NAAQS with short-term averaging periods, the modeled emission rates were the calculated hourly maximum PTE for the 1-hr averaging period for each emission source. For analysis of NAAQS with longer-term averaging periods, the modeled emission rates were the calculated annual PTE for the annual averaging period for each emission source. For intermittent activities such as turbine maintenance, startup, and shutdown (MSS) activities, Plaquemines Generation annualized the MSS emissions for 1-hour NO_2 model assessment because the operating hours of these MSS activities are less than 100 hours per year.

3.8 SOURCE PARAMETERS

Because the proposed facility may be located either within Plaquemines LNG or the proposed Delta LNG Project, Plaquemines Generation modeled both locations to demonstrate compliance with the ambient air quality standards.

The stack parameters and the emission rates for the modeled sources are provided in Appendix B of this Class II Area Air Dispersion Modeling Report.

4. ADDITIONAL IMPACT ANALYSES

A PSD additional impacts analysis was conducted to assess the potential impacts of the proposed Facility on residential, industrial, and commercial growth, on local soils and vegetation, and on visibility impairment.

4.1 GROWTH ANALYSIS

The elements of the growth analysis include a projection of the associated industrial, commercial, and residential growth that will occur in the area of impact due to the proposed Facility, including the potential impact on ambient air due to this growth. For additional information, refer to Section 5 Environmental Assessment Statement of the Application.

4.2 SOIL AND VEGETATION ANALYSIS

The U.S. EPA developed the secondary NAAQS in order to protect certain air quality-related values (i.e., soil and vegetation) that were not sufficiently protected by the primary NAAQS. If design modeled concentrations are found to be less than the secondary NAAQS, it can be concluded that emissions from the project will not result in harmful effects to either soil or vegetation.[28] Because the impacts from the proposed Facility for each pollutant are lower than their respective SILs (see Table 5-1), the proposed Facility demonstrates compliance with the NAAQS standards. Hence, the proposed Facility will not result in harmful effects on either soil or vegetation.

4.3 CLASS I AREA ANALYSIS

Class I areas are federally protected areas for which more stringent air quality standards apply to protect unique natural, cultural, recreational, and/or historic values. The closest Class I area of interest for the Plaquemines Generation facility is the Breton National Wildlife Refuge (Breton NWR) in Louisiana, located approximately 86 km from the proposed facility.

The Federal Land Managers (FLM) have the authority to protect air quality related values (AQRVs), and to consider in consultation with the permitting authority whether a proposed major emitting facility will have an adverse impact on such values. AQRVs for which PSD modeling is typically conducted include visibility and deposition of sulfur and nitrogen.

When considering the ratio of emissions to Class I distance (e.g., Q/D)[29] for this proposed Facility, it is not expected that the FLM will require a full AQRV analysis for any of the affected areas. Table 4-1 and Table 4-2 present the projected emissions of visibility-affecting pollutants and then Q/D analysis for each area, respectively. The emissions shown are the maximum daily emissions scaled up to tons per year.

As shown in Table 4-2, the Q/D ratio is well below ten (10) for the potentially affected Class I area. As such, it is anticipated that the FLMs will not require a Class I AQRV analysis and that the proposed Facility will neither adversely affect the AQRV for the Breton NWR nor contribute to any significant violations of the Class I PSD increments.

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[28] U.S. Environmental Protection Agency, "New Source Review Workshop Manual, Prevention of Significant Deterioration and Nonattainment Area Permitting DRAFT," October 1990. Available at: https://www.epa.gov/sites/default/files/2015-07/documents/1990wman.pdf. Accessed January 2024.

[29] Federal Land Managers Air Quality Related Values Work Group (FLAG) Phase I Report-Revised (2010), p. 18. Available at: https://irma.nps.gov/DataStore/DownloadFile/420352. Accessed January 2024.

Table 4-1. Summary of Visibility-Affecting Pollutant Emissions

Pollutant	Facility-Wide Maximum 24-hour Emission Increases (lb/hr)	Annualized Maximum Emissions (tpy)
PM_{10}	16.00	70.08
SO_2	1.92	8.41
NO_2	19.64	86.02
H_2SO_4	-	-
Total	**37.56**	**164.51**

Table 4-2. Q/D Analysis

Class I Area	Distance (D in km)	Summary of Annualized Emissions (Q in tpy)	FLAG 2010 Q/D
Breton NWR	86	164.51	1.91

In addition to the Q/D analysis, Plaquemines Generation was required to assess PSD Increment consumption at the affected Class I areas. Plaquemines Generation performed this evaluation using a commonly applied screening methodology. This methodology relies on the same Significance analysis model input parameters applied for the Class II area assessments. Modeling in AERMOD was performed by placing a ring of receptors every degree (roughly 870 meters apart) at a distance of 50 km to demonstrate that modeled impacts are below the Class I SILs. This Class I PSD Increment screening procedure was originally proposed by EPA Region 4 and has been used in several recent PSD applications to fulfill the Class I PSD Increment modeling requirements.

Table 4-3 presents the results of the Class I SIL analysis and demonstrates that the proposed Facility impacts are insignificant at the conservative 50 km receptor distance. The $PM_{2.5}$ impacts include the secondary formation from the project's NO_x and SO_2 emissions as well. Since impacts are below the SILs at 50 km, there would be no expected concerns with the Class I increment at any of the much more distant Class I areas themselves.

Table 4-3. Class I SIL Results

Pollutant	Averaging Period	Modeled Concentration for the Plaquemines LNG Terminal Location (μg/m³)	Modeled Concentration for the Delta LNG Terminal Location (μg/m³)	Class I SIL (μg/m³)	Modeled Concentration < SIL [1] (Yes/No)
NO_2	Annual	0.0034	0.0033	0.1	Yes
PM_{10}	24-hour	0.0693	0.0677	0.32	Yes
	Annual	0.0037	0.0036	0.20	Yes
$PM_{2.5}$[2]	24-hour	0.0896	0.0888	0.27	Yes
	Annual	0.0048	0.0047	0.05	Yes

[1] Maximum modeled concentrations between the Plaquemines LNG and proposed Delta LNG Project locations were used for comparison with applicable thresholds.

[2] For the $PM_{2.5}$ 24-hour and $PM_{2.5}$ annual models: Total Concentration = Primary $PM_{2.5}$ (Modeled Concentration) + Secondary $PM_{2.5}$ (MERP Analysis)

$PM_{2.5}$ 24-hour Total Concentration (μg/m³) = 0.0405 + 0.0491 = 0.0896 μg/m³

$PM_{2.5}$ Annual Total Concentration (μg/m³) = 0.0032 + 0.0016 = 0.0048 μg/m³

4.4 NEAR-FIELD VISIBILITY ANALYSIS

Near-field visibility analyses are required for any sensitive receptors (state parks, local airports, etc.) that may be located within a project's daily SIA. The analyses are generally conducted in the VISCREEN model, which can consist of two levels: Level 1, with very conservative default settings and Level 2, with more typical meteorological conditions. If predicted values from the VISCREEN model are greater than the standardized screening values using the Level 1 parameters, the next level analysis, Level 2 should be performed. Plaquemines Generation determined there were no sensitive receptors within this area. Therefore, a VISCREEN analysis was not performed.

5. MODELING RESULTS SUMMARY

Because the proposed Facility may be located either within Plaquemines LNG or the proposed Delta LNG Project, Plaquemines Generation performed the modeling analysis for both locations. The maximum modeled concentrations obtained from both the locations are used for comparison with applicable thresholds.

The results of the modeling analyses are presented in this section. The building input parameters for the building downwash analysis are included in Appendix B of this Class II Area Air Dispersion Modeling Report. The stack parameters and the emission rates for the modeled sources are provided in Appendix B of this report. The electronic modeling archive files are provided in Appendix D of this report.

5.1 SIGNIFICANCE ANALYSIS

Significance Impact Analysis was performed for NO_2 1-hour and annual averaging periods, PM_{10} 24-hour and annual averaging periods, and $PM_{2.5}$ 24-hour and annual averaging periods. This section presents the comparison of the Class II PSD SIL to the highest first high (H1H) concentration estimated through modeling. The results of the modeling analysis were compared with the applicable significance levels to determine whether additional modeling was necessary and were compared with applicable monitoring *de minimis* levels to determine whether pre-construction monitoring was necessary.

5.1.1 Significance Analysis Impacts

In this analysis, potential emissions of the proposed Facility for NO_2, PM_{10} and $PM_{2.5}$ were modeled for comparison with their respective SILs, which are defined for different averaging periods, as well as the Monitoring *de minimis* concentration (as applicable). Table 5-1 shows the results from this analysis.

As shown in Table 5-1, the monitoring de minimis concentrations were not exceed by impacts from the proposed Facility for annual NO_2 and annual PM_{10} averaging periods. Therefore, preconstruction monitoring is not required for the proposed Facility. For 1-hour and annual NO_2, 24-hour and annual PM_{10}, and 24-hour and annual $PM_{2.5}$ averaging periods, the modeled impacts are less than their respective SILs. Therefore, the proposed Facility will not cause or contribute to an exceedance of their respective NAAQS or PSD Increment Standards.

Table 5-1. Significance Analysis Results

Pollutant	Averaging Period	Modeled Concentration for Plaquemines LNG Terminal Location (µg/m³)	Modeled Concentration for the Delta LNG Terminal Location (µg/m³)	(SIL) (µg/m³)	Modeled Concentration < SIL [1] (Yes/No)	Monitoring *de minimis* Concentration (µg/m³)	Modeled Concentration < Monitoring *de minimis* [1] (Yes/No)	AOI (km)
NO_2	1-hour	3.47	2.40	7.5	Yes	N/A	N/A	--
	Annual	0.05	0.04	1	Yes	14	Yes	--
PM_{10}	24-hour	1.02	0.67	5	Yes	N/A	N/A	--
	Annual	0.06	0.05	1	Yes	10	Yes	--
$PM_{2.5}$[2]	24-hour	0.68	0.52	1.2	Yes	N/A	N/A	--
	Annual	0.06	0.04	0.2	Yes	N/A	N/A	--

[1] Maximum modeled concentrations at each of the proposed locations (Plaquemines LNG and the proposed Delta LNG Project) were used for comparison with applicable thresholds.

[2] For the $PM_{2.5}$ 24-hour and $PM_{2.5}$ annual models: Total Concentration = Primary $PM_{2.5}$ (Modeled Concentration) + Secondary $PM_{2.5}$ (MERP Analysis)

$PM_{2.5}$ 24-hour Total Concentration (µg/m³) = 0.63 + 0.05 = 0.68 µg/m³

$PM_{2.5}$ Annual Total Concentration (µg/m³) = 0.06 + 0.0016 = 0.06 µg/m³

APPENDIX A. AERIAL MAP

Figure A-1. Area Map
Plaquemines Generation, LLC
Plaquemines Parish, Louisiana

Note: The Plaquemines Generation facility will be installed & operated at Plaquemines LNG and Delta LNG.

APPENDIX B. MODELED STACK PARAMETERS AND EMISSION RATES

Table B-1. Plaquemines Generation Source (Plaquemines LNG) Emission Rates for Air Dispersion Modeling Analysis

Source ID	Operating Condition	Emission Type [1]	Emission Rates (g/s)				
			NO_X		PM_{10}	$PM_{2.5}$	
			1-hour	Annual	24-hour	24-hour	Annual
ASCCT1 - PQ	Continuous	Routine	6.183E-01	5.152E-01	5.040E-01	5.040E-01	5.040E-01
ASCCT2 - PQ	Continuous	Routine	6.183E-01	5.152E-01	5.040E-01	5.040E-01	5.040E-01
ASCCT3 - PQ	Continuous	Routine	6.183E-01	5.152E-01	5.040E-01	5.040E-01	5.040E-01
ASCCT4 - PQ	Continuous	Routine	6.183E-01	5.152E-01	5.040E-01	5.040E-01	5.040E-01

[1] Modeled emission rates also account for 100 hr/yr SU/SD emissions.

Table B-2. Plaquemines Generation Source (Delta LNG) Emission Rates for Air Dispersion Modeling Analysis

Source ID	Operating Condition	Emission Type [1]	Emission Rates (g/s)				
			NO_X		PM_{10}	$PM_{2.5}$	
			1-hour	Annual	24-hour	24-hour	Annual
ASCCT1 - DL	Continuous	Routine	6.183E-01	5.152E-01	5.040E-01	5.040E-01	5.040E-01
ASCCT2 - DL	Continuous	Routine	6.183E-01	5.152E-01	5.040E-01	5.040E-01	5.040E-01
ASCCT3 - DL	Continuous	Routine	6.183E-01	5.152E-01	5.040E-01	5.040E-01	5.040E-01
ASCCT4 - DL	Continuous	Routine	6.183E-01	5.152E-01	5.040E-01	5.040E-01	5.040E-01

[1] Modeled emission rates also account for 100 hr/yr SU/SD emissions.

Table B-3. Plaquemines Generation Source Stack Parameters for Air Dispersion Modeling Analysis

Model Source Type	Height (m)	Temperature (K)	Velocity (m/s)	Diameter (m)
Aeroderivative Simple Cycle Combustion Turbines	24.38	738.71	32.37	3.05

Table B-4. Plaquemines Generation Modeled Rectangular Downwash Structures

Downwash Structure ID	UTM Zone	UTM Easting (mE)	UTM Northing (mN)	Elevation (m)	Height (m)	X Length (m)	Y Length (m)	Angle (deg)
LBL2	16	219631.30	3277939.90	-1.47	17.16	44.16	42.39	-55
LBL1	16	219680.50	3278007.10	-1.43	17.16	44.16	42.39	-55
LBL4BLG	16	219480.40	3277818.60	-1.50	8.21	20.83	17.01	-55
LBL9	16	219527.70	3277672.30	-1.68	17.16	44.16	42.39	-55
LBL9BLG	16	219561.90	3277663.00	-1.53	8.21	20.83	17.01	-55
LBL5	16	219733.30	3277965.40	-1.45	17.16	44.16	42.39	-55
LBL5BLG	16	219766.40	3277955.60	-1.46	8.21	20.83	17.01	-55
LBL3	16	219569.00	3277848.00	-1.46	17.16	44.16	42.39	-55
LBL4	16	219517.10	3277779.50	-1.55	17.16	44.16	42.39	-55
LBL3BLG	16	219525.40	3277886.90	-1.53	8.21	20.83	17.01	-55
LBL2BLG	16	219586.70	3277979.40	-1.42	8.21	20.83	17.01	-55
LBL1BLG	16	219640.00	3278049.10	-1.50	8.21	20.83	17.01	-55
LBL8BLG	16	219610.20	3277735.10	-1.50	8.21	20.83	17.01	-55
LBL6BLG	16	219716.70	3277879.80	-1.52	8.21	20.83	17.01	-55
LBL7BLG	16	219659.30	3277803.10	-1.54	8.21	20.83	17.01	-55
LBL8	16	219578.50	3277745.40	-1.55	17.16	44.16	42.39	-55
LBL7	16	219628.00	3277817.30	-1.43	17.16	44.16	42.39	-55
LBL6	16	219685.20	3277894.50	-1.49	17.16	44.16	42.39	-55
LBL11	16	219837.30	3277812.50	-1.49	17.16	44.16	42.39	-55
LBL10	16	219886.50	3277879.70	-1.42	17.16	44.16	42.39	-55
LBL13BLG	16	219686.40	3277691.20	-1.54	8.21	20.83	17.01	-55
LBL15	16	219939.30	3277838.00	-1.41	17.16	44.16	42.39	-55
LBL15BLG	16	219972.40	3277828.20	-1.40	8.21	20.83	17.01	-55
LBL12	16	219775.00	3277720.60	-1.53	17.16	44.16	42.39	-55
LBL13	16	219723.10	3277652.10	-1.56	17.16	44.16	42.39	-55
LBL12BLG	16	219731.40	3277759.50	-1.53	8.21	20.83	17.01	-55
LBL11BLG	16	219792.70	3277852.00	-1.47	8.21	20.83	17.01	-55
LBL10BLG	16	219846.00	3277921.70	-1.46	8.21	20.83	17.01	-55
LBL18BLG	16	219816.20	3277607.70	-1.50	8.21	20.83	17.01	-55
LBL17BLG	16	219865.30	3277675.70	-1.48	8.21	20.83	17.01	-55
LBL18	16	219784.50	3277618.00	-1.49	17.16	44.16	42.39	-55
LBL17	16	219834.00	3277689.90	-1.48	17.16	44.16	42.39	-55
LBL16	16	219891.20	3277767.10	-1.45	17.16	44.16	42.39	-55
LBL14BLG	16	219630.40	3277603.00	-1.53	8.21	20.83	17.01	-55
LBL14	16	219667.10	3277563.90	-1.52	17.16	44.16	42.39	-55
ACBLG1	16	219231.20	3278080.30	-1.49	22.45	49.67	86.42	-145
ACBLG2	16	219345.90	3278245.80	-1.43	22.45	49.67	86.42	-145
ACBLG3	16	220108.90	3277354.50	-1.47	22.45	49.67	86.42	-145
ACBLG4	16	220221.90	3277518.70	-1.45	22.45	49.67	86.42	-145
5J4CM016	16	220139.30	3277610.70	-1.45	26.71	22.94	14.00	35
5J4CM017	16	220132.88	3277616.33	-1.47	26.71	8.48	12.15	35
5J4CM018	16	220134.50	3277619.84	-1.47	26.40	0.69	4.49	35
5J4CM019	16	220133.62	3277620.46	-1.46	24.19	1.08	4.49	35
5J4CM01A	16	220126.16	3277625.68	-1.47	10.04	9.11	4.49	35
5J4CM01B	16	220112.03	3277635.58	-1.43	6.15	17.25	4.49	35
5J4CM01C	16	220110.50	3277632.80	-1.44	9.79	7.15	6.23	125
5J4CM01D	16	220101.60	3277624.56	-1.45	14.28	11.31	4.70	35

Downwash Structure ID	UTM			Elevation	Height	X Length	Y Length	Angle
	Zone	Easting (mE)	Northing (mN)	(m)	(m)	(m)	(m)	(deg)
5J4CM01E	16	220084.90	3277626.70	-1.44	8.68	14.91	19.53	35
5J4CM01F	16	220116.00	3277640.70	-1.42	4.82	3.18	5.61	35
Q9YG304Y	16	220059.90	3277501.10	-1.45	26.71	22.94	14.00	35
Q9YG304Z	16	220053.48	3277506.72	-1.41	26.71	8.48	12.15	35
Q9YG3050	16	220055.08	3277510.21	-1.42	26.40	0.69	4.49	35
Q9YG3051	16	220054.20	3277510.83	-1.42	24.19	1.08	4.49	35
Q9YG3052	16	220046.74	3277516.05	-1.44	10.04	9.11	4.49	35
Q9YG3053	16	220032.61	3277525.95	-1.49	6.15	17.25	4.49	35
Q9YG3054	16	220031.10	3277523.20	-1.47	9.79	7.15	6.23	125
Q9YG3055	16	220022.20	3277514.95	-1.42	14.28	11.31	4.70	35
Q9YG3056	16	220005.50	3277517.10	-1.42	8.68	14.91	19.53	35
Q9YG3057	16	220036.60	3277531.10	-1.47	4.82	3.18	5.61	35
Q9YG308X	16	220025.20	3277449.30	-1.42	26.71	22.94	14.00	35
Q9YG308Y	16	220018.78	3277454.92	-1.44	26.71	8.48	12.15	35
Q9YG308Z	16	220020.37	3277458.40	-1.44	26.40	0.69	4.49	35
Q9YG3090	16	220019.49	3277459.02	-1.44	24.19	1.08	4.49	35
Q9YG3091	16	220012.03	3277464.24	-1.46	10.04	9.11	4.49	35
Q9YG3092	16	219997.90	3277474.14	-1.44	6.15	17.25	4.49	35
Q9YG3093	16	219996.40	3277471.40	-1.44	9.79	7.15	6.23	125
Q9YG3094	16	219987.50	3277463.16	-1.43	14.28	11.31	4.70	35
Q9YG3095	16	219970.80	3277465.30	-1.44	8.68	14.91	19.53	35
Q9YG3096	16	220001.90	3277479.30	-1.45	4.82	3.18	5.61	35
Q9YG3097	16	220100.40	3277557.60	-1.48	26.71	22.94	14.00	35
Q9YG3098	16	220094.00	3277563.24	-1.48	26.71	8.48	12.15	35
Q9YG3099	16	220095.59	3277566.72	-1.48	26.40	0.69	4.49	35
Q9YG309A	16	220094.71	3277567.34	-1.47	24.19	1.08	4.49	35
Q9YG309B	16	220087.25	3277572.56	-1.44	10.04	9.11	4.49	35
Q9YG309C	16	220073.12	3277582.46	-1.39	6.15	17.25	4.49	35
Q9YG309D	16	220071.60	3277579.70	-1.39	9.79	7.15	6.23	125
Q9YG309E	16	220062.70	3277571.45	-1.40	14.28	11.31	4.70	35
Q9YG309F	16	220046.00	3277573.60	-1.44	8.68	14.91	19.53	35
Q9YG309G	16	220077.10	3277587.60	-1.39	4.82	3.18	5.61	35
Q9YG309H	16	219984.00	3277395.20	-1.49	26.71	22.94	14.00	35
Q9YG309I	16	219977.57	3277400.80	-1.47	26.71	8.48	12.15	35
Q9YG309J	16	219979.18	3277404.30	-1.46	26.40	0.69	4.49	35
Q9YG309K	16	219978.30	3277404.92	-1.46	24.19	1.08	4.49	35
Q9YG309L	16	219970.84	3277410.14	-1.44	10.04	9.11	4.49	35
Q9YG309M	16	219956.71	3277420.04	-1.42	6.15	17.25	4.49	35
Q9YG309N	16	219955.20	3277417.30	-1.40	9.79	7.15	6.23	125
Q9YG309O	16	219946.30	3277409.06	-1.41	14.28	11.31	4.70	35
Q9YG309P	16	219929.60	3277411.20	-1.45	8.68	14.91	19.53	35
Q9YG309Q	16	219960.70	3277425.20	-1.44	4.82	3.18	5.61	35
4CWB201E	16	219357.30	3278163.80	-1.44	26.71	22.94	14.00	35
4CWB201F	16	219376.60	3278151.40	-1.44	26.71	8.48	12.15	35
4CWB201G	16	219385.70	3278149.60	-1.49	26.40	0.69	4.49	35
4CWB201H	16	219386.27	3278149.20	-1.49	24.19	1.08	4.49	35
4CWB201I	16	219387.15	3278148.59	-1.49	10.04	9.11	4.49	35
4CWB201J	16	219394.61	3278143.35	-1.47	6.15	17.25	4.49	35
4CWB201K	16	219411.60	3278149.80	-1.44	9.79	7.15	6.23	125

Downwash Structure ID	UTM			Elevation	Height	X Length	Y Length	Angle
	Zone	Easting (mE)	Northing (mN)	(m)	(m)	(m)	(m)	(deg)
4CWB201L	16	219409.60	3278151.21	-1.45	14.28	11.31	4.70	35
4CWB201M	16	219414.50	3278138.50	-1.41	8.68	14.91	19.53	35
4CWB201N	16	219401.70	3278128.80	-1.49	4.82	3.18	5.61	35
Q9YG30A1	16	219317.90	3278108.10	-1.45	26.71	22.94	14.00	35
Q9YG30A2	16	219337.22	3278095.70	-1.49	26.71	8.48	12.15	35
Q9YG30A3	16	219346.33	3278093.92	-1.45	26.40	0.69	4.49	35
Q9YG30A4	16	219346.90	3278093.52	-1.44	24.19	1.08	4.49	35
Q9YG30A5	16	219347.78	3278092.90	-1.44	10.04	9.11	4.49	35
Q9YG30A6	16	219355.24	3278087.68	-1.44	6.15	17.25	4.49	35
Q9YG30A7	16	219372.20	3278094.10	-1.45	9.79	7.15	6.23	125
Q9YG30A8	16	219370.19	3278095.51	-1.46	14.28	11.31	4.70	35
Q9YG30A9	16	219375.10	3278082.80	-1.45	8.68	14.91	19.53	35
Q9YG30AA	16	219362.30	3278073.10	-1.46	4.82	3.18	5.61	35
Q9YG30AL	16	219280.70	3278050.90	-1.43	26.71	22.94	14.00	35
Q9YG30AM	16	219300.02	3278038.49	-1.45	26.71	8.48	12.15	35
Q9YG30AN	16	219309.12	3278036.70	-1.47	26.40	0.69	4.49	35
Q9YG30AO	16	219309.69	3278036.31	-1.47	24.19	1.08	4.49	35
Q9YG30AP	16	219310.57	3278035.69	-1.48	10.04	9.11	4.49	35
Q9YG30AQ	16	219318.03	3278030.47	-1.50	6.15	17.25	4.49	35
Q9YG30AR	16	219335.00	3278036.90	-1.43	9.79	7.15	6.23	125
Q9YG30AS	16	219332.99	3278038.31	-1.43	14.28	11.31	4.70	35
Q9YG30AT	16	219337.90	3278025.60	-1.46	8.68	14.91	19.53	35
Q9YG30AU	16	219325.10	3278015.90	-1.48	4.82	3.18	5.61	35
Q9YG30AV	16	219240.90	3277998.10	-1.46	26.71	22.94	14.00	35
Q9YG30AW	16	219260.15	3277985.60	-1.50	26.71	8.48	12.15	35
Q9YG30AX	16	219269.31	3277983.90	-1.48	26.40	0.69	4.49	35
Q9YG30AY	16	219269.88	3277983.50	-1.48	24.19	1.08	4.49	35
Q9YG30AZ	16	219270.76	3277982.89	-1.48	10.04	9.11	4.49	35
Q9YG30B0	16	219278.22	3277977.66	-1.50	6.15	17.25	4.49	35
Q9YG30B1	16	219295.20	3277984.10	-1.52	9.79	7.15	6.23	125
Q9YG30B2	16	219293.19	3277985.51	-1.51	14.28	11.31	4.70	35
Q9YG30B3	16	219298.10	3277972.80	-1.49	8.68	14.91	19.53	35
Q9YG30B4	16	219285.30	3277963.10	-1.46	4.82	3.18	5.61	35
Q9YG30B5	16	219201.90	3277942.20	-1.47	26.71	22.94	14.00	35
Q9YG30B6	16	219221.15	3277929.70	-1.45	26.71	8.48	12.15	35
Q9YG30B7	16	219230.32	3277928.01	-1.47	26.40	0.69	4.49	35
Q9YG30B8	16	219230.89	3277927.61	-1.47	24.19	1.08	4.49	35
Q9YG30B9	16	219231.77	3277926.99	-1.47	10.04	9.11	4.49	35
Q9YG30BA	16	219239.23	3277921.77	-1.49	6.15	17.25	4.49	35
Q9YG30BB	16	219256.20	3277928.20	-1.50	9.79	7.15	6.23	125
Q9YG30BC	16	219254.19	3277929.60	-1.50	14.28	11.31	4.70	35
Q9YG30BD	16	219259.10	3277916.90	-1.45	8.68	14.91	19.53	35
Q9YG30BE	16	219246.30	3277907.20	-1.53	4.82	3.18	5.61	35
5J4CM05G	16	219404.83	3278195.90	-1.50	9.26	13.20	7.20	35
5J4CM05H	16	219397.89	3278202.20	-1.44	9.26	9.30	4.90	35
Q9YG30BH	16	220129.89	3277688.40	-1.45	9.26	13.20	7.20	-145
Q9YG30BI	16	220118.33	3277694.90	-1.43	9.26	9.30	4.90	-145
LABBLG	16	220498.60	3278262.40	-0.82	6.44	18.60	19.10	35
CTRLBLG	16	220528.40	3278225.50	-0.86	6.44	22.60	24.90	35

Downwash Structure ID	UTM			Elevation (m)	Height (m)	X Length (m)	Y Length (m)	Angle (deg)
	Zone	Easting (mE)	Northing (mN)					
ADMBLG	16	220603.40	3278211.20	-0.92	12.12	27.80	18.40	125
SWWTP	16	219553.20	3278327.10	-1.35	8.33	37.70	22.10	125
METER	16	219560.40	3277524.30	-1.47	7.47	31.60	21.70	125
XLNVY000	16	219239.00	3278178.70	-1.51	22.45	40.60	24.40	35
XLNVY001	16	219124.30	3278012.70	-1.56	22.45	40.60	24.40	35
XLNVY002	16	220101.20	3277388.70	-1.45	22.45	40.60	24.40	35
XLNVY003	16	220212.20	3277555.10	-1.44	22.45	40.60	24.40	35
C4100054	16	219438.90	3278023.00	-1.38	9.26	13.20	7.20	35
C4100055	16	219432.00	3278029.30	-1.44	9.26	9.30	4.90	35
VYIZP004	16	219434.60	3278177.20	-1.41	9.26	13.20	7.20	35
VYIZP005	16	219427.60	3278183.50	-1.46	9.26	9.30	4.90	35
VYIZP008	16	219434.60	3278177.20	-1.41	9.26	13.20	7.20	35
VYIZP009	16	219427.60	3278183.50	-1.46	9.26	9.30	4.90	35
VYIZP00C	16	219425.90	3278164.90	-1.41	9.26	13.20	7.20	35
VYIZP00D	16	219418.90	3278171.20	-1.43	9.26	9.30	4.90	35
VYIZP00E	16	219425.90	3278164.90	-1.41	9.26	13.20	7.20	35
VYIZP00F	16	219418.90	3278171.20	-1.43	9.26	9.30	4.90	35
VYIZP00U	16	220166.30	3277665.80	-1.43	9.26	13.20	7.20	-145
VYIZP00V	16	220154.70	3277672.30	-1.41	9.26	9.30	4.90	-145
VYIZP00Y	16	220155.10	3277650.20	-1.47	9.26	13.20	7.20	-145
VYIZP00Z	16	220143.50	3277656.70	-1.41	9.26	9.30	4.90	-145
WWTU1A	16	221988.97	3277554.93	-0.25	7.47	62.55	21.84	15
ADMINA	16	221308.73	3278078.18	-0.56	4.57	42.00	25.63	10
WWTU2A	16	221356.18	3277677.45	-0.77	7.47	21.84	62.55	0
JETTY1A	16	222581.05	3278193.73	0.31	7.47	40.50	36.30	0
JETTY2A	16	222199.87	3278282.79	0.33	7.47	40.50	36.30	1
JETTY3A	16	221818.50	3278371.73	0.33	7.47	40.50	36.30	1
SHH56000	16	219385.60	3278259.10	-1.35	9.26	7.20	13.20	35
SHH56001	16	219394.20	3278269.20	-1.29	9.26	4.90	9.30	35
SHH56002	16	219366.80	3278272.40	-1.36	9.26	7.20	13.20	35
SHH56003	16	219375.40	3278282.60	-1.29	9.26	4.90	9.30	35
SHH56004	16	219348.10	3278285.40	-1.40	9.26	7.20	13.20	35
SHH56005	16	219356.70	3278295.50	-1.36	9.26	4.90	9.30	35
SHH56006	16	219329.10	3278298.70	-1.35	9.26	7.20	13.20	35
SHH56007	16	219337.70	3278308.80	-1.35	9.26	4.90	9.30	35
SHH56008	16	220956.10	3277434.50	-1.03	9.26	13.20	7.20	15
SHH56009	16	220947.20	3277438.30	-1.41	9.26	9.30	4.90	15
SHH5600A	16	220964.50	3277468.60	-1.18	9.26	13.20	7.20	15
SHH5600B	16	220955.60	3277472.40	-1.25	9.26	9.30	4.90	15
SHH5600C	16	220948.40	3277400.80	-0.92	9.26	13.20	7.20	15
SHH5600D	16	220939.50	3277404.60	-1.07	9.26	9.30	4.90	15
SHH5600E	16	220939.70	3277361.20	-0.83	9.26	13.20	7.20	15
SHH5600F	16	220930.80	3277365.00	-0.84	9.26	9.30	4.90	15
32D2S000	16	219334.20	3278310.90	-1.42	9.26	10.50	3.60	-55
32D2S001	16	219353.00	3278297.70	-1.37	9.26	10.50	3.60	-55
32D2S002	16	219371.80	3278284.50	-1.32	9.26	10.50	3.60	-55
32D2S003	16	219390.70	3278271.40	-1.30	9.26	10.50	3.60	-55
Q1B97005	16	220938.90	3277358.50	-0.84	9.26	10.50	3.60	-165
Q1B97006	16	220947.70	3277398.10	-0.91	9.26	10.50	3.60	-165

Downwash Structure ID	UTM			Elevation	Height	X Length	Y Length	Angle
	Zone	Easting (mE)	Northing (mN)	(m)	(m)	(m)	(m)	(deg)
Q1B97007	16	220955.40	3277431.90	-1.03	9.26	10.50	3.60	-165
Q1B97008	16	220963.80	3277466.00	-1.17	9.26	10.50	3.60	-165

Table B-5. Plaquemines Generation Modeled Circular Downwash Structures

Downwash Structure ID	UTM			Elevation	Height	Radius
	Zone	Easting (mE)	Northing (mN)	(m)	(m)	(m)
LNGTK3	16	219839.60	3278196.60	-1.31	43.46	45.00
LNGTK1	16	220033.00	3278073.50	-1.63	43.46	45.00
LNGTK4	16	219967.00	3278376.60	-1.31	43.46	45.00
LNGTK2	16	220158.20	3278251.50	-1.31	43.46	45.00
DMT	16	219541.50	3278274.30	-1.30	15.32	9.14
HOT	16	219716.76	3278476.19	-1.29	7.31	7.93
DST	16	219682.78	3278499.53	-1.27	10.97	12.80
AST	16	219646.50	3278526.00	-1.26	7.31	8.23
ADT	16	219633.20	3278536.20	-1.33	7.31	7.62
SWT	16	219623.17	3278241.74	-1.42	6.10	7.01
AAST	16	219437.41	3278256.96	-1.37	5.49	5.79
XLNVY004	16	219583.40	3278263.20	-1.40	7.31	14.00
LNGT1A	16	221804.50	3277673.26	-0.46	38.79	46.75
LNGT2A	16	221854.11	3277885.60	-0.39	38.79	46.75
LNGT3A	16	221579.68	3277716.39	-0.65	38.79	46.75
LNGT4A	16	221629.64	3277930.22	-0.44	38.79	46.75

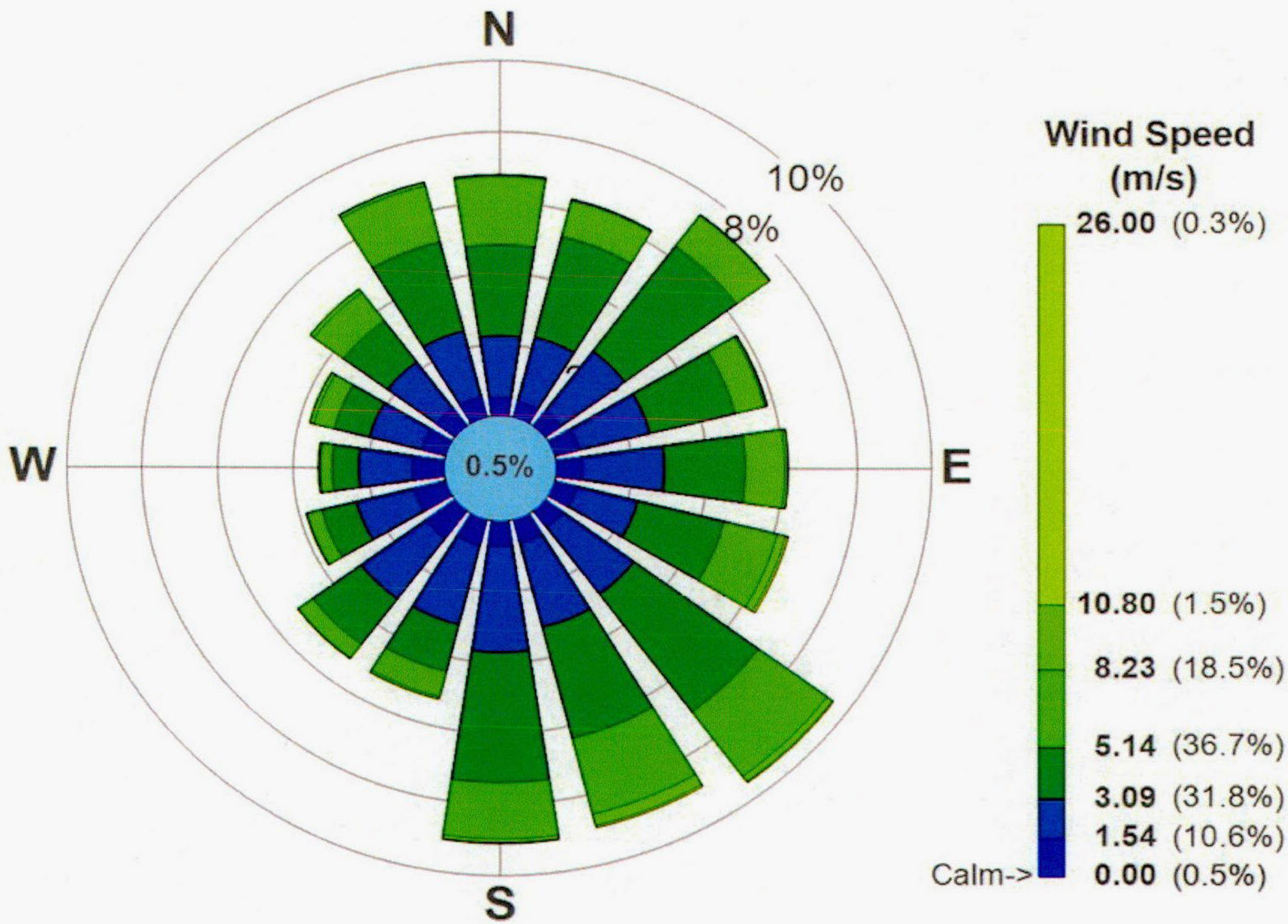
Table B-6. Plaquemines Generation Modeled Polygon Downwash Structures

Downwash Structure ID	UTM			Elevation	Height
	Zone	Easting (mE)	Northing (mN)	(m)	(m)
PPSUB1	16	220061.30	3277741.50	-1.43	7.47
PPSUB2	16	220076.10	3277761.60	-1.41	7.47
PPSUB4	16	219534.80	3278163.80	-1.38	7.47
GISSUB1	16	220001.50	3277644.30	-1.44	9.75
GISSUB2	16	219445.30	3278057.40	-1.56	9.75
FEED1	16	220018.50	3277742.50	-1.45	13.26
FEED2	16	219559.70	3278069.00	-1.46	13.26
GATE1	16	220669.60	3278201.00	-0.82	5.33
GATE2	16	220303.43	3278661.85	-0.27	5.33
BOGSUB1	16	220196.90	3278353.70	-1.20	7.32
BOGSUB2	16	220173.50	3278370.20	-1.19	7.32
BOGSUB3	16	220064.60	3278446.40	-1.21	7.32
BOGSUB4	16	220041.10	3278462.80	-1.21	7.32
BOG_S2	16	220103.70	3278445.00	-1.15	13.26
BOG_S21	16	220146.60	3278414.90	-1.20	13.26
JETTYSUB	16	220447.80	3278903.60	0.33	7.47
JETTY1	16	220301.44	3278978.19	0.33	7.16
JETTY2	16	220616.82	3278830.97	0.33	7.16
JETTY3	16	220947.22	3278676.77	0.33	7.16
WALL16	16	220740.60	3278272.99	-0.67	9.14
Q9YG3059	16	219507.80	3278129.40	-1.41	7.47
WHWSBLG	16	220530.50	3278164.60	-0.95	9.59
HRSG_10A	16	221133.60	3277513.80	-0.73	25.91
HRSG_6A	16	221071.90	3277248.50	-0.74	25.91
HRSG_7A	16	221087.60	3277314.70	-0.60	25.91
HRSG_8A	16	221103.20	3277381.00	-0.57	25.91
HRSG_9A	16	221118.70	3277447.30	-0.80	25.91
GISSUB1A	16	221971.10	3277236.50	-1.10	9.75
GISSUB2A	16	221220.80	3277423.90	-0.98	9.75
FEED1A	16	221896.60	3277323.50	-1.01	13.26
FEED2A	16	221332.40	3277462.70	-1.14	13.26
WORKA	16	221195.10	3278009.30	-0.80	7.32
CONTROLA	16	221215.70	3277958.60	-0.83	7.47
GATE1A	16	221264.80	3278110.00	-0.57	5.33
BOGSUB1A	16	221929.20	3277989.30	0.10	7.32
BOGSUB2A	16	221902.70	3277996.20	-0.20	7.32
BOG_S2A	16	221966.90	3278002.30	-0.20	13.26
BOG_S21A	16	222030.70	3277987.10	-0.43	13.26
PPSUB1A	16	222102.50	3277371.70	-0.30	7.47
PPSUB2A	16	221152.90	3277590.50	-1.25	7.47
WAREA	16	221262.00	3277977.60	-0.89	5.79
AIRCOL3A	16	220966.40	3277235.70	-0.80	9.14
ARCOL4A	16	221015.00	3277443.50	-1.07	9.14
AIRCOL1A	16	222114.20	3277050.10	-0.96	9.14
AIRCOL2A	16	222162.50	3277260.40	-0.61	9.14
GTURG10A	16	221173.50	3277493.90	-0.95	15.24
GTURG09A	16	221158.00	3277427.70	-1.01	15.24

Downwash Structure ID	UTM			Elevation	Height
	Zone	Easting (mE)	Northing (mN)	(m)	(m)
GTURG08A	16	221142.40	3277361.40	-0.88	15.24
GTURG07A	16	221127.00	3277295.00	-0.29	15.24
GTURG06A	16	221111.50	3277228.80	-0.88	15.24
HRSG01A	16	222053.70	3277035.20	-0.90	25.91
GTUR01A	16	222016.90	3277065.90	-1.01	15.24
HRSG02A	16	222069.10	3277101.60	-1.08	25.91
GTUG02A	16	222032.50	3277132.20	-0.99	15.24
HRSG03A	16	222084.50	3277167.70	-1.08	25.91
HRSG04A	16	222098.70	3277233.60	-1.07	25.91
HRSG05A	16	222113.90	3277299.90	-0.70	25.91
GTUR03A	16	222048.20	3277200.10	-1.15	15.24
GTUR04A	16	222063.20	3277266.00	-0.95	15.24
GTUR05A	16	222079.00	3277331.50	-0.68	15.24

APPENDIX C. WINDROSE DIAGRAM

New Orleans International Airport Windrose Diagram – 2018-2022 years



APPENDIX D. ELECTRONIC MODELING FILES

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Details:

Plaquemine Generation, LLC Class II Modeling Files (Jan 2024) (1 CD)

APPENDIX I. SECONDARY PM2.5 AND OZONE IMPACT ANALYSIS

SECONDARY $PM_{2.5}$ AND OZONE IMPACT ANALYSIS

Secondary pollutants are air pollutants formed through chemical reactions in the atmosphere. Secondary $PM_{2.5}$ and ozone share common sources of emissions and are formed in the atmosphere from chemical reactions with similar precursors. A description of the formation of both secondary $PM_{2.5}$ and ozone is provided below.

Ground-level ozone concentrations are the result of photochemical reactions among various chemical species. These reactions are likely to occur under certain ambient meteorological conditions (e.g., high ground-level air temperatures, light winds, and sunny conditions). The chemical species that contribute to ozone formation, referred to as ozone precursors, include NO_X and VOC emissions from both anthropogenic (e.g., mobile and stationary sources) and natural sources (e.g., vegetation).

Regarding $PM_{2.5}$, total mass is often categorized into primary (i.e., emitted directly as $PM_{2.5}$ from sources) and secondary (i.e., $PM_{2.5}$ formed in the atmosphere by precursor emissions from sources). $PM_{2.5}$ is dominated by a variety of chemical components including sulfate, nitrate, ammonium, organic carbon, and sea-spray constituents.[1] $PM_{2.5}$ sulfate and nitrate are predominantly the result of chemical reactions of the oxidized products of SO_2 and NO_X precursor emissions.[2]

The proposed Facility, as detailed in Section 1 of this Initial Title V and PSD Application (Application), will result in an increase in the potential to emit of approximately 71.64 tpy of NO_X emissions, 8.40 tpy of SO_2 emissions, and 12.22 tpy of VOC emissions. This section estimates the impact of these proposed precursor emissions on secondary $PM_{2.5}$ and ozone (i.e., NO_X and SO_2 impact on secondary $PM_{2.5}$ and NO_X and VOC impact on ozone).

1.1 TIER 1 DEMONSTRATION

The *Guideline on Air Quality Models* (hereafter referred to as *Guideline*) published in the Federal Register (FR) on January 17, 2017[3] and fully promulgated May 22, 2017, establishes a two-tiered demonstration approach for addressing single-source impacts on secondary $PM_{2.5}$ and ozone.[4] Tier 1 demonstrations rely on the use of technically credible relationships between emissions and ambient impacts based on existing modeling studies deemed sufficient for evaluating a source's impacts. Tier 2 demonstrations involve case-specific application of chemical transport modeling (e.g., with an Eulerian grid or Lagrangian model). A Tier 1 approach is used in this analysis.

One suggested Tier 1 demonstration approach in the *Guideline* is use of Modeled Emission Rates for Precursors (MERPs). The U.S. EPA discusses this approach in detail in the *Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 Demonstration Tool for Ozone and $PM_{2.5}$ under*

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[1] U.S. Environmental Protection Agency, "Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 Demonstration Tool for Ozone and $PM_{2.5}$ under the PSD Permitting Program," Memorandum from Mr. Richard A Wayland, April 30, 2019, pg. 13. Available at: https://www.epa.gov/sites/default/files/2019-05/documents/merps2019.pdf. Accessed January 2024.

[2] Seinfeld, J.H., Pandis, S.N., 2012. *Atmospheric Chemistry and Physics: From Air Pollution to Climate Change*. John Wiley & Sons.

[3] U.S. Environmental Protection Agency, "Guideline on Air Quality Models," Codified at 40 CFR Part 51, Appendix W. Federal Register, Vol. 82, No. 10, pp. 5182–5235, Tuesday, January 17, 2017. Available at: https://www.epa.gov/sites/default/files/2020-09/documents/appw_17.pdf. Accessed January 2024.

[4] *Ibid.*

the PSD Permitting Program (hereafter referred to as *MERPs Guidance*).[5] The MERPs Guidance is relevant for the PSD program and focuses on assessing the ambient impacts of precursors of ozone and $PM_{2.5}$ for purposes of that program. MERPs can be viewed as a Tier 1 demonstration tool under the PSD permitting program that provides a straightforward and representative way to relate maximum source impacts with a critical air quality threshold (e.g., a significant impact level or SIL).[6]

Specifically, the MERP framework may be used to describe an emission rate of an individual precursor (such as NO_X or VOC for ozone and NO_X and SO_2 for secondary $PM_{2.5}$) that is expected to result in a change in the level of ambient ozone or $PM_{2.5}$ that would be less than a specific air quality threshold for ozone or $PM_{2.5}$. The threshold is a numerical value that a permitting authority adopts and chooses to use in determining whether a projected impact causes or contributes to a violation of the ozone or $PM_{2.5}$ NAAQS, such as the SILs recommended by the U.S. EPA.[7] In short, MERPs are intended to be used with SILs as analytical tools for PSD air quality analyses, and if necessary, a cumulative impacts analysis including other nearby sources and background air quality. [8]

Figure 1-1 illustrates the U.S. EPA's framework for the MERPs as a Tier 1 demonstration tool (from Figure 3-1, pg. 17, in the *MERPs Guidance*).

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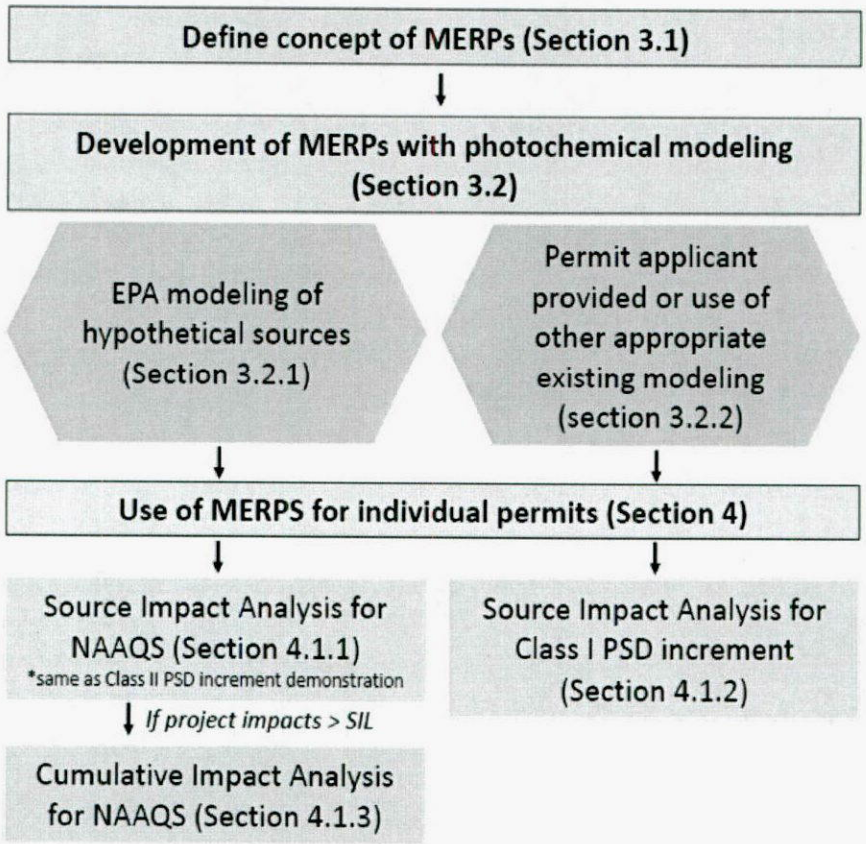
[5] U.S. Environmental Protection Agency, "Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 Demonstration Tool for Ozone and $PM_{2.5}$ under the PSD Permitting Program," Memorandum from Mr. Richard A Wayland, April 30, 2019, pg. 13. Available at: https://www.epa.gov/sites/default/files/2019-05/documents/merps2019.pdf. Accessed January 2024. **(hereafter referred to as *MERPs Guidance*).**
[6] *MERPs Guidance*, pg. 5.
[7] *MERPs Guidance*, pg. 10.
[8] *MERPs Guidance*, pgs. 6 and 16.

Figure 1-1. U.S. EPA's Framework for MERPs as a Tier 1 Demonstration Tool

(Figure 3-1, pg. 17, in the *MERPs Guidance*)



According to the *Guideline* and the *MERPs Guidance* regarding Tier 1 assessments, the U.S. EPA expects applicants to use existing empirical relationships from relevant technical information such as air quality modeling of hypothetical industrial sources with similar source characteristics and emission rates of precursors that are located in similar atmospheric environments and for time periods that are conducive to the formation of secondary $PM_{2.5}$ and ozone. In the *MERPs Guidance*, the U.S. EPA presents photochemical modeling of hypothetical single source impacts on downwind secondary $PM_{2.5}$ and ozone in the following four regional domains with varying source release types (either "high" or "low") and varying NO_X, SO_2, and VOC emission rates (either 500, 1,000, or 3,000 tpy):

- Central U.S. = 12EUS2 domain;
- Western U.S. = 12WUS1 domain;
- Eastern U.S. = 12EUS3 domain; and
- Contiguous U.S. = 12US2 domain.[9]

Specifically, the highest daily maximum 8-hour ozone impacts, highest daily 24-hour $PM_{2.5}$ impacts, and highest annual average $PM_{2.5}$ impacts for all hypothetical industrial sources in these four modeling domains are presented for use in PSD ambient impacts determinations.[10] Note, the U.S. EPA developed the MERPs

[9] *MERPs Guidance*, pg. 67.
[10] *MERPs Guidance*, pg. 19.

View Qlik webpage after publishing the *MERPs Guidance*.[11] This webpage includes additional hypothetical sources compared to the *MERPs Guidance*. Plaquemines Generation examined the webpage to identify potential hypothetical sources for use in this analysis.

To use the U.S. EPA MERPs hypothetical sources in a PSD secondary impacts determination, the U.S. EPA recommends the following three-step process as also displayed in Figure 1-2 (from Figure 4-1, pg. 42, in the *MERPs Guidance*):[12]

- **Step 1**: Identify a representative hypothetical source (or group of sources for an area) from the U.S. EPA's modeling as detailed in Appendix Table A-1 or the Excel spreadsheet available on SCRAM.[13] If a representative hypothetical source is not available, then consider whether a U.S. EPA-derived MERP value available for the broader geographic area of the project source may be adequately representative and thus appropriate to use (see Table 4-1). Alternatively, one can consider conducting photochemical modeling (as described in Section 3.2.2) to derive appropriate information to derive a source- or area-specific value.

  The permit applicant should provide the appropriate permitting authority with a technically credible justification that the source characteristics (e.g., stack height, emissions rate) of the specific project source described in a permit application and the chemical and physical environment (e.g., meteorology, background pollutant concentrations, and regional/local emissions) near that project source are adequately represented by the selected hypothetical source(s).

- **Step 2**: Acquire the source characteristics and associated modeling results for the hypothetical source(s). If using U.S. EPA modeling, then access these data from the on-line spreadsheet on EPA's SCRAM website.[14] If using other modeling, then access these data from the relevant input and output files.

- **Step 3**: Apply the source characteristics and photochemical modeling results from Step 2 to the MERP equation with the appropriate SIL value to assess the project source impacts. Section 4.1 provides several example PSD permit application scenarios that illustrate how to use source characteristics and photochemical modeling results to derive a MERP Tier 1 demonstration tool. Where project sources are required to assess multiple precursors, the U.S. EPA recommends that the project source impacts on O_3 or secondary $PM_{2.5}$ reflect the sum of air quality changes resulting from each of those precursors for comparison to the U.S. EPA-recommended SIL. Further, where project sources are required to assess both primary $PM_{2.5}$ and precursors of secondary $PM_{2.5}$, the U.S. EPA recommends that applicants combine the primary and secondary impacts to determine total $PM_{2.5}$ impacts as part of the PSD compliance demonstration. In such cases, the project source impacts associated with their direct $PM_{2.5}$ emissions should be assessed through dispersion modeling.

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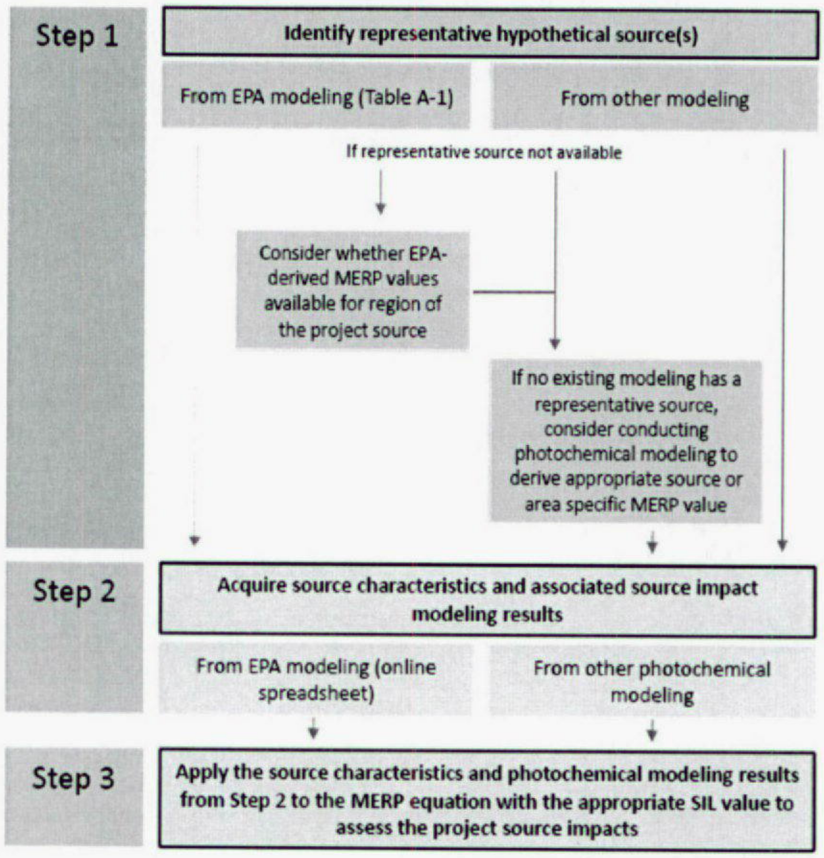
[11] U.S. Environmental Protection Agency, MERPs View Qlik interactive website. Available at: https://www.epa.gov/scram/merps-view-qlik. Accessed January 2024.
[12] *MERPs Guidance*, pg. 40.
[13] Also examine the U.S. EPA's MERPs View Qlik interactive website.
[14] *Ibid.*

Figure 1-2. U.S. EPA-Recommended Multi-step Process for use of MERPs in PSD Compliance Demonstrations

(Figure 4-1, pg. 42, in the *MERPs Guidance*)



1.2 Selection of U.S. EPA Hypothetical Source

To begin **Step 1**, Plaquemines Generation examined the available U.S. EPA hypothetical sources from the *MERPs Guidance*. Figure 1-3 shows the twenty-five hypothetical sources in the U.S. EPA Central U.S. modeling domain (from Figure A-2, pg. 69, in the *MERPs Guidance*) with Plaquemines Generation's location indicated using a red arrow.

For reference, in the contiguous U.S. modeling domain, there are no hypothetical sources located in Louisiana or in the Gulf Coast region (refer to Figure A-4, pg. 71, in the *MERPs Guidance*). The closest hypothetical source to Plaquemines Generation is the Central U.S. domain (CUSD) hypothetical source 10 (i.e., Louisiana-Orleans FIPS #22071),[15] which is located approximately 55 km north of the proposed Facility's center. In Figure 1-3, Plaquemines Generation presents a comparison of this U.S. EPA Louisiana-Orleans hypothetical source to the project to determine if the U.S. EPA-established MERPs for this hypothetical source are representative to use in this PSD secondary $PM_{2.5}$ and ozone impacts determination. Note, Plaquemines Generation also examined available hypothetical sources on the U.S. EPA's MERPs View Qlik interactive webpage to ensure the U.S. EPA has not added any new hypothetical sources in the area.[16]

[15] *MERPs Guidance*, pg. 65.
[16] U.S. Environmental Protection Agency, MERPs View Qlik interactive website. Available at: https://www.epa.gov/scram/merps-view-qlik. Accessed January 2024.

Based on the review, the Louisiana-Orleans hypothetical source remains the closest to Plaquemines Generation.

The U.S. EPA instructs the applicant to describe how the existing modeling for the selected hypothetical source reflects the formation of secondary $PM_{2.5}$ and ozone in the geographic area of the PSD project.[17] Further, the U.S. EPA provides examples of factors that may be used to describe the comparability of the two different geographic areas (i.e., PSD project area and modeled hypothetical source area) as follows:[18]

- Average and peak temperatures;
- Humidity;
- Terrain;
- Rural or urban nature of the area;
- Nearby local and regional sources of pollutants and their emissions (e.g., other industry, mobile, biogenic); and
- Ambient concentrations of relevant pollutants where available.

Table 1-1 provides a comparison of the U.S. EPA's Louisiana-Orleans hypothetical source to the proposed Facility using the factors provided above. The two locations are relatively close (~55 km) and have similar elevation and terrain (very flat). The monthly average mean and maximum temperature values are within ~3°F during peak ozone production months (May and August) with high humidity due to surrounding water bodies. Both Plaquemines Generation and the U.S. EPA Louisiana-Orleans hypothetical source are located in rural environments with similar land use/landcover and nearby/regional sources of pollutants.

The ozone design values listed for the ambient monitors near each location are within 1 ppb of each other and are below the 70 ppb 8-hour ozone NAAQS.[19] Further, the 24-hour $PM_{2.5}$ design values are both 18 $\mu g/m^3$ and are both below the 35 $\mu g/m^3$ NAAQS. The annual $PM_{2.5}$ design values are within 0.4 $\mu g/m^3$ of each other and are both below the 12 $\mu g/m^3$ NAAQS. For these reasons, the U.S. EPA empirical relationships derived for the Louisiana-Orleans hypothetical source were utilized in this analysis. The next two sections provide the Class II ozone impacts analysis for NAAQS purposes and Class II annual and 24-hour $PM_{2.5}$ impacts analysis for NAAQS purposes.

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[17] *MERPs Guidance*, pg. 9.

[18] *Ibid.*

[19] A comparison of NO_2 design values is not presented in Table 1-1 because the region only has two NO_2 ambient monitors, Kenner and I-610 New Orleans. Because the I-610 New Orleans ambient monitor is located in the center of the New Orleans urban area, data is not representative of the rural U.S. EPA Louisiana-Orleans hypothetical source and Plaquemines Generation facility. The only remaining NO_2 ambient monitor is the Kenner monitor, which leaves no reason to compare between the U.S. EPA Louisiana-Orleans hypothetical source and the Plaquemines Generation facility. Information above from the "Table6b. Site Trends 1-hour" tab from the U.S. EPA's *2022 Nitrogen Dioxide Design Values Report* Microsoft Excel file. Available at: https://www.epa.gov/air-trends/air-quality-design-values. Accessed January 2024.

Figure 1-3. Locations of Central U.S. Domain (CUSD) Hypothetical Sources and Plaquemines Generation

(Figure A-2, pg. 69, in the *MERPs Guidance*)

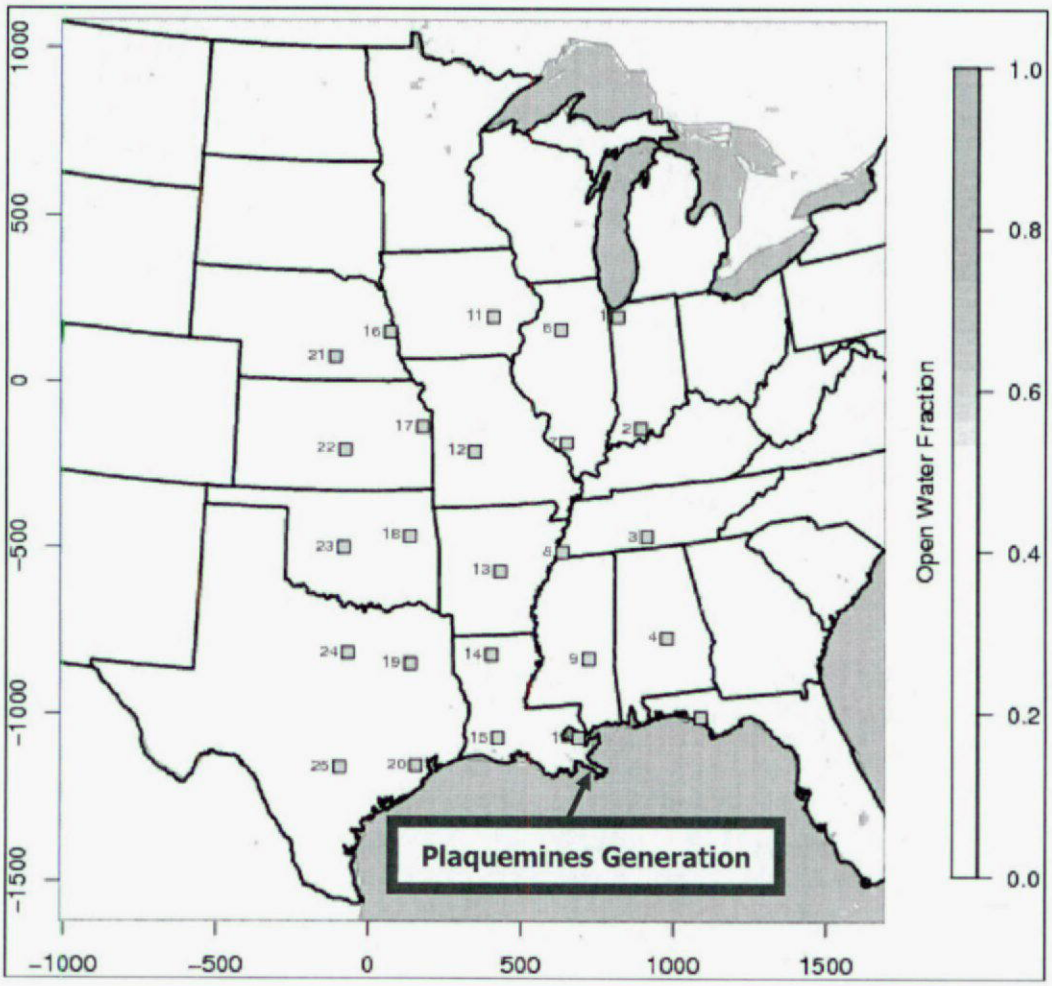

Table 1-1. Comparison of U.S. EPA Louisiana-Orleans Hypothetical Source to the Plaquemines Generation Facility

Parameters	Plaquemines Generation	U.S. EPA Louisiana-Orleans Hypothetical Source (FIPS #22071)
Latitude, Longitude	29.6001°, -89.88219° [7]	30.0920°, -89.8790° [1]
County/Parish	Plaquemines	Orleans [1]
Distance to Plaquemines Generation facility (km) [4]	-	~55
Elevation (m) [4]	~0	~0
Terrain [4]	Flat	Flat
May Monthly Average Mean Temperature (°F) [2]	75.5	78.6
August Monthly Average Mean Temperature (°F) [2]	82.0	85.5

Parameters	Plaquemines Generation	U.S. EPA Louisiana-Orleans Hypothetical Source (FIPS #22071)
May Monthly Average Maximum Temperature (°F) [2]	83.5	85.6
August Monthly Average Maximum Temperature (°F) [2]	89.5	91.7
Humidity [6]	High	High
Rural/Urban Nature of the Area [3]	Rural area (agricultural vegetation, shrubland/grassland, forest/woodland, and open water); surrounded by river/marshland/wetland; lake/ocean within ~1- 32 km; minimal industry visible within 15 km	Rural area (shrubland/grassland, forest/woodland, and open water); surrounded by lake/marshland/wetland; residential housing ~7 km to southwest; and lake/bay within ~4-16 km in other directions; no industry visible
Nearby Local and Regional Sources of Pollutants [4]	Nearby: industry/ship Regional: industry/biogenic/mobile	Nearby: residential Regional: industry/biogenic/mobile
2020-2022 8-hour Ozone NAAQS Design Value (ppb) [5]	59	58
2020-2022 24-hour $PM_{2.5}$ NAAQS Design Value (μg/m^3) [8]	18	18
2020-2022 Annual $PM_{2.5}$ NAAQS Design Value (μg/m^3) [8]	7.6	8.0

[1] Latitude, longitude, and county/parish of the U.S. EPA Louisiana-Orleans hypothetical source from pg. 65 of the *MERPs Guidance*.
[2] Temperature data from nearest meteorological station, LSU Citrus Res Station (ID 165624; 29.5814°N, 89.8222°W), for the Plaquemines Generation facility and New Orleans Lakefront Airport Station (ID 53917; 30.0494°N, 90.0288°W) for the U.S. EPA Louisiana-Orleans hypothetical source using the Southern Regional Climate Center NOWData. Available at: https://www.srcc.tamu.edu/services/nowdata/. Accessed January 2024. Climate Information Data Portal "monthly times series" product that represents an average of at least thirty years of temperature data.
[3] Determined using Google Earth satellite imagery and USGS National Gap Analysis Program Land Cover Data Viewer. Available at: https://www.usgs.gov/core-science-systems/science-analytics-and-synthesis/gap/science/introduction-land-cover-viewer?qt-science_center_objects=0#qt-science_center_objects. Accessed January 2024.
[4] Determined using Google Earth.
[5] Information extracted from "Table 6. Site Trends" tab of the U.S. EPA's *2022 Ozone Design Values Report* Microsoft Excel file. Available at: https://www.epa.gov/air-trends/air-quality-design-values. Accessed January 2024. Ozone design values from nearest/representative ambient monitor: Thibodaux for the Plaquemines Generation facility (~88 km to west) (AQS Site ID 220570004) and Meraux for the U.S. EPA Louisiana-Orleans hypothetical source (~18 km to south) (AQS Site ID 220870004).
[6] Numerical humidity values not listed because both the U.S. EPA Louisiana-Orleans hypothetical source and the Plaquemines Generation facility are in close proximity to the Gulf of Mexico, lakes, and marsh/wetlands (determined using Google Earth) so humidity is high at both locations.
[7] Approximate center point of the Plaquemines Generation facility.
[8] Information extracted from the "Table 6b. Site Trends 24hr" tab (24-hour) and "Table 6a, Site Trends Ann" tab (annual) of the U.S. EPA's *2022 $PM_{2.5}$ Design Values Report* Microsoft Excel file. Available at: https://www.epa.gov/air-trends/air-quality-design-values. Accessed January 2024. $PM_{2.5}$ design values from nearest/representative ambient monitor: Marrero for the Plaquemines Generation facility (~40 km to north) (AQS Site ID 220512001) and Chalmette Vista for the U.S. EPA Louisiana-Orleans hypothetical source (~19 km to southwest) (AQS Site ID 220870007).

1.3 CLASS II OZONE IMPACTS ANALYSIS FOR NAAQS PURPOSES

To begin **Step 2** of the U.S. EPA three-step process for determining ozone impacts, Plaquemines Generation developed MERPs in accordance with Equation 1 provided in the *MERPs Guidance*:[20]

[20] *MERPs Guidance*, pgs. 6 and 18.

$$\textbf{Equation 1}: MERP = Appropriate\ SIL\ Value \times \left(\frac{Modeled\ Emission\ Rate\ from\ Hypothetical\ Source}{Modeled\ Air\ Quality\ Impact\ from\ Hypothetical\ Source}\right)$$

Note that the critical air quality threshold for ozone (8-hour averaging period) in the equation above is 1.0 ppb based on the U.S. EPA finalized significant impact level (SIL).[21] For situations where project sources are required to assess multiple precursors of ozone, the U.S. EPA recommends that the impacts of multiple precursors should be estimated in a combined manner for comparison to the appropriate SIL such that the sum of precursor impacts would be lower than the SIL in a demonstration of compliance.[22] For ozone, the NO_X and VOC precursor contributions to 8-hour daily maximum ozone were considered together based on Equation 1 above to determine if the Plaquemines Generation's air quality impact would exceed the critical air quality threshold in accordance with the procedure outlined in the *MERPs Guidance*.

In accordance with the *MERPs Guidance*, Plaquemines Generation derived equations to estimate the impact of the proposed emissions on ozone based on the data provided for the U.S. EPA Louisiana-Orleans hypothetical source. To develop the equations, Plaquemines Generation reviewed the eight U.S. EPA Louisiana-Orleans hypothetical source model simulations (i.e., different emission and stack height scenarios for NO_X and VOC) provided in the U.S. EPA's MERPs View Qlik interactive website as listed in Table 1-2.[23] Based on the proposed emissions increase of 71.64 tpy of NO_X and 12.22 tpy of VOC in this Application, Plaquemines Generation selected simulations 1 and 5 (500 tpy of NO_X and 500 of tpy VOC) from Table 1-2 as the most representative U.S. EPA modeling simulations to estimate the impact on ozone.

Below are the equations the U.S. EPA used to calculate the resulting NO_X and VOC MERPs for the U.S. EPA Louisiana-Orleans hypothetical source as also displayed in Table 1-2 (note, due to downward rounding of 0.201 ppb, the VOC MERP appears erroneously high) using Equation 1:

$$NO_X\ to\ 8-hr\ O_3\ MERP\ for\ Louisiana-Orleans\ hypothetical\ source\ (tpy) = 1.0\ ppb \times \left(\frac{500\ tpy}{1.116\ ppb}\right) = 448\ tpy$$

$$VOC\ to\ 8-hr\ O_3\ MERP\ for\ Louisiana-Orleans\ hypothetical\ source\ (tpy) = 1.0\ ppb \times \left(\frac{500\ tpy}{0.201\ ppb}\right) = 2{,}491\ tpy$$

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[21] U.S. Environmental Protection Agency, "Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program," Memorandum from Mr. Peter Tsirigotis, April 17, 2018. Available at: https://www.epa.gov/sites/default/files/2018-04/documents/sils_policy_guidance_document_final_signed_4-17-18.pdf. Accessed January 2024.

[22] *MERPs Guidance*, pg. 44.

[23] U.S. Environmental Protection Agency, MERPs View Qlik interactive website. Available at: https://www.epa.gov/scram/merps-view-qlik. Accessed January 2024.

Table 1-2. U.S. EPA Louisiana-Orleans Hypothetical Source Ozone Model Simulations listed in the MERPs Guidance

Precursor[1]	Model Simulation	Emissions Modeled[1] (tpy)	Stack Height [1], [2] (m)	Maximum Ozone Impact [1] (ppb)	MERP[1] (tpy)
NO_x	**1**	**500**	**10**	**1.116**	**448**
	2	500	90	1.332	375
	3	1,000	90	2.480	403
	4	3,000	90	6.017	499
VOC	**5**	**500**	**10**	**0.201**	**2,491**
	6	1,000	10	0.415	2,410
	7	1,000	90	0.382	2,618
	8	3,000	90	1.294	2,319

[1] Information from this table was extracted from the U.S. EPA's MERPs View Qlik interactive website. Available at: https://www.epa.gov/scram/merps-view-qlik. Accessed January 2024. **Bold** text represents the simulations utilized in this analysis (i.e., simulations 1 and 5).
[2] A stack height of 10 m refers to source release type "Low" representing surface level emissions releases, and a stack height of 90 m refers to source release type "High" representing tall stack emissions releases per pg. 20 of the *MERPs Guidance*.

For **Step 3** of the U.S. EPA three-step process, Plaquemines Generation considered the NO_x and VOC precursor impacts on 8-hour daily maximum ozone together to determine if the project source's air quality impact would exceed the ozone SIL as described above. The Plaquemines Generation's NO_x and VOC emissions are expressed as a percent of the MERP for each precursor and then the percentages are summed. As such, the above the U.S. EPA Louisiana-Orleans hypothetical source MERPs of 448 tpy of NO_x and 2,491 tpy of VOC were considered together in combination with the proposed Plaquemines Generation's 71.64 tpy of NO_x and 12.22 tpy of VOC emissions to determine the combined impacts on ozone.

A value less than 100% indicates that the U.S. EPA recommended 8-hour ozone SIL will not be exceeded when considering the combined impacts of these precursors on 8-hour daily maximum ozone.[24] Utilizing example Scenario A on pg. 45 and example Scenario C on pg. 47 of the *MERPs Guidance*, Plaquemines Generation calculated 16.48% combined for NO_x and VOC:

$$\left(\left(\frac{71.64\ tpy\ NOx\ from\ Plaquemines\ Generation}{448\ tpy\ NOx\ 8-hr\ daily\ maximum\ O_3\ MERP}\right)+\left(\frac{12.22\ tpy\ VOC\ from\ Plaquemines\ Generation}{2{,}491\ tpy\ VOC\ 8-hr\ daily\ maximum\ O_3\ MERP}\right)\right)\times 100 = 16.48\%$$

Based on the calculation above, the combined impact of Plaquemines Generation's proposed ozone precursor NO_x and VOC emissions does not exceed the critical air quality threshold for ozone based on representative U.S. EPA modeling for the Louisiana-Orleans hypothetical source from the *MERPs Guidance*. Given that the emissions from Plaquemines Generation are not expected to have air quality impacts that exceed the ozone SIL, a cumulative impact analysis is not required, and no further analysis is necessary.

1.4 CLASS II $PM_{2.5}$ IMPACTS ANALYSIS FOR NAAQS PURPOSES

The critical air quality thresholds for 24-hour and annual $PM_{2.5}$ in Equation 1 above is 1.2 $\mu g/m^3$ and 0.2 $\mu g/m^3$, respectively, based on the U.S. EPA finalized SILs.[25] Section 5.1 of Appendix H, the Class II Area Air Quality Dispersion Modeling Report of this Application shows the primary $PM_{2.5}$ annual and 24-hour

[24] *MERPs Guidance*, pg. 45.
[25] U.S. Environmental Protection Agency, "Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program," Memorandum from Mr. Peter Tsirigotis, April 17, 2018. Available at: https://www.epa.gov/sites/default/files/2018-04/documents/sils_policy_guidance_document_final_signed_4-17-18.pdf. Accessed January 2024.

AERMOD-modeled concentrations both less than their respective SILs. As a result, the cumulative impact analysis as illustrated in Figure 1-1 (as also stated for example Scenario B on pg. 60 of the *MERPs Guidance*) is not needed.

In accordance with the *MERPs Guidance*, Plaquemines Generation derived equations to estimate the impact of the proposed emissions on secondary $PM_{2.5}$ based on the data provided for the U.S. EPA Louisiana-Orleans hypothetical source. To develop the equations, Plaquemines Generation reviewed the twenty U.S. EPA Louisiana-Orleans hypothetical source model simulations (i.e., different averaging periods, emission, and stack height scenarios for NO_X and SO_2) provided in the U.S. EPA's MERPs View Qlik interactive website as listed in Table 1-4.[26] Based on the proposed emissions of 71.64 tpy of NO_X and 8.40 of tpy SO_2 in this application and associated elevated stack height releases, Plaquemines Generation selected simulations 1 and 6 for both annual and 24-hour averaging periods from Table 1-4 below as the most representative U.S. EPA modeling simulations to estimate the impact on secondary $PM_{2.5}$.

Table 1-3. U.S. EPA Louisiana-Orleans Hypothetical Source Secondary $PM_{2.5}$ Model Simulations listed in the *MERPs Guidance*

Averaging Period	Precursor [1]	Model Simulation	Emissions Modeled [1] (tpy)	Stack Height [1], [2] (m)	Maximum Secondary $PM_{2.5}$ Impact [1] (μg/m³)	MERP [1] (tpy)
Annual	SO_2	**1**	**500**	**10**	**0.02121**	**4,715**
		2	500	90	0.00891	11,228
		3	1,000	10	0.07281	2,747
		4	1,000	90	0.02138	9,357
		5	3,000	90	0.13524	4,437
	NO_X	**6**	**500**	**10**	**0.00858**	**11,652**
		7	500	90	0.00240	41,727
		8	1,000	10	0.02004	9,981
		9	1,000	90	0.00588	34,022
		10	3,000	90	0.02394	25,065
24-hour	SO_2	**1**	**500**	**10**	**0.69864**	**859**
		2	500	90	0.27939	2,148
		3	1,000	10	2.62188	458
		4	1,000	90	1.02008	1,176
		5	3,000	90	5.21554	690
	NO_X	**6**	**500**	**10**	**0.26086**	**2,300**
		7	500	90	0.11795	5,087
		8	1,000	10	0.63806	1,881
		9	1,000	90	0.28842	4,161
		10	3,000	90	0.99552	3,616

[1] Information from this table was extracted from the U.S. EPA's MERPs View Qlik interactive website. Available at: https://www.epa.gov/scram/merps-view-qlik. Accessed January 2024. **Bold** text represents the simulations utilized in this analysis (i.e., simulations 1 and 6 for both annual and 24-hour averaging periods).

[2] A stack height of 10 m refers to source release type "Low" representing surface level emissions releases, and a stack height of 90 m refers to source release type "High" representing tall stack emissions releases per pg. 20 of the *MERPs Guidance*.

Plaquemines Generation considered the NO_X and SO_2 precursor impacts on daily and annual averaging $PM_{2.5}$ together to determine if the project source's air quality impact would exceed the $PM_{2.5}$ SILs as described above. The proposed NO_X and SO_2 emissions from Plaquemines Generation are expressed as a percent of the MERP for each precursor and then the percentages are summed. As such, the U.S. EPA Louisiana-Acadia

[26] U.S. Environmental Protection Agency, MERPs View Qlik interactive website. Available at: https://www.epa.gov/scram/merps-view-qlik. Accessed January 2024.

hypothetical source MERPs of 2,300 tpy of NO_X emissions and 859 tpy of SO_2 emissions were considered together in combination with the proposed Plaquemines Generation's 71.64 tpy of NO_X emissions and 8.40 tpy of SO_2 emissions to determine the combined impacts on daily $PM_{2.5}$. A value less than 100% indicates that the U.S. EPA recommended daily $PM_{2.5}$ SIL will not be exceeded when considering the combined impacts of these precursors on daily $PM_{2.5}$.[27] Utilizing example Scenario B on pg. 59 of the *MERPs Guidance*, Plaquemines Generation calculated 4.09% combined for NO_X and SO_2:

$$\left(\left(\frac{71.64\ tpy\ NOx\ from\ Cameron\ Generation}{2{,}300\ tpy\ NOx\ daily\ PM_{2.5}\ MERP}\right)+\left(\frac{8.40\ tpy\ SO_2\ from\ Cameron\ Generation}{859\ tpy\ SO_2\ daily\ PM_{2.5}\ MERP}\right)\right)\times 100 = 4.09\%$$

The U.S. EPA Louisiana-Acadia hypothetical source MERPs of 11,652 tpy of NO_X emissions and 4,715 tpy of SO_2 emissions were considered together in combination with the proposed Plaquemines Generation's 71.64 tpy of NO_X emissions and 8.40 tpy of SO_2 emissions to determine the combined impacts on annual $PM_{2.5}$. A value less than 100% indicates that the U.S. EPA-recommended annual $PM_{2.5}$ SIL will not be exceeded when considering the combined impacts of these precursors on annual $PM_{2.5}$.[28] Utilizing example Scenario B on pg. 59 of the *MERPs Guidance*, Plaquemines Generation calculated 0.79% combined for NO_X and SO_2:

$$\left(\left(\frac{71.64\ tpy\ NOx\ from\ Cameron\ Generation}{11{,}652\ tpy\ NOx\ daily\ PM_{2.5}\ MERP}\right)+\left(\frac{8.40\ tpy\ SO_2\ from\ Cameron\ Generation}{4{,}715\ tpy\ SO_2\ daily\ PM_{2.5}\ MERP}\right)\right)\times 100 = 0.79\%$$

Based on the calculations above, the combined impact of Plaquemines Generation's proposed $PM_{2.5}$ precursor NO_X and SO_2 emissions do not exceed the critical air quality threshold for $PM_{2.5}$ based on the representative U.S. EPA modeling for the Louisiana-Acadia hypothetical source from the *MERPs Guidance*. Given that the proposed emissions from Plaquemines Generation are not expected to have air quality impacts that exceed the $PM_{2.5}$ SILs, a cumulative impact analysis is not required, and no further analysis is necessary.

The U.S. EPA rearranges the MERP equation (Equation 1 from above) such that instead of calculating a modeled emission rate based on a critical air quality threshold such as a SIL value, a project-specific impact based on the proration of the project emissions by the ratio of the hypothetical source air quality impact to the hypothetical source emissions is estimated.[29] The resulting Equation 2 below calculates the project source impact using the product of the relevant hypothetical source air quality impact relative to emissions scaled either upwards or downwards to the emission rate of the project:[30]

$$\textbf{Equation 2}: Project\ Impact = Project\ Emission\ Rate \times \left(\frac{Modeled\ Air\ Quality\ Impact\ from\ Hypothetical\ Source}{Modeled\ Emission\ Rate\ from\ Hypothetical\ Source}\right)$$

Utilizing Equation 2 above for both NO_X ($PM_{2.5}$ nitrate ion) and SO_2 ($PM_{2.5}$ sulfate ion) air quality impacts and as outlined in example Scenario B on pg. 60 of the *MERPs Guidance*, Plaquemines Generation calculated a total project impact of 0.0016 $\mu g/m^3$ annual secondary $PM_{2.5}$ and 0.04911 $\mu g/m^3$ 24-hour secondary $PM_{2.5}$:

[27] *MERPs Guidance*, pg. 45.
[28] *ibid.*
[29] *MERPs Guidance*, pg. 55.
[30] *ibid.*

Annual:

$$NOx\ Project\ Impact: 71.64\ tpy\ from\ Plaquemines\ Generation \times \left(\frac{0.00858\ \mu g/m^3\ from\ Louisiana - Orleans\ hypothetical\ source}{500\ tpy\ from\ Louisiana - Orleans\ hypothetical\ source}\right)$$
$$= 0.0012\ \mu g/m^3\ PM_{2.5}$$

$$SO_2\ Project\ Impact: 8.40\ tpy\ from\ Plaquemines\ Generation \times \left(\frac{0.02121\ \mu g/m^3\ from\ Louisiana - Orleans\ hypothetical\ source}{500\ tpy\ from\ Louisiana - Orleans\ hypothetical\ source}\right)$$
$$= 0.00036\ \mu g/m^3\ PM_{2.5}$$

$$Total\ Project\ Impact: 0.0012\ \mu g/m^3 + 0.00036\ \mu g/m^3 = 0.0016\ \mu g/m^3 \mathbf{annual}\ secondary\ PM_{2.5}$$

24-hour:

$$NOx\ Project\ Impact: 71.64\ tpy\ from\ Plaquemines\ Generation \times \left(\frac{0.26086\ \mu g/m^3\ from\ Louisiana - Orleans\ hypothetical\ source}{500\ tpy\ from\ Louisiana - Orleans\ hypothetical\ source}\right)$$
$$= 0.03738\ \mu g/m^3\ PM_{2.5}$$

$$SO_2\ Project\ Impact: 8.40\ tpy\ from\ Plaquemines\ Generation \times \left(\frac{0.69864\ \mu g/m^3\ from\ Louisiana - Orleans\ hypothetical\ source}{500\ tpy\ from\ Louisiana - Orleans\ hypothetical\ source}\right)$$
$$= 0.01173\ \mu g/m^3\ PM_{2.5}$$

$$Total\ Project\ Impact: 0.03738\ \mu g/m^3 + 0.01173\ \mu g/m^3 = 0.0491\ \mu g/m^3\ \mathbf{24 - hour}\ secondary\ PM_{2.5}$$

The total project secondary $PM_{2.5}$ impact calculated above is combined with the primary $PM_{2.5}$ AERMOD-modeled concentration for comparison with applicable SIL thresholds.

Section 5.1 of Appendix H, the Class II Area Air Dispersion Modeling Report of this Application lists 0.06 and 0.63 µg/m^3 (based on NAAQS modeling analysis) as the annual and 24-hour primary $PM_{2.5}$ AERMOD-modeled concentrations, respectively. Adding these values together results in the following:

Annual:

$$Projected\ SIL\ Impact\ from\ Project = 0.06\ \mu g/m^3 + 0.0016\ \mu g/m^3 = 0.06\ \mu g/m^3$$

24-hour:

$$Projected\ SIL\ Impact\ Project = 0.63\ \mu g/m^3 + 0.0491\ \mu g/m^3 = 0.68\ \mu g/m^3$$

The results above show the project's primary and secondary $PM_{2.5}$ annual impact is below the SIL (0.2 µg/m^3). Additionally, the results above show the project's primary and secondary $PM_{2.5}$ 24-hour impact is below the SIL (1.2 µg/m^3). Therefore, no further analysis is necessary.

APPENDIX J. EJSCREEN REPORT

EPA

EJScreen Community Report

This report provides environmental and socioeconomic information for user-defined areas, and combines that data into environmental justice and supplemental indexes.

Plaquemines Parish, LA

3 miles Ring Centered at 29.597342,-89.880695
Population: 361
Area in square miles: 28.27

A3 Landscape

COMMUNITY INFORMATION

- Low income: 41 percent
- People of color: 77 percent
- Less than high school education: 22 percent
- Limited English households: 0 percent
- Unemployment: 9 percent
- Persons with disabilities: 20 percent
- Male: 50 percent
- Female: 50 percent
- 38 years Average life expectancy
- $22,894 Per capita income
- Number of households: 161
- Owner occupied: 88 percent

BREAKDOWN BY RACE

- White: 23%
- Black: 70%
- American Indian: 3%
- Asian: 0%
- Hawaiian/Pacific Islander: 0%
- Other race: 1%
- Two or more races: 3%
- Hispanic: 0%

LANGUAGES SPOKEN AT HOME

LANGUAGE	PERCENT
No language data available.	

BREAKDOWN BY AGE

From Ages 1 to 4	6%
From Ages 1 to 18	27%
From Ages 18 and up	73%
From Ages 65 and up	15%

LIMITED ENGLISH SPEAKING BREAKDOWN

Speak Spanish	0%
Speak Other Indo-European Languages	0%
Speak Asian-Pacific Island Languages	0%
Speak Other Languages	0%

Notes: Numbers may not sum to totals due to rounding. Hispanic population can be of any race.
Source: U.S. Census Bureau, American Community Survey (ACS) 2017-2021. Life expectancy data comes from the Centers for Disease Control.

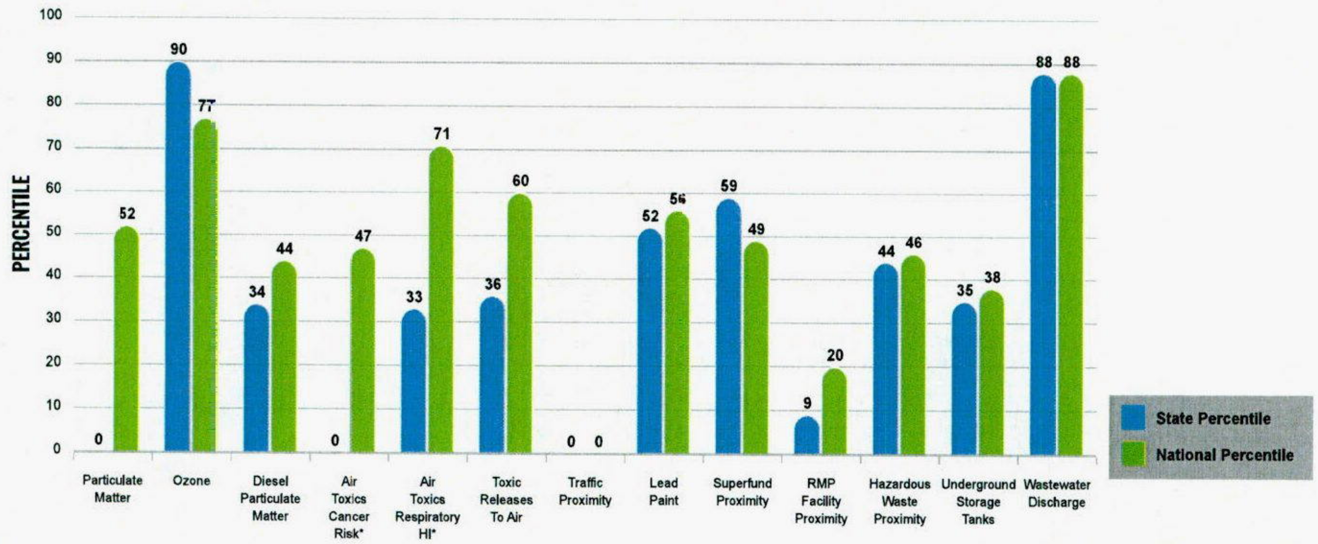
Environmental Justice & Supplemental Indexes

The environmental justice and supplemental indexes are a combination of environmental and socioeconomic information. There are thirteen EJ indexes and supplemental indexes in EJScreen reflecting the 13 environmental indicators. The indexes for a selected area are compared to those for all other locations in the state or nation. For more information and calculation details on the EJ and supplemental indexes, please visit the EJScreen website.

EJ INDEXES

The EJ indexes help users screen for potential EJ concerns. To do this, the EJ index combines data on low income and people of color populations with a single environmental indicator.

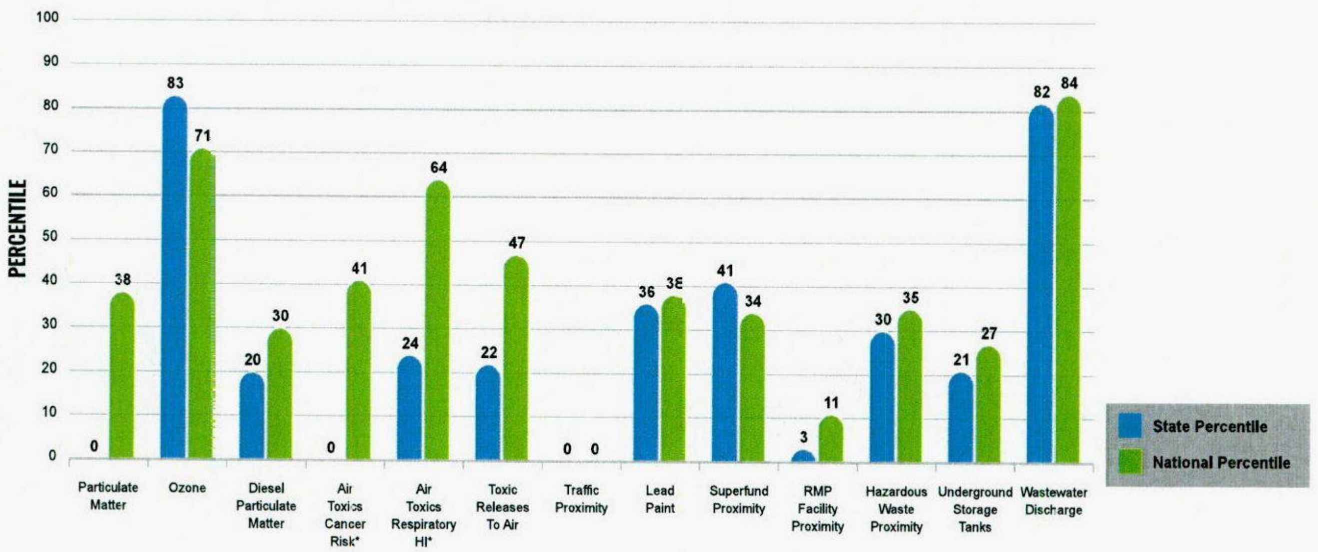
EJ INDEXES FOR THE SELECTED LOCATION



SUPPLEMENTAL INDEXES

The supplemental indexes offer a different perspective on community-level vulnerability. They combine data on percent low-income, percent linguistically isolated, percent less than high school education, percent unemployed, and low life expectancy with a single environmental indicator.

SUPPLEMENTAL INDEXES FOR THE SELECTED LOCATION



These percentiles provide perspective on how the selected block group or buffer area compares to the entire state or nation.

Report for 3 miles Ring Centered at 29.597342,-89.880695

EJScreen Environmental and Socioeconomic Indicators Data

SELECTED VARIABLES	VALUE	STATE AVERAGE	PERCENTILE IN STATE	USA AVERAGE	PERCENTILE IN USA
POLLUTION AND SOURCES					
Particulate Matter ($\mu g/m^3$)	7.08	8.62	0	8.08	22
Ozone (ppb)	60.9	59.8	79	61.6	48
Diesel Particulate Matter ($\mu g/m^3$)	0.101	0.247	14	0.261	16
Air Toxics Cancer Risk* (lifetime risk per million)	20	32	0	25	5
Air Toxics Respiratory HI*	0.3	0.38	1	0.31	31
Toxic Releases to Air	180	15,000	18	4,600	30
Traffic Proximity (daily traffic count/distance to road)	0.14	86	0	210	0
Lead Paint (% Pre-1960 Housing)	0.039	0.22	26	0.3	23
Superfund Proximity (site count/km distance)	0.021	0.076	31	0.13	19
RMP Facility Proximity (facility count/km distance)	0.037	0.62	3	0.43	6
Hazardous Waste Proximity (facility count/km distance)	0.1	1.1	21	1.9	20
Underground Storage Tanks (count/km^2)	0.013	2.2	15	3.9	22
Wastewater Discharge (toxicity-weighted concentration/m distance)	0.021	49	80	22	73
SOCIOECONOMIC INDICATORS					
Demographic Index	59%	41%	73	35%	82
Supplemental Demographic Index	18%	17%	57	14%	73
People of Color	77%	43%	78	39%	81
Low Income	41%	40%	52	31%	71
Unemployment Rate	9%	7%	72	6%	80
Limited English Speaking Households	0%	2%	0	5%	0
Less Than High School Education	22%	15%	76	12%	84
Under Age 5	6%	6%	59	6%	61
Over Age 64	15%	17%	49	17%	48
Low Life Expectancy	7%	22%	0	20%	0

*Diesel particulate matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: https://www.epa.gov/haps/air-toxics-data-update.

Sites reporting to EPA within defined area:

Superfund 0
Hazardous Waste, Treatment, Storage, and Disposal Facilities 0
Water Dischargers 12
Air Pollution 2
Brownfields 0
Toxic Release Inventory 0

Other community features within defined area:

Schools 0
Hospitals 0
Places of Worship 1

Other environmental data:

Air Non-attainment .... No
Impaired Waters .... Yes

Selected location contains American Indian Reservation Lands* .... No
Selected location contains a "Justice40 (CEJST)" disadvantaged community .... Yes
Selected location contains an EPA IRA disadvantaged community .... Yes

Report for 3 miles Ring Centered at 29.597342,-89.880695

EJScreen Environmental and Socioeconomic Indicators Data

HEALTH INDICATORS

INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Low Life Expectancy	7%	22%	0	20%	0
Heart Disease	8.6	7	81	6.1	89
Asthma	10.4	9.9	70	10	66
Cancer	6.5	5.9	70	6.1	57
Persons with Disabilities	18.2%	15.9%	68	13.4%	80

CLIMATE INDICATORS

INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Flood Risk	58%	25%	88	12%	96
Wildfire Risk	0%	7%	0	14%	0

CRITICAL SERVICE GAPS

INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Broadband Internet	19%	20%	56	14%	73
Lack of Health Insurance	5%	8%	28	9%	39
Housing Burden	No	N/A	N/A	N/A	N/A
Transportation Access	Yes	N/A	N/A	N/A	N/A
Food Desert	Yes	N/A	N/A	N/A	N/A

Footnotes

Report for 3 miles Ring Centered at 29.597342,-89.880695